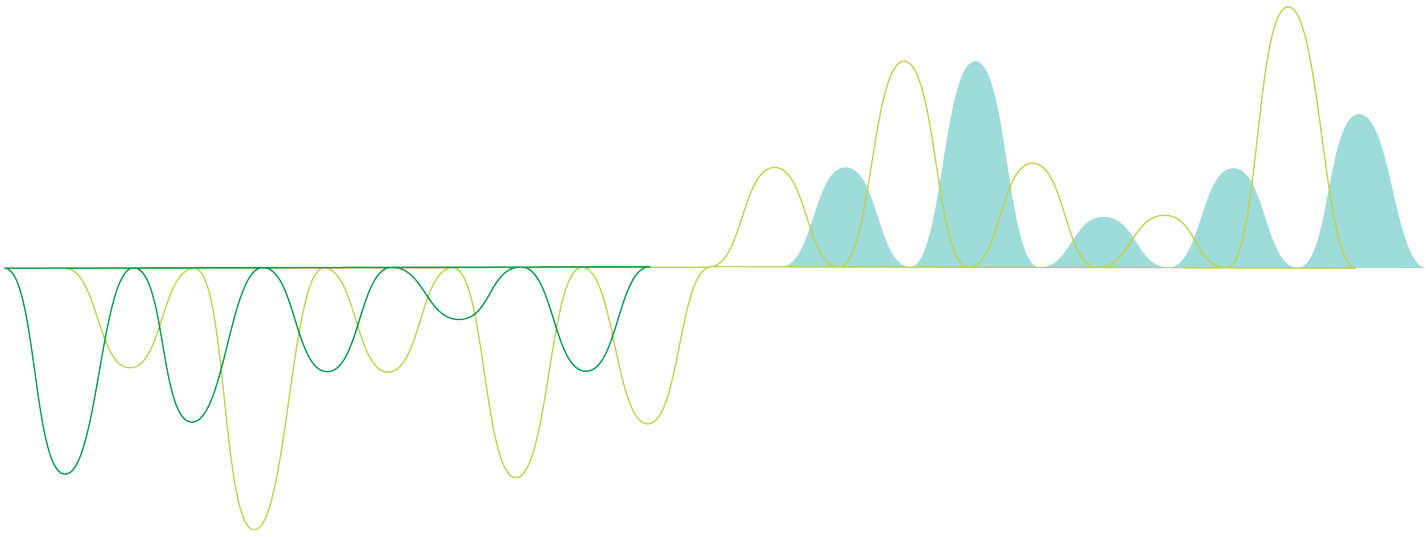
Working with QlikView

QlikView®
May 2023



Contents

1 QlikView at a glance

QlikView makes it easy to understand the overall picture, find connections, and make insights, even when working with large and complex data sets. You can integrate information from different sources and the information can quickly be made available throughout your network, ensuring that the right information gets to the right person. The associative data model technology on which QlikView is based allows you to create a unique interface for interactive presentation and analysis of any kind of information.

QlikView manages information in a way that resembles the human brain. Just like the human brain, it gradually makes associative connections in the information being processed. You - not the database - decide which questions to ask. Just click on the item you want to know more about.

Retrieving data in conventional systems is often a complex task requiring extensive knowledge of the structure of the databases and of the syntax of the query language. The user is frequently limited to predefined search routines. QlikView revolutionizes this by making it possible to select freely from data displayed on the screen with a click of the mouse. Conventional information search systems often require a top-down approach, while QlikView allows you to get started with any piece of data regardless of its location in the data structure.

QlikView helps you acquire a unified and coherent overview of the data in different databases - your own or someone else's, central or local. QlikView can be used with virtually any database.

With QlikView you can:

- Create a flexible end user interface to an information warehouse.
- Get snapshots of data relations.
- Make presentations based on your data.
- Create dynamic graphical charts and tables.
- Perform statistical analysis.
- Link descriptions and multimedia to your data.
- Build your own expert systems.
- Create new tables, merging information from several sources.
- Build your own business intelligence system.

2 QlikView Desktop

This section gives information on how to install QlikView Desktop. Here you also find information on how to upgrade and update your QlikView Desktop, manage and troubleshoot the License Enabler (LEF) File, and information on QlikView Personal Edition.

2.1 System Requirements for QlikView Desktop

This section lists the requirements that must be fulfilled by the target system in order to successfully install and run QlikView.

Desktop system requirements

Platforms *	• Microsoft Windows 10 x64 • Microsoft Windows 11 x64 • Microsoft Windows Server 2012 • Microsoft Windows Server 2012 R2 • Microsoft Windows Server 2016 • Microsoft Windows Server 2019 • Microsoft Windows Server 2022
Processors (CPUs)	Multi-core x64 compatible processors
Memory	4 GB minimum. Depending on data volumes, more may be required. QlikView is an in-memory analysis technology; memory requirements for QlikView products are directly related to the quantity of data being analyzed.
Disk space	900 MB total required to install
Security	• Microsoft Active Directory (NTLM or Kerberos) • Local Windows user accounts (NTLM) • Third-party security (requires QlikView Server Enterprise Edition)

* Provided there is Standard manufacturer support for the platform.

Qlik NPrinting compatibility

QlikView May 2023 IR is only compatible with Qlik NPrinting May 2023 IR or later.

QlikView Desktop is required for QlikView connection with Qlik NPrinting and must be installed on each Qlik NPrinting Engine computer.

If using server or cluster connections, QlikView Server and QlikView Desktop must be on the same version.

For more information, see Connecting Qlik NPrinting with QlikView.

2.2 Installing QlikView Desktop

When you purchase QlikView, you receive an email with the information about the license agreement. There will also be information about your serial numbers and control numbers.

QlikView Installation Packages

You can select between a number of different QlikView installation packages. The QlikView Desktop, QlikView Server, and QlikView WorkBench installations are only available in a 64-bit version.

The QlikView Desktop installation package includes the following components:

- The QlikView application
- The QlikView plugin
- QlikView themes
- QlikView examples

You can select **Custom** during the installation progress to reduce the number of installed components.

Download the QlikView Desktop installation file from Product Downloads. For more information, see Downloading installation files.

Running the QlikView Desktop installation program

Do the following:

1. Double-click the *Setup.exe* file to start the installation.
2. When the installation program starts, select the desired installation language from the drop down list, and click **OK**.
3. Wait while the installation is prepared, according to the dialogs displayed.
4. When the **Welcome** dialog opens, read the information and click **Next**.
5. The software license agreement opens. Read it, and click **I accept the license agreement** (if this is the case), then click **Next**.
6. In the **Customer Information** dialog you can specify for whom the installation will be personalized. Click **Next** to continue.
7. If you prefer another destination folder than the default one for the program installation, specify this by clicking **Change** in the **Destination Folder** dialog. Then click **Next**.
8. The **Setup Type** dialog appears. If **Complete** is chosen, the following features will be installed to the path specified in the previous dialog: The QlikView program, the QlikView Plug-In, and examples of QlikView functionality and features. If **Custom** is chosen, a dialog where you can specify which features to install will appear when you click **Next**. Make the selections and click **Next**.
9. The installation is now ready to start. Click **Install** to start it.
10. In the last dialog, click **Finish** to complete the installation process.

By default, QlikView performs a license check on a 30 day interval.

Logging the Installation

When `Setup.exe` is run, a log file is written to the `temp` folder of the user. The log file is called `QlikViewx64.wil`. Each time the installation is run a new file is generated, over writing the old log file.

QlikView Settings File

All settings for QlikView are saved in a file (instead of being written to the registry). The file, `Settings.ini`, is located in `C:\Users\username\AppData\Roaming\QlikTech\QlikView`.

The settings for QlikView OCX are found in the same file.

Serialization

If you get your QlikView license from a QlikView Server or if you have a Personal Edition of QlikView no serialization is necessary. It is however possible to acquire a serial number for this product and enter it in **User Preferences: License** page. A registered QlikView will allow you to work offline without any contact with a QlikView Server for longer periods (periods longer than 30 days). Contact your QlikView vendor for details.

The serialization process requires network access or optionally phone activation!

Once you have installed and, optionally, serialized your copy of QlikView, you can start using the program.

Network Distribution of QlikView

This type of installation is useful if you have many licenses and want to make sure that all users run the same version of QlikView. Each user still needs a separate license number.

To distribute a QlikView installation, you need the executable installation file. Serial numbers and control numbers are not necessary until you start your first QlikView session on the client computer.

QlikView uses the Microsoft Windows Installer technique (MSI packaging).

To find out more about how to install an MSI-package, please see Microsoft documentation about Windows installer.

msdn.microsoft.com

License Enabler File Editor

You can also update your license and review the License Enabler File by selecting **License Update** from the **Help** menu. This requires no network access.

In the **License Enabler File Editor** dialog the user can review or edit the License Enabler File.

Current License Key

The **Current License Key** of the QlikView license that is normally entered when the original program is installed. It may also be entered or edited at a later time via the **User Preferences: License** page. It is also possible to run QlikView without a bought license key. In this case, a license lease from a QlikView Server - a Named CAL - or a Personal Edition of QlikView is needed.

Current License Enabler File

A text file containing information relevant to the installed license that is required in order to activate (enable) the license key.

Contact License Enabler Server

Click this button if the text edit box **Current License Enabler File** above is empty in order to contact the **License Enabler Server**.

Troubleshooting the License Enabler File

A License Enabler File (LEF file) is required in order to verify the validity of a QlikView license key. During the initialization of the license key the Qlik LEF Server is contacted via the Internet. Provided that the license information given checks out, a LEF file is automatically transferred to your computer. Under normal circumstances the LEF procedure is barely noticeable as it is done in the background. There are however instances when the procedure fails, either because you are unable to contact the LEF server or because a firewall prevents the transfer of the LEF file. When this happens the **License Failure** dialog will be displayed to inform you about the problem.

Should you be unable to obtain a valid LEF file through the normal procedure and you feel that you are entitled to one, you might instead obtain it directly from Qlik Support. When you copy the text file directly into the LEF editor you must make sure that there are no trailing empty spaces in the text.

Silent installation

When running a silent installation, QlikView Desktop is installed with a limited set of or no dialogs at all. This means all features, properties, and user selections have to be known when creating the silent installation package. There are also some standard properties in Windows Installer Service that may be required.

A silent installation can be run with different interface levels:

Interface levels

Command	Type
/qn	Completely silent.
/qb	Basic user interface.

The following silent installation command line is recommended for QlikView Desktop:

QlikViewDesktop_x64Setup.exe /s /v"/qn"

The command line above installs all features completely silently.

Add a + sign at end of the interface levels command to get a modal dialog at the end of the installation saying “Finished” and if it was successful or not.

Silent uninstallation

The following silent uninstallation command line is recommended for QlikView Desktop:

QlikViewDesktop_x64Setup.exe /x /s /v"/qn"

The command line above removes all features completely silently.

Add a + sign at end of the interface levels command to get a modal dialog at the end of the installation saying “Finished” and if it was successful or not.

2.3 QlikView Personal Edition

Qlik offers a free version of QlikView for personal use. QlikView Personal Edition is the full QlikView Desktop product and uses the same installation package. The only difference is that QlikView Personal Edition runs without a license key.

QlikView Personal Edition is limited to customers who have access to the Product Downloads site. Contact support if you do not have access. You can upgrade QlikView Personal Edition to a newer version at any time through the Product Downloads site and continue working with the documents you have created.

There are no functional limitations in QlikView Personal Edition, however there are a few aspects to observe regarding the handling of QlikView documents. In QlikView Personal Edition, every document is saved with a user key that binds that file to the computer it is created on. This implies:

- QlikView Personal Edition can only open files created using that copy of QlikView. This means, with QlikView Personal Edition you cannot use your QlikView documents on different computers, you cannot share your QlikView documents with another unregistered user or open a QlikView document from another user (exempted are documents specially prepared for personal use by Qlik). However, documents created in QlikView Personal Edition can be used with a licensed copy of QlikView Desktop and they can also be published on a QlikView Server.
- You cannot import an entire document layout (sheets/objects/security settings, etc. in XML format, without the data) into QlikView Personal Edition.

Should you change computers, you will not be able to open your previously created documents with QlikView Personal Edition. In this case, you can choose to recover your files. Recovering files means a new user key is generated, assigned to the old document and used for all subsequent files, not only for that particular file. After recovering a file, you can no longer use it on the computer that you created it in.

QlikView will accept 4 user key changes in a document. After that, you will get the error message “Key length has reached its maximum” and the document will not open any more. The only possibility is to recreate it from scratch.

Therefore, you should not recover QlikView documents that you did not create (from a forum or from a colleague, etc.). Doing so will use one of your remaining recovery attempts.

If you have exhausted your recovery attempts, downloading a new version or downloading the same version again will not reset the counter.

Users of QlikView Personal Edition do not qualify for telephone or e-mail support from Qlik, but they can gain excellent QlikView support through Qlik Community. All content is accessible to our members, but you must register to post questions in the forum, download files or sign up for training.

One of the best ways to learn about the capabilities of QlikView is through the QlikView Tutorial, which provides helpful hints like expression examples, code blocks and design advice. The Tutorial and the corresponding files can be downloaded from Tutorials. These documents are also adapted for QlikView Personal Edition.

If you are interested in the most powerful modern analytics solution Qlik has to offer, we highly recommend our free Qlik Sense trial, see Launch your free trial of Qlik Sense. QlikView customers can take advantage of our Analytics Modernization Program, which provides the easiest and most cost-effective way to adopt Qlik Sense. For more information, see Accelerate Your Modernization.

2.4 Supported languages

When you run the QlikView Desktop Install Wizard, you must select an interface language for your installation.

You can choose any of the following supported languages:

- Brazilian Portuguese
- Chinese (simplified)
- Chinese (traditional)
- Dutch
- English
- French
- German
- Italian
- Japanese
- Korean
- Polish
- Russian
- Spanish
- Swedish
- Turkish

Changing the interface language after installation

Once QlikView is installed, you can change the interface language from within the program at any time.

Do the following:

1. In the menu bar at the top of the screen, click on the **Settings** drop-down.
2. Click **User Preferences...**. A dialogue box will open.
3. On the **General** tab, click the **Change User Interface Language...** button.
   Another dialogue box will open.
4. Choose your desired language, and click **OK**.
5. Restart QlikView to make the changes effective.

A change in the interface language affects how the language of the program and the online help are displayed.

You can change the language settings also by modifying the *Settings.ini* file, found in *C:\Users\username\AppData\Roaming\QlikTech\QlikView*. Edit the setting **InterfaceLanguage** and set it to a supported language.

To learn more about QlikView Desktop interface settings, see *User Preferences: General (page 60)*.

Changing AJAX and WebView language settings

QlikView WebView uses the language set in **User Preferences...**. AJAX uses English as the default for both AccessPoint and QlikView documents. You can change the language settings in QlikView AccessPoint to another language. See: *Setting your preferred language in AccessPoint (page 1548)* for details.

2.5 Upgrading and updating QlikView Desktop

To upgrade or update QlikView Desktop, follow the procedures you find in the following sections.

Requirements

If you use Qlik NPrinting, your Qlik NPrinting version must be equal to or higher than your QlikView version. If you are upgrading to QlikView May 2023 IR, you must upgrade in parallel to Qlik NPrinting May 2023 IR or later. For more information, see Upgrading Qlik NPrinting.

Upgrade QlikView Desktop

To upgrade QlikView Desktop, download the newer version you want to install from Product Downloads, and follow the installation wizard.

For more information, see Downloading installation files.

Best practices before upgrading

For a successful upgrade of QlikView Desktop, take the following basic practices into account:

- Ensure that you have a valid maintenance contract before upgrading QlikView Desktop. Attempting to upgrade without a valid maintenance contract will result in limited functionality of QlikView Desktop. See: Maintenance contract on upgrade.
- If you are using a custom connector or an extension in your QlikView Desktop installation(s), verify that such feature is supported in the newer version before upgrading. You can check the supported features in the Download section at qlik.com.

Update QlikView Desktop

In the **Help** menu in QlikView, you find the option **QlikView Update...**. Choosing this will open the QlikView update site on the Internet where you will be presented with possible updates for your QlikView version. What updates are available are based on information from your QlikView license and your operating system.

3 Starting QlikView

Start QlikView from the **Start** menu, **Programs** or double-clicking on a QlikView document.

You can also start QlikView from the command line, using the parameters described in the following section.

3.1 Command Line Syntax

The QlikView command line invocation can be described by the following syntax:

*[path]***Qv.exe***[{ switch } documentfile]*

`[ path ]`is the path to the file, either absolute or relative to the current directory.

`documentfile::= [ path ] documentfilename`
`documentfilename` is the name of the document file.

Switches

You can use switches to start QlikView with different options.

> *The switches /r, /rp, /l, /lp and /nodata are mutually exclusive. You can only use one of them in a command.*

QlikView start switches

Switch	Description
/r	Open the document, perform a reload and close QlikView.
/rp	Open the document , perform a partial reload and close QlikView.
/l	Open the document and perform a reload.
/lp	Open the document and perform a partial reload.
/nodata	Open the document without field and table data.
/v	Assign a value to a variable before script execution starts. Syntax is: `/vvariableName=AssignedValue` **Example: `/vMyVariable=12`** *It is not possible to use /v together with /nodata. The value defined with /v will not be assigned.*

Switch	Description
/NoSecurity	Override QlikView security measures against hostile macros and scripts embedded in QlikView documents. Warning dialogs prompting the user to accept potentially harmful code will not be shown.  *We recommend that you use this switch with caution, and only with well-known documents.*

Example:

qv.exe /r*/vMyvar=123 abc.qvw*

 *In order to avoid error messages appearing when executing scripts in batch mode, set the script variable* `errormode` *to 0 in the script.*

3.2 Start page

The start page contains several sections listed in the table below.

- **Examples**: A set of examples that you can explore in order to learn how to use QlikView in various ways.
- **Recent**: Contains a list of recently opened documents and web pages. Just click on one of them to re-open. Right-click on a document to gain access to a menu with the following useful commands:
  - **Open "document" Without Data**:
    Opens the document but skips table and field data. A layout with all sheets and sheet objects in place but empty is opened. This feature can be useful e.g. for opening corrupted documents or for avoiding long waits when opening very large documents for a small change in the layout (of course the script needs to be re-run to re-populate the document after the changes). This is done with the command line switch **nodata** as well.
  - **Open "document" and Reload Data**
    Opens the document and performs an immediate reload.
  - **Browse Documents in Folder**
    Opens the folder containing the document in the list.
  - **Add "document" to Favorites**
    Adds the document or web page to the Favorites list.
  - **Remove "document" From This List**
    Removes the document from the list of recently used documents. The actual document file remains unchanged where it resides.
- **Favorites**: Contains a list of the documents and web pages previously added to the favorites list. Unlike the list of recently used documents the favorites list remains unchanged until explicitly adding or deleteing entries. Just click on a favorite document or page to re-open. Right-click on a document to

gain access to a menu with the following useful commands:

- **Open "document" Without Data**
  Opens the document but skips variables and table and field data. A layout with all sheets and sheet objects in place but empty is opened. This feature can be useful e.g. for opening corrupted documents or for avoiding long waits when opening very large documents for a small change in the layout (of course the script needs to be re-run to re-populate the document after the changes). This can also be accomplished with the command line switch nodata.
- **Open "document" and Reload Data**
  Opens the document and performs an immediate reload.
- **Browse Documents in Folder**
  Opens the folder containing the document in the list.
- **Remove "document" From Favorites**
  Removes the document from the Favorites list. The actual document file remains unchanged where it resides.

- **Additional learning**: Contains guides and other resorces for learning more about QlikView, such as tutorials, online training and QlikView Community.

Click the **New document** button if you want to create a new document.

QlikView will remember which tab was last used and open the start page on that tab the next time that QlikView starts. Deselect the **Show Start Page When Launching QlikView** check box, if the start page are not to appear when the program starts.

The Start page can be left open and will then be found as **Start Page** on the **Windows** menu. If the start page is closed, it can be reopened at any time by choosing **Show Start Page** from the **Help** menu.

3.3 Connect to Server

The **Connect to Server** dialog is used for opening QlikView documents remotely on a QlikView Server.

Note that when opening documents as a client to QlikView Server there will be restriction in what is possible to do with the document compared to when opening local documents. As a client it might not be possible to add or delete sheet objects, depending on whether the document supports collaboration. Sheets cannot be added or deleted. Furthermore, most properties dialogs and the script cannot be accessed, macros cannot be changed and the document cannot be saved.

Enter the computer name or the URL to a computer running QlikView Server under **Server**. Then click on **Connect**. Recently visited servers can be retrieved from the drop-down list. A URL may contain additional connection data.

Connection pseudo-URLs (page 37)

Once connected, the central pane of the dialog displays the document folders available on the QlikView Server. Click on a folder and the available documents will be shown under **Name** at the bottom of the dialog. Double-click a document or select it and click on **Open** in order to open the document.

Connection settings

The following settings allow you to configure your connection and server authentication settings:

Clear List

The button clears the list of **Recent Servers** on the **Start Page**.

Authentication

Select how to identify yourself to the QlikView Server. The following three authentication methods are available:

- **Use NT Identity**: Uses authenticated NT identity. This only works if the computer is connected to the same Windows NT domain as the QlikView Server.
- **Anonymous**: Uses anonymous login. It is only possible to connect if the QlikView Server is set to allow anonymous users and it is only possible to see documents with file permissions for the QlikView Server anonymous account. The connection pseudo-URL under **Server** will be complemented by a @ before the server name.
- **Alternate Identity**: Uses a specific NT user name known on the QlikView Server's domain. The user name is typed in the **User ID** edit box. It will prompt for the corresponding user password when pressing the **Connect** button. The connection pseudo-URL under **Server** will be complemented by *username*@ before the server name.

Flat Mode

With this setting enabled, the bottom pane of the dialog will display the contents of all subfolders simultaneously rather than using the tree-view approach.

Connection pseudo-URLs

When connecting to QlikView Server from desktop clients, either via the **Open in Server** dialog or via link files, a pseudo-URL is used as document address.

The syntax is:

qvp://[[username][@]]hostname[:port|;protocol]/docname

where:

- *username* is a Windows user ID. The parameter is optional.
- *hostname* is the name of the host. The parameter is obligatory.
- *documentname* is the name of the QlikView document (excluding the qvf or qvw extension). The parameter is optional.
- *port* (e.g. 4749) can be used for specifying a specific port used by the server
- *protocol* (e.g. http) can be used for specifying a tunneling protocol. The parameter is optional.

@ without username denotes anonymous identity.

If user identity is omitted altogether, the logged in Windows identity is assumed.

QVP links can only be opened in QlikView Desktop.

3.4 Batch Execution

If the QlikView document should be updated regularly, e.g. every night, this is best done with QlikView Server or QlikView Publisher.

QlikView Server

QlikView Server provides a platform for hosting, and sharing QlikView information over the Internet/Intranet. QlikView Server is tightly integrated with QlikView to deliver a seamless suite of data analysis technology to end users. The server component of QlikView Server is the centerpiece of this technology, supplying a robust, centrally managed, QlikView document community, connecting multiple users, client types, documents, and objects within a secure and safe environment.

QlikView Publisher

QlikView Publisher is a member of the QlikView product family that manages content and access. By presenting the end-users with up-to-date information and letting you manage the QlikView documents in a powerful way, QlikView Publisher is a valuable addition to the QlikView suite.

QlikView Publisher distributes data stored in QlikView documents to users within and outside the organization. By reducing data, each user can be presented with the information that concerns him/her. The QlikView Publisher service and user interface are now fully integrated into QlikView Server and the QlikView Management Console (QMC).

If there is no access to QlikView Server or QlikView Publisher, it is possible to reload QlikView documents on the stand-alone application. Then use command line switches.

Scheduling Programs

Windows has a **Task Scheduler** service. The services are controlled from the Administrative Tools. Make sure that **Status** is set to **Started** (and **Startup** to **Automatic** for the service to automatically start after a reboot) for the relevant service.

The easiest way to submit a batch job is usually to create a batch file with the relevant commands. The file, named e.g. `MyBatch.cmd`, could e.g. contain the following commands:

```
C:\qlikview\qv.exe /r C:\qlikview\example\file.qvw
```

The Schedule Service

The schedule service normally runs under the system account and thus has some limitations. If access to network resources is needed, reconfigure the service to run under a different account. Since the QlikView license is stored in the account-specific folder, make sure that it is correctly registered for the account to be used. To do this submit an interactive job.

Please refer to the documentation of your operating system for more specific information on how to schedule a task.

Section Access

To reexecute a QlikView file containing a section access, make sure that the license serial number that is installed on the machine doing the batch execution is allowed to run the script without entering a user name or a password. See the example below.

Example

Serial	User	Password	Access
CREATOR	-	-	Admin
4600 9999 9999 9999	Joe	ppp789	Admin
*	Joe	qqqq456	User
*	User	rrr123	User

ODBC

If ODBC is used, please make sure that the DSN definition is available from the account doing the reexecution. The easiest way to assure this is probably to define the DSN as a System DSN in the ODBC Control Panel.

3.5 OLE DB and ODBC

OLE DB

QlikView supports the OLE DB interface for connection to external data sources. A great number of external databases can be accessed via the Microsoft OLE DB Provider for ODBC Drivers.

Is the Correct OLE DB Provider Installed?

When you select **File, Edit Script, Connect to OLE DB** you will arrive at the **Data Link Properties** page, if the OLE DB provider is correctly installed. Otherwise you will receive an error message indicating that a connection cannot be made, in which case you will need to install it.

When Is the ODBC Interface Needed?

To access a general database, it is necessary to have the ODBC (Open DataBase Connectivity) interface installed. The alternative is to export data from the database into a file that is readable to QlikView.

Normally some ODBC drivers are installed with the operating system. Additional drivers can be bought from software retailers, found on the Internet or delivered from the DBMS manufacturer. Some drivers are redistributed freely.

The ODBC interface described here is the interface on the client computer. If the plan is to use ODBC to access a multi-user relational database on a network server, additional DBMS software that allows a client to access the database on the server might be needed. Contact the DBMS supplier for more information on the software needed.

QlikView works with 32-bit and 64-bit ODBC drivers.

Is the Correct ODBC Driver Installed?

On a 64-bit platform it is possible to use both 32-bit and 64-bit applications. It is also possible to run both 32-bit and 64-bit ODBC drivers.

When using the 64-bit versions of ODBC and QlikView, the **ODBC Data Source Administrator** is found in the **Control Panel**, **Administrative Tools**.

When using the 32-bit versions of ODBC and QlikView, you must start the 32-bit administrator via the executable file, odbcad32.exe that is located in the SysWOW64 folder, usually c:\windows\SysWOW64.

According to Microsoft, in the 64-bit versions of the operating systems, the system32 folder, usually c:\windows\system32, contains only 64-bit files. If there is also a 32-bit version of the file, it resides in the syswow64 folder. See http://technet.microsoft.com for more information.

On a 32-bit operating system the configuration is very straightforward since all files and drivers are 32-bit.

There should be an **ODBC Data Source Administrator** installed on the system. (For 32-bit ODBC on a 64-bit operating system start `odbcad32.exe`).

Go to the **ODBC Drivers** tab to find out what drivers are installed.

If the driver needed is not found on the ODBC Drivers tab, contact the software supplier to obtain the correct driver.

Creating ODBC Data Sources

An ODBC data source must be created for the database you wish to access. This can be done during the ODBC installation or at a later stage.

Before the start of creating data sources, a decision must be made whether they should be user or system data sources. User data sources cannot be reached unless the correct user id was used when logging on. To share the data sources with other users, system data sources must be created.

1. Open the **ODBC Data Source Administrator** dialog again.
2. Go to the tab **User DSN** to create user data sources, or to the tab **System DSN** to create system data sources.
3. Click the **Add** button. The **Add Data Source** dialog should appear, showing a list of the ODBC drivers installed.
4. If the correct ODBC driver is listed, select it and click the **OK** button. A dialog specific to the selected database driver will appear. Name the data source and set the necessary parameters. Click the **OK** button when ready.

4 QlikView file

A QlikView document is a file containing everything needed to analyze the data:

- the data itself
- the script needed to update the QlikView file with new data from the data source
- layout information, including all the sheets, list boxes, charts, etc.
- document alerts, document bookmarks and document reports
- access restriction information
- macro module

It is thus very easy to distribute information using QlikView files. The analysis can be made independently of the location of the original data or network conditions. QlikView documents are a way to share information with users that do not have access to the original data source.

4.1 QlikView Project Files

It is possible to save a QlikView document into several files that can be used for versioning. Each file defines a property of the document, a sheet, an object, the script etc.

Each time the document is opened and an object or a setting is changed, these changes are saved to the different files, making it easy to follow the changes made in the document. This way it is also possible to see who made a change and to which part of the document.

To create these project files it is necessary to create a folder next to the qvw or qvf file with the same name as the QlikView document and add -prj, e.g. the project folder for a document called Finance.qvf should be Finance-prj.

Files in the prj folder are updated when the corresponding QVW file saves in QlikView Desktop. Reloading a document from the QlikView Management Console updates the document with new data, but does not affect the project files.

*If you want to copy a QVW file, use **Save As...**... in QlikView Desktop to save a copy. This updates the corresponding prj files for the copy. Do not copy prj folder files between folders.*

No data from the document will be saved in the project files. This means that a reload of the document without changes to the load script does not affect the project files.

Files in the Project Folder

The file `QlikViewProject.xml` contains a list of all the objects part of the QlikView document.

The different sheets and objects in the list are named after their object ID. The project files are:

- `QlikViewProject.xml` - contains a list of all the files included in the project
- `AllProperties.xml`
- `DocProperties.xml`
- `DocInternals.xml`
- `TopLayout.xml`
- `LoadScript.txt` - contains the document load script
- `Module.txt` - contains the document macro code, if any exists
- `Module.txt` - a single file is created for every sheet. In addition the files contain references to all the sheet objects on the sheet.
- Separate files are also created for every sheet object:
    - `LB<id>.xml`
    - `SB<id>.xml`
    - `MB<id>.xml`
    - `TB<id>.xml`
    - `CH<id>.xml`
    - `IB<id>.xml`
    - `CS<id>.xml`
    - `BU<id>.xml`
    - `TX<id>.xml`
    - `LA<id>.xml`
    - `SL<id>.xml`
    - `SO<id>.xml`
    - `BM<id>.xml`
    - `CT<id>.xml`
    - `RP<id>.xml`

The files `DocProperties.xml`, `AllProperties.xml`, `DocInternals.xml` and `TopLayout.xml` all contain property settings for the different parts of the document. `DocBinary.dat` contains user sensitive data, such as passwords.

4.2 Source Control

It is possible to connect QlikView Desktop to a source control system; the 'QvMsscciProvider.exe' and 'QvSvnProvider.exe' are the providers used for this, giving you source control function to both Microsoft Team Foundation Server and Subversion.

Once connected to a source control system, QlikView developers can add projects to source control. During the **Add** process the:

- QlikView document is saved
- Project folder is created
- Project files are exported into the project folder

- Project files are added to source control
- Project settings file is created

The project settings file is stored in the local project folder and contains the settings necessary to access the source control information for the project. The project settings file is not included in the files managed by the source control system. The existence of the project settings file tells QlikView that a given document is managed by a source control system. In addition, QlikView has to be able to find and load the needed Provider DLL, in order to treat the document as attached to source control. This check is performed every time a document is opened in QlikView and a settings file appears in the project folder with information about the Source Control Provider, i.e. SourceControlSettings.ini.

If the document is attached to source control, the status bar will contain an indication of the document's status.

QlikView integration with source control only affects document layout. No actual data loaded into QlikView is placed into nor fetched from, source control. The operation, **Get Project from Source Control** will load a document that contains everything except data. A Reload must be executed to populate the document with data.

After a QlikView document is connected to source control, saving the document will automatically check out the files that have changes. QlikView does not provide any other way of checking out the project files. If Source Control system is not available while performing document Save, QlikView will try to work "offline", i.e. remove read only flags from the modified files and save the latest version. On the next document save, when Source Control system is available, QlikView will perform check out for all locally modified files.

On document save, project files are not checked in. To check in document updates to source control, the **Check In Pending Changes** menu item must be used. A single QlikView check in operation can generate several changesets when using Microsoft TFS and only one when using Subversion. As a result, rollback between randomly selected changesets in Microsoft TFS does not guarantee that the document will be in a stable state.

4.3 Internal files

File References in the QlikView Layout

There are a number of places in the QlikView layout where external files can be referenced as info or background images. External files are referenced by a local path or URL.

Internal Files in QlikView Documents

In certain cases it may be preferable to include the files in the QlikView document.

The **info** prefix to **Load** and **Select** statements in the script can be preceded (or replaced) by the **bundle** prefix. The external files will then be read and embedded in the QlikView document. The external files will no longer be necessary for referencing the file contents, thereby making the QlikView document portable.

Show info and the info function will automatically use the embedded files when available. The syntax for explicit reference of embedded files is:

- qmem://*fieldname/fieldvalue* |
- qmem://*fieldname<index>*

where *index* is the internal index of a value within a field.

Examples:

```
'qmem://Country/Austria'
'qmem://MyField/34'
```

Internal Files in the QlikView Program File

A small set of standard image files are embedded in the QlikView program itself and may be used in any document without any special preparations.

A set of image files and sound files are already embedded in the QlikView program file. These may be referenced directly from the layout, without the need for any special preparations. The syntax for reference is:

- qmem://<builtin>/*filename*

where *filename* is one of the filenames listed below (including extension).

Examples:

```
'qmem://<builtin>/Arrow_N_G.png'
='qmem://<builtin>/Smiley'&if(sum(Result)<0,1,3)&'_Y.png'
```

Arrow Images

The arrows set permits you to display arrows in eight directions and four colors. Filenames are coded as follows: The word *Arrow* followed by a map direction (*_N*, *_NE*, *_E*, *_SE*, *_S*, *_SW*, *_W* or *_NW*). This may be followed by *_G* for green, *_R* for red and *_Y* for yellow. If no color is stated in the filename, a gray arrow is referenced.

Other Images

A number of other images are also included in the set. These are usually available in several colors. Below is a list of the available images.

- Check.png
- Check_G.png
- Cross.png
- Cross_R.png
- Minus.png
- Minus_R.png
- Plus.png
- Plus_G.png
- Smiley1.png
- Smiley1_G.png
- Smiley1_Y.png

- Smiley2.png
- Smiley2_B.png
- Smiley2_Y.png
- Smiley3.png
- Smiley3_R.png
- Smiley3_Y.png
- Thumb1.png
- Thumb2.png
- Question.png
- Question_G.png
- Question_R.png
- Question_Y.png
- Exclamation.png
- Exclamation_G.png
- Exclamation_R.png
- Exclamation_Y.png

Sounds

A number of sound files (.wav) are also included as bundled resources within QlikView. Files can be found in *qmem;//<bundled>/sounds*. The following sounds are available:

- qv_bttn.wav
- qv_can.wav
- qv_clear.wav
- qv_load.wav
- qv_lock.wav
- qv_menu.wav
- qv_ok.wav
- qv_redo.wav
- qv_reex.wav
- qv_save.wav
- qv_scrpt.wav
- qv_ulock.wav
- qv_undo.wav

This list may change in future versions of QlikView.

4.4 Getting Hold of a QlikView Document

Accessing QlikView Documents from the Outside

QlikView documents can be accessed from outside the QlikView program by means of the Automation interface.

A direct way to access existing documents is to use GetObject.

Example:

This example does not work in VBScript.

```
Private Sub OpenAndReload_Click()
Set QvDoc = GetObject
("c:\windows\desktop\test.qvw")
QvDoc.Reload
End Sub
```

Accessing QV Documents from the Internal Macro Interpreter

When using the internal macro interpreter, the only reference available is the ActiveDocument property of the class Application. All references must be made starting from that point.

Examples:

```
Sub Clr
Set QVDoc = ActiveDocument
QvDoc.ClearAll(false)
End sub
Sub EndQV
ActiveDocument.Application.Quit()
End sub
```

4 Getting Started Wizard

The Getting Started Wizard helps create a QlikView document by loading data and creating a chart in a few steps.

4.5 Starting the Getting Started Wizard

The Getting Started Wizard is initiated when a new QlikView document starts.

On the first page of the wizard it is possible to control whether to show the wizard or not when creating a new QlikView document. This setting can also be made in the **User Preferences** dialog that is reached from the **Settings** menu.

4.6 Step 1 - Select a data source

The wizard can only handle Excel files. **Browse** to the file containing the data. Note that only the first work sheet in an Excel file is loaded. If the data is in non-Excel format, use the **Script Editor** to select the data.

Click **Insert data** if you want to borrow some data from us.

Click **Next step** to continue.

4.7 Step 2 - Data presentation

Verify the presentation of the data and select whether to use the first row in the Excel sheet as headers or enter a new one. Column headers are also called **field names**.

To use predefined headers from the data source, select **Use column headers from data file**. To create new column headers, select **Add column headers**. Each column will get a heading in the format A, B, etcetera. To enter new headings, click the heading (for example A) and type the new heading. Click Enter to leave the header.

Click **Next step** to continue.

4.8 Step 3 - Save file

In the **Save As** dialog, browse to the folder where the QlikView file is to be saved and enter a file name.

Click **Save** to close the dialog.

To enter or change the file path click the **Save As...** button to re-open the **Save As** dialog.

Click **Next step** to continue and create a chart.

4.9 Step 4 - Choose a chart type

Select type of chart to be created by clicking the corresponding icon. The chart types available are those most commonly used in QlikView. It is possible to go back to the chart and change it into any other QlikView chart type via the **Chart Properties** dialog after finishing the wizard.

Click **Next step** to continue.

*In this step the **Back** button is disabled.*

4.10 Step 5 - Populate your chart

Dimension

Select a dimension in the drop-down box.

Dimensions define the values for which the chart expressions will be calculated. Dimensions are typically found to the left in table charts and on the x-axis in for example bar charts.

Expression

Chart expressions define the calculated values in the chart. Expressions are typically found to the right in table charts and on the y-axis in for example bar charts.

Expressions in QlikView can range from short and simple to long and complex calculations. This step makes it possible to choose between three very common expressions.

- **Calculate the sum of:**
  Choose this option to see the numeric sum of a field, for example sum(Sales). Then choose which field to sum up in the drop down list.
- **Calculate the average for:**
  Choose this option to see the numeric average (mean) of a field, for example avg(Score). Then choose a field for the calculation in the drop down list.
- **Count the number of:**
  Choose this option to see the number of values in a field, for example count(OrderID). Then choose in which field to count the values in the drop down list.

Click **Create a second chart** if you want to create another chart. This will take you back to step 4.

Click **Next step** to continue.

4.11 Step 6 - Add object for making selections

Choose the type of object you want to use for making selections.

Listboxes:
Select the fields you want to create listboxes for. You can select up to five fields in this wizard, but it is possible to add more once you have created the document.

Table box:
This option will automatically include all the available fields and place them in a table.

Click **Create** to close the wizard and create the document.

After finishing this wizard it is possible to add or change more dimensions and expressions at any time via the **Chart Properties** dialog. The chart properties dialog is reached by right-clicking on the chart and selecting **Properties...**.

5 Navigate the user interface

In this section you will find information about navigating and interacting with QlikView.

5.1 Menu Commands

The menus described in this chapter are found in the menu bar at the top of the screen. Most commands can also be configured as buttons in the toolbars.

File menu

The **File** menu is a drop-down menu at the top of the screen, and contains the following commands:

- **New**: Opens a new QlikView window and allows to create a new QlikView file.
- **Open...**: Opens a new QlikView window and allows to open a QlikView file or a Table file. Opening a table file automatically opens the **File Wizard**. This command can also be invoked by the following keyboard shortcut: Ctrl+O.
- **Open in Server...**: Opens a dialog where it is possible to connect to a QlikView Server and browse for a document to open in client mode.
  This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+O.

  When opening documents as a client to QlikView Server the possibilities are restricted on what is possible to do with the document compared to when opening local documents. As a client it is not possible to add or delete sheet objects, depending on whether the document supports collaboration. Sheets cannot be added or deleted. Furthermore, not all properties dialogs can be accessed, macros changed, the script accessed, data reloaded or the document saved.

- **Refresh Document**: This command is only available with documents opened on QlikView Server and when there is a newer version of the document available on the server. When invoking a refresh access is gained to the latest data, while maintaining the session including selections and layout state.
- **Open URL...**: Opens the **Open URL** dialog. In this dialog type a valid URL to any web page. The web page will be opened in a separate window inside QlikView. This functionality may be used for, for example, the QlikView Publisher Accesspoint or for pages displaying QlikView Server documents via AJAX clients. Opened web pages can be accessed via the **Windows** menu just as with standard QlikView document windows.
- **Open FTP...**: Opens a new QlikView window, allows the opening of a QlikView file or table file from an Ftp server. Opening a table file automatically opens the **File Wizard**.
- **Close**: Closes the active QlikView file.
- **Favorites**: This cascade menu controls a list of user-defined favorite documents, managed independently of the **Recent documents** list (see below).
- **Save**: Saves the present configuration in a QlikView file. Data, script and layout are saved. This command can also be invoked by the following keyboard shortcut: Ctrl+S. If you want to share a QlikView document using AJAX clients, the file name must not contain hash (#) characters.

- **Save As...**: Saves the present configuration in a new QlikView file under a new name. This command can also be invoked by the following keyboard shortcut: F12. If you want to share a QlikView document using AJAX clients, the file name must not contain hash (#) characters.
- **Save Link...**: Saves a link to a document opened on a QlikView Server as a text file on the local machine. The file will have the qvw extension but will not contain any data or layout. When opening such a link document QlikView will attempt to reconnect to the server and open the document on the QlikView Server. This command is not available for local documents.
- **Mail as Attachment...**: Only available when working with a local document. Creates a mail with a copy of the current QlikView document attached. The mail recipient will be able to open the QlikView document provided they have access to QlikView and access rights to the document (if section access security is used). For this command to work a mail client has to be configured on the computer.
- **Mail with Bookmark as a Link...**: Only available when working with a QlikView Server document. Creates a mail with a URL link to the current server document. A temporary server bookmark will be created (including layout state) and encoded in the URL. The mail recipient will be able to use the URL link to open the server document and see what you see, obviously provided that he or she has access rights to the document and data therein. A mail client has to be configured on the computer for this command to work. The QlikView Server must be configured to allow server bookmarks.
- **Print...**: Opens the standard **Print** dialog, allows to print the current sheet object. This command is not available for list boxes. This command can also be invoked by the following keyboard shortcut: Ctrl+P.
- **Print as PDF...**: Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+P.
- **Print Possible...**: Opens the standard **Print** dialog, allows to print the possible (selected and optional) values of the current list box. This command is only available for list boxes.
- **Print Possible as PDF...**: This command must be used when printing list boxes and multi boxes as PDF.
- **Print Sheet...**: Opens the **Print** dialog, allows to print an image of the current sheet.
- **Print Preview...**: Shows preview of printable sheet objects.
- **Source Control**:
    - **Settings**: Set which MSSCCI (Microsoft Source Code Control Interface) provider dll to use when adding a project or getting a project from source control.
    - **Add Project to Source Control**: Saves the opened QlikView document and automatically creates a project folder and project files. Invokes the source control system to add the project to source control.
    - **Get Project from Source Control**: Retrieves a project from source control and rebuilds the QlikView document from the project files. QlikView data is not stored in source control. To fill the document with the data the command Reload has to be executed on the rebuilt document.
    - **Get Latest Version**: Retrieves the latest version of the document from the source control system and rebuilds the QlikView document.
    - **Check In Pending Changes**: Saves the QlikView document and performs a check in operation to the source control system. This can include four different source control operations with their own dialogs:

- Add newly created files.
- Undo the checked out files that need to be deleted from the source control.
- Remove the files that correspond to the removed sheets or sheet objects that are part of the source control.
- Check in modified files.

If the document was not up to date before the Check In Pending Changes operation, then reopen the document to load the project changes that could be introduced while resolving the conflicts.

- **Undo Pending Changes**: Undoes the changes. If there are locally modified files that are not checked out in the Source Control system, those files are checked out before the undo checkout operation is performed. This operation will rebuild the QlikView document by deleting files that were added and not checked in, and references to pending delete files are restored.

- **Export**:
  - **Export Contents...**: This alternative is only available when an exportable sheet object is active. It then performs the export operation found on the sheet object's **Object** menu.
  - **Export Sheet Image...**: Opens a dialog for saving an image of the current sheet to file.
  - **Export Document Layout**: Opens a dialog for saving the document layout as an XML file. No data from the document are saved in the XML file.
- **Edit Script...**: Opens the **Edit Script** dialog. In this it is possible to write and execute scripts that open and connect to databases.
- **Reload**: Executes the current load script and reloads data to the active QlikView document. This needs to be done if the contents of the database have been changed since the last time a reload was made. This command can also be invoked by the following keyboard shortcut: Ctrl+R.
- **Partial Reload**: Executes the current load script, including all script commands, such as **Drop table**, and reloads data to the active QlikView document. However, only those tables whose load and select statements are preceded by the **Replace** or **Add** prefix are reloaded. Data tables that are not affected by this kind of load or select statements will not be affected by the partial reload. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+R.
- **Reduce Data**: Opens a menu containing the following two commands:
  - **Keep Possible Values**: Reduces the QlikView database by removing all excluded values.
  - **Remove All Values**: Creates a template by removing all the values from the QlikView database, but keeping the database structure and the layout.
- **Table Viewer...**: Opens the Table Viewer dialog where the structure of the loaded data can be studied in a graphical view of tables, fields and associations. This command can also be invoked by the following keyboard shortcut: Ctrl+T.
- **Recent documents list**: A listing of the last QlikView documents used. The number of documents shown can be set in the **Settings: User Preferences** dialog. Default number is 8. Selecting one of these is equivalent to the **Open** command.
- **Exit**: Closes the open documents and exits QlikView.

Edit menu

The **Edit** menu is a drop-down menu at the top of the screen, and contains the following commands:

Edit menu commands

Command	Description
Undo Layout Change	Undoes the latest layout change, including moving, sizing and removing of sheet objects as well as changes to sheet object properties. Removing sheets, editing the sheet properties or document properties can also be undone. This command can also be invoked by the following keyboard shortcut: Ctrl+Z.
Redo Layout Change	Redoes the latest undone layout action. This command can also be invoked by the following keyboard shortcut: Ctrl+Y.
Cut	Moves the selected sheet object(s) to **Clipboard** for pasting elsewhere in the QlikView document. If only one sheet object is active a bitmap image of the object, which can be pasted into other programs, will also be put into **Clipboard**. This command can also be invoked by the following keyboard shortcut: Ctrl+X.
Copy	Copies the selected sheet object(s) to **Clipboard** for pasting elsewhere in the QlikView document. If only one sheet object is active a bitmap image of the object, which can be pasted into other programs, will also be put into **Clipboard**. This command can also be invoked by the following keyboard shortcut: Ctrl+C.
Paste	Pastes one or several sheet objects from **Clipboard** back to the QlikView document. This command can also be invoked by the following keyboard shortcut: Ctrl+V.
Format Painter	Makes it possible to copy formatting from one sheet object to another.
Remove	Deletes the selected sheet object(s). The user will be asked to confirm this command before deleting.
Activate All	Makes every sheet object on the sheet active. Another way of obtaining a similar result is to click and drag a rectangle around those sheet objects that should be activated, or to Shift-click them. This command can also be invoked by the following keyboard shortcut: Ctrl+A.
Search	Opens the Text search box, provided that a searchable sheet object (list box or opened multi box) is active. This command can also be invoked by the following keyboard shortcut: Ctrl+F.
Fuzzy Search	Opens the Text search box in Fuzzy search, provided that a searchable sheet object is active.
Advanced Search	Opens the **Advanced Search** dialog, provided that a list box or opened multi box is active. The dialog makes it possible to enter advanced search expressions. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+F.
Copy mode	Switches from logic mode to copy mode. Values clicked while in copy mode are copied to **Clipboard** without changing the logical state of the QlikView run. When copy mode is chosen, the **Clipboard Copy List** dialog opens. In this dialog the copied fields are shown. The format of the copy list can also be set here.

View menu

The **View** menu is a drop-down menu at the top of the screen, and contains the following commands:

- **Sheets**: Upon selection, a cascade menu displays a list of all sheets used in the document, sorted as they appear from left to right.
- **Toolbars**: Upon selection, a cascade menu, where it is possible to enable any toolbar to be displayed with the document, opens. The following toolbars can all be employed independently of each other: **Standard Toolbar**, **Navigation Toolbar**, **Design Toolbar**, **Sheets Toolbar** and **Bookmarks Toolbar**. The last entry in the list is **Customize (Toolbars)...** that allows the configuration of the toolbar according to the user's own preferences.
  The **Standard**, **Navigation** and **Design** toolbars have each been pre-defined with a suitable selection of menu commands, as hinted by the names. The **Sheet** and **Bookmark** toolbars are actually defined as drop-down lists, offering an optional means for navigation between sheets and bookmarks, respectively. Note that the contents and functionality of any toolbar can be configured in a number of ways via the **Customize** option.

  To the far left in all toolbars and also in the menu bar, a symbol of vertical dots is displayed. Clicking and dragging here un-docks or docks the bar in the standard Windows fashion.

- **Statusbar**: Toggles the status bar on or off.
- **Zoom**: Permits zooming in 25% increments of the sheet area to better fit different screen resolutions. Other **Zoom** factors can be specified in the **Sheet Properties: General** page.
- **Server Objects**: Toggles the **Server Objects** pane on and off.
- **Resize Window**: With this option the window size of the QlikView document can be set to one of several common screen resolution.
- **Fit Zoom to Window**: Alters the size of the displayed active sheet and everything on it so that it fits the window size.
- **Apply Zoom to all Sheets**: The **Zoom** settings of the displayed active sheet will be transferred to all sheets of the document.
- **Design Grid**: Toggles the design grid, sheet object placeholders for active object(s) and snap-to-grid for sizing and moving objects in the layout on or off . This command can also be invoked by the following keyboard shortcut: Ctrl+G.
- **Turn on/off WebView mode**: Toggles WebView mode, which uses the internal web browser in QlikView to display the document in AJAX mode, on and off.
- **Current Selections...**: Opens the **Current Selections** dialog where selections are listed by field name and field value. This command can also be invoked by the following keyboard shortcut: Ctrl+O.

Selections menu

The **Selections** menu is a drop-down menu at the top of the screen, and contains the following commands:

- **Back**: Reverts to the preceding logical state. Applies to value selections and all the commands in the **Selections** menu. QlikView maintains a list of the 100 latest states. Each **Back** will take one step further back in the list. This command can also be invoked by the following keyboard shortcut: Shift+Left arrow.
- **Forward**: Reverts to the logical state before a **Back** command. Toggle between two states by alternating between the **Back** and **Forward** commands. This command can also be invoked by the following keyboard shortcut: Shift + Right arrow.

- **Lock**: Locks all the current value selections. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+L.
- **Unlock**: Unlocks all the currently locked value selections. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+U.
- **Clear**: Applies the start selection of a QlikView document, which can be configured, see **Set Clear State** below. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+D.
- **Clear All**: Clears all the current selections except the ones that are locked.
- **Unlock and Clear All**: Clears all the current value selections.
- **Set Clear State**: Sets the current selection as **Clear State**. Variables with the **Include in Bookmark** option are returned to their original value when the **Set Clear State** is executed.
- **Reset Clear State**: Resets **Clear State**.

Layout menu

The **Layout** menu is a drop-down menu at the top of the screen, and contains the following commands:

Layout menu options

Option	Description
Add Sheet...	Adds a tabbed sheet in which a new set of sheet objects can be displayed. It is possible to add a new sheet to the layout even when working with a document on a QlikView Server.
Promote Sheet	Moves the (tab of the) current sheet one step to the left (forwards).
Demote Sheet	Moves the (tab of the) current sheet one step to the right (back).
Remove Sheet	Deletes the active sheet and everything on it.
Select Fields...	Opens the **Fields** property page of the **Sheet Properties** sheet. One or several field names can be selected from a list. The selected fields will be displayed in default configured list boxes on the active sheet. To set the specific properties of a list box right click on it and select **Properties** from the float menu (or from **Object** in the Main Menu). This command is not available when working with documents on QlikView Server.
New Sheet Object	Opens a cascade menu in which it is possible to choose to create one of the different sheet objects. When created, the corresponding Properties dialog will be presented, for configuring the new object. It is possible to add new sheet objects to the layout even if working with a document on QlikView Server, provided that: a) the license is valid, b) the server document has been configured to allow server objects c) the QlikView Server is configured to allow server objects.
Rearrange Sheet Objects	Automatically arranges the sheet objects on the active sheet.

Option	Description
Adjust Off-Screen Objects	Any sheet object outside the visible area of the QlikView window is repositioned back inside the visible area.
Align/Distribute	The alignment of sheet objects can be determined here according to a number of alternatives e.g. **Left Align**, **Center Horizontally**.

Select Fields

The **Sheet Properties: Fields** page is opened by the command **Select Fields...** in the **Layout** menu on the Main menu. Here you can select the fields to display on the currently active sheet.

- **Available Fields**: In this column the names of the data source fields are shown. Initially all fields (excluding System fields) appear in this column. To include the system fields, check **Show System Fields**.
- **Fields Displayed in Listboxes**: In this column the names of the fields selected from the **Available Fields** list to be shown on the current sheet are shown. Initially no fields are in this column.
- **Add >**: Moves selected fields in the **Available Fields** column into the **Fields Displayed in Listboxes** column.
- **Add All >>**: Moves all fields in the **Available Fields** column into the **Fields Displayed in Listboxes** column.
- **< Remove**: Moves selected fields in the **Fields Displayed in Listboxes** column into the **Available Fields** column.
- **Show Fields from Table**: From here, you control what fields appear in the **Available Fields** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with **Qualify** fields in the load script.) It is also possible to view the fields of one table at a time.
- **Show System Fields**: Makes system fields appear in the list of **Available fields**.
- **OK**: Changes are put into effect.
- **Cancel**: Cancels any changes and closes the dialog box.

Select the fields to be used/removed by clicking on them, and use the **Add>** or **<Remove** buttons to move them to the desired column. All fields shown in the two columns are included in the logic of QlikView, but only the ones to the right are displayed in the current sheet.

The field **List Boxes** in which the selected fields are shown are in the sheet default configuration. To change the appearance of a list box, right-click on it and select **Properties** in the object float menu.

It is not possible to select fields that are not listed. For this, a new script must be executed.

Settings menu

The **Settings** menu is a drop-down menu at the top of the screen, containing the following commands:

- **User Preferences...**: Contains settings that the user does not normally change when switching to another document. This command can also be invoked by the following keyboard shortcut: Ctrl+Alt+U.

- **Document Properties...**: Contains settings for the entire document. Some common properties for the sheet objects in the document can also be set in this dialog. This command can also be invoked by the following keyboard shortcut: Ctrl+Alt+D.
- **Sheet Properties...**: Contains settings for the current sheet. Some common properties for the sheet objects on the sheet can also be set in this dialog. This command can also be invoked by the following keyboard shortcut: Ctrl+Alt+S. See the links at the bottom of this page.
- **Variable Overview...**: Shows all non-hidden variables and their values in a single list. This command can also be invoked by the following keyboard shortcut: Ctrl+Alt+V.
- **Expression Overview...**: Shows all document, sheet and sheet object expressions, and also makes it possible to maintain them centrally in a single list. This command can also be invoked by the following keyboard shortcut: Ctrl+Alt+E.

Bookmarks menu

The **Bookmarks** menu is a drop-down menu at the top of the screen, and contains the following commands:

Bookmarks menu commands

Command	Description
Document Bookmarks	The first ten document bookmarks of the active document can be retrieved from this list.
User Bookmarks	The first ten personal bookmarks linked to the active document can be retrieved from this list.
Add Bookmark	From this dialog, you can edit the bookmark name. This command can also be invoked by the following keyboard shortcut: Ctrl+B.
Replace Bookmark	The first ten document bookmarks are listed above the first ten personal bookmarks of the active document. The command replaces the selection state of the selected bookmark with the current state.
Remove Bookmark	The first ten document bookmarks are listed above the first ten personal bookmarks of the active document. The command removes the selected bookmark.
More...	Opens the **Bookmarks** dialog, where all previously created bookmarks for the document can be retrieved.
Import...	After browsing for and selecting a previously saved bookmark (.qbm) file, the **Import Bookmarks** dialog will open to make it possible to import bookmarks.
Export...	From this dialog, you can export selected bookmarks to a QlikView bookmark (.qbm) file.

Reports menu

The **Reports** menu at the top of the QlikView screen contains the command **Edit Reports...** that opens the **Report Editor** dialog where new reports can be created or existing reports edited. From this dialog it is also possible to delete and select reports, design their layout, add pages and images, etcetera. The report editor lists all available reports for immediate selection. You can search for reports by name or select them from the drop-down.

Reports may be **Document Reports**, stored with the document, or **User Reports**, stored separately on the user's computer.

Tools menu

The **Tools** menu is a drop-down menu at the top of the screen, and contains the following commands:

- **Edit module...**: Opens the **Edit Module** dialog used for creating macros.
- **Open QlikView AccessPoint**: Opens the QlikView AccessPoint in a html window inside QlikView Desktop. This command is only available if a URL for QlikView AccessPoint has been configured on the **User Preferences: Locations** page.

  Documents cannot be opened with the QlikView Plugin from the AccessPoint inside QlikView Desktop.

- **Open QlikView Management Console**: Opens the QlikView Management Console/QlikView Enterprise Management Console in an html window inside QlikView Desktop. This command is only available if a URL for QlikView Management Console/QlikView Enterprise Management Console has been configured on the **User Preferences: Locations** page.
- **Quick Chart Wizard...**: This wizard helps creating a simple chart in a quick and easy way, without bothering about the great number of different settings and options available.
- **Time Chart Wizard...**: This wizard helps with the common task of building charts where a given measure (expression) should be qualified and often compared by different time periods, e.g. current year, last year, year-to-date etcetera.
- **Statistics Chart Wizard...**: This wizard provides guidance for those who want to apply common statistical tests on data in QlikView.
- **Box Plot Wizard**: This wizard creates a combo chart, often used for display of statistical data.
- **Alerts...**: Opens the **Alerts** dialog where alerts can be defined and edited.
- **Alert Wizard...**: This wizard helps with the task of defining an alert.
- **Theme Maker Wizard**: This wizard is used for creating a new theme or editing an existing theme.

Window menu

The **Window** menu is a drop-down menu at the top of the screen, containing the following commands:

- **Cascade**: Will arrange windows so that they overlap.
- **Tile**: Will arrange windows as non-overlapping tiles.
- **Arrange Icons**: Will arrange icons at the bottom of the window.
- **Available Documents**: Displays an expanded listing (beyond 10) of open QlikView documents and providing additional document information. Selecting a document makes it the active window.

Available Documents

The **Available Documents** dialog can be used for switching the active document when more than ten documents are open at the same time. Select a document in the list and click on **Select** to make that document the active window.

This dialog also contains a wealth of support information that should be reported whenever problems are experienced with a specific QlikView document. The columns are:

Available documents fields

Field	Description
Document	The name of the QlikView document. If **Show Full Document Paths** at the bottom of the dialog is checked, the document name will be given with its full file path.
Connection	**Local** (document opened on local computer) or **Remote** (document opened on QlikView Server).
Client Build Number	The build number of the QlikView client.
Server Build Number	The build number of QlikView Server for remote documents.
Client NT Name	The Windows NT authenticated identity of client user when connection is made with NT authentication.
Saved in Version	Full information about the QlikView version that was used the last time the document was saved (available for local documents only).

Help menu

The **Help** menu is a drop-down menu at the top of the screen, containing the following commands:

- **Contents**: Opens the QlikView help.
- **Using Help**: Gives some useful advice on how to use the QlikView help.
- **Show Start Page**: Shows the start page each time QlikView starts. If the start page should not appear when the program starts, deselect the **Show Start Page When Launching QlikView** check box.
- **License Update...**: Opens a dialog where you can review or edit the License Enabler File.
- **Document Support Info...**: Displays a list of support data pertaining to the active document.
- **About QlikView...**: Opens the **About** dialog which displays the QlikView version, serial number and owner name.

License Enabler File Editor

Here you can review or edit the License Enabler File.

The **Current License Key** is the serial number of the QlikView license and is normally entered at the time of the original program installation. It may also be entered or edited at a later time from the **User Preferences: License** dialog. It is also possible to run QlikView without a license key. In this case, you either have a license lease from a QlikView Server – a Named CAL – or you have a Personal Edition of QlikView.

The **Current License Enabler File** is a text file containing information relevant to the installed license and is required in order to activate (enable) the license key. If you have a license key but this text edit box is empty, you should first ensure that your computer is connected to the Internet and then click the button **Contact License Enabler Server** below.

Troubleshooting the License Enabler File

A License Enabler File (LEF file) is required in order to verify the validity of a QlikView license key. During initialization of the license key, the Qlik LEF server is contacted via the Internet and, provided that the license information given checks out, a LEF file is automatically transferred to your computer. Under normal circumstances the LEF procedure is barely noticeable as it is done in the background. There are however instances when the procedure fails, either because you are unable to contact the LEF server or because a firewall prevents the transfer of the LEF file. When this happens, the **License Failure** dialog will be displayed, informing you about the problem.

Should you be unable to obtain a valid LEF file through the normal procedure and you feel that you are entitled to one, you can instead obtain it directly from Qlik Support. When you copy the text file directly into the LEF editor, you must make sure that there are no trailing empty spaces in the text.

QlikView Settings File

All settings for QlikView are saved in a file (instead of being written to the registry). The file, Settings.ini, is located in *C:\Users\username\AppData\Roaming\QlikTech\QlikView*.

In the same file you will find settings for QlikView OCX.

Document Support Information

This dialog displays a list of support data pertaining to the active document. For example when source documents have been reduced and published as user documents you can see the task name and the execution time. This information should be referenced whenever bugs or problems that may be related to specific QlikView documents are reported. Note that some rows are only relevant for local documents while others refer only to remote documents.

Via the **Copy to Clipboard** button it is possible to copy and paste the contents of this dialog into e.g. a text document attachment or directly into the support e-mail at the users convenience.

5.2 User Preferences: General

User preferences are settings that concern the way the user works and that are stored on the computer, not in the document file.

User Preferences: General

- **Show System Fields**: If selected, the **System Fields** will be included by default in all listings of field names.
- **Show System Variables**: If selected, the **System Variables** will be included by default in all listings of variables.
- **Use Sounds**: Enables the built in sound effects of QlikView.
- **Remove Unused Bitmaps**: Bitmaps used in sheets and sheet objects are normally retained in the document even if their use is turned off. Check this alternative to have them automatically removed.
- **Scramble Connect User Credentials**: Check this alternative if the connect statement wizard should mask the **connect** statements by scrambling user ID and password.

- **Remember Login Credentials until QlikView exits**: QlikView can cache the UserID and password for QlikView documents requiring login that have been opened for the duration of a QlikView-session. By deselecting **Remember Login Credentials until QlikView exits**, the user will be prompted to login each time a document is reopened.
- **Keep Progress Open after Reload**: Checking this box will keep the **Script Execution Progress** dialog open after the script has finished reloading.
- **Horizontal Scroll bar**: If this setting is on, a horizontal scroll bar will appear along the edge of the sheet whenever the positioning or sizing of sheet objects cannot be fully accommodated horizontally inside the application window.
- **Vertical Scroll Bar**: As the above setting, but pertaining to the vertical.
- **Resize Window to Documents**: With this alternative checked, the size of the QlikView window is determined by the size of the document, i.e. the size of the QlikView window at the time the document was saved.
- **Keep Orphaned QVD Buffers**: This setting overrules the normal procedure whereby any automatically created QVD files are purged immediately after script execution, provided that the document that created them is no longer available. This setting should normally be left unchecked.
- **Flush script log after each write**: For performance reasons, the script log is normally not written to disk after each individual statement. By selecting this script box it will be. This may be useful if other programs are used to monitor the script execution via the log. However, using this setting may significantly increase script execution time in cases where the script contains large numbers of statements.
- **Re-open Script Dialog After Script Execution from Dialog**: If the script is executed from within the **Edit Script** dialog and this check box is marked, the dialog will be re-opened after script execution.
- **Show Getting Started Wizard When Creating New Document**: Opens the **Getting Started Wizard** which guides through the steps of creating a new document based on a single Excel sheet.
- **Purge Orphaned QVD Buffers Now**: Click this button to perform a manual purge of orphaned QVD buffers that have been retained by the setting **Keep Orphaned QVD buffers** above.
- **Most Recently Used Files**: This group is used for controlling the list of recently opened QlikView files in the **File** menu and on the **Start Page**.
    - Under **In Menu** the number of recently used files listed in the **File** menu can be changed. The default is 8.
    - Under **On Startpage** the number of recently used files listed on the **Start Page** can be changed. The default is 64.

      These changes take effect after restart.
    - If the alternative **Show Full Path in Menu** is checked, the **File** menu will be widened as necessary to show full paths in the list of recently used files.
    - Clicking the **Remove URLs** button will remove any URLs from the list of most recently used files.

- **Logfile Encoding**: In this group it is possible to set the character set for the log file. The default setting is **ANSI**, but it is possible to check the option **Unicode** instead.

- **Selection Appearance**:
    - **Preferred Selection Style**
      Sets the default selection style. QlikView supports a number of different ways of presenting data and making selections in list boxes and multi boxes. The **QlikView Classic**, **Corner Tag**, **LED** and **Led Checkboxes** styles all use color coding for indication of selected, possible and excluded values. The **Windows Checkboxes** style and the **LED Checkboxes** style mimic the standard Windows interface with a check box at each value. This default can be overridden for a specific document by means of a corresponding setting under **Document Properties: General**). There are limitations as to the behavior of certain macro triggers when working with documents on QlikView Server.

    - **Preferred Selection Color Scheme**
      Sets the default selection color scheme. When using the selection styles based on color, there are a number of different color schemes available. The color scheme (green for selected, blue for locked etc.) cannot be changed, but variations of tone and intensity are possible. This default can be overridden for a specific document by means of a corresponding setting under **Document Properties: General**).

- **Change Interface Language**: Press the button to open the **Select Interface Language** dialog. In this dialog all language versions of QlikView that are available on the computer will be listed (Various language versions are included as .dll files at the time of installation). For a full list of the supported languages, see *Supported languages (page 32)*. After selecting a new language, QlikView must be restarted to effect the change. The change affects both the language of the program user interface and the language of the online help, provided that the appropriate help files are also available on the computer.

  The interface language can also be set by modifying the `settings.ini` file, found in `C:\Users\username\AppData\Roaming\QlikTech\QlikView`. Edit the setting **InterfaceLanguage** and set it to a supported language.
- **Bookmark Popup Timeout (s)**: Check this alternative and enter a time delay to have bookmark pop-up windows automatically close after a set number of seconds.
- **Use WebView in Layout**: Toggles **WebView** mode, which uses the internal web browser in QlikView to display the document layout as an AJAX page, on and off.
- **Search Settings**: In this group settings are made for default search mode.

    - **Include Excluded Values in Search**
      There are two ways to interpret text search: it is possible to search either among optional values, or among all values, i.e. include the excluded values in the search. Enable this option to do the latter. This default value can be overridden on sheet object level.

    - **Preferred Search Mode**
      The default search mode for text search in list boxes, multi boxes etc. can be set in this drop-down box. The default only applies when the user starts typing directly and do not use any of the menu choices or keyboard shortcuts for starting the search. It is possible to override this

setting by selecting a different setting on sheet object level.

- **Use Previous**
  The search mode of the last completed search will be used.

- **Use Wildcard Search**
  The initial search string will be two wildcards with the cursor between them to facilitate a wildcard search.

- **Use Normal Search**
  No additional characters will be added to the search string. Without wildcards, a Normal Search will be made.

- **Max Values in Current Selections**: Specify the maximum number of distinct selected values here to be shown in the current selections dialog and in the selection stamps in printouts. When more values are selected they will only be specified as 'x values of y' for the respective field.
- **Working set limits %**: This control sets the minimum and maximum of the physical amount of RAM that can be used by an application. This way it is possible to control if an application can be swapped out of physical memory or not. However, there are no guarantees that the operating system can serve the process with the amount of memory set here.
  Using too high settings will degrade the performance of other processes on the computer, this may however be desirable if the computer is dedicated for QlikView.
  Do not change these settings unless you are well acquainted with Windows Virtual Memory Manager! Read more about working sets in the Microsoft Windows documentation.
  The settings are:
  - **Low**
    Sets the minimum amount of memory, in percentage, to be allocated to the application/process.
  - **High**
    Sets the maximum amount of memory, in percentage, to be allocated to the application/process.

User Preferences: Save

This dialog tab contains settings for how QlikView documents should be saved.

- **Preferred Save Format**: Here a default save format can be set for all new files. To make changes that affect the current document only, select a **Save Format** under **Document Properties: General** instead.
- **Compression**: This drop-down specifies the save compression mode for new documents. By using compression, the size of the file will be reduced by typically 60-80% (actual results will vary with the document). When using compression, document save times will be slightly increased.
  - With **Medium** compression all parts of the document except table data (which is already stored quite compressed inside QlikView) will undergo compression.

    - With **High** compression (default) also table data will undergo compression, saving some space but further increasing save and load times.
    - By choosing **None** all data are saved without compression.
- **Save Before Reload**: Check this alternative to have the document automatically saved before the script is executed.
- **Save Autorecover Info**: Here rules for creating a backup of the current QlikView file can be specified. This autosave functionality can be very helpful in case of a system crash. It is possible to independently set the auto recover save to occur at regular intervals (**Every _ Minutes**) and each time the script is run (**After Reload**).

  *No **AutoRecover** files will be saved for a new document until it has been saved by the user under a document name.*

- **Use Backup**: Here it is possible to specify rules for keeping earlier copies that have been created by the autosave functionality. With **Use Backup** checked, it is possible to specify how many backup versions will be retained (**Keep Last _ Instances**) and the program may also retain a selection of preferred older versions (**Keep Selected Older Instances**).

User Preferences: Editor

In this dialog it is possible to determine the personal preferences for text in the QlikView editors. These include the editors in the **Edit Script**dialog, the **Edit Expression** dialog and the macro editor in the **Edit Module** dialog. Here it is possible to set different preferences in font, font size, font style and font color for a number of different **Text Types** that can be highlighted in the text box.

Script and Expressions

- **Normal Text**: Text that does not belong to any of the categories described below.
- **Keywords**: The keywords used in the script, e.g. load, select, directory, semantic, etc.
- **Comments**: Comments typed in the script or chart.
- **Error**: The errors that QlikView detects in the script or chart expression.
- **Highlighted Text**: When approaching a parenthesis with the cursor in the script, the parenthesis, as well as the commas enclosed by it, will be highlighted. Missing parentheses or commas will thus be easily detectable.
- **Field Names**: The names of the fields to be loaded and used in charts.
- **Literals**: Text to be loaded literally, i.e. as a text string (usually enclosed by single quotation marks).
- **Functions**: The functions used in the script, e.g. div, left, if, num, etc. and charts.
- **File Names**: The name of the file from which the fields are to be retrieved.
- **Script Macro**: The variables used in the script.
- **Aggregation Functions**: The aggregations functions used in the expression, e.g. sum, min, max, etc.
- **Operators**: The operators used in the script, e.g. +, like, etc. and in expressions.
- **Table Labels**: The labels assigned to specific tables.
- **Set Analysis**: The set analysis identifiers, modifiers and operators used in the expression.

Module

- **Normal Text**: Text that does not belong to any of the categories described below.
- **Keywords**: Visual Basic Script reserved keywords.
- **Highlighted Text**: When approaching a parenthesis with the cursor in the script, the parenthesis, as well as the commas enclosed by it, will be highlighted. Missing parentheses or commas will thus be easily detectable.

Expression in Chart

- **Normal Text**: Text that does not belong to any of the categories described below.
- **Comments**: Comments typed in the chart expression.
- **Error**: The errors that QlikView detects in the expression, e.g. a missing parenthesis.
- **Highlighted Text**: When approaching a parenthesis with the cursor in the expression, the parenthesis, as well as the commas enclosed by it, will be highlighted. Missing parentheses or commas will thus easily be detected.
- **Field Names**: The names of the fields used.
- **Functions**: QlikView standard function names for chart expressions.
- **File Name**: The name of the file from which the fields are to be retrieved.
- **Aggregation Functions**: The aggregations functions used in the expression, e.g. sum, min, max, etc.
- **Operators**: The operators used in the expression, e. g. +, like, etc.
- **Set Analysis**: The set analysis identifiers, modifiers and operators used in the expression.

Base Font for All Types
The font and the font size selected in this group will be applied to all the text types. Properties such as bold, italic and underline can be set individually using the check boxes.

Clicking on the **Foreground Color** button brings up a color palette where it is possible to pick a predefined color or define a custom foreground color.

To reset values, click the **Defaults** button.

The following features may also be used in editors:

- **Function Popup Help**: Check this alternative to have a small pop-up window appear when typing in a function.
- **Remember Cursor Position**: Check this alternative to have the editors for script and macro remember the position of the cursor when leaving the editor. If this feature is not used the cursor will be positioned at the start of the macro module and at the end of the script.
- **Copy as RTF**: Check this alternative to have text copied from the editor windows stored in the **Clipboard** not only as pure text but also as RTF. This makes it possible to paste the text with full formatting into applications supporting RTF import.

User Preferences: Design

In the **Script and Macro Shortcuts** group it is possible to customize keyboard shortcuts for certain actions in the script debug dialog.

Generate a list of all available keyboard shortcuts in the script by typing Ctrl+QS in the script.

- **Edit**: Select a command from the list and click the **Change** button to customize the keyboard shortcut for the command.

There are two optional **Key Bindings**:

- **Visual Basic**: Sets the keyboard shortcuts to defaults familiar to the Visual Basic debugging environment.
- **Visual C++**: Sets the keyboard shortcuts to defaults familiar to the Visual C++ debugging environment.

Other options:

- **Always Use Logfiles for New Documents**: A log file (.log) will be generated when the script is executed. The file will contain a timestamp for start and finish, the executed script lines, number of rows generated by the script lines and, if the script execution was unsuccessful, an error message.
- **File Wizard Sample Size**: Specifies the number of records read into the table file wizard in order to analyze a table being read.
- **Default Scripting Engine**: Choose between **VBScript** and **JScript**.
- **Design Grid Settings**:
  - **Snap Step (mm)**
    Sets the distance between the snap points when the design grid is displayed.
  - **Line Distance (mm)**
    Sets the distance between the grid lines when the design grid is displayed.
- **Default Margin Unit**: Here it is possible to select whether the default unit for margins in the **Print: Layout** page should be cm or inch.
- **Default Styling Mode**: Choose one of the available modes for the object style of all the sheet objects. The mode chosen will be used as default for all new documents.
- **Default Sheet Object Style**: Choose one of the available styles for the sheet object style in this drop-down. The style selected will be used for all sheet objects in the document.
- **Default Theme**: Here it is possible to select a QlikView theme which will be set as the default theme in newly created documents. The selected theme must be accessible from disc at all times in order to be used. It is also important that the theme used is defined for all types of objects that may occur in a QlikView document.
  At the bottom of the drop-down list there is a **Browse...** command in case the theme file resides in another location than in the default QlikView theme catalog. If no default theme is specified, new documents will be created without default theme.
- **Always Show Design Menu Items**: If this checkbox is marked all design menu options will be available on the context menu at all times.
  If unchecked some design menu options will only be available when the **Design Grid** command of the **View** menu is turned on.

User Preferences: Objects

Here you can determine a number of default settings for sheet objects.

- **Enable all confirmation messages**: When QlikView is first installed on a computer a number of warning dialogs are enabled. Each of these will prompt for confirmation before performing certain actions, such as deleting sheets and sheet objects or sending e-mail. Every warning dialog includes a checkbox stating: "**Do not show this message again**". By checking the box that particular warning dialog is permanently suspended. To turn all previously disabled warning dialogs back on, click the **Enable** button in this group.
- **Table Defaults**:
    - **Show Selection Indicators**
      Select this option if column selection indicator (beacons) should be enabled as default for new table boxes, pivot tables and straight tables.

    - **Show Sort Indicator**
      Select this option if an icon indicating the primary sort column should be default for new table boxes and straight tables.

    - **Field drop-down Select**
      Select this option if a drop-down selection icons should be displayed in field columns for new table boxes, pivot tables and straight tables.

- **Default Label for Others**: In a number of chart types it is possible to limit the number of plotted data points by setting a **Max** value. All data points that fall outside this limit are collectively grouped as "Others". It is possible to edit the default label for Others here.
- **Default Label for Total**: The totals that may be displayed in bar charts, pivot tables and straight tables is given the default label "Total". It is possible to edit the default label for Total here.
- **Caption Icon Defaults**: In the group it is possible to set defaults for selected caption icons.
    - **Include Search Icon in New List Box Captions**
      When this check box is marked, all new list boxes will have the **Search** caption icon enabled at creation. This is recommended for better usability and especially if the document is to be published for the QlikView AJAX client.

    - **Include Print and XL Icons in New Table and Chart Captions**
      When this check box is marked, all new tables and charts will have the **Print** and **Send to Excel** caption icons enabled at creation. This is recommended for better usability and especially if the document is to be published for the QlikView AJAX client.

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled on the objects' **Layout** page as well. The scroll position is not preserved when you close the document.
- **Max Symbols in Charts**: It is possible to specify an upper limit to how many data points that will be displayed with symbols. The default number is 100. This feature is only useful in line charts and combo charts, for expressions with both **Line** and **Symbol** checked.
- **Click in Chart background Clears Selection**: If this option is checked, clicking in the background of a chart's plot area will cause all selections in the chart's dimension fields to be cleared.

- **Calculation Progress Information**: In this group it is possible to determine the level of information to be displayed when the calculation of sheet objects require more than one second to complete.
    - **Off**
      No progress information is displayed.
    - **Normal**
      A progress bar is displayed.
    - **Verbose**
      A progress bar and additional text information is displayed.

User Preferences: Export

The **Copying to Clipboard** section covers the preferences for copying sheet objects to the Clipboard.

In the **Include Caption and Border** group it is possible to enter the preferences separately for each of the following sheet object types: List Box, Statistics box, Multi box, Table box, Input box, Current Selections box and Chart for whether to include these layout features or not in the copy process.

It is possible to set a preference for copying tables under **Copy Table Format**. From the command **Copy to Clipboard** in the object menu of any QlikView table it is possible to make additional choices regarding what information should be included at export.

- **Full Table**: If this option is checked, a formatted table complete with its selection status will be copied. This setting is preferable when copying for presentation purposes.
- **Data Area Only**: If this option is checked, nothing but the raw data will be copied. This is the preferred setting for quickly moving data between documents etc.
- **Show Options in Menu**: If this option is checked, both alternatives will always be available as a drop-down list from the **Copy to Clipboard** command.

In the **Replace Image as Default** group it is possible to specify what is placed in **Clipboard** when the **Cut** and **Copy** commands (**Edit** menu) are used. Normally only the bitmap image of a sheet object is copied, but for a number of sheet objects further options are available:

- **Table for Tables**: Check this option to have tables (table boxes, straight tables and pivot tables) copied in table format rather than as an image.
- **Values for Charts**: Check this option to have charts copied as underlying table values rather than as an image.
- **Possible Values for List Boxes**: Check this option to have list boxes copied as possible values rather than as an image.
- **Text for Buttons**: Check this option to have buttons copied as text rather than as an image.
- **Text for Text Objects**: Check this option to have text objects copied as text rather than as an image.
- **Selections for Current Selections Box**: Check this option to have current selections boxes copied as text selection stamp rather than as an image.

The **Clipboard Zoom** setting, which is independent of the current zoom setting of the sheet, determines the size of the copied image. Larger pictures give better picture quality at the cost of increasing size.

In the **Selection Stamps in Exports** group it is possible to determine whether selection stamps should be included when exporting to the file types specified.

- **On HTML Exports**: Check to include selection stamps when exporting to HTML files.
- **On BIFF Exports**: Check to include selection stamps when exporting to BIFF (Excel) files.

In the **Default Export Options** group it is possible to set defaults for export formatting.

- **Number Formatting**: The number formatting of numeric data in QlikView may not always be compatible with other programs due to user defined settings etc. The drop-down offers three choices in **Number Formatting** of numeric data that is to be exported.
    - **Full Formatting**: Exports numeric data with its full number format, just as it is shown in the sheet objects of the document.
    - **No Thousand Separator**: Removes any thousand separator from numeric data.
    - **No Formatting**: Removes all number formatting from the data and exports the raw numbers. The decimal separator will be as defined in the system settings (**Control Panel**).
- **Encoding**: It is possible to set the default character set for export in new documents. Choose one of these option: ANSI, Unicode or UTF-8.
- **Use regional settings for HTML export**: With this option the regional settings of the operating system are used for the decimal separator when exporting to HTML. By deselecting this option, a decimal point will be used, regardless of the regional settings.

In the **Send to Excel options** group it is possible to set defaults for formatting used by the **Send to Excel** menu command.

- **Adjust Excel Palette to Colors in Export**: If unchecked, the standard colors of the Excel palette will replace the colors chosen in QlikView. The original colors will be replaced by those that correspond the best to the colors in the standard palette.

User Preferences: Printing

In the **Chart Colors** group, it is possible to specify an override setting for all output from charts. It is possible to select one of three alternative settings:

- **Use Chart Settings**: The intrinsic chart settings regarding color or b/w will always be used.
- **Force Color**: All bitmap charts will be printed in color, irrespective of their **Colors** settings in the document.
- **Force Charts to Print in Black and White**: All bitmap charts will be printed in b/w, irrespective of their **Colors** settings in the document.

Other Options

- **Set Print Defaults for New Objects**: This button opens the **Page Setup** dialog where the page margins and page orientation can be set.
- **Bypass Postscript for Printing (slow)**: Due to the interaction between Microsoft graphics libraries and certain printer Postscript drivers, the sharpness of printouts from **Print Sheet** may occasionally be less than expected. This can be avoided by checking this alternative. It may however result in significantly longer printing times (up to several minutes).

User Preferences: Mail

Here you can make settings for sending e-mail from QlikView. In order to use this functionality, access to an SMTP server is required .

In the **Sender** group it is possible to specify the **Name** and e-mail **Address** that will appear as sender on e-mail sent by QlikView.

Under **Encoding** it is possible to change the character code page used for sending e-mail, if there are problems with the current setting.

Checking **Send MIME encoded** in order to encode e-mail can also be helpful.

In the **Server** group it is possible to specify settings for the SMTP server to be used for outgoing e-mail from QlikView.

QlikView supports unencrypted communication with the SMTP server.

- **Address**: The address (URL or IP number) used for the SMTP server.
- **Port**: The port used by the SMTP server.
- **Authentication method**: Select if NTLM authentication is required by the SMTP server.

User Preferences: Locations

Here you can determine default folder locations for certain files created when working with QlikView. It can also be used to define shortcuts to document file folders for QlikView Server and QlikView Publisher, as well as to specify URLs to the control panels of QlikView Server , QlikView Publisher and QlikView AccessPoint. The tab contains a list of resource locations that can be modified.

The pane at the top of the dialog contains a list of folder locations that can be modified:

- **Resource**: The following resource locations can be modified:
    - **QVD Buffers**
      The default storage location of QVD files generated via the **buffered** prefix to **load** and **select** statements in the script.
    - **Themes**
      The default storage location for user defined layout themes.
    - **User Files**
      The default root folder location where the folders containing user bookmarks, user reports and

user alerts are stored. Note that by changing this location without moving the folder contents the existing user bookmarks, user reports and user alerts will be lost.

- **Server Documents**
  Here it is possible to specify the location of the QlikView Server document folder, when applicable.
- **Publisher Documents**
  Here it is possible to specify the location of the QlikView Publisher source document folder, when applicable.
- **QlikView Management Console (URL)**
  Here it is possible to specify a URL pointing at the QlikView Management Console, QMC, or QlikView Enterprise Management Console, QEMC, when applicable.
- **QlikView Server AccessPoint (URL)**
  Here it is possible to specify a URL pointing at the QlikView AccessPoint, when applicable.
- **QlikView SDK (URL)**
  Here it is possible to specify a URL pointing at the QlikView SDK, when applicable.
- **Default License Lease Server (URL)**
  Here it is possible to specify a URL pointing to the QlikView License Lease Server, when applicable.
- **Publisher Authorization Table (URL)**
  Here it is possible to specify a URL pointing to the section access authorization tables created in QlikView Publisher. *Section Access Management* is configured in the QlikView Management Console (QMC). For more information, see the QMC help.

- **Location**: The path to the respective folder location.
- **Reset**: This button resets the location of the selected folder to the QlikView default. The path shown in the list will be preceded by the text <default>.
- **Modify...**: When a folder resource is modified, this button opens the **Browse for Folder** dialog where it is possible to browse to the location that is preferred for the selected folder. When a URL resource is modified, this button opens a dialog where it is possible to enter a URL.

User Preferences: Security

In this tab it is possible to choose to override one or more parts of the QlikView security measures against hostile macros and scripts embedded in QlikView document. No warning dialogs prompting the user to accept potentially harmful code will be shown. Use these options with caution and only when working with well-known documents.

- **Module (Allow CreateObject and File Access)**: Mark this box to disable QlikView checks for macros containing **CreateObject** calls or accessing external files.
- **Script (Allow database write and execute statements)**: Mark this box to disable QlikView checks for scripts containing the **execute** command and **mode is write** qualifier in **select** statements.
- **Launch (Start programs and documents from button, script, module)**: Mark this box to disable QlikView checks for starting external programs from QlikView script, module or buttons.

- **File (Save doc and export data to file)**: Mark this box to disable QlikView checks for saving or exporting to files with suspect file extensions.
- **Confirm Launch from Macro**: Unless this alternative is deselected, the user will be prompted to confirm the launch of other applications from a macro.

User Preferences: License

QlikView License

This dialog shows the present registration information of the QlikView installation.

- **Change...**: To enter a new serial number and a new control number for the license click this button. Changes take effect only after restarting QlikView.
- **Clear License Information**: If this button is clicked, the license number will be erased the next time the application is started.
- **View License Agreement**: Clicking this button will show the license agreement.

OEM Product IDs

This option is only available with an OEM Partner License.

- **Use OEM Product IDs for new documents**: Enable this option if the question to use OEM Product ID should be asked for new documents.
- **OEM Product IDs**: Lists all available OEM Product IDs.
- **Edit...**: Click this button to edit the Alias for the OEM Product ID.

5.3 Toolbars and Status Bar

Toolbars

QlikView has five standard toolbars and one menubar. The standard toolbar normally contains buttons for tasks performed while using QlikView documents, whereas the design toolbar normally contains buttons for tasks performed when creating or changing the layout of a document. The navigation toolbar contains the most frequently used commands for logical operations in a document. The sheet toolbar offers an alternative method for navigating different sheets whereas the bookmark toolbar offers an alternative way of accessing bookmarks.

Each of the toolbars can be individually enabled and disabled. All toolbars are completely customizable and may contain any of the available command buttons.

All toolbars can be moved around by pointing at them on the dotted line to their far left. Hold down the left mouse button and drag to any position. The toolbars can be docked to any side of the QlikView application window.

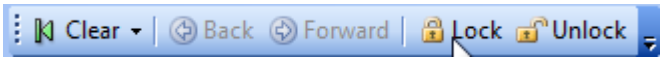
Standard Toolbar

The QlikView standard toolbar contains buttons for the most frequently needed functions. To toggle the standard toolbar on or off choose **Standard Toolbar** under **Toolbars** on the **View** menu. The figure above and the text below refer to the default contents of the standard toolbar.

- **New File**: Opens a new QlikView window and allows to create a new QlikView file. This command can also be invoked by the following keyboard shortcut: Ctrl+N.
- **Open File**: Allows the opening of a QlikView file or table file in a new QlikView window. Opening a table file automatically opens the file wizard. This command can also be invoked by the following keyboard shortcut: Ctrl+O.
- **Refresh**: This command is only available with documents opened on QlikView Server and when there is a newer version of the document available on the server. When invoking a refresh access is gained to the latest data, while maintaining the session including selections and layout state.
- **Save**: Saves the active document as a file. The default file format is set in **User Preferences**.
- **Print...**: Clicking the print tool immediately effects the printout of the selected sheet object according to default printer settings, bypassing the general print property page. The tool will be grayed if no printable object is selected. This command can also be invoked by the following keyboard shortcut: Ctrl+P.
- **Print as PDF**: Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
- **Edit Script**: Opens the **Edit Script** dialog, making it possible to write and execute script that open databases and retrieve data into QlikView. This command can also be invoked by the following keyboard shortcut: Ctrl+E.
- **Reload**: Re-executes the current script, updating the associative QlikView database to include changes made in source data since the previous execution. The time of the latest reload is shown as a timestamp in the status bar.
- **Undo Layout Change**: Undoes the latest layout change, including moving, sizing and removing of sheet objects as well as changes to sheet object properties. Removing sheets, editing the sheet properties or document properties can also be undone. QlikView maintains a list of the latest layout changes. Each **Undo Layout Change** command makes it take one step backward in the list. Certain operations, e.g. **Reload** and **Reduce Data** will empty the **Undo/Redo** buffer. This command can also be invoked by the following keyboard shortcut: Ctrl+Z.
- **Redo Layout Change**: Redoes the latest undone layout action. Each **Redo Layout Change** command makes it take one step forward in the list, as long as there are undone actions to redo. Certain operations, e.g. **Reload** and **Reduce Data** will empty the **Undo/Redo** buffer. This command can also be invoked by the following keyboard shortcut: Ctrl+Y.
- **Search**: Opens the **Search** box for the active object. This command can also be invoked by the following keyboard shortcut: Ctrl+F.
- **Current Selections**: Opens the **Current Selections** dialog in which it is possible to see the selections that are active. This command can also be invoked by the following keyboard shortcut: Ctrl+O.
- **Quick Chart Wizard**: Opens the **Quick Chart Wizard** where you can create a chart in a quick and easy way, without bothering about the great number of different settings and options available.
- **Add Bookmark**: Opens the **Add Bookmark** dialog, where the bookmark name can be edited. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+B.

- **Show/Hide Notes**: Shows or hide user-created notes attached to sheet objects.
- **Help Topics**: Opens the QlikView help.
- **Context Help**: Displays specific help concerning the chosen object, e.g. a menu command. After clicking this button, simply move the question mark to the object on which help is needed.

Navigation Toolbar



The QlikView navigation toolbar contains buttons for the most frequently needed functions when using QlikView for analyzing data. To toggle the navigation toolbar on or off choose **Navigation Toolbar** under **Toolbars** on the **View** menu. The text below refers to the default contents of the **Navigation Toolbar**.

- **Clear**: Clicking on this button applies the start selection of a QlikView document, which can be configured, see **Set Clear State** below. The drop-down menu offers the following options.
  - **Clear**: The start selection of a QlikView document. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+D.
  - **Clear All**: Clears all selections, excluding locked ones.
  - **Unlock and Clear all**: Unlocks and clears all selections.
  - **Clear Specific State**: Clears the selections of a specific state.
  - **Set Clear State**: Sets the current selection as **Clear State**.
  - **Reset Clear State**: Resets **Clear State** to no selections.
- **Back**: Reverts to the preceding logical (selection) state. Applies to value selections and all the commands in the **Edit** menu except **Copy** and **Copy Mode**. QlikView maintains a list of the 100 latest states. Each **Back** command will take one step further back in the list.
- **Forward**: Reverts to the logical state before a **Back** command. It is possible to toggle between two states by alternating between the **Back** and **Forward** commands.
- **Lock (Selections)**: Locks all the current *value selections* in the entire document.
- **Unlock (Selections)**: Unlocks all the currently locked *value selections* in the entire document.

In the QlikView Plugin, there is an additional Qlik button in the toolbar. Clicking this returns you to AccessPoint.

Button to return to AccessPoint

Design Toolbar

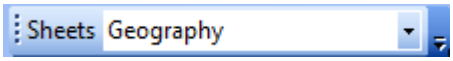
The QlikView design toolbar (see above) contains buttons for tasks to perform when creating or changing the layout of a document. By default, this toolbar is not displayed. To toggle the design toolbar on or off choose **Design Toolbar** under **Toolbars** on the **View** menu. The figure above and the text below refer to the default contents of the design toolbar.

Design Toolbar buttons and options

Option	Description
Add Sheet	Adds a new sheet to the document.
Promote Sheet	Moves the active sheet one step further to the left.
Demote Sheet	Moves the active sheet one step further to the right.
Sheet Properties	Opens the **Sheet Properties** dialog, from which it is possible to modify the active sheet.
Create List Box	Creates a list box to display the field of choice from the database table.
Create Statistics Box	Creates a statistics box, which calculates statistical entities based on the possible values of a field.
Create Table Box	Creates a table box, suitable for showing record-oriented information.
Create Multi Box	Creates a multi box, suitable for showing different attributes.
Create Chart	Creates a chart that can be made to display fields and calculated dimensions.
Create Input Box	Creates an input box, suitable for displaying and entering data into QlikView variables.
Create Current Selections Box	Creates a current selections box, suitable for displaying the current selections directly in the layout.
Create Button	Creates a button object that performs actions in QlikView, e.g. shortcut, export etc.
Create Text Object	Creates an object for displaying text information or images.
Create Line/Arrow Object	Creates a line/arrow object, suitable for drawing a line or an arrow in the layout.
Create Slider/Calendar Object	Creates a new slider/calendar object.
Create Bookmark Object	Creates a new bookmark object.
Create Search Object	Creates a new search object.
Create Container	Creates a new container.
Create Custom Object	Creates a new custom object.
Create Time Chart	The **time chart wizard** helps to build charts where a given measure (expression) should be qualified and often compared by different time periods, e.g. current year, last year, year-to-date etc.

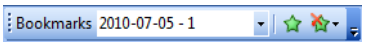
Option	Description
Format Painter	This button makes it possible to copy formatting from one sheet objects to one or many other sheet objects. In order to copy formatting to a single object, first click on the source object, then single-click on the format painter button and then click on the target object. In order to copy formatting to multiple objects, first click on the source object, then double-click on the format painter button and then click on each of the target objects. Stop the copying by clicking the button again or pressing Esc. When copying formatting between sheet objects of different types or when the user click on the caption of the target object(s), only border/caption properties will be copied. When copying between sheet objects of the same type, additional object type specific properties will be copied.
Design Grid	Toggles the design grid for object allignment.
Align Left	Aligns the active sheet objects along their left border.
Center Horizontally	Aligns the active sheet objects along their center on the horizontal axis.
Align Right	Aligns the active sheet objects along their right border.
Align Bottom	Aligns the active sheet objects along their bottom border.
Center Vertically	Aligns the active sheet objects along their center on the vertical axis.
Align Top	Aligns the active sheet objects along their top border.
Space Horizontally	Distributes the active sheet objects on the horizontal axis with equal spaces between them.
Space Vertically	Distributes the active sheet objects on the vertical axis with equal spaces between them.
Adjust Left	Arranges the active sheet objects from the vertical edge of the left-most object and to the right with minimal spaces between them.
Adjust Top	Arranges the active sheet objects from the horizontal top edge of the topmost object and downwards with minimal spaces between them.
Document Properties	Opens the **Document Properties** dialog, from which it is possible to modify the settings of the current document.
User Preferences	Opens the **User Preferences** dialog, where it is possible to modify settings concerning the way the user works.
Edit Module	Opens the Edit Module dialog where macros and custom defined functions can be written in VBScript or JScript.
Table Viewer	Opens the Table Viewer dialog where the data table structure is displayed.
WebView Mode	Toggles WebView mode, which uses the internal web browser in QlikView to display the document layout as an AJAX page.

Sheet Toolbar



The sheet toolbar contains a drop-down list of all sheets in the document and offers an alternative way of changing sheets. The name of the active sheet is always shown in the drop-down box. To toggle the **Sheet** toolbar on or off choose **Sheet Toolbar** under Toolbars on the **View** menu.

Bookmarks Toolbar



The bookmarks toolbar contains a drop-down list of all bookmarks in the document and offers an alternative way of changing bookmarks. You can search for bookmarks by name or select them from the drop-down. After selecting a bookmark, the name of the bookmark will be shown in the drop-down box until selections or variable values are changed.

Bookmarks toolbar buttons

Add Bookmark	Saves the current selection as a bookmark.
Remove Bookmark	Removes the bookmark selected in the drop-down menu.

Customize (Toolbars)

The **Customize** dialog allows users to configure toolbars according to their own preferences. (While this is generally a very practical functionality, there are situations where the document designer may wish to enforce a standard setting to be applied for all users of the document.

There are actually two types of customizable toolbars; the ones which are already defined (i.e. named) in QlikView, and the ones which can be completely custom defined as needed.

The **Customize** dialog consists of the three tabs, **Toolbars**, **Commands** and **Options** described below:

Toolbars

This page contains a list of all available toolbars and the menu bar. Activate/deactivate toolbars by ticking the relevant check box in the list.

- **New**: Creates a new toolbar.
- **Rename**: Renames the highlighted toolbar. This command is not available for the five default toolbars.
- **Delete**: Deletes the highlighted toolbar. This command is not available for the five default toolbars.
- **Reset**: Resets the configuration of the highlighted toolbar to default settings.

Commands

As the instruction in the **Commands** tab states, adding to or deducting from the contents of any toolbar is simply a matter of dragging any menu command from the **Commands** pane to the desired toolbar or vice versa. First the toolbar being modified must of course be set to display mode in the **Toolbars** tab. By means of the **Categories** pane it is possible to limit the listed commands to the contents of a single QlikView menu at a time.

Options

The **Options** tab contains additional settings for customization:

In the **Personalized Menus and Toolbars** section it is possible to set if shorter menus with only the most common commands should be used.

- **Always show full menus**: Disable this option to use shorter menus with only the most common commands.
    - **Show full menus after a short delay**: When short menus are used, enable this setting to have the full menu appear after hovering over the menu.
- **Reset menu and toolbar usage data**: This command deletes the records of the commands used in an application and restores the default set of visible commands to the menus and toolbars. It does not undo any explicit customizations.

The following display options have been grouped under **Other**:

- **Large icons**: This setting draws the toolbar icons at double size, improving visibility if needed.
- **Show Screen Tips on toolbars**: This option toggles the tool-tips on or off.
- **Show shortcut keys in Screen Tips**: This option adds to the information displayed in the tool-tips pop-up.
- **Menu animations**: This setting applies to the way menus (and cascade menus) open. In addition to the **System Default** setting, a number of custom animations are available in a drop-down list.

Customizing QlikView toolbars in large deployments

Enabling and Disabling Interactive Toolbar Customization

Toolbars and menus in QlikView are fully customizable. The interactive customization can be turned on and off by means of the two settings in Settings.ini.

The ini file is found in *C:\Users\username\AppData\Roaming\QlikTech\productname*.

AllowCustomizeToolbars

and

AllowCustomizeMenubar

Setting the value to 1 enables interactive customization whereas the value 0 prevents it.

Before changing these settings, make sure the application is closed.

Enforcing toolbar settings on large numbers of computers

To duplicate the toolbar settings between computers:

1. Customize the toolbars on one computer.
2. Copy the file Settings.ini.

The QlikView versions of the source and target computers should be the same in order to guarantee 100% functionality.

Status Bar

Below the sheet, the status bar is found. Choose **View** and **Status bar** to toggle it on or off. Some interesting information is displayed here:

On the left side of the status bar, several things can be shown: the text **Ready** may be shown when QlikView is ready for selections; if the cursor is moved over a graphical chart, the coordinates are shown.

It is also possible to obtain help to the left on the status bar. When clicking a command or a button without releasing the mouse button, help is displayed. If the mouse cursor is moved outside the command or the button before the mouse button is released, the command will not be executed.

In the middle of the status bar a time stamp is displayed. It shows when the last reload of data was performed.

An **AND**-indicator is shown if the active object is in **and** mode.

On the right side of the status bar, the number of distinct optional (or selected) values over the total number of distinct values in the active list box is presented, preceded by a D.

Further to the right, preceded by an F, the frequency of the active field is presented, showing the number of records in the table where the field first occurs over the total number of records.

Finally a selection indicator is shown on the status bar. It will be green if selections are made that cannot be seen on the current sheet.

5.4 Edit Script Dialog

The **Edit Script** dialog is opened from the **File** menu or by clicking on the **Edit Script** symbol  in the toolbar.

Here it is possible to enter and execute a script that connects the document to an ODBC data source, or to data files of different types, and fetches the demanded information.

Scripts can be typed manually, or generated automatically. Complex script statements must, at least partially, be entered manually.

The **Edit Script** dialog uses autocomplete, so when typing, the program predicts what is wanted to type without having to type it completely. The predictions include words that are part of the script syntax. The script is also color coded by syntax components. It may be customized by choosing **Tools** and **Editor Preferences**.

At the top of the dialog a menu bar, with various script related commands, is found. The most frequently used commands also appear in the toolbar. In the toolbar there is also a dropdown list for the tabs of the script.

Menus in the Edit Script Dialog

File Menu

File Menu options

Option	Description
Reload	Executes the script, closes the dialog and opens the **Fields** page in the **Sheet Properties** dialog. This command is also available on the **Edit Script** dialog toolbar.
Debug...	Starts the script execution in the debugger. The debugger is used for searching for errors in the script. Every script statement can be monitored and the values of the variables can be examined while the script is executed. This command is also available on the **Edit Script** dialog toolbar.
Edit Hidden Script...	Opens a script tab for hidden script. Here it is possible to define a hidden part of the script, which is executed before the general script at each reload. Hidden script tabs are always shown to the left of the open script tabs. A password is required to create or access hidden script.
Change Hidden Script Password...	Opens the **New Hidden Script Password** dialog where a new password for access to the hidden script can be set.
Create Hidden Script	Opens the **New Hidden Script Password** dialog, where a password for the hidden script must be set, and then opens a new script tab in the script window called Hidden Script. Here it is possible to define a hidden part of the script, which is executed before the general script at each reload. Hidden script tabs are always shown to the left of the open script tabs.
Remove Hidden Script	Removes the hidden script from the **Edit Script** dialog.
Save Entire Document	Saves the active document in a file. Data, script and layout are saved. This command can also be invoked by the following keyboard shortcut: Ctrl+S. This command is also available on the **Edit Script** dialog toolbar.
Save Entire Document As...	Saves the active document in a new document file under a new name.
Open External Script File	Makes it possible to browse for a file containing a script and opens it in a new tab in the script pane, where it can be edited with the help of QlikView's color coding.
Save External File	Saves the external script file.
Export to Script File...	Saves the entire script in a text file to be specified in the **Save script** dialog that appears. The file will have the extension .qvs.

Option	Description
Print Tab...	Allows the printing of the active script tab on an optional printer. This command can also be invoked by the following keyboard shortcut: Ctrl+P. This command is also available on the **Edit Script** dialog toolbar.
Print All Tabs...	Allows the printing of the entire script on an optional printer. Hidden script will not be printed via this command.
Table Viewer	Opens the **Table Viewer** dialog where the structure of the loaded data can be studied in a graphical view of tables, fields and associations. This command can also be invoked by the following keyboard shortcut: Ctrl+T.

Edit Menu

Edit Menu options

Option	Description
Undo	Undoes the latest change (multiple step undo is possible). Equivalent to pressing Ctrl+Z.
Redo	Redoes the latest **Undo**. Equivalent to pressing Ctrl+Y.
Cut	Exports the selected text to the Clipboard. This command is is also available on the Edit Script dialog toolbar. Equivalent to pressing Ctrl+X.
Copy	Copies the selected text to the Clipboard. This command is also available on the **Edit Script** dialog toolbar. Equivalent to pressing Ctrl+C.
Paste	Pastes the contents of the Clipboard into the dialog at the position of the cursor. This command is also available on the **Edit Script** dialog toolbar. Equivalent to pressing Ctrl+V.
Delete	Deletes the selected script text. Equivalent to pressing Del.
Clear Entire Script	Clears the script, i.e. removes all the text except the initial autogenerated **set** statements.
Select All	Selects the entire script text. Equivalent to pressing Ctrl+A.
Find/Replace...	Opens a dialog which makes it possible to find and replace numbers or characters in the script. This command is also available on the **Edit Script** dialog toolbar. Equivalent to pressing Ctrl+F.
Goto...	Opens a dialog which makes it possible to go to a specified line number in the script. Equivalent to pressing Ctrl+G.
Upper Case	Puts the selected script text in upper case.
Lower Case	Puts the selected script text in lower case.
Invert Case	Inverts the casing of the selected script text.
Capitalize	Capitalizes the selected script text.

Option	Description
Comment	Transforms a text row in the script to a comment.
Uncomment	Transforms the text row back into original script text.
Indent	Indents the highlighted lines in the script.
Outdent	Outdents the highlighted lines in the script.

Insert Menu

Insert Menu options

Option	Description
Set Statement	Opens the **Set Statement Wizard** where it is possible to enter a new set statement and choose a predefined statement.
Environment Variables	Inserts the number interpretation variables in the script based on the operating system defaults.
Script File	Makes it possible to browse for a file containing a script or part of a script and inserts its contents into the script at the position of the cursor.
Include Statement	Opens the **Include Script Files** dialog, where it is possible to browse for a script file with one of the following formats: qvs (a previously saved QlikView script file), txt or sql.
Domain SID	Retrieves the NT domain security ID for use in the script. The NTDOMAINSID is employed in section access as one of the reserved fields that govern NT security.
Test Script	Inserts an autogenerated test script.
Load Statement	Inserts a load statement, either **From File** or **Inline**. Choosing **Inline** opens the **Inline Data Wizard** with the help of which it is possible to create load inline statements from a spreadsheet style control.
Section Access	Inserts a section access statement either from a Publisher Authorization table or Inline. Choosing **Publisher Authorization** opens the **File Wizard**. Choosing **Inline** opens the **Access Restriction Table Wizard**.
Connect Statement	Inserts a connect statement in the script.
Disconnect Statement	Inserts a disconnect statement in the script.

Tab Menu

The **Tab** menu helps to organize the structure of the script.

Tab Menu options

Option	Description
Add Tab...	Adds a new script tab. The script will be executed tab by tab in order from left to right. If the current script tab is part of the hidden script, the new tab will also be created within the hidden script.
Insert Tab at Cursor...	Inserts a new tab after the active tab. Any text on the active tab positioned after the cursor will be moved to the new tab.
Rename...	Opens a dialog for renaming the active tab.
Promote	Moves the active tab one step to the left. Tabs cannot be promoted to the left of the hidden script tab.
Demote	Moves the active tab one step to the right.
Merge with Previous...	All text on the active tab is moved to the end of the preceding tab and the active tab is deleted.
Remove...	Removes the active tab. The last remaining script tab cannot be removed.

Tools Menu

Tools Menu options

Option	Description
ODBC Administrator 64 bit...	Opens the ODBC Data Source Administrator for 64-bit ODBC drivers.
ODBC Administrator 32 bit...	Opens the ODBC Data Source Administrator for 32-bit ODBC drivers.
Editor Preferences	Opens the **User Preferences** dialog where it is possible to set the font and color of the different text types appearing in the script.
Syntax Check	Checks the syntax of your script and stops at the first error.

Help Menu

Help opens the online help for QlikView.

Panes in the Edit Script Dialog

There are two panes in the **Edit Script** dialog: the script pane at the top, and the tool pane at the bottom of the dialog.

Script Pane

The script pane contains the actual script. Each script line is numbered. The script may be divided into several parts appearing on separate tabbed pages which are executed from left to right.

If a hidden script is used, it may be viewed under a separate tab to the very left (provided that the password has been given).

The script is color coded by syntax components. The color coding may be customized by choosing **Editor Preferences** from the **Tools** menu.

Tool Pane

The tool pane consists of four tabbed pages containing functions for script generation.

Data Page

The **Data** page contains basic commands for getting data into QlikView:

The commands in the **Database** group are used to create a connection to and select fields from a data source. If a commercial DBMS is used it is possible to use ODBC or OLE DB as an interface between QlikView and the database. An ODBC or OLEDB driver that supports the DBMS must be installed on the computer before it is possible to retrieve data over the ODBC/OLE DB interface. Once the appropriate ODBC/OLE DB driver is installed, the database must be configured as an ODBC data source.

Data Page commands

Command	Description
OLE DB	The connection to the data source is established using OLE DB.
ODBC	The connection to the data source is established using ODBC.
QVSAdminDataProvider.dll	This custom connector gives the possibility to connect to the QlikView Server and load information from the DMS and collaboration objects.
Custom...	Any custom data source will also appear in the drop-down box for selection. QlikView offers an open source plug-in interface, providing possibility to program custom interfaces to various types of data sources not covered from the traditional file, ODBC or OLE DB interfaces. The typical case is data available via Web Services. The plug-in should be programmed according to specifications shown in a template code provided (on request) as open source from Qlik and compiled as a dll. The dll is then placed next to the QV.EXE file making the custom source available to use.
Force 32 Bit	Normally, QlikView uses 64-bit providers. In case a data source with a 32-bit driver is to be used, check this option to force the ODBC/OLEDB connect statement to a 32-bit provider.
Connect...	Opens the **Data Link Properties** dialog in which a data source can be selected, or the **Connect to Data Source** dialog where an ODBC data source can be selected.
Select...	Opens the **Create Select Statement** dialog.

The **Data from Files** group is where data retrieval from other data sources can be made.

Data from Files options

Option	Description
Relative Paths	If this setting is enabled, QlikView will use relative paths instead of absolute paths in the script. Relative paths are normally required when a document is to be moved between different computers. This setting is also available in the User Preferences dialog. If it is changed there, it will also be changed in the **Edit Script** and **Edit Hidden Script** dialogs.
Use FTP	Enable this setting to select files from an FTP server, when clicking **Table Files**, **QlikView Files** or **Include**.
Table files...	Opens the **Open Local Files** dialog listing table files. Selecting one or several files and pressing OK will generate one or several load statements. When executed, the script loads data from the corresponding files. If the **Use FTP** option is checked (see above), select a server from the list (or enter the server to use, then click Connect). When this is done, select a text file.
QlikView File...	Opens the **Open QlikView File** dialog. When a file is selected a **binary** statement is generated in the first line of the script. This statement loads the data from the QlikView file but the layout settings will not be used.
Web Files...	Opens the **File Wizard** where it is possible to enter a URL as a source for the database table.
Field Data	Opens the **File Wizard** where it is possible to load the contents of an already loaded field.

Variables Page

On the **Variables** page, the controls for pasting syntax relating to QlikView variables, are found.

Variable options

Option	Description
Paste	Pastes the selected function into the script.
Show System Variables	If this check box is marked, the list in the **Variables** drop down will include the system variables.

QlikView offers an open-source plug-in interface, providing possibility to program custom interfaces to various types of data sources not covered from the traditional file, ODBC or OLEDB interfaces. The typical case is data available via Web Services. The plug-in should be programmed according to specifications shown in a template code provided (on request) as open-source from Qlik and compiled as a dll. The dll is then placed next to the QV.EXE file making the custom source available to use. It will then appear in the drop-down box for selection.

Functions Page

The **Functions** page contains tools for navigating and pasting QlikView standard functions.

Functions Page options

Option	Description
Function Category	Select a category in the drop-down list to see the corresponding functions in the **Function Name** list below.
Function Name	This drop-down list contains standard QlikView script functions.
Paste	Select a function in the **Function Name** list and paste it into the script at the cursor position.

Variables Page

On the **Variables** page you will find controls for pasting syntax relating to QlikView variables.

Variables Page options

Option	Description
Paste	Pastes the selected variable into the script.
Show System Variables	If this check box is marked, the list in the **Variables** drop down will include the system variables.

Settings Page

The **Settings** page contains security settings for the QlikView script.

Settings Page options

Option	Description
Script Privileges	**Open Databases in Read and Write Mode** If this option is selected the **mode is write** qualifier in select statements will be enabled for use. **Can Execute External Programs** If this option is selected execute statements may be used in the script.
Settings	**Scramble Connect User Credentials** If this check box is marked, the USERID and PASSWORD in **connect** statements will be scrambled in the script.

Set Statement Wizard

Current Set Statement

Variable Name

Either enter a name of a new variable or edit the predefined variable chosen below. The predefined variable is inserted here when clicking **Paste**.

Variable Value

If the name of a new variable is entered above, define the value here. If a predefined variable value has been chosen below it is possible to edit it here.

Predefined Set Statements

Variable Groups

Choose what kind of variable to use.

Variables

Choose the variable to use.

Predefined Values

Choose between the predefined values in the variable.

Paste

Click the button to move the predefined values up to **Current Set Statement** for editing.

Find/Replace (Script)

The **Find/Replace** dialog is used for searching for specific text strings within the script and for making multiple or bulk changes to it. It opens from the **Edit** menu in the **Edit Script** dialog.

Find/Replace fields

Field	Description
Find What	The text string to search for.
Replace With	The text to replace the search string with.
Find Next	Moves selection to the next occurrence of the search string.
Replace	Makes a replacement in the selected section.
Replace All	Makes replacements in all occurrences of the search string.
Case Sensitive	If this check box is marked, the text search will be case sensitive.
Word Search	If this check box is marked QlikView will only find occurrences of the search string forming a whole word (delimited by spaces or other non-letter characters).
Search All Tabs	If this check box is marked, the find/replace operation will be made over all script tabs.
Up	Mark this radio button to search up through the script.
Down	Mark this radio button to search down through the script.

Commenting in the script

You can insert comments and remarks in the script code, or deactivate parts of the script code by using comment marks. All text on a line that follows to the right of // (two forward slashes) will be considered a comment and will not be executed when the script is run. Alternatively, you can enclose a section of code with /* and */.

You can also insert comments to the script using the **Rem** statement.

Example:

```
Rem This is a comment ;

/* This is a comment
   that spans two lines */

// This is a comment as well
```

Hidden Script

A hidden script is a special part of the script, which will be executed before the normal script at each **Reload**. The hidden script is protected by a password.

When choosing **Edit Hidden Script** from the **File** menu in the **Edit Script** dialog you will be prompted for a password, which will be required before giving access to the hidden script again. If it is the first time accessing hidden script in a document (thereby creating one) the new password has to be confirmed. After this the Hidden Script tab will appear to the left of all other script tabs and remain there until the document is closed.

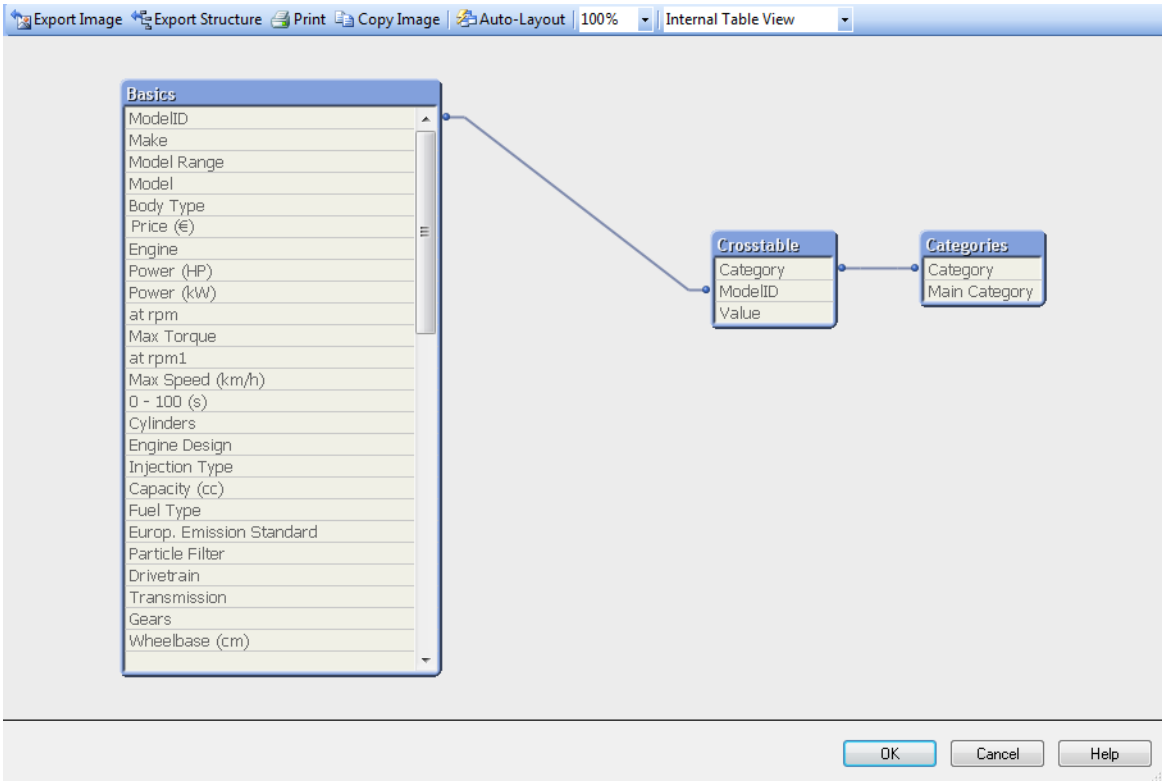
*If a hidden script is used, the **binary** command cannot be used in the normal script.*

*The **Progress** dialog will not be updated during the execution of a hidden script, unless **Show Progress for Hidden Script** is marked in **Document Properties: Security** page. No entries, other than **Trace** statements, will be included in the script log file.*

*If the hidden script contains a **section access**, such a section will not be permitted in the normal script or in a script starting with a **binary load** of the QlikView file containing the hidden script.*

Table Viewer

The **Table Viewer** dialog is opened when choosing **Table Viewer** from the **File** menu or pressing Ctrl+T.

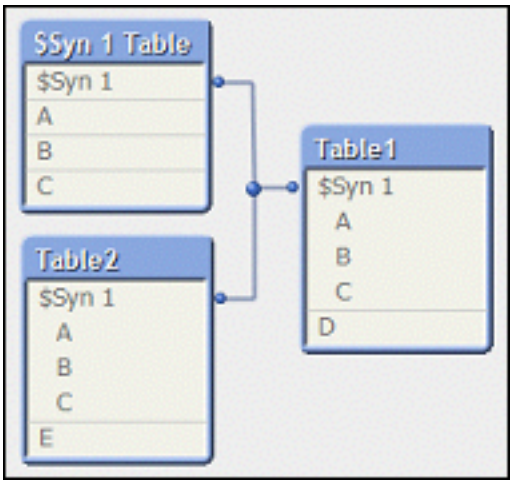


This dialog is used to display the data table structure of the current QlikView document. Tables are shown as boxes with a list of the fields they contain. Connector lines between the boxes show the associations. Where more than two lines meet there are connector points in the form of small dots.

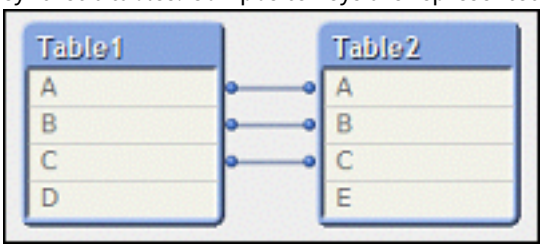
The tables, the connector points and also all points where the connectors bend can be moved by means of mouse drag and drop (see below). When re-arranging the layout like this, the changes will be saved with the document unless the dialog is exited with **Cancel**.

There are two views available, the layouts of which are stored separately. The two views are:

- The **Internal Table View** is the default view. It shows the data tables as QlikView stores them. Composite synthetic keys are formed in tables that share more than one field. Synthetic tables are used to link them. This view offers the best understanding of the QlikView logic and also provides a very clean layout where each pair of tables has a maximum of one connector between them.



- The **Source Table View** shows data tables as QlikView reads them. Here there are no synthetic fields or synthetic tables. Composite keys are represented by multiple connectors between tables.



When hovering with the cursor above one of the fields in a table, a tool tip pops up with information about the content of this field:

- **Information density** is the number of records that have values (i.e. not NULL) in this field as compared to the total number of records in the table.
- **Subset ratio** is the number of distinct values of this field found in this table as compared to the total number of distinct values of this field (that is other tables as well).
- **Table comments** are displayed in the tool tip.
- **Field comments** are displayed in the tool tip.
- **Tags** that are added in the script or in **Document Properties: Tables** page, including system tags, are displayed in the tool tip.

The following actions can be performed in the table layouts:

- **Click on Table Caption**: Highlights the table, all tables with direct logical associations with that table and the connections between them.
- **Point at Table Caption and Drag**: Moves the table in the layout.
- **Hover Over Table Caption**: Shows pop-up info about table.
- **Click on Field in Table**: Highlights the table, the field, all tables containing that field and the connections between them.
- **Hover over Field in Table**: Shows pop-up info about field.
- **Right-click in a Table**: Click on **Preview** to see a dialog of sample records from the loaded data.
- **Point at Connector Point or Connector Bend and Drag**: Moves the connector point in the layout.

- **Right-click on Connector Point or Connector Bend**: Moves the connector point back to automatic positioning.
- **Click on Layout Background**: Cancels all highlighting of tables, fields and connectors.

The following commands are available in the dialog toolbar and buttons:

- **Export Image**: Opens a file browser dialog making it possible to save the current table view as a bitmap or png image to a file on disc.
- **Export Structure**: By pressing this button it is possible to export the table structure of the document to a set of text files.
  These text files, one for the tables (*filename*.Tables.tab), one for the fields (*filename*.Fields.tab) and one for mapping in between (*filename*.Mappings.tab) can easily be read back into QlikView for further analysis with the full power of the QlikView logic. A dialog will appear where the target folder for the export can be chosen. The default is to put the files in the same folder as the QlikView document.
- **Print Image**: Opens the Print dialog from which it is possible to print the current table view. Equivalent to pressing Ctrl+P.
- **Copy Image**: Copies the current table view as an image to clipboard. Equivalent to pressing Ctrl+C.
- **Auto Layout**: Re-arranges the tables in the current view.
- **Zoom**: The zoom factor of the current view can be set in this drop-down box.
- **View**: Choose between **Internal Table View** and **Source Table View** (see above).

Data Link Properties

This dialog is used for creating a connection to an OLE DB data source, typically via ODBC. The dialog is opened when clicking the **Connect...** button in the **Data** page of the **Tool** Pane in the **Edit Script** dialog.

The first tab lists the names of the OLE DB providers. In order to create an ODBC data connection, select *OLE DB Provider for ODBC Drivers*, then click Next>> to get to the **Connection** tab.

On the **Connection** tab under **1, specify the source of data**, a previously configured data source is chosen. There are two different types of ODBC data sources that may come into question.

Pre-Defined Data Sources

ODBC data sources which have been predefined can be accessed by selecting the radio button **Use data source name**. The drop-down list contains all the data sources that are defined. Select the data source to use.

If necessary specify **User name** and **Password** for the data source. The connection can also be tested by pressing the **Test Connection** button.

Finally click the **OK** button. The connect statement is ready.

Generic Data Sources

Generic data sources are used e.g. for database files. If a generic data source is to be used or a new source should be created, select the **Use Connection String** radio button and click **Build**. This opens the **Select Data Source** dialog.

There are two types of data sources available: File data sources and Machine data sources. The latter data sources are specific to the local machine and user while file data sources are specific to a file. Any of the two can be used. Each has a separate page in the **Select Data Source** dialog.

Generic data sources are used e.g. for database files. If you want to use a generic data source or create a new source, select the **Use Connection String** radio button and click **Build**. This opens the **Select Data Source** dialog.

There are two types of data sources available: File data sources and Machine data sources. The latter data sources are specific to the local machine and user while file data sources are specific to a file. Use any of the two. Each has a separate page in the **Select Data Source** dialog.

Double-click a data source, then browse to the applicable database file in the dialog that opens.

*For MS Access data sources you must click the **Database** button in an intermediate dialog.*

When hitting RETURN it returns to the second page of the **Data Link Properties** dialog.

Specify if necessary **User name** and **Password** for the data source. It is also possible to test the connection by pressing the **Test Connection** button.

Finally click the **OK** button. The **connect** statement is ready.

Connect to Data Source

This dialog is used for creating a connection to an ODBC data source. The dialog is opened when clicking the **Connect** button in the **Data** page of the **Tool Pane** in the **Edit Script** dialog if the database option ODBC has been chosen.

On this page choose the data source. As default only the system DSNs are displayed. Check **Show User DSNs** to view all DSNs.

It is possible if necessary to specify **User name** and **Password** for the data source. The connection can also be tested by pressing the **Test Connection** button.

Finally click the **OK** button. The **CONNECT** statement is ready.

Create Select Statement

The **Create Select Statement** dialog is opened by clicking the **Select** button in the **Data** page of the tool pane in the **Edit Script** dialog. It is used to define the tables and fields to be loaded from a previously selected data source.

The dialog consists of three groups. The first group contains information about the data source.

Data Source	Name of the current ODBC/OLE DB data source.
Database	It is possible to choose between available databases via the drop-down list.

Owner	The database owner is shown here. It is possible to choose between available owners via the drop-down list.
Connect	By clicking this button, the **Connect to Data Source** dialog opens.
Driver	Click this button to open the **ODBC Driver Information** or **OLEDB Driver Information** dialog, containing information about supported functionality in the driver currently used.
Support	Opens a dialog with support information about the database. The information can be used whenever contacting Qlik support and when reporting bugs or problems in relation to QlikView documents.

The second group is used for selecting tables and fields.

Database Tables	This list shows available database tables. Click on a table name to select it. The types of tables that appear in the list can be controlled via the check boxes to the left (see description below).
Fields	This list shows all available fields in the selected table. Choose one or more fields from the list to be included in the **select** statement. Use " ***** " in order to select all of the field names at once. The selection of fields will be reflected in the **Script** page of the third group (see description below). Fields can be sorted in **Original Order** from the database or in alphabetical **Text Order** by selection in the drop-down control.
Show Icon for Key Fields	When this alternative is checked, any field that is defined as a key field in the source database will be shown with a key icon in the **Fields** list.
Tables	This check box must be selected if regular database tables are to appear in the **Database Tables** list.
Views	This check box must be selected if database views are to appear in the **Database Tables** list.
Synonyms	This check box must be selected if database table synonyms are to appear in the **Database Tables** list.
System Tables	This check box must be selected if database system tables are to appear in the **Database Tables** list.
Aliases	This check box must be selected if database table aliases are to appear in the **Database Tables** list.

The third group shows the generated **select** statement and information about the selected table and fields. The group contains the following pages:

Script

The **Script** tab shows the script about to be generated for the **select** statement.

The three radio buttons to the right control the formatting of the **select** statement in the script.

Column	Select this option to generate the **select** statement with each field name appearing on a separate row in the script.
Row	Select this option to generate the entire **select** statement appearing on a single row in the script.
Structured	Select this option to generate the **select** statement on structured rows in the script.
Preceding Load	If this option is marked, the **select** statement will be generated with a preceding **load** statement using the **select** statement as input. All fields will be listed in the **load** statement, even if * is used in the **select** statement.
Add	Click this button to save the **select** statement generated so far. The generation of a new **select** statement is initiated without leaving the dialog. The old statement will be visible in the preview pane above a clear divider. This procedure may be repeated any number of times.

Table

The **Table** tab shows detailed information about the selected database table.

More... opens a separate sizable dialog with an expanded view of the **Table**, **Columns** and **Preview** pages.

Columns

The **Columns** tab shows detailed information about the selected columns (fields) of the current table.

Preview

The **Preview** tab shows a preview of the first rows that will be generated by the current **select** statement.

Blobs

The **Blobs** tab makes it possible to bundle so-called Blobs (Binary Large Objects), in a QlikView document. It is usually a picture, a text file or similar, stored as a single entity in a database management system. The **i** icon indicates that the field contains a blob. The blobs in the database are listed together with size (in KB) and type in the **Blob Viewer**. The Blob is previewed next to the list if it is an image. QlikView supports jpg, png, bmp, pdf and rtf blobs.

The **Bundle...** button opens the **Bundle** dialog.

Key Field for the Blob data	In the list select the blob that should be resized.
Shrink Images	Enable the option to resize the blob. Apply **Pixel Width** and **Pixel Height** to resize the image to fit.

The setting does not handle aspect ratio.

It is only possible to bundle Blobs using ODBC.

Once the selections of table and fields has been made it is possible to click **OK** to insert the **select** statement (s) generated at the cursor position in the QlikView script. Pressing **Cancel** will abandon changes.

The ODBC driver can usually interpret far more complicated **select** statements than the ones which can be produced by this dialog. An alternative way to generate a more complex **select** statement is to use a query tool, e.g. Microsoft Query, and graphically make the **select** statement there. When this is done, copy (Ctrl+C) the **select** statement and paste it (Ctrl+V) into the QlikView script. (In MS Query, click the **SQL** button.)

Open Local Files

This dialog is opened by the **Table files** button in the **Edit Script** dialog.

In the **Open Local Files** dialog box it is possible to specify the table files that are to be loaded. For multiple file selections, use Ctrl-click or Shift-click. When the **OK** button is pressed, the selected file is interpreted in the **File Wizard**.

Open Internet Files or Open QlikView Document

This dialog appears when clicking on one of the buttons **QlikView File...** or **Table Files...** in the **Data** page of the Tool Pane in the **Edit Script** dialog - provided that the **Use FTP** check box is marked. Depending on which button was used to open it, the dialog is called **Open QlikView Document** or **Open Internet Files**, but the functionality is the same. This dialog can also be used to open QlikView documents. This is done by choosing **Open FTP** from the **File** menu.

Select the server containing the file(s) that should be opened in the drop-down list box. If the server is not in the list (or if there is no list), enter a server name, then click **Connect**.

Open dialog

Field	Description
FTP Server Address	The first time connecting to the FTP server, the address has to be typed in here.
User Name	Unless **Anonymous Logon** is checked, the user name will be entered here.
Password	Unless **Anonymous Logon** is checked, the password will be entered here.
Connect	Click this button to connect to the selected server. Selecting a server directly from the list, bypasses this procedure.
Passive Semantics	To connect through a firewall, a passive FTP may have to be used.
Anonymous Logon	Lets the user log on without stating a user name and password.
File Name	The name(s) of the selected file(s) will appear here, when connected to the server.
Files of Type	Specify the desired file type here.
Open	Clicking this button generates a **load** statement that will enter into the load script in the **Edit Script** dialog.

Inline Data Wizard

The **Inline Data Wizard** dialog is opened from the **Insert** menu, **Load Statement**, **Load Inline**. It is used to create **load inline** statements in the script.

The dialog contains something looking like a spreadsheet and in fact works like one in most respects. Note however that calculation formulas will not be evaluated in this spreadsheet as they would e.g. in Microsoft Excel.

Each column represents a field to be loaded into QlikView by means of an inline table. Each row is a record in the table. A data cell is selected by clicking it. A value may then be typed or pasted in from clipboard. Press Enter or an arrow key to accept the value and move to another cell.

The top (label) row is reserved for field labels. Double-click in a label cell to edit it. If no values are entered in the label row the field names F1, F2 etc will be used.

Edit Menu

The **Edit** menu contains some basic editing commands.

Edit menu commands

Command	Description
Insert Column	Inserts a new blank column if one or more columns are selected.
Delete Column	Deletes the selected column(s).
Insert Row	Inserts a new blank row if one or more rows are selected.
Delete Row	Deletes the selected rows.

Tools Menu

The **Tools** menu contains the command **Document Data** that opens the **Import Document Data Wizard** from which it is possible to paste field values from any existing field in the document. In the dialog it is possible to see how many field values are present in any selected field. It is also possible to choose to insert all values, selected values or excluded values into the inline wizard.

Click **OK** to close the dialog and generate a **Load inline** statement reflecting the contents of the dialog's table grid.

Access Restriction Table Wizard

The **Access Restriction Table Wizard** dialog is opened from the **Insert** menu, **Section Access**, **Inline**. It is used to generate a **Load Inline** statement for access control to the QlikView document.

The dialog contains the following commands:

Security fields

Field	Details
Fields to Use	The list contains all the possible security fields in a QlikView **section access**. Mark the check box for those you wish to include.
Basic User Access Table	Press this button to mark ACCESS, USERID and PASSWORD while unmarking the other fields.
Basic NT Security	Press this button to mark ACCESS, PASSWORD, NTNAME and NTDOMAINSID while unmarking the other fields.

When closing the dialog with **OK**, the **Inline Data Wizard** will be opened with the selected fields as column labels. After you press **OK** in this dialog, a **Load Inline** statement preceded by a **Section** statement and succeeded by a **Section Application** statement will be created.

File Wizard

The **File Wizard** automatically appears when opening a file or an HTML table using the **Table Files...** button in the **Data** page of the **Tool Pane** in the **Edit Script** dialog. The wizard also opens when a non-QlikView document file is opened from the File menu.

File types that QlikView can recognize are delimited text files (e.g. csv files), fix record files, dif files, Excel files, HTML files and XML files. These file types are referred to as **Table Files**.

Files can be loaded from the local network or directly from the Internet.

To load a file stored on a local network, use the **Table Files** button in the **Edit Script** dialog. If the file has a file extension of a table file, .csv, .txt, .tab, .skv, .fix, .dif, .htm, .html, .shtml, .xhtml, .php or .asp, the file will be shown in the **Open Local Files** dialog. It is possible to open the file even if it has a different extension; just set **Files of Type to All files (*.*)** in the **Open Local Files**. The content must however still be such that QlikView can interpret it. Whether or not QlikView can, is a different matter from what extension the file has.

To load a file directly from the Internet, paste the URL (previously copied from the web browser) into the text box named **File Name** in the FTP browsing dialog and click **Open**.

Once a file has been selected, the file wizard opens. It contains five pages: **Source**, **Type**, **Transform**, **Options** and **Script**. Since one very rarely needs to change anything on the **Source** page, the wizard starts on the **Type** page. The **<<Back** and the **Next>>** buttons will take the user from one page to another.

On the **Type** and **Options** pages there is a preview in which it is possible to see how QlikView has interpreted the file. The **Script** page makes it possible to set how the script is presented in the Edit Script dialog.

The **Finish** button will close the wizard and generate a load statement in the load script.

To load a file stored on a local network, use the **Table Files** button in the **Edit Script** dialog. If the file has a table file extension, e.g. .csv, .txt, .tab, .skv, .fix, .dif, .htm, .html, .shtml, .xhtml, .php or .asp, the file will be shown in the **Open Local Files** dialog. It is possible to open the file even if it has a different extension; just set **Files of Type** to **All files (*.*)** in the **Open Local Files** dialog. The content must however still be such that QlikView can interpret it. Whether or not QlikView can, is a different matter from what extension the file has.

To load a file directly from the Internet, paste the URL (previously copied from your web browser) into the text box named **File Name** in the FTP browsing dialog and click **Open**.

Once a file has been selected, the file wizard opens. It contains five pages: **Source**, **Type**, **Transform**, **Options** and **Script**. Since one very rarely needs to change anything on the **Source** page, the wizard starts on the **Type** page. The **<<Back** and the **Next>>** buttons will take you from one page to another.

On the **Type** and **Options** pages there is a preview in which you can see how QlikView has interpreted the file. The **Script** page lets you set how the script is presented in the **Edit Script** dialog.

The **Finish** button will close the wizard and generate a **load** statement in the script.

File Wizard: Source

This page contains all the settings related to the source of the table. The source usually is well defined as soon as a file is selected in the **Open File** dialog, but if one needs to make changes in the source definition, which is often the case for e.g. tables fetched directly from Internet pages, this is the place to make them. Pressing the **<Back** button on the **Type** page opens the **Source** page.

Source settings

Setting	Description
Local File	Enter the path to a local file or click **Browse** to find it through the explorer.
Internet File	Enter the path to the Internet file.
From Field	Opens the **Document Data Source** dialog where it is possible to choose table and field

Document Data Source

This dialog lists the tables of the active document and makes it possible to use a previously loaded field as data source.

Document Data Source properties

Property	Description
Field Value	The selected value. • **Tables**: A drop-down menu showing the tables that are loaded in the active document. • **Fields**: The fields of the selected table. • **Values**: The values of the selected fields.
File Path	The name of the selected table and field.
Value Type	The type of the selected value. • **Text**: If the value is text it is displayed here. • **Info**: If information is connected to the field value it is displayed here. • **Blob**: If a blob is connected to the value it is displayed here.

File Wizard: Type

This page contains the settings related to file type and table type. The settings vary according to file type.

When opening a table file, the program tries to interpret the contents of the file. The initial values of the parameters are set this way, but can of course be changed manually by the user.

File Type

The type of file is set here: Delimited, Fixed record, DIF, Excel Files (xls), Excel (xlsx), HTML, QVD, XML, KML or QVX.

Preview Pane

The result of the chosen settings is displayed in the preview pane (the lower part of the dialog page). When the settings are changed, the contents of the preview pane change accordingly. It is also possible to make some changes directly in the preview pane. First, it is possible to omit fields by clicking the “cross” button to the right of the field name. The cross will then change into an exclamation mark and the field will not be included in the **load** statement. To revoke this change, just click the exclamation mark once more. To rename a field, click the field name, enter the new name in this box and confirm by pressing RETURN. The **as** clauses in the **load** statement are then created automatically. Finally, for fix record files (and some HTML tables) it is also possible to set the column widths directly by clicking in the preview pane.

File Wizard: Type - Delimited

Delimited settings

Setting	Description
Delimiter	Specify what type of delimiter is to be used. To use a delimiter other than the predefined ones, choose **Custom** to find the correct delimiter. **Custom** opens the delimiter selector dialog, where it is possible to choose among the delimiters available on the computer.
Header Size	The header part of the file is a specified number of lines or bytes (only for delimited, fixed record and Excel files). The header may be omitted.
Character set	The character set of the table file is set here. If the desired character set is not available in the drop-down menu, it is possible to choose **Custom**. This opens the **Codepage selector** dialog, where to choose among the character sets installed on the computer.
Quoting	Set the quotes scheme to be used. Choose between **Standard**, **None** and **MSQ**.
Comment	In some files, comments are used between records. Often a comment line begins with a special character or a set of characters, e. g. //. Here it is possible to specify the character(s) that mark the beginning of a comment to enable QlikView to recognize comments.
Labels	If the field names (column headers) are stored in the first line of the table, this control should be set to **Embedded**. The format also allows field names to be explicitly specified, and if that is the case, this control should be set to **Explicit**. If the table contains no field names, the **None** alternative should be used.

Setting	Description
Ignore EOF	Sometimes a special character is used to mark the end of the file. In case this character is found in the middle of a text file (for example enclosed by quotation marks) you can enable this option to ignore it.

File Wizard: Type - Fixed Record

Fixed record settings

Setting	Description
Header Size	Here it is possible to omit the header part of the file: a specified number of lines or bytes (only for delimited, fixed record and Excel files).
Record Size	Specify the size of a record to be a specified number of lines or a specified number of bytes (only for fixed record files).
Char Set	The character set of the table file is set here. If the desired character set is not available in the drop-down menu, choose **Custom**. This opens the **Codepage selector** dialog, where it is possible to choose among the character sets installed on the computer.
Ignore EOF	Sometimes a special character is used to mark the end of the file. In case this character is found in the middle of a text file (for example enclosed by quotation marks) you can enable this option to ignore it.
Tab Size	The length of a tab set in spaces.
Embedded Labels...	Embeds the labels. Should be used if the field names are stored in the first line of the table.
Analyze Fix Positions	Analyzes and sets the columns widths for fix record files and for some HTML tables. After the analysis, column breaks can be added or removed in the preview pane.
Clear Fix Positions	Clears all column breaks (for fix record files and for some HTML tables).

File Wizard: Type - DIF

DIF settings

Setting	Description
Labels	If the field names (column headers) are stored in the first line of the table, this control should be set to **Embedded**. The DIF format also allows field names to be explicitly specified, and if that is the case, this control should be set to **Explicit**. If the table contains no field names, the **None** alternative should be used.
Character set	The character set of the table file is set here. If the desired character set is not available in the drop-down menu, choose **Custom**. This opens the **Codepage selector** dialog, where it is possible to choose among the character sets installed on the computer.

File Wizard: Type - Excel XLS

Excel XLS settings

Setting	Description
Tables	In the **Tables** group it is possible to choose a specific table when reading from a file containing several tables, e.g. HTML or Excel files. In Excel, all sheets in a workbook and all named areas (e.g. multiple cells with names) in the worksheets are identified as possible tables. Note that the Excel sheet names must not contain the characters &, > or <. When defining a named area on a sheet, the selected **Scope** must be **Workbook** and the **Refers to** field must keep its original value (the one assigned by default). Otherwise, the named area might not be seen as a table.
Header Size	Here it is possible to omit the header part of the file: a specified number of lines or bytes (only for delimited, fixed record and Excel files).
Labels	If the field names (column headers) are stored in the first line of the table, this control should be set to **Embedded**. The DIF format also allows field names to be explicitly specified, and if that is the case, this control should be set to **Explicit**. If the table contains no field names, the **None** alternative should be used.

File Wizard: Type - Excel XLSX

Excel XLSX settings

Setting	Description
Tables	In the **Tables** group it is possible to choose a specific table when reading from a file containing several tables, e.g. HTML or Excel files. In Excel, all sheets in a workbook and all named areas (e.g. multiple cells with names) in the worksheets are identified as possible tables. Note that the Excel sheet names must not contain the characters &, > or <. When defining a named area on a sheet, the selected **Scope** must be **Workbook** and the **Refers to** field must keep its original value (the one assigned by default). Otherwise, the named area might not be seen as a table.
Header Size	Here it is possible to omit the header part of the file: a specified number of lines or bytes (only for delimited, fixed record and Excel files).
Labels	If the field names (column headers) are stored in the first line of the table, this control should be set to **Embedded**. The DIF format also allows field names to be explicitly specified, and if that is the case, this control should be set to **Explicit**. If the table contains no field names, the **None** alternative should be used.

File Wizard: Type - HTML

HTML settings

Setting	Description
Tables	In the **Tables** group it is possible to choose a specific table when reading from a file containing several tables, e.g. HTML or Excel files. In Excel, all sheets in a workbook and all named areas (e.g. multiple cells with names) in the worksheets are identified as possible tables.
Labels	If the field names (column headers) are stored in the first line of the table, this control should be set to **Embedded**. The DIF format also allows field names to be explicitly specified, and if that is the case, this control should be set to **Explicit**. If the table contains no field names, the **None** alternative should be used.
Char Set	The character set of the table file is set here. If the desired character set is not available in the drop-down menu, choose **Custom**. This opens the **Codepage selector** dialog, where it is possible to choose among the character sets installed on the computer.
Analyze Fix Positions	Analyzes and sets the columns widths for fix record files and for some HTML tables. After the analysis, column breaks can be added or removed in the preview pane.
Clear Fix Positions	Clears all column breaks (for fix record files and for some HTML tables).

File Wizard: Type - QVD

This file type has no configurable settings.

File Wizard: Type - XML

XML settings

Setting	Description
Tables	The found tables are shown in this list. Each table is shown as a path that corresponds where in the XML structure it was found. When a table is selected, its fields will be shown in the **Fields** pane to the right. A **Load** statement will be generated for each table in the list when the **Finish** button is clicked.
XML	This sheet shows the interpreted XML structure.
Fields	This sheet shows the fields of the selected table and the generated keys.

File Wizard: Type - KML

You can load map files that are stored in KML format, to use in map visualizations.

This file type has no configurable settings.

File Wizard: Type - QVX

A QVX formatted file contains metadata describing a table of data and the actual data. In contrast to the QVD format, which is proprietary and optimized for minimum transformations inside QlikView, the QVX format is public and requires a few transformations when exporting data from traditional data base formats. QVX files

are loaded in the script with the **load** statement.

This file type has no configurable settings.

File Wizard: Transform

In the **Transform** dialog it is possible to filter and make advanced transformations of a table. This is particularly important for HTML table, since there is no commonly used standard for how to store data in HTML. As a result, it is impossible to make QlikView capable of reading HTML tables as easily as other more structured data formats.

In order to reach the **Transform** dialogs, enable the transformation step by clicking the **Enable Transformation Step** button. The step is not enabled by default in order to save memory.

The **Transform** dialog provides a variety of filters that can be used to make tables more suitable for QlikView. The dialog has six pages that are described below. The buttons to the bottom left-hand corner of **Transform Table** dialog are however used for all pages:

Transform universal buttons

Button	Description
Undo	Undoes the last added change.
Redo	Redoes the last Undo.
Reset	Resets the table to its original status.

Garbage

On the **Garbage** tab, rows and columns containing garbage can be removed from the table. In HTML files it is not uncommon to have extra rows and columns that are there just for legibility and these must of course be removed before loading the data into QlikView.

Columns and rows can both be removed explicitly in which case their indices are stored in the script. Rows can also be removed using conditional criteria.

Garbage buttons

Button	Description
Delete Marked	Deletes the highlighted rows and columns.
Conditional Delete...	Opens the **Specify Row Condition** dialog where the conditional criteria for deletion of rows can be set.

Fill

With the **Fill** tab it is possible to replace cell values. In most cases certain cells that match a specific description are replaced with another value from the same column. A common case is that cells are empty and that the first non-empty cell above contains the relevant value.

Fill buttons

Button	Description
Fill...	Opens the **Fill Cells** dialog where it is possible to specify conditions and strategy.

Column

The **Column** dialog page is used for copying the contents of a column to a new column. The copy may contain all the cells of the source column or just a selection of the cells. This feature can be useful if a column contains different kinds of values. It can also be used to duplicate a column that contains HTML links so that one column contains the link text, whereas the other column contains its URL.

Column buttons

Button	Description
New...	Opens the **Specify cells for new column** dialog where it is possible to specify how the new column should be created.
Label	Sets the label for the column.

Context

In an HTML table more information than what is visible can be stored, e.g. in the case that the content of a cell is clickable, the address to where the browser should jump must also be stored. The **Transform** page will show the text of the cell, but is also able to show the additional information belonging to the cells. Naturally, it is also possible to read this information into QlikView.

Tags always enclose the additional information. A tag has a name and may have attributes, which sometimes have values. The context of a cell may look like this:

Example:

<A href=www.myurl.com/mypage.html name=”MyName”>

My link text

</A>

The visible text of the cell is *My link text*. The context contains a start tag and an end tag. The tags specify a hypertext link. The start tag has two attributes, *href* and *name*.

The **Context** page can be used to read the attribute of tags instead of the main string. Other kinds of operations are also possible. Right-click the cells in the wizard and choose **View context** to look at the context of the cell.

Context buttons

Button	Description
Expand...	Opens the **Context cell expansion** dialog in which you can define an expansion of the contents of one cell into several cells. Note that both a column and a row must be marked in order for this button to be enabled. However, all the cells in the column will be expanded.
Interpret...	Opens the **Context interpretation** dialog in which an interpretation of the contents of the cells can be defined. Note that both a column and a row must be marked in order for this button to be enabled. However, all the cells in the column will be interpreted.

Unwrap

On the **Unwrap** tab it is possible to straighten out a wrapped table. *Wrapped* here means that a second part of the table continues, not below as it should, but beside the first part of the table. In the example above, the right half will thus be moved and put below the left half.

Unwrap buttons

Button	Description
Unwrap	Unwraps the table. The border between the two halves must be set with the cursor first. It is possible to split the table either vertically or horizontally.
Conditional Unwrap...	Defines the condition for a vertical split of the table. Opens the **Specify Row Condition** dialog.

Rotate

Web designers often rotate tables to give them a nicer look. The main intention of the rotation feature is to make it possible to turn tables "back to normal", i.e. to get fields as columns, field names on the first row etc.

Rotate buttons

Button	Description
Left	Rotates the table counterclockwise.
Right	Rotates the table clockwise.
Transpose	Transposes the table, i.e. mirrors the table along a diagonal axis, so that the top right cell becomes the bottom left cell and vice versa. The top left and bottom right cells, however, stay in place.

Fill Cells

Fill Cells fields

Field	Description
Specification	In the **Specification** group it is possible to specify in what cases the cell should be filled.
Target Column	Sets the column number on which the condition should be applied.
Cell Condition	Opens the **Cell Condition** dialog where it is possible to set the cell condition.
Fill Type	Sets the strategy for how cells should be filled. Use one of the values **Above**, **Left**, **Right** or **Below**.

Cell Condition

The **Cell Condition** dialog opens from the **Fill Cells** dialog and offers a possibility to specify a logical condition that refers to the contents of a cell.

- **Cell Value**: There are several logical options in the drop-down menu. To compare strings, enter a string to be compared in the field after. To compare the length of the cell contents, enter the comparison length (a numeric value) to the far right.

- **Not**: Activate this option if the condition should be reversed using a logical NOT.
- **Case Sensitive**: Activate this option if the value comparison should be case sensitive.

Specify cells for new column

The **Specify cells for new column** dialog is used for specifying the conditions for automatically generating a new column from an existing one. It is accessed from the **Column** page in the **File Wizard : Transform** dialog.

- **Cells and Columns**:
    - **Source Column**: Sets the column number from which cell values should be copied.
    - **Cells from these rows**: Opens the **Specify Row Condition** dialog where it is possible to set the row condition.
    - **Target Column**: Specifies the number of the target columns.
- **Advanced Options**:
    - **Replace Null Value with Previous Value**: Fills empty cells with the value in the cell above.
    - **Delete Source Row**: Deletes the source row after copying its content.

Specify Row Condition

The **Specify Row Condition** dialog can be opened via the **File Wizard : Transform** dialog's **Garbage** page (the **Conditional Delete** button), the **Column** page (the **New...** button) or the **Unwrap** page (the **Conditional Unwrap** button). Here it is possible to define a logical condition for selection of one or several rows. Depending on the context the rows that are defined are either deleted, copied to a new column and split the table in several parts.

In the **Condition** group it is possible to specify a condition where a column equals a specific value or another column, a range of records or all records. Several conditions can be applied together. After defining a condition press the **Add** button to include it in the transformation.

- **Compare with value**: Matches the cell with a cell condition that can evaluate to true or false.
- **Compare with column**: Matches the cell with the corresponding cell in another column.
- **Range**: Selects x rows, then skips y rows. Starting and ending positions for this may be specified with indexes.
- **All Rows**: Use this condition if all rows should be selected.
- **Column**: Sets the column number on which the condition should be applied.
- **From**: Only visible in **Range** mode. Sets the row number from which rows should be deleted or a second condition should be applied.
- **To**: Only visible in **Range** mode. Sets the row number to which rows should be deleted or a second condition should be applied.
- **Select**: Only visible in **Range** mode. Here it is possible to set whether rows should be selected or skipped cyclically, e.g. cyclically select two rows, then skip one. If all rows should be used, **Select** should be set to 1 and **Skip** should be set to 0.
- **Options**: In this subgroup it is possible to specify modifiers for the selection.
    - **Case Sensitive**: Enable this option if comparisons should be case sensitive.
    - **Not**: Enable this option if the selection criteria should be inverted.

- **Conditions (AND)**: In this group the conditions specified and included in the transformation are seen. A logical AND is applied between conditions.
    - **Add**: Adds the current condition to the list.
    - **Remove**: Removes a selected condition from the list.

File Wizard: Options

File Parameters

File parameter settings

Setting	Description
Labels	If the field names (column headers) are stored in the first line of the table, this control should be set to **Embedded**. The DIF format also allows field names to be explicitly specified, and if that is the case, this control should be set to Explicit. If the table contains no field names, the **None** alternative should be used.

Clauses

Clauses settings

Setting	Description
Where...	Opens the **Where Clause** dialog, with which is possible to create a **where** clause for the **load** statement.
Clear	Revokes the transformation and/or the **where** clause of a cross table.

Prefixes

Prefix settings

Setting	Description
Crosstable	Opens the **Crosstable** dialog where it is possible to set the parameters for a transformation of a cross table into a three- (or more) column table.
Hierarchy...	Opens the **Hierarchy Parameters** dialog, where it is possible to set the parameters for a hierarchy table (parameters as they appear in the script in parentheses).
Clear	Revokes the transformation of a cross table or a hierarchy table.

Note that if both a cross table transformation and a **where** clause are used, the **where** clause is evaluated first. It is thus not possible to first transform from a cross table and then apply a **where** clause. However, if there is a need to apply a **where** clause on an already transformed table, a construction with a temporary table will solve the problem:

```
TempTable: Crosstable (…) Load … from …;
RealTable: Load … resident TempTable where …;
Drop Table TempTable;
```

Context cell expansion

With this dialog it is possible to expand the contents of one cell into several cells. In some situations several rows in a column are stored within one cell of the HTML table, i.e. between the <TD> and the </TD> tags. This cell can then be expanded into a column. Just mark the tag that is used as delimiter between the different rows within the column. Usually this is the <BR> symbol.

- **Cells to Insert**: Number of cells to insert. Normally this should be set to 1, but if extra rows are needed, this control can be set to a higher number.
- **Row Condition**: Condition for what rows to expand.

Context interpretation

With the **Context interpretation** dialog it is possible to exchange the value of a cell with a piece of hidden information found in the cell.
The cell can contain several other tags, each with one, sometimes several, attributes. By selecting the appropriate tag and attribute and then pressing **OK**, the cell content is replaced with that of the value of the attribute.

- **Tag**: A list of the tags found in the cell.
- **Attribute**: The attribute of the marked tag.
- **Attribute**: The value of the attribute.

Crosstable Wizard

The crosstable wizard is dialog driven method of creating the **Crosstable** statement. This dialog is opened by clicking the **Crosstable** button in the **Options** page of the **File Wizard**.

The crosstable wizard holds the following options:

- **Qualifier Fields**: The number of qualifier fields that precede the fields to be transformed.
- **Attribute Field**: The name of the new field that will contain all the fields (attribute values) to be transformed.
- **Data Field**: The name of the new field that will contain the data of the attribute values.

Where Clause

- Simple: Choose what **Field(s)** should be part of the where clause and what **Operator/Function** should be used. It is also possible to enter a **Constant** based on existing field values. The second and third rows become active when selecting **AND** or **OR** in the drop-down list to the left of each row.
- Advanced: Mark **Advanced** to type the clause from scratch.
- Empty Template: This option will insert **Where (1=1)** into the script and it is possible to edit it further there.

Hierarchy Parameters

Source Parameters

- **ID Field (*NodeID*)**: The name of the field that contains the node id.
- **Parent ID Field (*ParentID*)**: The name of the field that contains the node id of the parent node.

- **Name Field (***NodeName***)**: The name of the field that contains the name of the node.

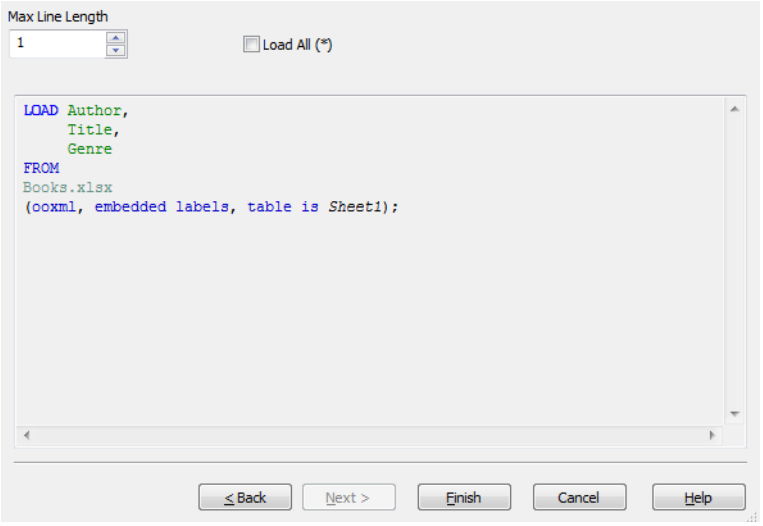
Hierarchy Parameters

- **Parent Name (***ParentName***)**: The name of the new **ParentName** field. Optional parameter.
- **Path Name(***PathName***)**: The name of the new **Path** field, which contains the path from the root to the node. Optional parameter.
- **Depth Name (***Depth***)**: The string used to name the new **Depth** field, which contains the depth of the node in the hierarchy. Optional parameter.
- **Path Source (***PathSource***)**: The name of the field that contains the name of the node used to build the node path. Optional parameter. If omitted **NodeName** will be used.
- **Path Delimiter (***PathDelimiter***)**: The string used as delimiter in the new **Path** field, e.g. \. Optional parameter. If omitted '/' will be used.

Belongs To Parameters

- **Ancestor ID (***AncestorID***)**: The name of the new **ancestor id** field, which contains the id of the ancestor node.
- **Ancestor Name (***AncestorName***)**: The name of the new **ancestor** field, which contains the name of the ancestor node.
- **Depth Diff Name (***DepthDiff***)**: The name of the new **DepthDiff** field, which contains the depth of the node in the hierarchy relative the ancestor node. Optional parameter.

File Wizard: Script



The **Script** page makes it possible to set how the script should be presented in the **Edit Script** dialog. Here it is also possible to set a **Max Line Lengh** to make the script easier to interpret.

Load All (*) loads all fields in the table.

The **Finish** button generates the **load** statement and closes the wizard.

Debugger

Running the script in the debugger can make it a lot easier to identify script errors. The debugger makes it possible to monitor every script statement and examine the variable values while the script is executed.

You launch the debugger by clicking the **Debug** button in the top menu of the **Edit Script** window.

The script is displayed in the window in the upper half of the debugger. The progress of the script execution is marked with a yellow bar. **Break points** can be inserted by clicking on the row numbers and removed by clicking a second time. Remove all breakpoints by clicking the **Clear** button. When a breakpoint is encountered, script execution is halted until instructed to proceed.

The statement being currently executed is displayed in the window in the middle.

Status codes and any script errors are displayed in the window to the bottom, left. This is essentially the same information that is displayed in the **Script Execution Progress** window when the script is run outside the debugger.

The right bottom window displays all script variables and their respective values. Variables that have changed are colored red.

Debugger options

Option	Description
Breakpoints	Breakpoints that have been set in the script window to the right can be cleared. A breakpoint is shown as a red circle. • **Clear**: Clears all the breakpoints.
Debug	This group contains settings that determine how the script is run in the Debugger. • **Run**: This is the normal script execution. The script will progress to the end or until a breakpoint is encountered. • **Animate**: The script runs as above, but with a short pause after each statement. This way it is possible to monitor the script execution more closely. • **Step**: This executes one script statement at a time.
Limited Load	Enter a number in the spinner box below. The number entered is the maximum number of accepted records at each **load** and **select** statement. This is a very useful way to limit the execution time when the script is tested with live data.
Help	Opens the QlikView help.
End Here	Closes the **Debugger**, but keeps the data loaded so far.
Cancel	Aborts the script execution and discards all data loaded.
Buffers	Opens tabs displaying external script files referenced via **$(include)**. • **Open**: Displays a dialog from which a script file can be opened. The contents of the file will be displayed under a separate tab and can be used for debugging. • **Close**: Closes the current debugger script tab. The main tab cannot be closed.

5.5 Variable Overview Dialog

The **Variable Overview** dialog displays all non-hidden variables and their values in a single list. Together with the dollar-sign expansions feature in QlikView expressions, the variable overview may be used as a crude expression repository.

- **Variables**: In this four-column list the names of all non-hidden variables and their respective values are displayed. Select the check-box in the **+** column to include variables in bookmarks.
- **Definition**: Highlight a variable in the list above to display its definition. The text may be freely edited. The changes will immediately be reflected in the **Value** column of the list above. Click on the **...** button to open the **Edit Expression** dialog.
- **Comment**: A commentary field where the creator of a variable can describe the purpose and function of a variable.
- **Add**: Opens the **New Variable** dialog, where a new variable can be defined.
- **Remove**: Highlight a variable in the list and click this button to delete a variable.
- **Search**: Search the available variables by name.

5.6 Edit Expression Dialog

The Edit Expression dialog is opened by selecting the **Add** button below the expressions list in **Chart Properties: Expressions** or by right-clicking an existing expression and selecting **Add Expression** or **Edit Expression**.

Though it is primarily used in chart expressions, the same dialog is also utilized for building or editing other expressions wherever expressions are needed. It is universally accessed by clicking the button with the three dots symbol that can be found next to text edit boxes throughout the program.

The main parts of the dialog are made up of the **Expression** edit area that can be resized to accommodate large expressions and beneath this, the tab area consisting of the four tabs **Fields**, **Functions**, **Variables** and **Images**.

Writing expressions

You can type in the whole expression in the edit area for the selected expression, but it is often convenient to do most of the expression building in the tab area described below. The expression needs to start with =.

The label **Expression OK** is only displayed as long as the expression syntax is accepted by the program, i.e. while the expression is valid. Otherwise the label will display one of several error messages (**Bad fieldname (s)**, **Error in expression**, **Garbage after expression**). There is little point in leaving the dialog by clicking the **OK** button, unless the expression is valid.

Expression tab options

The **Edit Expression** dialog tabs contain the following options for building expressions.

Fields

The **Fields** tab holds controls that are used for creating statistical aggregation functions based on field data.

Fields options

Option	Description
Aggregation	The first drop down contains a list of available statistical aggregation functions. (The functions **First String** and **Last String** can e.g. be used for showing text in a pivot table.)
Table	This drop-down list allows you to limit the fields displayed in the **Field** list below to one specific internal table.
Field	This drop down contains a list of available field names. MEASURE fields can only be used with basic aggregation functions Sum, Avg, Count, Min, and Max.
Show System Fields	Check this alternative in order to include the system fields in the **Field** list.
Distinct	Statistical functions are by default calculated on number of occurrences. By checking the **Distinct** option, the expression will be calculated without duplicate values.
Paste	Click this button in order to enter your selections as a component of the expression.

Functions

The **Functions** tab holds controls that are used for entering general QlikView-functions into the expression.

Functions options

Option	Description
Function Category	This drop-down list allows you to limit the functions displayed in the **Function Name** list below to a single category at a time.
Function Name	This drop down contains a list of all available QlikView-functions (except a limited number of dedicated script functions). The pane at the bottom of the functions tab displays the argument syntax of the selected function.
Paste	Click this button in order to enter your selections as a component of the expression.

Variables

The **Variables** tab holds controls that are used for entering QlikView-variables into the expression.

Variables options

Option	Description
Variables	This drop down contains a list of all variables currently defined for the document.
Show System Variables	Check this alternative in order to include the system variables in the **Variables** list.
Paste	Click this button in order to enter your selections as a component of the expression.

At the bottom of the **Variables** tab is a pane displaying the current value of any variable selected in the **Variables** list.

Images

The **Images** tab holds controls that are used for accessing the internal files that are available in QlikView. It is also possible to access other associated image files. Note that this functionality is limited to certain parts of the layout. To the right in the **Images** tab is a pane displaying the currently selected image.

Images options

Option	Description
Image Folder	This drop down contains a list of available image folders.
Image	This drop down contains a list of available images in the selected folder.
Advanced...	Click this button to select directly from the pictures in the **Image Selector** dialog.
Paste	Click this button in order to enter your selections as a component of the expression.

Edit Expression menu options

In addition, the **Edit Expression** dialog contains the following menu commands and buttons.

File Menu

File Menu options

Option	Description
Export to Expression File...	It is possible to save the contents of the **Expression** edit box as a table file by means of the **Export to Expressions File** command. The file is saved with the extension **.qve**.
Insert File...	A previously created expression file can be inserted into the script by means of the **Insert File...** command.
Colormix Wizard...	A color mix expression can be created using the **Colormix** wizard.
Print	Opens Windows standard **Print** dialog for printing the expressions. This command can also be invoked by the following keyboard shortcut: Ctrl+P.

Edit Menu

Edit Menu options

Option	Description
Undo	Undoes the latest change. This command can also be invoked by the following keyboard shortcut: Ctrl+Z.
Redo	Redoes the latest **Undo**. This command can also be invoked by the following keyboard shortcut: Ctrl+Y.

Option	Description
Cut	Exports the highlighted text to the clipboard. This command can also be invoked by the following keyboard shortcut: Ctrl+X.
Copy	Copies the highlighted text to the clipboard. This command can also be invoked by the following keyboard shortcut: Ctrl+C.
Paste	Pastes the contents of the clipboard into the dialog at the position of the cursor. This command can also be invoked by the following keyboard shortcut: Ctrl+V.
Clear	Clears the entire expression.
Select All	Selects the entire expression.
Find/Replace...	Opens a dialog where it's possible to find and replace numbers or characters in the expression. This command can also be invoked by the following keyboard shortcut: Ctrl+F.

Settings Menu

Settings Menu options

Option	Description
Configure...	Opens **User Preferences: Editor**.

Colormix Wizard

With the **Colormix Wizard**, opened from the **File** menu in the **Edit Expression** dialog, it is possible to create a colormix expression, i.e. an expression that calculates a dynamic color from a given measure.
It could e.g. be a calculated index with a value around 100 displayed in a pivot table. The higher index, the better. If a specific dimension value had an index that vastly exceeded 100, one would probably want to mark this pivot table line green, whereas red probably would be the appropriate color if the index value was much lower than 100. And one would want the color change to be gradual with yellow denoting 100. In other words – you want a dynamic color.
Such a gradual color calculation can be done with the Colormix functions in QlikView, but it can be cumbersome to create the appropriate expression inside the Colormix function. Here, the Colormix wizard can help.
First, it is important to clarify that the color functions, hence also the **Colormix Wizard**, are only relevant to use in place where QlikView expects a color function, i.e. not in the chart expression itself, but rather in the **Background Color** expression or in the **Text Color** expression.
When you open the **Colormix Wizard** from the **File** menu in the **Edit Expression** dialog, you will first see a page describing what is needed to create a dynamic color. If you want to skip the start page when you use the wizard in the future, mark the Don't show this page again check box.
Click **Next** to continue.

Step 1 – Enter a Value Expression

This is the expression that will control what color QlikView will show. Typical expressions could be

- `Sum(Sales) / Sum(total Sales)`
- `Sum(Sales) / Sum(Quota)`

- `Avg(Age)`

Note that it is usually a value that has the same order of magnitude no matter how many or how few records that you have selected. An average, a percentage or an index is usually a good measure to use.
Click **Next** to continue.

Step 2 – Set Upper and Lower Limits

In this page you need to define the upper and lower limits of the value expressions and the corresponding colors. ”Limit” meaning not the maximum possible value, but the limit where the maximum color is reached. Typical expressions could e.g. be:

Example expression properties

Value Expression	Upper Limit	Lower Limit
Sum(Sales) / Sum(total Sales)	Sum(total Sales)	0
Sum(Sales) / Sum(Quota)	2 (=200%)	0
Avg(Age)	Max(total Age)	Min(total Age)

But other limits are possible.
If you use the color wizard within a chart, then the following two expressions are always a good choice:

- `RangeMax (top(total <ValueExpression>,1,NoOfRows(total)))`
- `RangeMin (top(total <ValueExpression>,1,NoOfRows(total)))`

These expressions will calculate the largest and the smallest row value of <*ValueExpression*> within the chart.

- **Auto Normalize**:If this check box is marked, QlikView will try to find proper upper and lower limits. In such a case, expressions for the upper and lower levels cannot be entered manually.
- **Upper Limit**: Here an expression for an upper limit must be entered, unless the **Auto Normalize** option is checked.
- **Intermediate**: Here it is possible to enter an expression for an intermediate level, linked to a third color.
- **Lower Limit**:Here an expression for a lower limit must be entered, unless the **Auto Normalize** option is checked.
- **Reverse**: This button reverses the colors for the upper and lower limits.

Click **Next** to continue.

Step 3 – Finalize

In this page you finalize the color mix expression.

- **Enhanced Colors**:If this check box is marked, a hysteresis transformation is applied on top of the value expression. This will increase the sensitivity in the mid-range so that the color is pushed towards the Upper and Lower colors.
- **Value Saturation**: Here it is possible to control the behavior if the value expression exceeds the upper or lower limit. If **Use Upper (Lower) Color** is marked, QlikView will use the color for the maximum or

the minimum. If **Use Standard Color** is marked, QlikView will instead revert to the standard colors as defined on the **Colors** page.

5.7 Expression Overview

This dialog shows all document, sheet and sheet object expressions in a single list. From this list you may edit single expressions or do Find/Replace on multiple expressions. Select one or more expressions from the list. A selected line appears in black. Click below the last expression to deselect it.

In the top left hand corner of the dialog you can select more than one check box.

- Chart Expressions
- Chart Attributes
- Color Expressions
- Show Conditions
- Other Expressions

Expression commands

Command	Description
Columns...	Opens the **Columns** dialog where you may customize which columns should appear in the **Expression Overview** dialog. The **Expression** column cannot be turned off.
Find/Replace...	Opens the **Find/Replace** dialog where you may search for and replace specific text within the current list of expressions. It is also possible to make multiple or bulk changes to the expressions.
Export...	Use this button to export the table below to a text file.
Apply	Applies changes made in the list back to the properties of the document, sheets and sheet objects, without leaving the dialog. After using this command changes made so far will remain even if you use **Cancel** to leave the dialog.
Edit...	After selecting a single expression in the list you may use this button to open the **Edit Expression** dialog for the selected expression.

The expression list in the lower part of the dialog may contain the following columns, based on settings in the **Columns** dialog (see below) :

Expression columns

Column	Description
Sheet ID	The sheet ID of the sheet where the expression occurs. Empty for document expressions.
Sheet Name	The name (tab title) of the sheet where the expression occurs. Empty for document expressions.
Object ID	The sheet object ID of the sheet object where the expression occurs. Empty for document and sheet expressions.

Column	Description
Object Name	The name of the object where the expression occurs.
Location	The location of the expression within properties with 'friendly name', i.e. a simple explanation of the type of expression.
Label	The label of the main expression of the object.
Location (Full)	The exact location of the expression within the properties structure. The notation corresponds to the object property hierarchies of the QlikView Automation interface, which is explained in detail in the QlikView API Guide.
Expression	The expression definition.

Changes made from this dialog can be undone by the regular **Undo** command.

5.8 Server Objects Pane

The **Server Objects Pane** offers an easy way for end-users to manage their own server sheet objects and access other users' shared objects.

Configuring the Pane

The **Server Objects Pane** can be toggled on and off via the **Server Objects** command on the **View** menu or by pressing F2. The pane can be moved and docked to any side of the QlikView application window. It can also be left free-floating next to the QlikView window.

The **Server Objects Pane** can be left on when working with local documents (non server-based) but then has no function.

The **Server Objects Pane** contains two areas. The **My Objects** area lists your own personal server objects for the active server document. The **Shared Objects** area lists all shared sheet objects (including your own shared objects) linked to the current server document.

To hide an object in the QlikView application window, right-click the object and choose **Remove**. In order to show the object in the layout again, you must drag the object from the **Server Objects** pane.

When hovering over an object, a pop-up is shown containing information about the name of the object, the object type, owner and latest modification date.

Shared Objects

Here the shared objects are shown. They can be grouped differently according to **Type**, **Owner** and **Date**. Change the grouping by clicking on the arrowhead next to **Shared Objects**. The list can be expanded to show more information about each object or compressed to save space. Click on the arrowhead next to the object to expand, click again to compress.

Those objects shown in the layout are marked by a check in the **My Objects** and **Shared Objects** areas.

To use someone else's shared object you must drag it to the application window.

Adding and Sharing Objects

When you create a new server sheet object it will automatically be added to the **My Objects** list.

To share one of your own server objects to other users, right-click the object in the **My Objects** area and choose **Share with Everyone** or **Share Permissions...**. This opens the **Sharing** dialog.

Sharing

In the **Sharing** dialog you can configure how the object should be shared. To share an object choose one of the options in the **Share Permissions** drop-down menu.

- **Do not share**: The object is not shared with any users.
- **Share with everybody**: The object is shared with all users.
- **Share by username**: The object is shared with the users that are listed below.

The object will appear in the **Shared Objects** area but also remain in the **My Objects** area, now marked with a small hand to indicate its shared status.

To unshare an object which you have previously shared, right-click the object in the **My Objects** area, choose **Unshare** or **Share Permissions** again to open the **Sharing** dialog and then choose **Do not share** in the drop-down **Share Permissions**. The object will disappear from the **Shared Objects** list and no longer be available for other users. Note that it will however not disappear from other users' active sessions.

5.9 Exporting and Printing

Print: General

On the **General** tab you may specify settings relating to the printer and paper. Additional printout settings can be made on the other tabs.

In the **Printer** group available printers are listed in a drop-down list. You can access the printer **Properties** by clicking this button.

In the **Paper** group selections of paper **Size** and **Source** (tray) are made.

Other options in this property page allow you to change the paper **Orientation**, specify the **Page Range** to be printed and specify the **Number of Copies** and if you want to **Collate Copies**.

The **Size** group offers three different scaling options:

- Scale to _ %: Check this option and enter a percentage number to increase or decrease the scale of the printout.
- Fit to 1x1 Pages: Check this option to have the printout scaled to the paper size. You may get a better result if you change the **Orientation**.
- Fit to _ x _ Pages: Check this option to have the printout scaled to the specified number of pages.

*If you arrived at the **Print** dialog by using the command **File: Print Sheet**, the **Size** group will not be available, but be replaced by the **Sheet options** group where you can determine if you want to print just **This Sheet** or **All Sheets**, and if you want the printout to **Draw Background** (wallpaper).*

The following buttons are also available:

Print General buttons

Button	Description
Save Settings	Click this button to save your settings for header and footer while you continue working with this dialog.
Print Preview	This button opens a window showing a detailed preview of the current, printable object.
Print	Click this button to effect the print command and close this dialog.

Print: Layout

On the **Layout** tab settings for **Print Selection Stamp** and **Margins** can be made. Additional printout settings can be made on the other tabs.

- **Print Selection Stamp**: In the **Print Selection Stamp** group, the option to include the relevant current selections (i.e. current selections that affect the current object) in the printout is possible. The text "Selection status" will be displayed in the printout, followed by a list of fields and field values. The following options determine on what pages the **Current Selections** will be included: **On First Page**, **On All Pages - Top of Pages**, **On All Pages - Bottom of Pages** and **On Last Page**.
- **Heading Text**: In the edit box specify a text to be printed before the printed sheet object. This text may be a calculated expression. By clicking on the **...** button the **Edit Expression** dialog opens for easier editing of long formulas. The **Font** button next to the edit box allows the selection of a separate font for the text. This is not supported when using the AJAX client.
- **Trailing Text**: In the edit box specify a text to be printed after the printed sheet object. This text may be a calculated expression. By clicking on the **...** button the **Edit Expression** dialog opens for easier editing of long formulas. The **Font** button next to the edit box allows the selection of a separate font for the text. This is not supported when using the AJAX client.
- **Margins**: In the **Margins** group you can define the margins around the printed object. Changes can be seen in the preview pane at the right of the **Print** dialog. Measurements are in mm, cm or ". The default unit is set in the **User Preferences: Design** page.
    - **Top**: Specifies the distance between the top of the paper and the upper border of the printed object.
    - **Header**: The **Header** value is the distance between the header text and the top of the paper. For the header text to appear this value must be smaller than **Top**.
    - **Left**: Specifies the distance between the left edge of the paper and the left border of the printed object.
    - **Right**: Specifies the distance between the right edge of the paper and the right border of the printed object.

- **Bottom**: Specifies the distance between the bottom of the paper and the lower border of the printed object.
- **Footer**: The **Footer** value is the distance between the footer text and the bottom of the paper. For the footer text to appear this value must be smaller than **Bottom**

The following buttons are also available:

- **Save Settings**: Click this button to save your layout settings while you continue working with this dialog.
- **Print Preview**: This button opens a window showing a detailed preview of the current, printable object.
- **Print**: Click this button to effect the print command and close this dialog.

Print: Header/Footer

On the **Header/Footer** tab you may specify settings for **Header** and **Footer**. Additional printout settings can be made on the other tabs.

The following buttons are used for inserting control codes for specific system information into any of the text panes. Control codes may also be typed directly:

Header/Footer buttons/codes

Button	Description
Page	Click this button or enter the code &[Page] to insert the page number.
Pages	Click this button or enter the code &[Pages] to insert the total number of pages. The use of this option in reports with banding may cause long delays for calculation before printing can commence. You will therefore be warned when this situation occurs.
Date	Click this button or enter the code &[Date] to insert the current date. Date format can be set in the **Date & Time** dialog.
Time	Click this button or enter the code &[Time] to insert the current time. Time format can be set in the **Date & Time** dialog.
File	Click this button or enter the code &[File] to insert the filename.
Sheet	Click this button or enter the code &[Sheet] to insert the name of the sheet. This option is not available when printing reports.
Title	Click this button or enter the code &[Title] to insert the caption title of the printed object. This option is not available when printing reports.
Picture	Click this button to import a picture from the **Select Image** dialog. The picture will be printed as graphics in the header or footer pane. You may also manually enter the code &[Picture=*filename*] where *filename* is the complete filename and path of the file containing the graphics.
Report	Pressing this button or entering the code &[Report] causes the title of the report to be printed. This option is only available when printing reports.

The **Header** and **Footer** groups allow the above settings to three panes: **Left section**, **Center section** and **Right section**. Simply click in the desired pane to position the cursor and then click a button or type in the code.

The following buttons are also available:

More header/footer buttons

Button	Description
Font	This button opens the **Font** dialog.
Date & Time	This button opens the **Date & Time** dialog.
Default	Click this button to reset the default settings for header and footer.
Save Settings	Click this button to save your settings for header and footer while you continue working with this dialog.
Print Preview	This button opens a window showing a detailed preview of the current, printable object.
Print	Click this button to effect the print command and close this dialog.

Print Options: Date and Time

Here the preferred display of date and time can be set.

Date and time options

Option	Description
Use System Default	Enable this option to apply the system (e.g. Windows) time and date formats.
Current Settings	A view of the current date and time format.
Date	The date format can be set here. Select format from the drop down list.
Date Separator	Choose the character to be used as date separator.
Time	In the Time group settings for the time format can be set. **24h** Enable this option to show time in the 24 hour notation. **12h** Enable this option to show time in the 12 hour notation. **Time Separator** Choose the character to be used as time separator. **Show Seconds** Enable this option to show seconds in the time format.

Print Sheet

To open this dialog, choose **Print Sheet** from the **File** menu. This dialog is identical to the general **Print** dialog with one exception: the **Size** group on the **General** page which is here replaced by another group, **Sheet Options**.

Sheet Options

The **Sheet Options** group contains the following settings:

Sheet settings

Setting	Description
This Sheet	By selecting this option only the current sheet will be printed.
All Sheets	By selecting this option all sheets in the document will be printed.
Draw Background	Mark this check box to include the sheet background (wallpaper) when printing.

Print Preview

Use the preview feature when you want a detailed print preview to see how a printable sheet object will appear in the printout. The magnifying glass toggles the display between the preview size where you see the whole page and the actual 100% size.

Print Preview options

Option	Description
Print	Transfers control to the **Print: General** dialog, from where you can print the active object.
#pages drop-down	This drop-down menu offers a quick way to change which pages to display in the preview.
Previous	If the preview contains several pages, you can click this button to view the previously shown page.
Next	If the preview contains several pages, you can click this button to view the next page.
Add Page	Extends the preview to include another page if the active object does not fit in one page.
Remove Page	Removes the current preview page.
Close	Closes this dialog.
Help	Opens QlikView help.

Copy Mode

Switches from logic mode to copy mode. In copy mode the clicked values are copied to the **Clipboard** without changing the logical state of the running QlikView document. When copy mode is on, the **Clipboard Copy List** dialog opens. In this dialog you build a list of values to be copied.

Clipboard Copy List

The **Clipboard Copy List** dialog opens from **Copy Mode)** in the **Edit** menu. This dialog simplifies copying to the clipboard. As long as it is open, QlikView will be in copy mode and values clicked will automatically be copied to the **Clipboard Copy List**. The QlikView logic is disabled while the document is in copy mode.

Clipboard Format

In this group, the format of the copy list is set. **Column**, **Comma Delimited Line** and **Tab Delimited Line** are the available options.

Quoting

In this group, the quoting for the selected elements can be set.

- **Quote with '** will enclose all elements with single quotes. This is useful if the elements copied are to be pasted into the script as field values.
- **Quote with "** will enclose all elements with double quotes. This is useful if the elements copied are to be pasted into the script as field names or into a Visual Basic script, e.g. a QlikView macro.
- **None** will leave the elements unquoted.

OK

Closes the **Clipboard Copy List** dialog and transfers its content to the Windows **Clipboard**.

Cancel

Closes the **Clipboard Copy List** dialog without transferring its content to the Windows **Clipboard**.

Send to Excel

Exports the table to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.

Default limitations in number of rows and columns

The default maximum number of rows and columns in the Excel export file is:

- 1048566 rows per sheet. For pivot tables: 1048566 column dimensions. 10 rows can be added after the export.
- 16384 columns per sheet. If the number of columns exceeds the limit, the exported file is truncated and a warning message is sent.

Export/Export Contents...

Opens the **Save As** dialog. Here a name, path and file type for the exported data can be specified.

The file can be saved as any of the following formats: Comma Delimited, Semicolon Delimited, Tab Delimited, Hypertext (HTML), XML and Excel (xls or xlsx). The default format is *.qvo (QlikViewOutput), a tab separated file.

When exporting to a qvo file, the data is exported as it appears in the QlikView document. When exporting to Excel, the underlying data is exported, but displayed formatted in Excel.

5.10 Custom Error Messages

QlikView offers the possibility of customizing error messages in charts and table boxes. The **Custom Error Message** dialog is opened via the **Error Messages** button, which is found on the **General** page of the **Chart Properties** dialog, as well as on the **General** page of the **Table Box Properties** dialog.

- **Standard Messages**: List of the standard error messages. To customize a message, select it and type a text of your choice in the Custom Message text box.
- **Custom Messages**: Here you enter the text to be shown instead of the standard message selected above. The text may be a calculated formula.
  This feature makes it possible to e.g. change a rather cryptic error message (like: *Local heap space exhausted*) into a helpful hint for tackling the problem (in this case: *Please make a selection...* or: *Please increase the allocation of memory / cells by...*).
- **Apply to All**: Click this button to apply the custom messages to all the calculated objects of the document.
- **Clear All**: Click this button to clear all the custom error messages.

5.11 Keyboard Command Shortcuts

In this chapter you will find a list of the different keyboard command shortcuts available in QlikView.

File Menu Command Shortcuts

File menu command shortcuts

Shortcut	Function	Icon
Ctrl+N	Equivalent to **New** on the **File** menu.	
Ctrl+O	Equivalent to **Open...** on the **File** menu.	
Ctrl+Shift+O	Equivalent to **Open in Server...** on the **File** menu.	-
Ctrl+S	Equivalent to **Save** on the **File** menu.	
F12	Equivalent to **Save As...** on the **File** menu.	-
Ctrl+P	Equivalent to **Print...** on the **File** menu.	
Ctrl+Shift+P	Equivalent to **Print As PDF...** on the **File** menu.	
Ctrl+E	Equivalent to **Edit Script...** on the **File** menu.	

Shortcut	Function	Icon
Ctrl+R	Equivalent to **Reload** on the **File** menu.	
Ctrl+Shift+R	Equivalent to **Partial Reload** on the **File** menu.	-
Ctrl+T	Equivalent to **Table Viewer...** on the **File** menu.	

Edit Menu Command Shortcuts

Edit menu command shortcuts

Shortcut	Function	Icon
Ctrl+Z	Equivalent to **Undo Layout Change** on the **Edit** menu.	
Ctrl+Y	Equivalent to **Redo Layout Change** on the **Edit** menu.	
Ctrl+X	Equivalent to **Cut** on the **Edit** menu.	
Ctrl+C	Equivalent to **Copy** on the **Edit** menu.	
Ctrl+V	Equivalent to **Paste** on the **Edit** menu.	
Del	Equivalent to **Remove** on the **Edit** menu.	-
Ctrl+A	Equivalent to **Activate All** on the **Edit** menu.	-
Ctrl+F	Equivalent to **Search** on the **Edit** menu.	
Ctrl+Shift+F	Equivalent to **Advanced Search** on the **Edit** menu.	-

View Menu Command Shortcuts

View menu command shortcuts

Shortcut	Function	Icon
Ctrl+Q	Equivalent to **Current Selections...** on the **View** menu.	
Ctrl+G	Toggles layout design grid on or off.	-

Selections Menu Command Shortcuts

Selections menu command shortcuts

Shortcut	Function	Icon
Shift+Left arrow	Equivalent to **Back** on the **Selections** menu.	-
Shift+Right arrow	Equivalent to **Forward** on the **Selections** menu.	-

Shortcut	Function	Icon
Ctrl+Shift+L	Equivalent to **Lock** on the **Selections** menu (locks all selections).	
Ctrl+Shift+U	Equivalent to **Unlock** on the **Selections** menu (unlocks all selections).	
Ctrl+Shift+D	Equivalent to **Clear** on the **Selections** menu (clears all selections).	

Settings Menu Command Shortcuts

Settings menu command shortcuts

Shortcut	Function	Icon
Ctrl+Alt+U	Equivalent to **User Preferences...** on the **Settings** menu.	
Ctrl+Alt+D	Equivalent to **Document Properties...** on the **Settings** menu.	
Ctrl+Alt+S	Equivalent to **Sheet Properties...** on the **Settings** menu.	
Ctrl+Alt+V	Equivalent to **Variable Overview...** on the **Settings** menu.	
Ctrl+Alt+E	Equivalent to **Expression Overview...** on the **Settings** menu	-

Bookmarks Menu Command Shortcuts

Bookmarks menu command shortcuts

Shortcut	Function	Icon
Ctrl+B	Equivalent to **Add Bookmark...** on the **Bookmarks** menu.	
Ctrl+Shift+B	Equivalent to **More...** on the **Bookmarks** menu.	

Tools Menu Command Shortcuts

Tools menu command shortcuts

Shortcut	Function	Icon
Ctrl+M	Equivalent to **Edit Module...** on the **Tools** menu.	
Ctrl+Alt+A	Equivalent to **Alerts...** on the **Tools** menu.	

Object Menu Command Shortcuts (List box, Statistics box and Open Multi Box)

Object menu command shortcuts

Shortcut	Function
Ctrl+Shift+L	Equivalent to **Lock** on the **Object** menu (locks selections in active object).
Ctrl+Shift+U	Equivalent to **Unlock** on the **Object** menu (unlocks selections in active object).
Ctrl+Shift+D	Equivalent to **Clear** on the **Object** menu (clears selections in active object).
Alt+Enter	Equivalent to **Properties...** on the **Object** menu (opens the **Properties** dialog of an active object).

Script Keyboard Shortcuts

To see a list of the available keyboard shortcuts in the Script type Ctrl+qsc in the script pane.

Script keyboard shortcuts

Shortcut	Function
Ctrl+G	Go to line number in the script.
Ctrl+K,C	Comment lines in script.
Ctrl+K,U	Uncomment lines in script.
Ctrl+Q,T,A	Add tab in script.
Ctrl+Q,T,P	Promote active tab.
Ctrl+Q,T,D	Demote active tab.
Ctrl+Q,T,N	Rename active tab.
Ctrl+Q,T,R	Remove active tab.
Ctrl+Q,Q	Creates an autogenerated script.
Ctrl+Q,U,I	Opens Unicode input utility.
Ctrl+Q,J,P,G	Creates a script for reading attributes from jpeg files.
Ctrl+Q,M,P,3	Creates a script for reading attributes from mp3 files.
Ctrl+Q,W,M,A	Creates a script for reading attributes from wma files.

F Key Keyboard Shortcuts

F key keyboard shortcuts

Shortcut	Function
F1	Activates context sensitive help.

Shortcut	Function
F3	Enters search mode if a searchable object is activated.
F6	Activates the immediate left sheet tab of the currently active tab.
F7	Activates the immediate right sheet tab of the currently active tab.
F12	Equivalent to **Save As...** on the **File** menu.
Ctrl+F6	Activates the leftmost sheet tab.
Ctrl+F7	Activates the rightmost sheet tab.

6 Introduction to loading data

This is a brief introduction on how to load data into QlikView. It provides a background for the topics in this section, presenting how to perform basic data loading and transformation.

QlikView uses a load script, which is managed in the script editor, to connect to and retrieve data from various data sources. In the script, the fields and tables to load are specified. It is also possible to manipulate or transform the data structure by using script statements and expressions.

When the script is executed, QlikView identifies common fields from different tables (key fields) to associate the data. The resulting data structure of the data in the document can be seen in the table viewer. Changes to the data structure can be made by renaming fields to obtain different associations between tables.

You execute the script by clicking the **Reload** button. After the script execution, the **Select fields** dialog opens, where you can choose the fields to display in list boxes on the sheet in QlikView.

After the data has been loaded into QlikView, it is stored in the document. The document is the heart of the program's functionality and it is characterized by several factors: the unrestricted manner in which data is associated, its large number of possible dimensions, its speed of analysis and its compact size. When the document is open, it is held in RAM.

Analysis in QlikView always happens while the document is not directly connected to its data sources. So, to refresh the data, you need to reload the script.

6.1 Understanding data structures

Data loading statements

Data is loaded by **LOAD** or **SELECT** statements. Each of these statements generates an internal table. A table can always be seen as a list of something, each record (row) then being a new instance of the object type and each field (column) being a specific attribute or property of the object.

Rules

The following rules apply when loading data into QlikView:

- QlikView does not make any difference between tables generated by a **LOAD** or a **SELECT** statement. This means that if several tables are loaded, it does not matter whether the tables are loaded by **LOAD** or **SELECT** statements or by a mix of the two.
- The order of the fields in the statement or in the original table in the database is arbitrary to the QlikView logic.
- Field names are used in the further process to identify fields and making associations. These are case sensitive, which often makes it necessary to rename fields in the script.

Execution of the script

For a typical **LOAD** or **SELECT** statement the order of events is roughly as follows:

1. Evaluation of expressions
2. Renaming of fields by **as**
3. Renaming of fields by **alias**
4. Qualification of field names
5. Mapping of data if field name matches
6. Storing data in an internal table

Fields

Fields are the primary data-carrying entities in QlikView. A field typically contains a number of values, called field values. In database terminology we say that the data processed by QlikView comes from data files. A file is composed of several fields where each data entry is a record. The terms file, field and record are equivalent to table, column and row respectively. The QlikView AQL logic works only on the fields and their field values.

Field data is retrieved by script via **LOAD**, **SELECT** or **Binary** statements. The only way of changing data in a field is by re-executing the script. The actual field values can not be manipulated by the user from the layout or by means of automation. Once read into QlikView they can only be viewed and used for logical selections and calculations.

Field values consist of numeric or alphanumeric (text) data. Numeric values actually have dual values, the numeric value and its current, formatted text representation. Only the latter is displayed in sheet objects etc.

The content of a field can be represented in a list box.

Field tags

Field tags provide the possibility of adding metadata to the fields in your data model. There are two different types of field tags:

- System field tags
  System field tags are generated automatically when the script is executed and data is loaded. Some of the tags can be manipulated in the script. System tags are always preceded by a $ sign.
- Custom field tags
  You can add custom tags to fields in the load script, using the **Tag** statement. Custom tags may not use the same name as any system tag.

System field tags

The following system field tags are generated at the end of script execution.

System field tags

Tag	Description	Can be manipulated in the script
$system	System field that is generated by QlikView during script execution.	No
$key	Key field providing a link between two or more tables.	No
$keypart	The field is part of one or more synthetic keys.	No

Tag	Description	Can be manipulated in the script
$syn	Synthetic key	No
$hidden	Hidden field, that is, it is not displayed in any field selection list when creating charts, dimensions or measures. You can still use hidden fields in expressions, but you need to type the field name. You can use the **HidePrefix** and **HideSuffix** system variables to set which fields to hide.	Yes
$numeric	All (non-NULL) values in the field are numeric	Yes
$integer	All (non-NULL) values in the field are integers.	Yes
$text	No values in the field are numeric.	Yes
$ascii	Field values contain only standard ASCII characters.	Yes
$date	All (non-NULL) values in the field can be interpreted as dates (integers).	Yes
$timestamp	All (non-NULL) values in the field can be interpreted as time stamps.	Yes

The following tags are set in the *Document Properties: Tables (page 216)* dialog and can be enabled and disabled by the user:

- $dimension - denotes a field recommended for use in chart dimensions, list boxes, etc.
- $measure - denotes a field recommended for use in expressions.

System fields

In addition to the fields extracted from the data source, system fields are also produced by QlikView. These all begin with "$" and can be displayed in list boxes much like ordinary fields. System fields are typically created during script execution, are primarily used as an aid in document design.

Displaying System Fields

Perform the following steps:

1. Right-click on the sheet and select **System Fields**.
2. Check the **Show System Fields** box.

The system fields are now available as any other fields.

Available System Fields

The following system fields can be displayed:

System fields

Field	Description

$Table	Displays all internal tables loaded by the script. When a single table is selected, an information symbol will activate in the caption area of the list box. By clicking here, it is possible to view the table, if it comes from a file.
$Field	Displays the fields that are read from the tables. By setting this list box to **Show Frequency** in the **List Box Properties: General** page, it is simple to detect key fields that occur in several internal tables.
$Fields	The numbers in this list box represent the number of fields in different tables.
$FieldNo	This list box shows the position of the fields in the tables.
$Rows	This list box shows the number of rows in the tables.
$Info	If info tables have been included in the document, their names will be displayed here.

System Table

QlikView can automatically create a pivot table that makes use of the system fields.The table is called **System Table** and contains the two dimensions *$Field* and *$Table* and the expression *only([$Field])*. The system table is sorted according to frequency by default. The system table object is not available for the QlikView Server clients (AJAX and Plugin clients).

Creating a System Table

Perform the following steps:

1. Right-click on the sheet and select **New Sheet Object**.
2. Select **System Table**.

Input fields

QlikView supports a special type of field which can be changed without script execution, the input field.
An input field is just like any other field in QlikView, with the difference that its values, as read in the script, can later be changed without running the script again. Input fields can be used like any other fields in all types of sheet objects.
When using input fields, the script creates placeholders for each field value, which can later be edited to contain new data. Any field can be turned into an input field by listing it in an inputfield statement in the script before it appears in a **LOAD** or **SELECT** statement.
Values of an input field can be changed in list box cells, table box cells and in table chart expression cells. Only list boxes and table columns which contain input fields are editable. By hovering over an editable cell it is possible to see an input icon. Clicking on the icon sets the cell in input edit mode. It is possible to use up/down arrow keys to move between cells while staying in input edit mode. The entire QlikView document will automatically recalculate whenever new values are entered.
A table chart expression cell may contain a special input field aggregation function and still be open for input. The change will then be distributed back to the underlying field values, based on predefined algorithms, such as "spread equally" or "spread proportionally".
It is possible to specify relative change.

Relative change works when using the distribution mode as part of the expression.

The following syntax applies (*n* is a number):

Input syntax

Syntax	Description
%+n	increases the current value by n%
%-n	decreases the current value by n%
+=n	increases the current value by n
-=n	decreases the current value by n
*=n	multiplies the current value with n
/=n	divides the current value with n

Example:

%+10 increases the current value with 10%.

+=56 increases the current value with 56.

***=2** multiplies the value with 2.

/=2 divides the value with 2.

/=0 no change.

There are also Automation APIs for extracting and setting values programmatically.

Limitations

- A calculated field and key fields cannot be used as input fields. The input field functionality will automatically be disabled.
- Input fields are not meant for large amounts of data, as they store data significantly less efficiently than regular fields.
- The key between the input field and the logical field must be unique, it cannot contain any duplicate values.

Input field example

This example adds an input field to the data and shows how you can update the values interactively.

1. Load the following data in the load script.

```
Inputfield Value;

Table1:
LOAD * INLINE
[
Key, Attribute, Value
Bob, Jan, 100
Bob, Feb, 200
Bob, Mar, 300
Kate, Jan, 400
Kate, Feb, 500
Kate, Mar, 600
```

```
];
```

2. When you have loaded the data, create a **Table Box** and add all three fields.
3. Create a **Straight Table** chart and add Key as dimension. Add the following expressions:
   - `Sum(Value)`
   - `InputSum(Value)`

   Both expressions will show the same value, but you can only update `InputSum(Value)` in the straight table, not `Sum(Value)`.

You can now change Value in the table box interactively. The aggregated values of the expressions in the straight table will update accordingly.

You can also update the values of the `InputSum(Value)` expression in the straight table. The underlying values will be updated in the table box. The change is distributed equally to all values, but you can change the distribution mode in the `InputSum()` function.

Field Groups

One main difference between QlikView and many other database viewers, OLAP tools etc. is that in QlikView there is no need to predefine any hierarchies in the input data. The unique internal logic of QlikView gives you the complete freedom to access any field as a full dimension in any order you like. For most purposes this freedom is extremely powerful.

However, there are occasions when a predefined hierarchy could actually help you to display data more efficiently. QlikView therefore offers the possibility to define groups of fields. The groups can be hierarchic (drill-down) or non-hierarchic (cyclic).

Groups are created in the **Groups** page of the **Document Properties** dialog. They can be used in charts, where they appear together with the available fields in the dimension drop-down boxes on the **Dimension**.

Any fields can be grouped together.

Drill-down groups are marked with an  icon,

while cyclic groups are displayed with an  icon.

Hierarchic Groups (Drill-Down)

When several fields form a natural hierarchy, it makes sense to create a drill-down group. Typical examples of hierarchic groups could be:

Time:Year, Quarter, Month

or

Geography: Continent, Country, State, City

When a drill-down group is used as a dimension in a chart, the chart will use the first field in the group's list of fields that has more than one possible value. If selections are made that cause the field to have only one possible value, the next field in the list will be used instead, provided that it has more than one possible value. If no field in the list has more than one possible value, the last field will be used anyway.

In the first example above, Year will be used as chart dimension until a single year is selected. The chart will then show Quarter. If a single quarter is selected, the chart will switch to Month.

As selections disappear, so that more than one value becomes possible in the upper fields of the group's field list, the chart will automatically be drilled back up. Forced drill-up can be achieved by clicking on the drill-up icon in the chart.

Hierarchic groups (drill-down)

When several fields form a natural hierarchy, it makes sense to create a drill-down group. Typical examples of hierarchic groups are:

Time: Year, Quarter, Month

or:

Geography: Continent, Country, State, City

When a drill-down group is used as a dimension in a chart, the chart will use the first fields in the group's list of fields that has more than one possible value. If selections are made that cause the field to have only one possible value, the next field in the list will be used instead, provided that it has more than one possible value. If no field in the list has more than one possible value, the last field will be used anyway.

In the first example above, *Year* will be used as chart dimension until a single year is selected. The chart will then show *Quarter*. If a single quarter is selected, the chart will switch to *Month*.

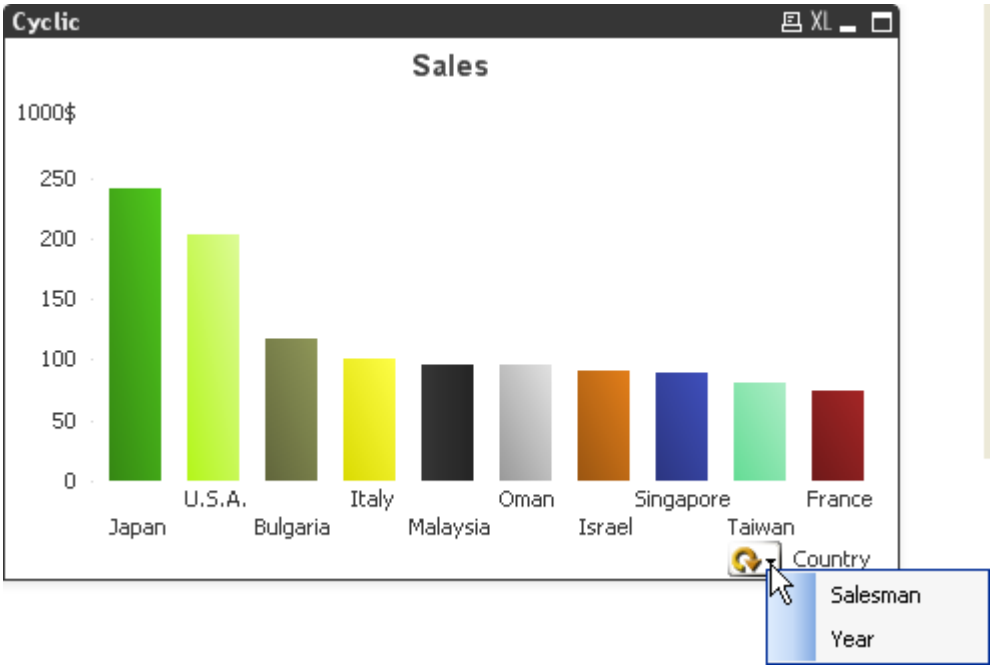
As selections disappear, so that more than one field becomes available in the upper fields of the group's field list, the chart will automatically be drilled back up. Forced drill-up can be achieved by clicking on the drill-up icon in the chart.

A special feature appears when the same drill-down group is used in more than one dimension in the chart specification. The second time the group occurs, the field used will automatically be taken from one step down the group's field list. For example, if you create a two-dimensional chart with the group *Geography* above used as both Main dimension and 2nd dimension, *Continent* and *Country* will initially be used. As soon as one single continent is selected, *Country* and *State* will be used instead.

Although it is convenient to use this feature with natural hierarchies, there is nothing preventing its use in other situations as well.

If you use a dimension expression that results in a data island it is not possible to drill down, as a valid hierarchy is required. In this case you need to adapt the expression to incorporate the values in the hierarchy.

Non-hierarchic groups (cyclic)



Sometimes you may find it useful to group fields which do not form a natural hierarchy. The reason would be to enable the user to make quick changes to the data to be displayed in the chart or list box.

Any fields can be grouped together in a cyclic group. When a cyclic group is used as a chart dimension, the chart will initially use the first field in the list. The user may then switch to another field by clicking the cycle icon in the chart. The fields are displayed in the order in which they appear in the group's field list. When the last field in the list has been used, the turn goes back to the first field again. In this way the chart may cycle through the fields indefinitely.

*Do not confuse cyclic groups with **Cyclic Group** in chart expressions. Cyclic dimension groups are made up of a number of fields, whereas the cyclic display in chart expressions cycles through a number of chart expressions.*

Logical tables

Each **LOAD** or **SELECT** statement generates a table. Normally, QlikView treats the result of each one of these as one logical table. However, there are a couple of exceptions from this rule:

- If two or more statements result in tables with identical field names, the tables are concatenated and treated as one logical table.
- If a **LOAD** or **SELECT** statement is preceded by any of the following qualifiers, data is altered or treated differently:

Logical table qualifiers

Qualifier	Description
concatenate	This table is concatenated with (added to) another named table or with the last previously created logical table.
crosstable	This table is converted from crosstable format to column format.
generic	This table is split into several other logical tables.
info	This table is loaded not as a logical table, but as an information table containing links to external info such as files, sounds, URLs, etc.
intervalmatch	The table (which must contain exactly two columns) is interpreted as numeric intervals, which are associated with discrete numbers in a specified field.
join	This table is joined by QlikView with another named table or with the last previously created logical table, over the fields in common.
keep	This table is reduced to the fields in common with another named table or with the last previously created logical table.
mapping	This table (which must contain exactly two columns) is read as a mapping table, which is never associated with other tables.
semantic	This table is loaded not as a logical table, but as a semantic table containing relationships that should not be joined, e.g. predecessor, successor and other references to other objects of the same type.

When the data has been loaded, the logical tables are associated.

Table names

QlikView tables are named when they are stored in the QlikView database. The table names can be used, for example, for **LOAD** statements with a **resident** clause or with expressions containing the **peek** function, and can be seen in the *$Table* system field in the layout.

Tables are named in accordance with the following rules:

1. If a label immediately precedes a **LOAD** or **SELECT** statement the label is used as table name. The label must be followed by a colon.

   Example:

   ```
   Table1:
   LOAD a,b from c.csv;
   ```

2. If no label is given, the file name or table name immediately following the keyword **FROM** in the **LOAD** or **SELECT** statement is used.

   If a file name is defined as a wildcard such as `*.csv`, the name becomes `tablename-1`.

3. Tables loaded inline are named INLINExx, where xx is a number. The first inline table will be given the name *INLINE01*.
4. Automatically generated tables are named AUTOGENERATExx, where xx is a number. The first autogenerated table is given the name *AUTOGENERATE01*.
5. If a table name generated according to the rules above should be in conflict with a previous table name, the name is extended with -x , where x is a number. The number is increased until no conflict remains. For example, three tables could be named *Budget*, *Budget-1* and *Budget-2*.

There are three separate domains for table names: **section access**, **section application** and mapping tables. Table names generated in **section access** and **section application** are treated separately. If a table name referenced is not found within the section, QlikView searches the other section as well. Mapping tables are treated separately and have no connection whatsoever to the other two domains of table names.

Table labels

A table can be labeled for later reference, for example by a **LOAD** statement with a **resident** clause or with expressions containing the **peek** function. The label, which can be an arbitrary string of numbers or characters, should precede the first **LOAD** or **SELECT** statement that creates the table. The label must be followed by a colon "**:**".

Labels containing blanks must be quoted using single or double quotation marks or square brackets.

Example 1:

```
Table1:
LOAD a,b from c.csv;
LOAD x,y from d.csv where x=peek('a',y,'Table1');
```

Example 2: Table label containing a blank

```
[All Transactions]:
SELECT * from Transtable;
LOAD Month, sum(Sales) resident [All Transactions] group by Month;
```

Associations between logical tables

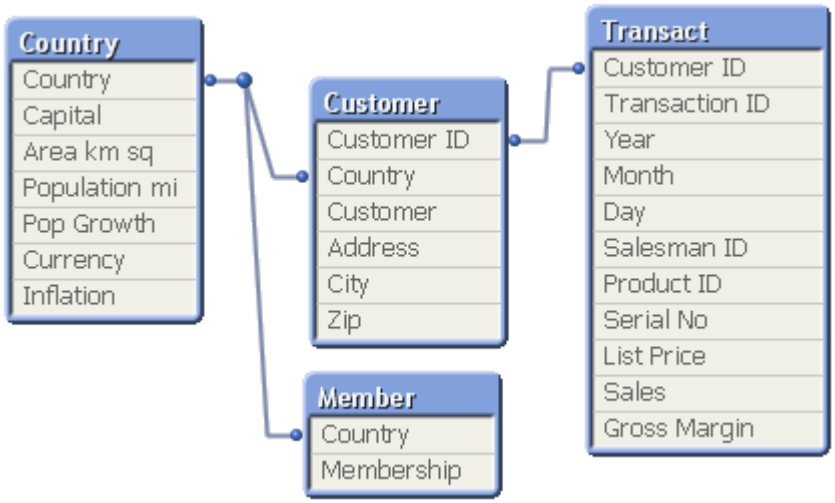
A database can have many tables. Each table can be considered as a list of something; each record in the list represents an instance of an object of some type.

Example:

If two tables are lists of different things, for example if one is a list of customers and the other a list of invoices, and the two tables have a field such as the customer number in common, this is usually a sign that there is a relationship between the two tables. In standard SQL query tools the two tables should almost always be joined.

The tables defined in the QlikView script are called logical tables. QlikView makes associations between the tables based on the field names, and performs the joins when a selection is made, for example selecting a field value in a list box.

This means that an association is almost the same thing as a join. The only difference is that the join is performed when the script is executed - the logical table is usually the result of the join. The association is made after the logical table is created - associations are always made between the logical tables.



QlikView association compared to SQL natural outer join

A QlikView association resembles a SQL natural outer join. The association is however more general: an outer join in SQL is usually a one-way projection of one table on another. An association always results in a full (bidirectional) natural outer join.

Frequency information in associating fields

There are some limitations in the use of most associating fields, that is, fields that are common between two or more tables. When a field occurs in more than one table, QlikView has a problem knowing which of the tables it should use for calculating data frequencies.

QlikView analyzes the data to see if there is a non-ambiguous way to identify a main table to count in (sometimes there is), but in most cases the program can only make a guess. Since an incorrect guess could be fatal (QlikView would appear to make a calculation error) the program has been designed not to allow certain operations when the data interpretation is ambiguous for associating fields.

Limitations for associating fields

1. It is not possible to display frequency information in a list box showing the field.
2. Statistics boxes for the field show n/a for most statistical entities.
3. In charts, it is not possible to create expressions containing functions that depend on frequency information (such as Sum, Count functions, and Average) on the field, unless the **Distinct** modifier is activated. After each reload, QlikView will scan all chart expressions to see if any ambiguities have occurred as a result of changes in data structures. If ambiguous expressions are found, a warning dialog will be shown and the expression will be disabled. It will not be possible to enable the expression until the problem has been corrected. If a log file is enabled, all ambiguous expressions will be listed in the log.

Workaround

There is a simple way to overcome these limitations. Load the field an extra time under a new name from the table where frequency counts should be made. Then use the new field for a list box with frequency, for a statistics box or for calculations in the charts.

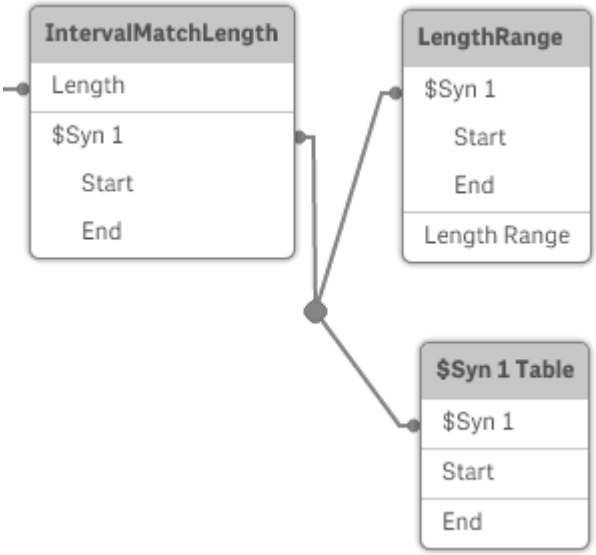
Synthetic keys

When two or more internal tables have two or more fields in common, this implies a composite key relationship. QlikView handles this by creating synthetic keys automatically. These keys are anonymous fields that represent all occurring combinations of the composite key.

If you receive a warning about synthetic keys when loading data, it is recommended that you review the data structure in the table viewer. You should ask yourself whether the data model is correct or not. Sometimes it is, but often enough the synthetic key is there due to an error in the script.

Multiple synthetic keys are often a symptom of an incorrect data model, but not necessarily. However, a sure sign of an incorrect data model is if you have synthetic keys based on other synthetic keys.

When the number of synthetic keys increases, depending on data amounts, table structure and other factors, QlikView may or may not handle them gracefully, and may end up using excessive amount of time and/or memory. In such a case you need to re-work your script by removing all synthetic keys.



Handling synthetic keys

If you need to avoid synthetic keys, there are a number of ways for solving this in the load script:

- Check that only fields that logically link two tables are used as keys.
    - Fields like “Comment”, “Remark” and “Description” may exist in several tables without being related, and should therefore not be used as keys.

    - Fields like “Date”, “Company” and “Name” may exist in several tables and have identical values, but still have different roles (Order Date/Shipping Date, Customer Company/Supplier Company). In such cases they should not be used as keys.
- Make sure that redundant fields aren’t used – that only the necessary fields connect. If for example a date is used as a key, make sure not to load year, month or day_of_month of the same date from more than one internal table.
- If necessary, form your own non-composite keys, typically using string concatenation inside an AutoNumber script function.

Data types in QlikView

QlikView can handle text strings, numbers, dates, times, timestamps, and currencies correctly. They can be sorted, displayed in a number of different formats, and they can be used in calculations. This means, for example, that dates, times, and timestamps can be added to or subtracted from each other.

Data representation inside QlikView

In order to understand data interpretation and number formatting in QlikView, it is necessary to know how data is stored internally by the program. All of the data loaded into QlikView is available in two representations: as a string and as a number.

1. The string representation is always available and is what is shown in the list boxes and the other sheet objects. Formatting of data in list boxes (number format) only affects the string representation.
2. The number representation is only available when the data can be interpreted as a valid number. The number representation is used for all numeric calculations and for numeric sorting.

If several data items read into one field have the same number representation, they will all be treated as the same value and will all share the first string representation encountered. Example: The numbers 1.0, 1 and 1.000 read in that order will all have the number representation 1 and the initial string representation 1.0.

Number interpretation

When you load data containing numbers, currency, or dates, it will be interpreted differently depending on whether the data type is defined or not. This section describes how data is interpreted in the two different cases.

Data with type information

Fields containing numbers with a defined data type in a database loaded using ODBC will be handled by QlikView according to their respective formats. Their string representation will be the number with an appropriate formatting applied.

QlikView will remember the original number format of the field even if the number format is changed in the number formatting dialogs of the application. The original format can always be restored by clicking on the **Default from Input** button in the number format dialogs

The default formats for the different data types are:

- integer, floating point numbers: the default setting for number
- currency: the default setting for currency

- time, date, timestamp: ISO standard formatting

The default settings for number and currency are defined using the script number interpretation variables or the operating system settings (**Control Panel**).

Data without type information

For data without specific formatting information from the source (for example, data from text files or ODBC data with a general format) the situation becomes more complicated. The final result will depend on at least six different factors:

1. The way data is written in the source database
2. The operating system settings for number, time, date and so on. (**Control Panel**)
3. The use of optional number-interpreting variables in the script
4. The use of optional interpretation functions in the script
5. The use of optional formatting functions in the script
6. The number formatting controls in the document

QlikView tries to interpret input data as a number, date, time, and so on. As long as the system default settings are used in the data, the interpretation and the display formatting is done automatically by QlikView, and the user does not need to alter the script or any setting in QlikView. There is an easy way to find out if the input data has been correctly interpreted: numeric values are right-aligned in list boxes, whereas text strings are left-aligned.

By default, the following scheme is used until a complete match is found. (The default format is the format such as the decimal separator, the order between year, month and day, and so on, specified in the operating system, that is, in the **Control Panel**, or in some cases from the special number interpretation variables in the script.

QlikView will interpret the data as one of the following, in sequential order:

1. A number in accordance with the default format for numbers.
2. A date according to the default format for date.
3. A timestamp according to the default format for time and date.
4. A time according to the default format for time.
5. A date according to the following format: yyyy-MM-dd.
6. A time-stamp according to the following format: YYYY-MM-DD hh:mm[:ss[.fff]].
7. A time according to the following format: hh:mm[:ss[.fff]].
8. Money according to the default format for currency.
9. A number with '.' as decimal separator and ',' as thousands separator, provided that neither the decimal separator nor the thousands separator are set to ','.
10. A number with ',' as decimal separator and '.' as thousands separator, provided that neither the decimal separator nor the thousands separator are set to '.'.
11. A text string. This last test never fails: if it is possible to read the data, it is always possible to interpret it as a string.

When loading numbers from text files, some interpretation problems may occur, for example, an incorrect thousands separator or decimal separator may cause QlikView to interpret the number incorrectly. The first thing to do is to check that the number-interpretation variables in the script are correctly defined and that the system settings in the **Control Panel** are correct.

When QlikView has interpreted data as a date or time, it is possible to change to another date or time format in the chart properties.

Since there is no predefined format for the data, different records may, of course, contain differently formatted data in the same field. It is possible for example, to find valid dates, integers, and text in one field. The data will therefore, not be formatted, but shown in its original form.

Date and time interpretation

QlikView stores each date, time, and timestamp found in data as a date serial number. The date serial number is used for dates, times and timestamps and in arithmetic calculations based on date and time entities. Dates and times can thus be added and subtracted, intervals can be compared, and so on.

The date serial number is the (real valued) number of days passed since December 30, 1899, that is, the QlikView format is identical to the 1900 date system used by Microsoft Excel and other programs, in the range between March 1, 1900 and February 28, 2100. For example, 33857 corresponds to September 10, 1992. Outside this range, QlikView uses the same date system extended to the Gregorian calendar.

The serial number for times is a number between 0 and 1. The serial number 0.00000 corresponds to 00:00:00, whereas 0.99999 corresponds to 23:59:59. Mixed numbers indicate the date and time: the serial number 2.5 represents January 1, 1900 at 12:00 noon.

The data is, however, displayed according to the format of the string. By default, the settings made in the **Control Panel** are used. It is also possible to set the format of the data by using the number interpretation variables in the script or with the help of a formatting function. Lastly,it is also possible to reformat the data in the properties sheet of the sheet object.

Example 1:

Dates and serial numbers

Date string	Date serial number
1997-08-06	35648
09:00	0.375
1997-08-06 09:00	35648.375

and the other way around.

Serial numbers and dates

Date serial number	Specified number format	Date string
35648	'D/M/YY'	6/8/97
0.375	'hh.mm'	09.00

QlikView follows a set of rules to try to interpret dates, times, and other data types. The final result, however, will be affected by a number of factors as described here.

Example 2:

These examples assume the following default settings:

- Number decimal separator: .
- Short date format: YY-MM-DD
- Time format: hh:mm

The following table shows the different representations when data is read into QlikView without the special interpretation function in the script:

Date representations

Source data	QlikView default interpretation	'YYYY-MM-DD' date format	'MM/DD/YYYY' date format	'hh:mm' time format	'# ##0.00' number format
0.375	0.375	1899-12-30	12/30/1899	09:00	0.38
33857	33857	1992-09-10	09/10/1992	00:00	33 857.00
97-08-06	97-08-06	1997-08-06	08/06/1997	00:00	35 648.00
970806	970806	4557-12-21	12/21/4557	00:00	970 806.00
8/6/97	8/6/97	8/6/97	8/6/97	8/6/97	8/6/97

The following table shows the different representations when data is read into QlikView using the date#(A, 'M/D/YY') interpretation function in the script:

Date representations

Source data	QlikView default interpretation	'YYYY-MM-DD' date format	'MM/DD/YYYY' date format	'hh:mm' time format	'# ##0.00' number format
0.375	0.375	0.375	0.375	0.375	0.375
33857	33857	33857	33857	33857	33857
97-08-06	97-08-06	97-08-06	97-08-06	97-08-06	97-08-06
970806	970806	970806	970806	970806	970806
8/6/97	8/6/97	1997-08-06	08/06/1997	00:00	35 648.00

6.2 Guidelines for data and fields

There are certain conventions and limitations you need to be aware of when working with QlikView. For example: the upper limit for data tables and fields as well as maximum amount of loaded data in QlikView.

Guidelines for amount of loaded data

The amount of data that can be loaded into QlikView is primarily limited by the amount of primary memory of the computer.

Upper limits for data tables and fields

Be aware when building very large documents that a QlikView document cannot have more than 2,147,483,648 distinct values in one field.

The number of fields and data tables as well as the number of table cells and table rows that can be loaded, is limited only by RAM.

Recommended limit for load script sections

The recommended maximum number of characters to be used per load script section is 50,000 characters.

Conventions for number and time formats

In many interpretation and formatting functions it is possible to set the format for numbers and dates by using a format code. This topic describes the conventions used to format a number, date, time or time stamp. These conventions apply both to script and chart functions.

Number formats

- To denote a specific number of digits, use the symbol "0" for each digit.
- To denote a possible digit, use the symbol "#". If the format contains only # symbols to the left of the decimal point and the numbers is less than 1, the zeros are trimmed and it will begin with a decimal point. If the format contains # symbols to the right of the decimal point, all values will be displayed.
- To mark the position of the thousands separator or the decimal separator, use the applicable thousands separator and the decimal separator.

The format code is used for defining the positions of the separators. It is not possible to set the separator in the format code. Use the **DecimalSep** and **ThousandSep** variables for this in the script.
It is possible to use the thousand separator to group digits by any number of positions, for example, a format string of "0000-0000-0000" (thousand separator="-") could be used to display a twelve-digit part number as "0012-4567-8912".

Examples:

- # ##0: describes the number as an integer with a thousands separator.
- ###0: describes the number as an integer without a thousands separator.
- 0000: describes the number as an integer with at least four digits. For example, the number 123 will be shown as 0123.
- 0.000: describes the number with three decimals.
- 0.0##: describes the number with three decimals. Some might be displayed as zeros.

Special number formats

QlikView can interpret and format numbers in any radix between 2 and 36 including binary, octal and hexadecimal. It can also handle roman formats.

Number formats

Format	Description
Binary format	To indicate binary format the format code should start with (bin) or (BIN).
Octal format	To indicate octal format the format code should start with (oct) or (OCT).
Hexadecimal format	To indicate hexadecimal format the format code should start with (hex) or (HEX). If the capitalized version is used A-F will be used for formatting (for example 14FA). The non-capitalized version will result in formatting with a-f (for example 14fa). Interpretation will work for both variants regardless of the capitalization of the format code.
Decimal format	The use of (dec) or (DEC) to indicate decimal format is permitted but unnecessary.
Custom radix format	To indicate a format in any radix between 2 and 36 the format code should start with (rxx) or (Rxx) where xx is the two-digit number denoting the radix to be used. If the capitalized R is used letters in radices above 10 will be capitalized when QlikView is formatting (for example 14FA). The non-capitalized r will result in formatting with non-capital letters (for example 14fa). Interpretation will work for both variants regardless of the capitalization of the format code. Note that (r02) is the equivalent of (bin), (R16) is the equivalent of (HEX), and so on.
Roman format	To indicate roman numbers the format code should start with (rom) or (ROM). If the capitalized version is used capital letters will be used for formatting (for example MMXVI). The non-capitalized version will result in formatting with lower cap letters (mmxvi). Interpretation will work for both variants regardless of the capitalization of the format code. Roman numbers are generalized with minus sign for negative numbers and 0 for zero. Decimals are ignored with roman formatting.

Examples:

- num(199, '(bin)') returns 11000111
- num(199, '(oct)') returns 307
- num(199, '(hex)') returns c7
- num(199, '(HEX)') returns C7
- num(199, '(r02)') returns 11000111
- num(199, '(r16)') returns c7
- num(199, '(R16)') returns C7
- num(199, '(R36)') returns 5J
- num(199, '(rom)') returns cxcix
- num(199, '(ROM)') returns CXCIX

Dates

You can use the following symbols to format a date. Arbitrary separators can be used.

Date formatting symbols

Symbol	Description
D	To describe the day, use the symbol "D" for each digit.
M	To describe the month number, use the symbol "M". • Use "M" or "MM" for one or two digits. • "MMM" denotes short month name in letters as defined by the operating system or by the override system variable **MonthNames** in the script. • "MMMM" denotes long month name in letters as defined by the operating system or by the override system variable **LongMonthNames** in the script.
Y	To describe the year, use the symbol "Y" for each digit.
W	To describe the weekday, use the symbol "W". • "W" will return the number of the day (for example 0 for Monday) as a single digit. • "WW" will return the number with two digits (e.g. 02 for Wednesday). • "WWW" will show the short version of the weekday name (for example Mon) as defined by the operating system or by the override system variable **DayNames** in the script. • "WWWW" will show the long version of the weekday name (for example Monday) as defined by the operating system or by the override system variable **LongDayNames** in the script.

Examples: (with 31st March 2013 as example date)

- YY-MM-DD describes the date as 13-03-31.
- YYYY-MM-DD describes the date as 2013-03-31.
- YYYY-MMM-DD describes the date as 2013-Mar-31.
- DD MMMM YYYY describes the date as 31 March 2013.
- M/D/YY describes the date as 3/31/13.
- W YY-MM-DD describes the date as 6 13-03-31.
- WWW YY-MM-DD describes the date as Sat 13-03-31.
- WWWW YY-MM-DD describes the date as Saturday 13-03-31.

Times

You can use the following symbols to format a time. Arbitrary separators can be used.

Time format symbols

Symbol	Description
h	To describe the hours, use the symbol "h" for each digit.
m	To describe the minutes, use the symbol "m" for each digit.
s	To describe the seconds, use the symbol "s" for each digit.
f	To describe the fractions of a second, use the symbol "f" for each digit.

Symbol	Description
tt	To describe the time in AM/PM format, use the symbol "tt" after the time.

Examples: (with 18.30 as example time):

- hh:mm: describes the time as 18:30
- hh.mm.ss.ff: describes the time as 18.30.00.00
- hh:mm:tt: describes the time as 06:30:pm

Time stamps

The same notation as that of dates and times above is used in time stamps.

Examples: (with 31th March 2013 18.30 as example time stamp):

- YY-MM-DD hh:mm: describes the time stamp as 13-03-31 18:30
- M/D/Y hh.mm.ss.ffff: describes the time stamp as 3/31/13 18.30.00.0000

6.3 Loading data from files

QlikView can read data from files representing a table, in which the fields are separated by a delimiter like commas, tabs or semicolons. Other possible formats are dif files (Data Interchange Format), fix files (fixed record length), HTML tables, Excel files, xml files and the native QVD and QVX files. In most cases, the first line in the file holds the field names.

Files are loaded by means of a **load** statement in the script.

Instead of typing the statements manually in the script editor, you can use the Table file wizard to generate the statements automatically.

In **load** statements, the full set of script expressions may be used.

To read data from another QlikView document, you may use a **binary** statement.

Table file

In QlikView *Table file* means a file representing a table, in which the fields are separated e.g. by commas, tabs or semicolons (also referred to as a text file) or have fixed length etc. The contents of the first row usually represents the names of the fields. Other table files are dif files (Data Interchange Format), fix files (fixed record length), HTML-tables and Excel-files.

How to prepare Excel files for loading with QlikView

If you want to load Microsoft Excel files into QlikView, there are many functions you can use to transform and clean your data in the load script, but it may be more convenient to prepare the source data directly in the Microsoft Excel spreadsheet file. This section provides a few tips to help you prepare your spreadsheet for loading it into QlikView with minimal script coding required.

Use column headings

If you use column headings in Excel, they will automatically be used as field names if you select **Embedded field names** when selecting data in QlikView. It is also recommended that you avoid line breaks in the labels, and put the header as the first line of the sheet.

Formatting your data

It is easier to load an Excel file into QlikView if the content is arranged as raw data in a table. It is preferable to avoid the following:

- Aggregates, such as sums or counts. Aggregates can be defined and calculated in QlikView.
- Duplicate headers.
- Extra information that is not part of the data, such as comments. The best way is to have a column for comments, that you can easily skip when loading the file in QlikView.
- Cross-table data layout. If, for instance, you have one column per month, you should, instead, have a column called “Month” and write the same data in 12 rows, one row per month. Then you can always view it in cross-table format in QlikView.
- Intermediate headers, for example, a line saying “Department A” followed by the lines pertaining to Department A. Instead, you should create a column called “Department” and fill it with the appropriate department names.
- Merged cells. List the cell value in every cell, instead.
- Blank cells where the value is implied by the previous value above. You need to fill in blanks where there is a repeated value, to make every cell contain a data value.

Use named areas

If you only want to read a part of a sheet, you can select an area of columns and rows and define it as a named area in Excel. QlikView can load data from named areas, as well as from sheets.

Typically, you can define the raw data as a named area, and keeping all extra commentary and legends outside the named area. This will make it easier to load the data into QlikView.

Remove password protection

It is recommended to remove password protection of the Excel file prior to loading the data.

Enable editing

If the Microsoft Excel file was downloaded from the Internet, you should enable editing prior to loading the data into QlikView.

6.4 Loading data from databases

Data from commercial database systems is loaded into QlikView via the Microsoft OLE DB/ ODBC interface. To do so, you must install a driver to support your DBMS and you must configure the database as ODBC data source.

When this is done, you can set up a connection to the database in the **Edit Script** dialog by clicking the **Connect** button. This generates a **Connect** statement in the script.

After that, you define the fields and tables to be loaded in a **Select** statement. To create this statement, click the **Select** button.

Logic in databases

Several tables from a database application can be included simultaneously in the QlikView logic. When a field exists in more than one table, the tables are logically linked through this key field.

When a value is selected, all values compatible with the selection(s) are displayed as optional. All other values are displayed as excluded.

If values from several fields are selected, a logical AND is assumed.

If several values of the same field are selected, a logical OR is assumed.

In some cases, selections within a field can be set to logical AND.

If Info display of a field is desired, a two-column table must be included in the *script*. The first column of the table must contain values of the field, the second the information **associated** with the field value.. The first column must have the field name as heading. A special script syntax of the **LOAD**/**SELECT** statement tells QlikView to treat this table as an Information table.

6.5 Understanding circular references

If there are circular references ("loops") in a data structure, the tables are associated in such a way that there is more than one path of associations between two fields.

This type of data structure should be avoided as much as possible, since it might lead to ambiguities in the interpretation of data.

QlikView solves the problem of circular references by breaking the loop with a loosely coupled table. When QlikView finds circular data structures while executing the load script, a warning dialog will be shown and one or more tables will be set as loosely coupled. QlikView will typically attempt to loosen the longest table in the loop, as this is often a transaction table, which normally should be the one to loosen. In the table viewer, loosely-coupled tables are indicated by the red dotted links to other tables.

Example:

Data is loaded from three tables that include the following:

- Names of some national soccer teams
- Soccer clubs in some cities
- Cities of some European countries

NationalTeams

Country	Team
Germany	Die Mannschaft
Italy	Azzurri
Spain	La Roja

Sheet1 Sheet

Clubs

City	Team
Barcelona	Barcelona
Hamburg	Altona
Madrid	Real Madrid
Milano	Milan
Munich	Bayern München
Rome	Lazio
Turin	Juventus

Sheet1 Sheet2

Cities

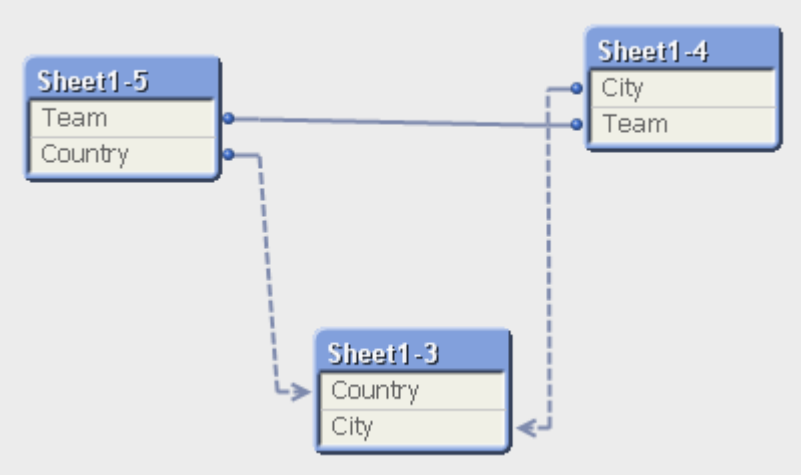
Country	City
Germany	Hamburg
Germany	Munich
Italy	Milano
Italy	Rome
Italy	Turin
Spain	Barcelona
Spain	Madrid

View of the source data tables

This data structure is not very good, since the field name *Team* is used for two different purposes: national teams and local clubs. The data in the tables creates an impossible logical situation.

When loading the tables into QlikView, QlikView determines which of the data connections that is least important, and loosens this table.

Open the **table viewer** to see how QlikView interprets the relevance of the data connections:



The table with cities and the countries they belong to is now loosely coupled to the table with national teams of different countries and to the table with local clubs of different cities.

Solving circular references

When circular references occur, you need to edit the load script by assigning a unique name to one of the fields with identical names.

Do the following:

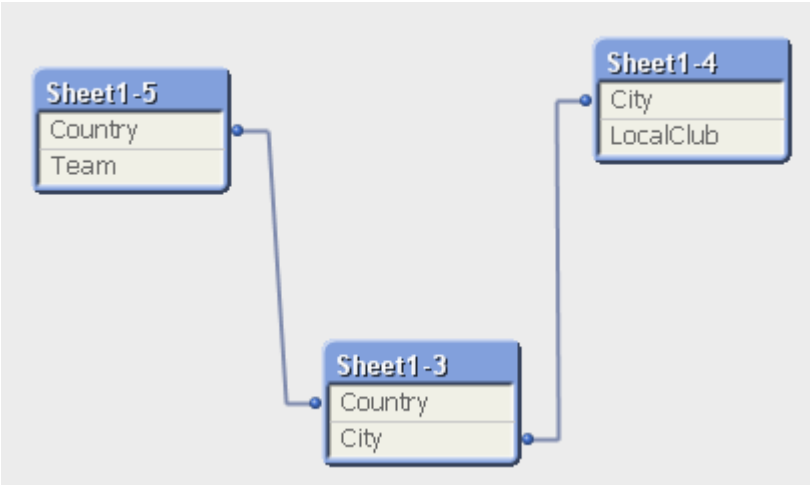
1. Open the script editor.
2. Edit the **LOAD** statement for one of the duplicate field names.

In this example, the **LOAD** statement of the table that holds the local teams and their cities would include with a new name for *Team*, for example *LocalClub*. The updated **LOAD** statement reads:
`LOAD City, Team as LocalClub`

3. Reload the script.

You now have logic that works throughout all the tables. In this example, when *Italy* is selected, the national team, the German cities and the local clubs of each city are associated:

When you open the **table viewer**, you see that the loosely coupled connections are replaced with regular connections:



Loosely coupled tables

When data that includes circular references is loaded into QlikView, loosely coupled tables are created automatically. This prevents that the circular references create a loop in the internal logic. The loosely coupled tables need to be handled in order to visualize data in a way that is expected and understandable.

Intentionally Creating Loosely Coupled Tables

In some special situations, you might want to disconnect some data from the normal QlikView logic. You can use loosely coupled tables to restrict selections in one field to propagate through to the other fields in the table.

To set a table to be loosely coupled, open the **Document Properties** dialog and select the **Tables** tab.

This chapter includes some examples of how loosely coupled tables alter the QlikView logic.

Each of the following three table boxes represents a table read into QlikView:

Table1	
B	A
1	x
2	y
3	z

Table2	
A	C
x	6
y	7
z	8

Table3	
C	D
6	a
7	b
8	c

If the value 2 is selected in field B the following will happen:

Table1	
B	A
2	y

Table2	
A	C
y	7

Table3	
C	D
7	b

The selection ripples through all tables, and excludes values that are not associated.

Now, let's keep this selection but make Table2 loosely coupled. This means that the logic will be cut between the fields A and C in Table2. The result will look this:

Table1	
B	A
2	y

Table2	
A	C
y	6
y	7
y	8

Table3	
C	D
6	a
7	b
8	c

Note that Table2 shown here is a table box and not the table itself. The table box will show all possible combinations between the fields of its columns. Since there is no logic between fields A and C all combinations of their respective possible values are shown.

Example:

The three tables below are found in a rather typical structure: one transaction table and two dimension tables associating to it via one field each.

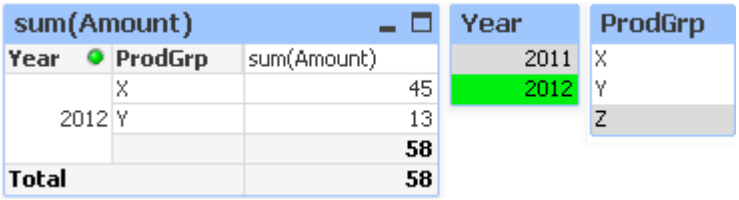
You can visualize sales per year and product group using a pivot table. Next to the pivot table, two list boxes show the dimension fields:

sum(Amount)		
Year	ProdGrp	sum(Amount)
2011	X	36
	Z	14
		50
2012	X	45
	Y	13
		58
Total		**108**

Year
2011
2012

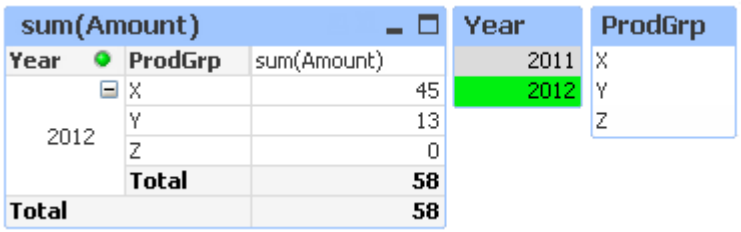
ProdGrp
X
Y
Z

Even though this is a correct pivot table, the effects of QlikView's logic could now potentially lead to undesired results. If the year 2012 is selected, you get the following result:



Product group Z is no longer visible in pivot table. This is natural, since the value Z in the field ProdGrp has been excluded by the selection of the value 2012 in the field Year. However, when you analyze sales of year 2012, you probably want to see Z in the chart with a 0 in the sum(Amount) column, so that it is clear to everyone that product group Z exists and that nothing has been sold in 2012.

In some sense, the two fields Year and ProdGrp have nothing to do with each other, and therefore should not interact just because they happen to be associated via the Trans table. This can be dealt with by declaring the Trans table as loosely coupled, which changes the layout of the pivot table:



Note that the selection in the Year list box does not render any value in the ProdGrp list box anymore.

*Make sure that **Suppress Zero-Values** is not selected for dimensions on the **Presentation** tab of the **Chart Properties** dialog.*

6.6 Renaming fields

Sometimes it is necessary to rename fields in order to obtain the desired associations. The three main reasons for renaming fields are:

1. Two fields are named differently although they denote the same thing:
   - The field *ID* in the *Customers* table
   - The field *CustomerID* in the *Orders* table

   The two fields denote a specific customer identification code and should both be named the same, for example *CustomerID*.
2. Two fields are named the same but actually denote different things:
   - The field *Date* in the *Invoices* table
   - The field *Date* in the *Orders* table

   The two fields should preferably be renamed, to for example *InvoiceDate* and *OrderDate*.
3. There may be errors such as misspellings in the database or different conventions on upper- and lowercase letters.

Since fields can be renamed in the script, there is no need to change the original data. There are two different ways to rename fields as shown in the examples.

Example 1: Using the alias statement

The **LOAD** or **SELECT** statement can be preceded by an **alias** statement.

```
Alias ID as CustomerID;
LOAD * from Customer.csv;
```

Example 2: Using the as specifier

The **LOAD** or **SELECT** statement can contain the **as** specifier.

```
LOAD ID as CustomerID, Name, Address, Zip, City, State from Customer.csv;
```

6.7 Concatenating tables

Automatic concatenation

If the field names and the number of fields of two or more loaded tables are exactly the same, QlikView will automatically concatenate the content of the different statements into one table.

Example:

```
LOAD a, b, c from table1.csv;
LOAD a, c, b from table2.csv;
```

The resulting internal table has the fields a, b and c. The number of records is the sum of the numbers of records in table 1 and table 2.

The number and names of the fields must be exactly the same. The order of the two statements is arbitrary.

Forced concatenation

Even if two or more tables do not have exactly the same set of fields, it is still possible to force QlikView to concatenate the two tables. This is done with the **concatenate** prefix in the script, which concatenates a table with another named table or with the last previously created table.

Example:

```
LOAD a, b, c from table1.csv;
concatenate LOAD a, c from table2,csv;
```

The resulting internal table has the fields a, b and c. The number of records in the resulting table is the sum of the numbers of records in table 1 and table 2. The value of field b in the records coming from table 2 is NULL.

*The number and names of the fields must be exactly the same. Unless a table name of a previously loaded table is specified in the **concatenate** statement the **concatenate** prefix uses the last previously created table. The order of the two statements is thus not arbitrary.*

Preventing concatenation

If the field names and the number of fields of two or more loaded tables are exactly the same, QlikView will automatically concatenate the content of the different statements into one table. This is possible to prevent with a **noconcatenate** statement. The table loaded with the associated **LOAD** or **SELECT** statement will then not be concatenated with the existing table.

Example:

```
LOAD a, b, c from table1.csv;
noconcatenate LOAD a, b, c from table2.csv;
```

6.8 Loading data from a previously loaded table

You can use the **Resident** predicate in a **LOAD** statement to load data from a previously loaded table. This is useful when you want to perform calculations on data loaded with a **SELECT** statement where you do not have the option to use QlikView functions, such as date or numeric value handling.

Example:

In this example, the date interpretation is performed in the **Resident** load as it can't be done in the initial **Crosstable LOAD**.

```
PreBudget:
Crosstable (Month, Amount, 1)
LOAD Account,
   Jan,
   Feb,
   Mar,
…
From Budget;

Budget:
Noconcatenate
LOAD
   Account,
   Month(Date#(Month,'MMM')) as Month,
   Amount
Resident PreBudget;

Drop Table PreBudget;
```

*A common case for using **Resident** is where you want to use a temporary table for calculations or filtering. Once you have achieved the purpose of the temporary table, it should be dropped using the **Drop table** statement.*

Resident or preceding LOAD?

In most cases, the same result can be achieved by using a preceding **LOAD** instead, that is, a **LOAD** statement that loads from the **LOAD** or **SELECT** statement below, without specifying a source qualifier such as **From** or **Resident** that you would normally do. A preceding **LOAD** is generally the faster option, but there are some cases where you need to use a **ResidentLOAD** instead:

- If you want to use the **Order_by** clause to sort the records before processing the **LOAD** statement.
- If you want to use any of the following prefixes, in which cases preceding **LOAD** is not supported:
    - **Crosstable**
    - **Join**
    - **Intervalmatch**

Preceding LOAD

The preceding **LOAD** feature allows you to load a table in one pass, but still define several successive transformations. Basically, it is a **LOAD** statement that loads from the **LOAD** or **SELECT** statement below, without specifying a source qualifier such as **From** or **Resident** that you would normally do. You can stack any number of **LOAD** statements this way. The statement at the bottom will be evaluated first, then the statement above, and so on until the top statement has been evaluated.

You can achieve the same result using **Resident**, but in most cases a preceding **LOAD** will be faster.

Another advantage of preceding load is that you can keep a calculation in one place, and reuse it in **LOAD** statements placed above.

*The following prefixes cannot be used in conjunction with preceding **LOAD**:**Join**, **Crosstable** and **Intervalmatch**.*

Example 1: Transforming data loaded by a SELECT statement

If you load data from a database using a **SELECT** statement, you cannot use QlikView functions to interpret data in the **SELECT** statement. The solution is to add a **LOAD** statement, where you perform data transformation, above the **SELECT** statement.

In this example we interpret a date stored as a string using the QlikView function **Date#** in a **LOAD** statement, using the previous **SELECT** statement as source.

```
LOAD Date#(OrderDate,'YYYYMMDD') as OrderDate;
SQL SELECT OrderDate FROM … ;
```

Example 2: Simplifying your script by reusing calculations

In this example we use a calculation more than once in the script:

```
LOAD  ...,
   Age( FromDate + IterNo() – 1, BirthDate ) as Age,
   Date( FromDate + IterNo() – 1 ) as ReferenceDate
   Resident Policies
      While IterNo() <= ToDate - FromDate + 1 ;
```

By introducing the calculation in a first pass, we can reuse it in the Age function in a preceding **LOAD**:

```
LOAD ..., ReferenceDate,
   Age( ReferenceDate, BirthDate ) as Age;
LOAD *,
   Date( FromDate + IterNo() – 1 ) as ReferenceDate
   Resident Policies
      While IterNo() <= ToDate - FromDate + 1 ;
```

6.9 Partial Reload

This command executes only **Load** and **Select** statements preceded by a **Replace** or **Add** prefix. Other data tables remain unaffected by the command.

6.10 Dollar-sign expansions

Dollar-sign expansions are definitions of text replacements used in the script or in expressions. This process is known as expansion - even if the new text is shorter. The replacement is made just before the script statement or the expression is evaluated. Technically it is a macro expansion.

The expansion always begins with '$(' and ends with ') ' and the content between brackets defines how the text replacement will be done. To avoid confusion with script macros we will henceforth refer to macro expansions as dollar-sign expansions.

Dollar-sign expansions can be used with any of:

- variables
- parameters
- expressions

A dollar-sign expansion is limited in how many expansions it can calculate. Any expansion over 1000 will not be calculated.

Dollar-sign expansion using a variable

When using a variable for text replacement in the script or in an expression, the following syntax is used:

```
$(variablename)
```

$(*variablename)* expands to the value in the variable. If *variablename* does not exist, the expansion will result in an empty string.

For numeric variable expansions, the following syntax is used:

```
$(#variablename)
```

It always yields a valid decimal-point representation of the numeric value of the variable, possibly with exponential notation (for very large/small numbers). If *variablename* does not exist or does not contain a numeric value, it will be expanded to *0* instead.

Example:

```
SET DecimalSep=',';
LET X = 7/2;
```

The dollar-sign expansion **$(X)** will expand to *3,5* while **$(#X)** will expand to *3.5*.

Example:

```
Set Mypath=C:\MyDocs\Files\;
...
LOAD * from $(MyPath)abc.csv;
```

Data will be loaded from *C:\MyDocs\Files\abc.csv*.

Example:

```
Set CurrentYear=1992;
...
SQL SELECT * FROM table1 WHERE Year=$(CurrentYear);
```

Rows with Year=1992 will be selected.

Example:

```
Set vConcatenate = ;
For each vFile in FileList('.\*.txt')
   Data:
   $(vConcatenate)
   LOAD * FROM [$(vFile)];
   Set vConcatenate = Concatenate ;
Next vFile
```

In this example, all .txt files in the directory are loaded using the **Concatenate** prefix. This may be required if the fields differ slightly, in which case auto-concatenation does not work. The vConcatenate variable is initially set to an empty string, as the **Concatenate** prefix cannot be used on the first load. If the directory contains three files named *file1.txt*, *file2.txt* and *file3.txt*, the **LOAD** statement will during the three iterations expand to:

```
LOAD * FROM[.\file1.txt];
Concatenate LOAD * FROM[.\file2.txt];
Concatenate LOAD * FROM[.\file3.txt];
```

Expanding Variables in Alternate States

The variable has only one value, and this is used in all alternate states. When you expand a variable the value is also the same, independent of where it is made, and the state of the object.

If the variable is a calculated variable, that is, the definition starts with an equals sign, the calculation is made in the default state, unless you specify an alternate state in the variable definition.

Example:

If you have a state named `MyState`, and a variable named `vMyVar`:

```
vMyvar: =only({MyState} MyField)
```
The variable definition content, with an explicit reference to the alternate state name, determines in which state the variable content will be evaluated.

Dollar-sign expansion using parameters

Parameters can be used in dollar-sign expansions. The variable must then contain formal parameters, such as $1, $2, $3 etc. When expanding the variable, the parameters should be stated in a comma separated list.

Example:

```
Set MUL='$1*$2';
Set X=$(MUL(3,7)); // returns '3*7' in X

Let X=$(MUL(3,7)); // returns 21 in X
```

If the number of formal parameters exceeds the number of actual parameters only the formal parameters corresponding to actual parameters will be expanded. If the number of actual parameters exceeds the number of formal parameters the superfluous actual parameters will be ignored.

Example:

```
Set MUL='$1*$2';
Set X=$(MUL); // returns '$1*$2' in X

Set X=$(MUL(10)); // returns '10*$2' in X

Let X=$(MUL(5,7,8)); // returns 35 in X
```

The parameter $0 returns the number of parameters actually passed by a call.

Example:

```
set MUL='$1*$2 $0 par';
set X=$(MUL(3,7)); // returns '3*7 2 par' in X
```

Dollar-sign expansion using an expression

Expressions can be used in dollar-sign expansions. The content between the brackets must then start with an equal sign:

```
$(=expression )
```
The expression will be evaluated and the value will be used in the expansion.

Example:

`$(=Year(Today()); //` returns a string with the current year.

`$(=Only(Year)-1); //` returns the year before the selected one.

File inclusion

File inclusions are made using dollar-sign expansions. The syntax is:

```
$(include=filename )
```

The above text will be replaced by the content of the file specified after the equal sign. This feature is very useful when storing scripts or parts of scripts in text files.

Example:

```
$(include=C:\Documents\MyScript.qvs);
```

Dollar expansions and alternate states

A dollar expansion is normally not sensitive to alternate states. There is one exception, if the dollar expansion has an expression, this is evaluated in the state relevant to the object where the dollar expansion is made.

Example:

You have a dollar expansion like the following:

`$(=Sum(Amount))`
The calculation will return the sum of amount based on the selection in the state of the object.

6.11 Using quotation marks in the script

You can use quotation marks in script statements in a number of different ways.

Inside LOAD statements

In a **LOAD** statement the following marks should be used as quotation marks for field names and table names:

LOAD statement quotation marks

Symbol description	Symbol	Code point	Example
double quotation marks	" "	34	`"string"`
square brackets	[ ]	91, 93	`[string]`
grave accents	` `	96	`` `string` ``

And the following marks should be used as quotation marks for string literals:

String literal quotation marks

Symbol description	Symbol	Code point	Example
single quotation marks	''	39	`'string'`

In SELECT statements

For a **SELECT** statement interpreted by the ODBC driver, it may be slightly different. Usually, you should use the straight double quotation marks (Alt + 0034) for field and table names, and the straight single quotation marks (Alt + 0039) for literals, and avoid using grave accents. However, some ODBC drivers not only accept grave accents as quotation marks, but also prefer them. In such a case, the generated **SELECT** statements contain grave accent quotation marks.

Microsoft Access quotation marks example

Microsoft Access ODBC Driver 3.4 (included in Microsoft Access 7.0) accepts the following quotation marks when analyzing the **SELECT** statement:

SELECT statement quotation marks

Symbol description	Symbols
Field names and table names:	[ ] or " " or ` `
String literals:	' '

Other databases may have different conventions.

Outside LOAD statements

Outside a **LOAD** statement, in places where QlikView expects an expression, double quotation marks denote a variable reference and not a field reference. If you use double quotation marks, the enclosed string will be interpreted as a variable and the value of the variable will be used.

Out-of-context field references and table references

Some script functions refer to fields that have already been created, or are in the output of a **LOAD** statement, for example **Exists()** and **Peek()**. These field references are called out-of-context field references, as opposed to source field references that refer to fields that are in context, that is, in the input table of the **LOAD** statement.

Out-of-context field references and table references should be regarded as literals and therefore need single quotation marks.

Difference between names and literals

The difference between names and literals becomes clearer comparing the following examples:

Example:

```
'Sweden' as Country
```

When this expression is used as a part of the field list in a **LOAD** or **SELECT** statement, the text string "*Sweden*" will be loaded as field value into the QlikView field "*Country*".

Example:

```
"land" as Country
```

When this expression is used as a part of the field list in a **LOAD** or **SELECT** statement, the content of the database field or table column named "*land*" will be loaded as field values into the QlikView field "*Country*". This means. that *land* will be treated as a field reference.

Difference between numbers and string literals

The difference between numbers and string literals becomes clearer comparing the following examples.

Example:

```
'12/31/96'
```

When this string is used as a part of an expression, it will in a first step be interpreted as the text string "12/31/96", which in turn may be interpreted as a date if the date format is 'MM/DD/YY'. In that case it will be stored as a dual value with both a numeric and a textual representation.

Example:

```
12/31/96
```

When this string is used as a part of an expression, it will be interpreted numerically as 12 divided by 31 divided by 96.

Using quotation marks in a string

When a string contains characters that can be used as quotation marks, it is important to clearly indicate where a string begins and where it ends when quoting the string. If the string is not properly quoted, the script will fail or it will load data incorrectly.

There are two methods for quoting a string that contains quotation marks.

Use a specific quotation mark to quote the string

Choose a quotation mark that is not used inside the string, and use it to quote the entire string. QlikView will use that specific quotation mark to determine where the string begins and ends.

Any of the following quotation marks can be used to quote the entire string:

- Double quotation marks " "
- Square brackets [ ]
- Grave accents ` `
- Single quotation marks ' '

Example:

```
[Table '1 "2"]
```

Square brackets are used to quote the string. The string loads as: *Table '1 "2"*

```
'string `Name1` "Name2'
```

Single quotation marks are used to quote the string. The string loads as: *string `Name1` "Name2*

Use escape characters

Escape characters are an additional instance of the quotation mark that is used to quote the string. They must be added beside every instance of the quotation mark that appears within the string. When all quotation marks are used inside a string, you need to add escape characters beside the same type of quotation mark used to quote the string. Escape characters can also be used if you want to use a quotation mark that is already in use in a string.

Only the following marks can be used as escape characters:

- Double quotation marks " "
- Square brackets [ ]
- Single quotation marks ' '

Example:

```
"Michael said ""It's a beautiful day""."
```

If you quote the string using the double quotation marks " ", then you must add an extra double quotation mark beside every double quotation mark used inside the string.

This string is loaded as *Michael said "It's a beautiful day".* By using the escape character "", the QlikView script editor understands which double quotation marks are part of the string and which quotation mark indicates the end of the string. The single quotation mark ' used in the abbreviation *It's* does not need an escape because it is not the mark used to quote the string.

Example:

```
'Michael said: "It''s a beautiful day".'
```

If you quote this string using single quotation marks, then you must add an extra single quotation mark beside each single quotation mark used inside the string.

This string is loaded as *Michael said "It's a beautiful day".* The double quotation mark " used for quoting what Michael said does not need to be escaped because it is not the mark used to quote the string.

Example:

```
[Michael said [It's a "beautiful day]].]
```

Square brackets [ ] behave differently from the other two quotation marks. If you want to use brackets as an escape character, you must add an extra bracket beside the right square bracket] only, and not beside the left square bracket [.

This string is loaded as *Michael said [It's a "beautiful day].* Only the right square bracket] is escaped. The single quotation mark ' and the double quotation mark " used in the string do not need to be escaped as they are not used to quote the string.

6.12 Wild cards in the data

It is also possible to use wild cards in the data. Two different wild cards exist: the star symbol, interpreted as all values of this field, and an optional symbol, interpreted as all remaining values of this field.

The star symbol

The star symbol is interpreted as all (listed) values of this field, that is, a value listed elsewhere in this table. If used in one of the system fields (*USERID, PASSWORD, NTNAME* or *SERIAL*) in a table loaded in the access section of the script, it is interpreted as all (also not listed) possible values of this field.

The star symbol is not allowed in information files. Also, it cannot be used in key fields, that is, fields used to join tables.

There is no star symbol available unless explicitly specified.

OtherSymbol

In many cases a way to represent all other values in a table is needed, that is, all values that were not explicitly found in the loaded data. This is done with a special variable called **OtherSymbol**. To define the **OtherSymbol** to be treated as "all other values", use the following syntax:

```
SET OTHERSYMBOL=<sym>;
```
before a **LOAD** or **SELECT** statement. <sym> may be any string.

The appearance of the defined symbol in an internal table will cause QlikView to define it as all values not previously loaded in the field where it is found. Values found in the field after the appearance of the **OtherSymbol** will thus be disregarded.

In order to reset this functionality use:

```
SET OTHERSYMBOL=;
```

Example:

Table Customers

Table Customers example data

CustomerID	Name
1	ABC Inc.
2	XYZ Inc.
3	ACME INC
+	Undefined

Table Orders

Table Orders example data

CustomerID	Name
1	1234
3	1243

CustomerID	Name
5	1248
7	1299

Insert the following statement in the script before the point where the first table above is loaded:

```
SET OTHERSYMBOL=+;
```

Any reference to a *CustomerID* other than 1, 2 or 3, e.g. as when clicking on *OrderID 1299* will result in *Undefined* under *Name*.

OtherSymbol *is not intended to be used for creating outer joins between tables.*

6.13 NULL value handling

When no data can be produced for a certain field as a result of a database query and/or a join between tables, the result is normally a NULL value.

The QlikView logic treats the following as real NULL values:

- NULL values returned from an ODBC connection
- NULL values created as a result of a forced concatenation of tables in the load script
- NULL values created as a result of a join made in the load script
- NULL values created as a result of the generation of field value combinations to be displayed in a table

It is generally impossible to use these NULL values for associations and selections, except when the ***NullAsValue*** *statement is being employed.*

Text files per definition cannot contain NULL values.

Associating/selecting NULL values from ODBC

It is possible to associate and/or select NULL values from an ODBC data source. For this purpose a script variable has been defined. The following syntax can be used:

```
SET NULLDISPLAY=<sym>;
```

The symbol <sym> will substitute all NULL values from the ODBC data source on the lowest level of data input. <sym> may be any string.

In order to reset this functionality to the default interpretation, use the following syntax:

```
SET NULLDISPLAY=;
```

The use of ***NULLDISPLAY*** *only affects data from an ODBC data source.*

If you wish to have the QlikView logic interpret NULL values returned from an ODBC connection as an empty string, add the following to your script before any **SELECT** statement:

```
SET NULLDISPLAY='';
```

Here '' is actually two single quotation marks without anything in between.

Creating NULL values from text files

It is possible to define a symbol, which when it occurs in a text file or an **inline** clause will be interpreted as a real NULL value. Use the following statement:

```
SET NULLINTERPRET=<sym>;
```

The symbol <sym> is to be interpreted as NULL. <sym> may be any string.

In order to reset this functionality to the default interpretation, use:

```
SET NULLINTERPRET=;
```

*The use of **NULLINTERPRET** only affects data from text files and inline clauses.*

Propagation of NULL values in expressions

NULL values will propagate through an expression according to a few logical and quite reasonable rules.

Functions

The general rule is that functions return NULL when the parameters fall outside the range for which the function is defined.

Example:

- `asin(2)` returns **NULL**
- `log(-5)` returns **NULL**
- `round(A,0)` returns **NULL**

As a result of the above follows that functions generally return NULL when any of the parameters necessary for the evaluation are NULL.

Example:

- `sin(NULL)` returns **NULL**
- `chr(NULL)` returns **NULL**
- `if(NULL, A, B)` returns **B**
- `if(True, NULL, A)` returns **NULL**
- `if(True, A, NULL)` returns **A**

The exception to the second rule are logical functions testing for type.

Example:

- `isnull(NULL)` returns True (**-1**)
- `isnum(NULL)` returns False (**0**)

Arithmetic and string operators

If NULL is encountered on any side of these operators NULL is returned.

Example:

- `A + NULL` returns **NULL**
- `A - NULL` returns **NULL**
- `A / NULL` returns **NULL**
- `A * NULL` returns **NULL**
- `NULL / A` returns **NULL**
- `0 / NULL` returns **NULL**
- `0 * NULL` returns **NULL**
- `A & NULL` returns **A**

Relational operators

If NULL is encountered on any side of relational operators special rules apply.

Example:

- `NULL rel.op NULL` returns **NULL**
- `A <> NULL` returns True (**-1**)
- `A < NULL` returns False (**0**)
- `A <= NULL` returns False (**0**)
- `A = NULL` returns False (**0**)
- `A >=` returns False (**0**)
- `A > NULL` returns False (**0**)

6.14 QVD files

A QVD (QlikView Data) file is a file containing a table of data exported from Qlik Sense or QlikView. QVD is a native Qlik format and can only be written to and read by Qlik Sense or QlikView. The file format is optimized for speed when reading data from a QlikView script but it is still very compact. Reading data from a QVD file is typically 10-100 times faster than reading from other data sources.

QVD files can be read in two modes: standard (fast) and optimized (faster). The selected mode is determined automatically by the QlikView script engine. Optimized mode can be utilized only when all loaded fields are read without any transformations (formulas acting upon the fields), though the renaming of fields is allowed. A WHERE clause causing QlikView to unpack the records will also disable the optimized load. An optimized .qvd is extracted and handled according to standard Extract-Transform-Load (ETL) when a field

transformation is performed, this results in a degradation of performance. The specified format will not be maintained and the underlying raw number format will be used instead and recognized. Transformations of the field in a .qvd is allowed, the former "Optimized" .qvd then becomes a standard non-optimized .qvd.

A QVD file holds exactly one data table and consists of three parts:

1. A well formed XML header (in UTF-8 char set) describing the fields in the table, the layout of the subsequent information and some other meta-data.
2. Symbol tables in a byte stuffed format.
3. Actual table data in a bit-stuffed format.

Purpose of QVD Files

QVD files can be used for many purposes. At least four major uses can be easily identified. More than one may apply in any given situation:

Increasing Load Speed

By buffering non-changing or slowly changing blocks of input data in QVD files, script execution becomes considerably faster for large data sets.

Decreasing Load on Database Servers

The amount of data fetched from external data sources can also be greatly reduced. This reduces work load on external databases and network traffic. Furthermore, when several QlikView scripts share the same data it is only necessary to load it once from the source database into a QVD file. The other applications can make use of the same data via this QVD file.

Consolidating Data from Multiple QlikView Applications

With the **binary** script statement it is possible to load data from only one single QlikView application into another one, but with QVD files a QlikView script can combine data from any number of QlikView applications. This opens up possibilities e.g. for applications consolidating similar data from different business units etc.

Incremental Load

In many common cases the QVD functionality can be used for facilitating incremental load, i.e. exclusively loading new records from a growing database.

Create QVD Files

A QVD file can be created by one of three different methods:

1. Explicit creation and naming using the **store** command in the QlikView script. Simply state in the script that a previously read table or part thereof is to be exported to an explicitly named file at a location of your choice.
2. Automatic creation and maintenance from script. By preceding a **load** or **select** statement with the **buffer** prefix, QlikView will automatically create a QVD file which under certain conditions can be used instead of the original data source when reloading data.

3. Explicit, manual creation and naming from layout or via the **Internal Macro Interpreter**. Data can be exported from the QlikView layout via GUI commands or Automation macros. In the GUI you will find QVD as one of the possible export formats under the **Export...** command, found on the object menu of most sheet objects.

There is no difference between the resulting QVD files, with regard to reading speed.

Reading Data from QVD Files

A QVD file can be read into or accessed by QlikView by the following methods:

1. Loading a QVD file as an explicit data source. QVD files can be referenced by a **load** statement in the QlikView script just like any other type of text files (csv, fix, dif, biff etc). The **File Wizard: Type** handles QVD files by the same principles.

   Examples:

```
load  * from xyz.qvd (qvd);
load  Name, RegNo from xyz.qvd (qvd);
load  Name as a, RegNo as b from xyz.qvd (qvd);
```

2. Automatic loading of buffered QVD files. When using the **buffer** prefix on **load** or **select** statements, no explicit statements for reading are necessary. QlikView will determine the extent to which it will use data from the QVD file as opposed to acquiring data via the original **load** or **select** statement.
3. Accessing QVD files via the script. A number of script functions (all beginning with **qvd**) can be used for retrieving various information on the data found in the XML header of a QVD file.

Importing QVD with asterisks are not supported.

QVD encryption

You can encrypt sensitive data in QVD files with customer supplied key pairs which allows you to control who gets access to your data.

The encryption is configured in the *settings.ini* file where encryption is enabled and the certificate thumbprint is added. QVD encryption is not enabled by default.

Older versions of Qlik Sense and QlikView returns an error when reading encrypted QVD files.

6.15 Direct Discovery

Direct Discovery is deprecated as of QlikView May 2023. If you want to use Direct Discovery with QlikView, you must contact Qlik Support for instructions how to activate it. For instruction in using Direct Discovery, refer to the QlikView May 2022 help.

6.16 Best practices for data modeling

This section describes a number of different ways you can load your data into the QlikView document, depending on how the data is structured and which data model you want to achieve.

In general, the way you load data into the document can be explained by the Extract, Transform and Load process:

1. Extract
   The first step is to extract data from the data source system. In the script, you use **SELECT** or **LOAD** statements to define this. The differences between these statements are:
   - **SELECT** is used to select data from an ODBC data source or OLE DB provider. The **SELECT** SQL statement is evaluated by the data provider, not by QlikView.
   - **LOAD** is used to load data from a file, from data defined in the script, from a previously loaded table, from a web page, from the result of a subsequent **SELECT** statement or by generating data automatically
2. Transform
   The transformation stage involves manipulating the data using script functions and rules to derive the desired data model structure. Typical operations are:
   - Calculating new values
   - Translating coded values
   - Renaming fields
   - Joining tables
   - Aggregating values
   - Pivoting
   - Data validation
3. Load
   In the final step, you run the script to load the data model you have defined into the document.

Your goal should be to create a data model that enables efficient handling of the data in QlikView. Usually this means that you should aim for a reasonably normalized star schema or snowflake schema without any circular references, that is, a model where each entity is kept in a separate table. In other words a typical data model would look like this:

- a central fact table containing keys to the dimensions and the numbers used to calculate measures (such as number of units, sales amounts, and budget amounts).
- surrounding tables containing the dimensions with all their attributes (such as products, customers, categories, calendar, and suppliers) .

In many cases it is possible to solve a task, for example aggregations, either by building a richer data model in the load script, or by performing the aggregations in the chart expressions. As a general rule, you will experience better performance if you keep data transformations in the load script.

It's good practice to sketch out your data model on paper. This will help you by providing structure to what data to extract, and which transformations to perform.

Each table in your data model usually corresponds to either a **SELECT** or **LOAD** statement. The differences between these statements are:

- **SELECT** is used to select data from an ODBC data source or OLE DB provider. The **SELECT** SQL statement is evaluated by the data provider, not by QlikView.
- **LOAD** is used to load data from a file, from data defined in the script, from a previously loaded table, from a web page, from the result of a subsequent **SELECT** statement or by generating data automatically

Using QVD files for incremental load

Incremental load is a very common task in relation to data bases. It is defined as loading nothing but new or changed records from the database. All other data should already be available, in one way or another. With *QVD files (page 168)* it is possible to perform incremental load in most cases.

The basic process is described below:

1. Load the new data from Database table (a slow process, but loading a limited number of records).
2. Load the old data from QVD file (loading many records, but a much faster process).
3. Create a new QVD file.
4. Repeat the procedure for every table loaded.

The complexity of the actual solution depends on the nature of the source database, but the following basic cases can be identified:

1) *Case 1: Append Only (page 172)* (typically log files

2) *Case 2: Insert Only (No Update or Delete) (page 173)*

3) *Case 3: Insert and Update (No Delete) (page 173)*

4) *Case 4: Insert, Update and Delete (page 173)*

Below you will find outlined solutions for each of these cases. The reading of QVD files can be done in either optimized mode or standard mode. (The method employed is automatically selected by the QlikView script engine depending on the complexity of the operation.) Optimized mode is (very approximately) about 10x faster than standard mode or about 100x faster than loading the database in the ordinary fashion.

Case 1: Append Only

The simplest case is the one of log files; files in which records are only appended and never deleted. The following conditions apply:

- The database must be a log file (or some other file in which records are appended and not inserted or deleted) which is contained in a text file (no ODBC/OLE DB).
- QlikView keeps track of the number of records that have been previously read and loads only records added at the end of the file.

Example:

```
Buffer (Incremental) Load * From LogFile.txt (ansi, txt, delimiter is '\t', embedded labels);
```

Case 2: Insert Only (No Update or Delete)

If the data resides in a database other than a simple log file the case 1 approach will not work. However, the problem can still be solved with minimum amount of extra work. The following conditions apply:

- The data source can be any database.
- QlikView loads records inserted in the database after the last script execution.
- A field ModificationDate (or similar) is required for QlikView to recognize which records are new.

Example:

```
QV_Table:
SQL SELECT PrimaryKey, X, Y FROM DB_TABLE
WHERE ModificationTime >= #$(LastExecTime)#
AND ModificationTime < #$(BeginningThisExecTime)#;

Concatenate LOAD PrimaryKey, X, Y FROM File.QVD (qvd);
STORE QV_Table INTO File.QVD;
```

(The hash signs in the SQL WHERE clause define the beginning and end of a date. Check your database manual for the correct date syntax for your database.)

Case 3: Insert and Update (No Delete)

The next case is applicable when data in previously loaded records may have changed between script executions. The following conditions apply:

- The data source can be any database.
- QlikView loads records inserted into the database or updated in the database after the last script execution
- A field ModificationDate (or similar) is required for QlikView to recognize which records are new.
- A primary key field is required for QlikView to sort out updated records from the QVD file.
- This solution will force the reading of the QVD file to standard mode (rather than optimized), which is still considerably faster than loading the entire database.

Example:

```
QV_Table:
SQL SELECT PrimaryKey, X, Y FROM DB_TABLE
WHERE ModificationTime >= #$(LastExecTime)#;

Concatenate LOAD PrimaryKey, X, Y FROM File.QVD
WHERE NOT Exists(PrimaryKey);

STORE QV_Table INTO File.QVD;
```

Case 4: Insert, Update and Delete

The most difficult case to handle is when records are actually deleted from the source database between script executions. The following conditions apply:

- The data source can be any database.
- QlikView loads records inserted into the database or updated in the database after the last script execution.
- QlikView removes records deleted from the database after the last script execution.
- A field ModificationDate (or similar) is required for QlikView to recognize which records are new.
- A primary key field is required for QlikView to sort out updated records from the QVD file.
- This solution will force the reading of the QVD file to standard mode (rather than optimized), which is still considerably faster than loading the entire database.

Example:

```
Let ThisExecTime = Now( );

QV_Table:
SQL SELECT PrimaryKey, X, Y FROM DB_TABLE
WHERE ModificationTime >= #$(LastExecTime)#
AND ModificationTime < #$(ThisExecTime)#;

Concatenate LOAD PrimaryKey, X, Y FROM File.QVD
WHERE NOT EXISTS(PrimaryKey);

Inner Join SQL SELECT PrimaryKey FROM DB_TABLE;

If ScriptErrorCount = 0 then
STORE QV_Table INTO File.QVD;
Let LastExecTime = ThisExecTime;
End If
```

Combining tables with Join and Keep

A join is an operation that takes two tables and combines them into one. The records of the resulting table are combinations of records in the original tables, usually in such a way that the two records contributing to any given combination in the resulting table have a common value for one or several common fields, a so-called natural join. In QlikView, joins can be made in the script, producing logical tables.
The QlikView logic will then not see the separate tables, but rather the result of the join, which is a single internal table. In some situations this is needed, but there are disadvantages:

- The loaded tables often become larger, and QlikView works slower.
- Some information may be lost: the frequency (number of records) within the original table may no longer be available.

The **Keep** functionality, which has the effect of reducing one or both of the two tables to the intersection of table data before the tables are stored in QlikView, has been designed to reduce the number of cases where explicit joins needs to be used.

In this documentation, the term join is usually used for joins made before the internal tables are created. The association, made after the internal tables are created, is however essentially also a join.

Join

The simplest way to make a join is with the **Join** prefix in the script, which joins the internal table with another named table or with the last previously created table. The join will be an outer join, creating all possible combinations of values from the two tables.

Example:

```
LOAD a, b, c from table1.csv;
join LOAD a, d from table2.csv;
```

The resulting internal table has the fields a, b, c and d. The number of records differs depending on the field values of the two tables.

*The names of the fields to join over must be exactly the same. The number of fields to join over is arbitrary. Usually the tables should have one or a few fields in common. No field in common will render the cartesian product of the tables. All fields in common is also possible, but usually makes no sense. Unless a table name of a previously loaded table is specified in the **Join** statement the **Join** prefix uses the last previously created table. The order of the two statements is thus not arbitrary.*

Keep

One of the main features of QlikView is its ability to make associations between tables instead of joining them, which reduces space in memory, increases speed and gives enormous flexibility. The keep functionality has been designed to reduce the number of cases where explicit joins need to be used.

The **Keep** prefix between two **LOAD** or **SELECT** statements has the effect of reducing one or both of the two tables to the intersection of table data before they are stored in QlikView. The **Keep** prefix must always be preceded by one of the keywords **Inner**, **Left** or **Right**. The selection of records from the tables is made in the same way as in a corresponding join. However, the two tables are not joined and will be stored in QlikView as two separately named tables.

Inner

The **Join** and **Keep** prefixes in the QlikView script language can be preceded by the prefix **Inner**.

If used before **Join**, it specifies that the join between the two tables should be an inner join. The resulting table contains only combinations between the two tables with a full data set from both sides.

If used before **Keep**, it specifies that the two tables should be reduced to their common intersection before being stored in QlikView.

Example:

In these examples we use the source tables Table1 and Table2:

Table1

A	B
1	aa
2	cc
3	ee

Table2

A	C
1	xx
4	yy

Inner examples source tables

First, we perform an **Inner Join** on the tables, resulting in VTable, containing only one row, the only record existing in both tables, with data combined from both tables.

```
VTable:
SELECT * from Table1;
inner join SELECT * from Table2;
```

VTable

A	B	C
1	aa	xx

Inner Join example

If we perform an **Inner Keep** instead, you will still have two tables. The two tables are of course associated via the common field A.

```
VTab1:
SELECT * from Table1;
VTab2:
inner keep SELECT * from Table2;
```

VTab1

A	B
1	aa

VTab2

A	C
1	xx

Inner Keep example

Left

The **Join** and **Keep** prefixes in the QlikView script language can be preceded by the prefix **left**.

If used before **Join**, it specifies that the join between the two tables should be a left join. The resulting table only contains combinations between the two tables with a full data set from the first table.

If used before **Keep**, it specifies that the second table should be reduced to its common intersection with the first table before being stored in QlikView.

Example:

In these examples we use the source tables Table1 and Table2:

Table1

A	B
1	aa
2	cc
3	ee

Table2

A	C
1	xx
4	yy

Left examples source tables

First, we perform a **Left Join** on the tables, resulting in VTable, containing all rows from Table1, combined with fields from matching rows in Table2.

```
VTable:
SELECT * from Table1;
left join SELECT * from Table2;
```

VTable

A	B	C
1	aa	xx
2	cc	–
3	ee	–

Left Join example

If we perform an **Left Keep** instead, you will still have two tables. The two tables are of course associated via the common field A.

```
VTab1:
SELECT * from Table1;
VTab2:
left keep SELECT * from Table2;
```

VTab1

A	B
1	aa
2	cc
3	ee

VTab2

A	C
1	xx

Left Keep example

Right

The **Join** and **Keep** prefixes in the QlikView script language can be preceded by the prefix **right**.

If used before **Join**, it specifies that the join between the two tables should be a right join. The resulting table only contains combinations between the two tables with a full data set from the second table.

If used before **Keep**, it specifies that the first table should be reduced to its common intersection with the second table before being stored in QlikView.

Example:

In these examples we use the source tables Table1 and Table2:

Table1

A	B
1	aa
2	cc
3	ee

Table2

A	C
1	xx
4	yy

Right examples source tables

First, we perform a **Right Join** on the tables, resulting in VTable, containing all rows from Table2, combined with fields from matching rows in Table1.

```
VTable:
SELECT * from Table1;
right join SELECT * from Table2;
```

VTable

A	B	C
1	aa	xx
4	–	yy

Right Join example

If we perform an **Right Keep** instead, you will still have two tables. The two tables are of course associated via the common field A.

```
VTab1:
SELECT * from Table1;
VTab2:
right keep SELECT * from Table2;
```

VTab1

A	B
1	aa

VTab2

A	C
1	xx
4	yy

Right Keep example

Using mapping as an alternative to joining

The **Join** prefix in QlikView is a powerful way of combining several data tables in the data model. One disadvantage is that the combined tables can become large and create performance problems. An alternative to **Join** in situations where you need to look up a single value from another table is to use mapping instead. This can save you from loading unnecessary data that slows down calculations and potentially can create calculation errors, as joins can change the number of records in the tables.

A mapping table consists of two columns; a comparison field (input) and a mapping value field (output).

In this example we have an table of orders (Orders), and need to know the country of the customer, which is stored in the customer table (Customers).

Orders data table

OrderID	OrderDate	ShipperID	Freight	CustomerID
12987	2007-12-01	1	27	3
12988	2007-12-01	1	65	4
12989	2007-12-02	2	32	2
12990	2007-12-03	1	76	3

Customers data table

CustomerID	Name	Country	...
1	DataSales	Spain	...
2	BusinessCorp	Italy	...
3	TechCo	Germany	...
4	Mobecho	France	...

In order to look up the country (Country) of a customer, we need a mapping table that looks like this:

Country mapping table

CustomerID	Country
1	Spain
2	Italy
3	Germany
4	France

The mapping table, which we name MapCustomerIDtoCountry, is defined in the script as follows:

```
MapCustomerIDtoCountry:
Mapping LOAD CustomerID, Country From Customers ;
```

The next step is to apply the mapping, using the **ApplyMap** function, when loading the order table:

```
Orders:
     S *,
          ApplyMap('MapCustomerIDtoCountry', CustomerID, null()) as Country
          From Orders ;
```

The third parameter of the **ApplyMap** function is used to define what to return when the value is not found in the mapping table, in this case **Null()**.

The resulting table will look like this:

Result mapping table

OrderID	OrderDate	ShipperID	Freight	CustomerID	Country
12987	2007-12-01	1	27	3	Germany
12988	2007-12-01	1	65	4	France
12989	2007-12-02	2	32	2	Italy
12990	2007-12-03	1	76	3	Germany

Working with cross tables

A cross table is a common type of table featuring a matrix of values between two orthogonal lists of header data. It could look like the table below.

Example 1:

Example cross table 1

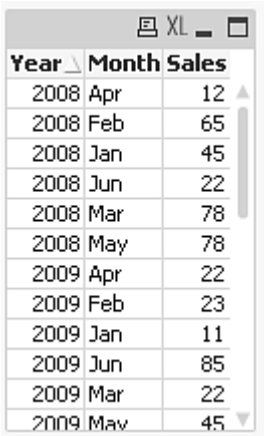
Year	Jan	Feb	Mar	Apr	May	Jun
2008	45	65	78	12	78	22
2009	11	23	22	22	45	85
2010	65	56	22	79	12	56
2011	45	24	32	78	55	15
2012	45	56	35	78	68	82

If this table is simply loaded into QlikView, the result will be one field for *Year* and one field for each of the months. This is generally not what you would like to have. You would probably prefer to have three fields generated: one for each header category (*Year* and *Month*) and one for the data values inside the matrix.

This can be achieved by adding the **crosstable** prefix to the **LOAD** or **SELECT** statement, for example:

```
crosstable (Month, Sales) LOAD * from ex1.xlsx;
```

This creates the following result in QlikView:



Year	Month	Sales
2008	Apr	12
2008	Feb	65
2008	Jan	45
2008	Jun	22
2008	Mar	78
2008	May	78
2009	Apr	22
2009	Feb	23
2009	Jan	11
2009	Jun	85
2009	Mar	22
2009	May	45

The cross table is often preceded by a number of qualifying columns, which should be read in a straightforward way. In this case there is one qualifying column, Year:

Example 2:

Example cross table 2

Salesman	Year	Jan	Feb	Mar	Apr	May	Jun
A	2008	45	65	78	12	78	22
A	2009	11	23	22	22	45	85
A	2010	65	56	22	79	12	56
A	2011	45	24	32	78	55	15
A	2012	45	56	35	78	68	82
B	2008	57	77	90	24	90	34
B	2009	23	35	34	34	57	97
B	2010	77	68	34	91	24	68
B	2011	57	36	44	90	67	27
B	2012	57	68	47	90	80	94

In this case there are two qualifying columns to the left, followed by the matrix columns. The number of qualifying columns can be stated as a third parameter to the **crosstable** prefix as follows:

```
crosstable (Month, Sales, 2) LOAD * from ex2.xlsx;
```

This creates the following result in QlikView:

Salesman	Year	Month	Sales
A	2008	Apr	12
A	2008	Feb	65
A	2008	Jan	45
A	2008	Jun	22
A	2008	Mar	78
A	2008	May	78
A	2009	Apr	22
A	2009	Feb	23
A	2009	Jan	11
A	2009	Jun	85
A	2009	Mar	22
A	2009	May	45
A	2010	Apr	79

Generic databases

A generic database is a table in which the field names are stored as field values in one column, while the field values are stored in a second. Generic databases are usually used for attributes of different objects.

Look at the example GenericTable below. It is a generic database containing two objects, a ball and a box. Obviously some of the attributes, like color and weight, are common to both the objects, while others, like diameter, height, length and width are not.

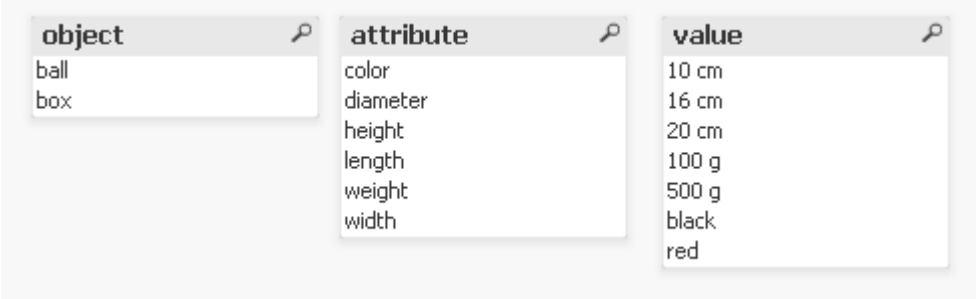
Generic example table

object	attribute	value
ball	color	red
ball	diameter	10 cm
ball	weight	100 g
box	color	black
box	height	16 cm
box	length	20 cm
box	weight	500 g
box	width	10 cm

On one hand it would be awkward to store the data in a way giving each attribute a column of its own, since many of the attributes are not relevant for a specific object.

On the other hand, it would look messy displaying it in a way that mixed lengths, colors and weights.

If this database is loaded into QlikView using the standard way and display the data in a table it looks like this:



However, if the table is loaded as a generic database, column two and three will be split up into different tables, one for each unique value of the second column:

The syntax for doing this is simple:

Example:

```
Generic SELECT* from GenericTable;
```

It does not matter whether a **LOAD** or **SELECT** statement is used to load the generic database.

Matching intervals to discrete data

The **intervalmatch** prefix to a **LOAD** or **SELECT** statement is used to link discrete numeric values to one or more numeric intervals. This is a very powerful feature which can be used, for example, in production environments as shown in the example below.

Example:

Look at the two tables below. The first table shows the start and end of production of different orders. The second table shows some discrete events. How can we associate the discrete events with the orders, so that we know, for example, which orders were affected by the disturbances and which orders were processed by which shifts?

Table OrderLog

Start	End	Order
01:00	03:35	A
02:30	07:58	B
03:04	10:27	C
07:23	11:43	D

Table EventLog

Time	Event	Comment
00:00	0	Start of shift 1
01:18	1	Line stop
02:23	2	Line restart 50%
04:15	3	Line speed 100%
08:00	4	Start of shift 2
11:43	5	End of production

First, load the two tables as usual and then link the field *Time* to the intervals defined by the fields *Start* and *End*:

```
SELECT * from OrderLog;
SELECT * from EventLog;
Intervalmatch (Time) SELECT Start,End from OrderLog;
```

You can now create a table in QlikView as below:

Time	Event	Comment	Order	Start	End
0:00	0	Start of shift 1	-	-	-
1:18	1	Line stop	A	1:00	3:35
2:23	2	Line restart 50%	A	1:00	3:35
4:15	3	Line speed 100%	B	2:30	7:58
4:15	3	Line speed 100%	C	3:04	10:27
8:00	4	Start of shift 2	C	3:04	10:27
8:00	4	Start of shift 2	D	7:23	11:43
11:43	5	End of production	D	7:23	11:43

We can now easily see that mainly order *A* was affected by the line stop but that the reduced line speed affected also orders *B* and *C*. Only the orders *C* and *D* were partly handled by *Shift 2*.

Note the following points when using **intervalmatch**:

- Before the **intervalmatch** statement, the field containing the discrete data points (*Time* in the example above) must already have been read into QlikView. The **intervalmatch** statement does not read this field from the database table!
- The table read in the **intervalmatch LOAD** or **SELECT** statement must always contain exactly two fields (*Start* and *End* in the example above). In order to establish a link to other fields you must read the interval fields together with additional fields in a separate **LOAD** or **SELECT** statement (the first **SELECT** statement in the example above).
- The intervals are always closed, that is, the end points are included in the interval. Non-numeric limits render the interval to be disregarded (undefined) while NULL limits extend the interval indefinitely (unlimited).
- The intervals may be overlapping and the discrete values will be linked to all matching intervals.

Using the extended intervalmatch syntax to resolve slowly changing dimension problems

The extended **intervalmatch** syntax can be used for handling of the well-known problem of slowly changing dimensions in source data.

Sample script:

```
SET NullInterpret='';

IntervalTable:
LOAD Key, ValidFrom, Team from IntervalTable.xls;
NullAsValue FirstDate,LastDate;

Key:
LOAD
Key,
ValidFrom as FirstDate,
date(if(Key=previous(Key),
previous(ValidFrom) - 1)) as LastDate,
Team
RESIDENT IntervalTable order by Key, ValidFrom desc;

drop table IntervalTable;

Transact:
```

```
LOAD Key, Name, Date, Sales from Transact.xls;

INNER JOIN intervalmatch (Date,Key) LOAD FirstDate, LastDate, Key RESIDENT Key;
```

The **nullinterpret** statement is only required when reading data from a table file since missing values are defined as empty strings instead of NULL values.

Loading the data from *IntervalTable* would result in the following table:

Example table 1

Key	FirstDate	Team
000110	2011-01-21	Southwest
000110	-	Northwest
000120	-	Northwest
000120	2013-03-05	Southwest
000120	2013-03-05	Northwest
000120	2013-01-06	Southwest

The **nullasvalue** statement allows NULL values to map to the listed fields.

Create *Key*, *FirstDate*, *LastDate*, (attribute fields) by using **previous** and **order by** and thereafter the *IntervalTable* is dropped having been replaced by this key table.

Loading the data from *Transact* would result in the following table:

Example table 2

Key	Name	Date	Sales
000110	Spengler Aaron	2009-08-18	100
000110	Spengler Aaron	2009-12-25	200
000110	Spengler Aaron	2011-02-03	300
000110	Spengler Aaron	2011-05-05	400
000120	Ballard John	2011-06-04	500
000120	Ballard John	2013-01-20	600
000120	Ballard John	2013-03-10	700
000120	Ballard John	2013-03-13	800
000120	Ballard John	2013-09-21	900

The **intervalmatch** statement preceded by the **inner join** replaces the key above with a synthetic key that connects to the *Transact* table resulting in the following table:

Example table 3

Key	Team	Name	FirstDate	LastDate	Date	Sales
000110	Northwest	Spengler Aaron	-	2011-01-20	2009-08-18	100
000110	Northwest	Spengler Aaron	-	2011-01-20	2009-12-25	200
000110	Southwest	Spengler Aaron	2011-01-21	-	2011-02-03	300
000110	Southwest	Spengler Aaron	2011-01-21	-	2011-05-05	400
000120	Northwest	Ballard John	-	2013-01-05	2011-06-04	500
000120	Southwest	Ballard John	2013-01-06	2013-03-04	2013-01-20	600
000120	Southwest	Ballard John	2013-03-05	-	2013-03-10	700
000120	Southwest	Ballard John	2013-03-05	-	2013-03-13	800
000120	Southwest	Ballard John	2013-03-05	-	2013-09-21	900

Creating a date interval from a single date

Sometimes time intervals are not stored explicitly with a beginning and an end. Instead they are implied by only one field – the change timestamp.

It could be as in the table below where you have currency rates for multiple currencies. Each currency rate change is on its own row; each with a new conversion rate. Also, the table contains rows with empty dates corresponding to the initial conversion rate, before the first change was made.

Currency conversion rates

Currency	Change Date	Rate
EUR	-	8.59
EUR	28/01/2013	8.69
EUR	15/02/2013	8.45
USD	-	6.50
USD	10/01/2013	6.56
USD	03/02/2013	6.30

This table defines a set of non-overlapping intervals, where the begin data is called “Change Date” and the end date is defined by the beginning of the following interval. But since the end date isn’t explicitly stored in a column of its own, we need to create such a column, so that the new table will become a list of intervals.

Do the following:

1. Create a file called *Rates.xlsx* containing the table shown above and store it ready for loading.
   Make sure that the dates in the Change Date column are in the same format as the local date format.

2. Determine which time range you want to work with. The beginning of the range must be before the first date in the data and the end of the range must be after the last.
3. Load the source data, but change empty dates to the beginning of the range defined in the previous bullet. The change date should be loaded as “From Date”.
4. Sort the table first according to Currency, then according to the “From Date” descending so that you have the latest dates on top.
5. Run a second pass through data where you calculate the “To Date”. If the current record has a different currency from the previous record, then it is the first record of a new currency (but its last interval), so you should use the end of the range defined in step 1. If it is the same Currency, you should take the “From Date” from the previous record, subtract a small amount of time, and use this value as “To Date” in the current record.

The script listed below will update the source table in the following manner:

Updated table

Currency	Rate	FromDate	ToDate
EUR	8.45	15/02/2013	vEndTime
EUR	8.69	28/01/2013	14/02/2013 23:59:59
EUR	8.59	vBeginTime	28/01/2013 23:59:59
USD	6.30	03/02/2013	vEndTime
USD	6.56	10/01/2013	2/02/2013 23:59:59
USD	6.50	vBeginTime	9/01/2013 23:59:59

The QlikView script looks like this:

```
Let vBeginTime = Num('1/1/2013');
Let vEndTime = Num('1/3/2013');
Let vEpsilon = Pow(2,-27);
Tmp_Rates:
LOAD Currency, Rate,
        Date(If(IsNum([Change Date]), [Change Date], $(#vBeginTime))) as FromDate
From 'C:\MyFiles\Rates.xlsx'
(ooxml, embedded labels, table is Sheet1);

Rates:
LOAD Currency, Rate, FromDate,
        Date(If( Currency=Peek(Currency),
                Peek(FromDate) - $(#vEpsilon),
                $(#vEndTime)
                )) as ToDate
        Resident Tmp_Rates
        Order By Currency, FromDate Desc;

Drop Table Tmp_Rates;
```

When this script is run, you will have a table listing the intervals correctly.

This table can subsequently be used in a comparison with an existing date using the **Intervalmatch** methods.

Hierarchies

Unbalanced *n*-level hierarchies are often used to represent among other things, geographical or organizational dimensions in data. These types of hierarchies are usually stored in an adjacent nodes table, that is, in a table where each record corresponds to a node and has a field that contains a reference to the parent node.

NodeID	ParentNodeID	Title
1	-	General manager
2	1	Region manager
3	2	Branch manager
4	3	Department manager

In such a table, the node is stored on one record only but can still have any number of children. The table may of course contain additional fields describing attributes for the nodes.

An adjacent nodes table is optimal for maintenance, but difficult to use in everyday work. Instead, in queries and analysis, other representations are used. The expanded nodes table is one common representation, where each level in the hierarchy is stored in a separate field. The levels in an expanded nodes table can easily be used e.g. in a tree structure.The **hierarchy** keyword can be used in the load script to transform an adjacent nodes table to an expanded nodes table.

Example:

```
Hierarchy (NodeID, ParentNodeID, Title, 'Manager') LOAD
    NodeID,
    ParentNodeID,
    Title
FROM 'hierarchy.txt' (txt, codepage is 1252, embedded labels, delimiter is ',', msq);
```

NodeID	ParentNodeID	Title	Title1	Title2	Title3	Title4
1	-	General manager	General manager	-	-	-
2	1	Region manager	General manager	Region manager	-	-
3	2	Branch manager	General manager	Region manager	Branch manager	-
4	3	Department manager	General manager	Region manager	Branch manager	Department manager

A problem with the expanded nodes table is that it is not easy to use the level fields for searches or selections, since a prior knowledge is needed about which level to search or select in. The ancestors table is a different representation that solves this problem. This representation is also called a bridge table.

The ancestors table contains one record for every child-ancestor relation found in the data. It contains keys and names for the children as well as for the ancestors, that is, every record describes which node a specific node belongs to. The **hierarchybelongsto** keyword can be used in the load script to transform an adjacent nodes table to an ancestors table.

Semantic links

Normally selections are made explicitly by clicking on the field values that are interesting. There is, however, also a way to make selections indirectly through semantic links. These are similar to field values, but with the difference that they describe the relations between the objects rather than the objects themselves. They appear as a list of buttons.

When clicking on a semantic link, a selection is made in an other field.

Rules for semantic tables

Semantic tables are not displayed in the table viewer.

Semantic links are created by loading tables containing the relations between the objects.

- The table must contain exactly three or four columns.
- A semantic table must either contain relations between field values of different fields or between field values of the same field. A mixture between the two is not accepted.
- The **LOAD** or **SELECT** statement loading a semantic table must be preceded by a **semantic** qualifier to show that it is not a logical table.

Normally four columns are used, the first one containing the field values that have a relation to some other field value and the third one containing the related field value. The second column must contain the names of the relations, and finally, the fourth one must contain the names of the inverse relations.

If three columns are used, no explicit names for the inverse relations can be given. The names given in the second column are used both for the relation and the inverse relation. The names are then preceded or followed by arrows.

If the relations are between field values of the same field, the first and third columns must have the same name. Also the names of the second and fourth column, that is, the type of the relations, must be the same. However, if the relations are between field values of different fields, all columns must have different names.

Extracting a semantic table from data

The semantic table does not always have to exist as a table outside QlikView. It is more flexible to extract this table from the existing table of objects through a separate **LOAD** statement.

In the *presidents* example in the QlikView examples directory, the script to generate the links *Predecessor* and *Successor* could be:

```
Directory presidents;
LOAD * from presdnts.csv (ansi, txt, delimiter
is ',', embedded labels);
Semantic LOAD
No -1 as No,
'Successor' as Relation,
No,
'Predecessor' as Relation
from presdnts.csv (ansi, txt, delimiter is ',',
embedded labels) where No > 1;
```

The second **LOAD** statement results in a table that looks like the one to the right, and this table is loaded as a semantic table. The **where** clause is used to omit the first record since this would link the first president to the nonexistent 0:th president.

Note also that this **LOAD** statement contains two fields labeled *No* and two fields labeled *Relation*. Such a **LOAD** statement would cause a script execution error if used to load an internal table since the load procedure for one single internal table demands that none of the fields have the same name. The corresponding **SELECT** statement is also not possible, since most ODBC drivers also demand this. Instead, the following structure should be used if the presidents table is in a database:

```
Connect to DataBase;
SELECT * from presdnts;
Alias No2 as No, Relation2 as Relation;
Semantic SELECT
No -1 as No,
'Successor' as Relation,
No as No2,
'Predecessor' as Relation2
from presdnts where No > 1;
```

The presidents example is just one simple example of how to use semantic links. These can also be used in genealogy, where the semantic links can be e.g. cousin, sibling, grandmother, etc. or for people in companies where the semantic links can be e.g. *superior*, *reports to*, *secretary*, etc.

Using the related values as relation names

Sometimes it is more descriptive to use the related field value as name of the relation. In the case of the presidents, you may want all the predecessors in one column and all the successors in another:

To create these links, the following script is needed:

```
LOAD
No as DuplicateOfNo,
FirstName & ' ' & LastName as Name,
*
from presdnts.csv;
Semantic LOAD
No -1 as No,
FirstName & ' ' & LastName as Successor,
No as DuplicateOfNo,
'Dummy1'
from presdnts.csv where No > 1;
Semantic LOAD
No +1 as No,
FirstName &' ' & LastName as Predecessor,
No as DuplicateOfNo,
'Dummy2'
from presdnts.csv;
```

When a semantic link is clicked, a selection is made in the field of the third column, *DuplicateOfNo*, which in the semantic table is always the number of the president shown on the semantic link.

It may not be obvious at first, but the inverse relations in the above construction are almost useless. They would show a name of a president and, when clicked, select the predecessor/successor of the shown president. This is why they are called *Dummy1* and *Dummy2* and only the first relation (column two) is used.

Since we do not want the dummy relations to appear in the list boxes, we must treat the second and fourth columns as different types of relations. This means that the first and third columns must have different field names. This is the reason why we have two columns containing the number of the president, *No* and *DuplicateOfNo*.

Two different **semantic** statements are needed since we want two different list boxes with relations.

This example can also be made with three-column semantic tables, but then the list boxes with the inverse relations will most likely confuse the user.

Linking information to field values

Information in the form of text files, images or external application files can be associated to data in a QlikView document. To use this feature, tables have to be created that describe what information file is to be linked to which field value, and tell QlikView to treat these tables as information tables. How this is done is explained below.

Information tables must consist of two columns, the first one headed by a field name and containing a list of values belonging to the field, the second one headed by an arbitrary name and containing the information (if text) or references to the files containing the information (images, applications).

The statement for loading this table as an information table would be as follows:

```
Info LOAD Country, I from Flagsoecd.csv (ansi, txt, delimiter is ',', embedded labels);
```

When a list box or multi box item linked to information is selected, an information icon appears beside the field name to show that information is available. Clicking the icon will show the information or load the application file. It is possible to turn off the information icon on the **Layout** page of the **List Box Properties** dialog.

If a text is entered in the second column, the text is shown in an internal text viewer.

To mark a new line in this text, the carriage return cannot be used. Instead, the symbol "\n" is used in the info file.

- If a name of an image file (for example, extension bmp) is entered in the second column, the image is shown in an internal image viewer.
- If a name of a sound file (extension wav) is entered in the second column, the sound is played.
- If a name of an executable file is entered in the second column, the file is executed.
- If a name of any other file is entered in the second column, the associated program is used to open the file.
- If a URL is entered in the second column, for example, an Internet address, the registered Internet browser is used to access the address.

An info file cannot contain the star symbol. A symbol defined as **OtherSymbol** however, is allowed.

Using **bundle info load**, it is possible to bundle external data into a QlikView document.

Data cleansing

When loading data from different tables, note that field values denoting the same thing are not always consistently named. Since this lack of consistency is not only annoying, but also hinders associations, the problem needs to be solved. This can be done in an elegant way by creating a mapping table for the comparison of field values.

Mapping tables

Tables loaded via **mapping load** or **mapping select** are treated differently from other tables. They will be stored in a separate area of the memory and used only as mapping tables during script execution. After the script execution they will be automatically dropped.

Rules:

- A mapping table must have two columns, the first one containing the comparison values and the second the desired mapping values.
- The two columns must be named, but the names have no relevance in themselves. The column names have no connection to field names in regular internal tables.

Using a mapping table

When loading several tables listing countries, you may find that one and the same country has several different names. In this example, the U.S.A. are listed as US, U.S., and United States.

To avoid the occurrence of three different records denoting the United States in the concatenated table, create a table similar to that shown and load it as a mapping table.

The entire script should have the following appearance:

```
CountryMap:
Mapping LOAD x,y from MappingTable.txt
(ansi, txt, delimiter is ',', embedded
labels);
Map Country using CountryMap;
LOAD Country,City from CountryA.txt
(ansi, txt, delimiter is ',', embedded labels);
LOAD Country, City from CountryB.txt
(ansi, txt, delimiter is ',', embedded labels);
```

The **mapping** statement loads the file *MappingTable.txt* as a mapping table with the label *CountryMap*.

The **map** statement enables mapping of the field *Country* using the previously loaded mapping table *CountryMap*.

The **LOAD** statements load the tables *CountryA* and *CountryB*. These tables, which will be concatenated due to the fact that they have the same set of fields, include the field *Country*, whose field values will be compared with those of the first column of the mapping table. The field values US, U.S., and United States will be found and replaced by the values of the second column of the mapping table, i.e. *USA*.

The automatic mapping is done last in the chain of events that leads up to the field being stored in the QlikView table. For a typical **LOAD** or **SELECT** statement the order of events is roughly as follows:

1. Evaluation of expressions
2. Renaming of fields by as
3. Renaming of fields by alias
4. Qualification of table name, if applicable
5. Mapping of data if field name matches

This means that the mapping is not done every time a field name is encountered as part of an expression but rather when the value is stored under the field name in the QlikView table.

To disable mapping, use the **unmap** statement.

For mapping on expression level, use the **applymap** function.

For mapping on substring level, use the **mapsubstring** function.

6.17 VBScript Function Calls from Script

VBScript or JScript functions defined in the macro module of a QlikView document can be called from the script. If a function called is not recognized as a standard script function, a check will be made to see if a custom functions resides in the module. This gives you a large degree of freedom to define your own functions. Using custom macro functions will of course be somewhat slower than executing the standard functions.

```
rem ************************************************
rem ***THIS IS VBSCRIPT CODE FROM THE MODULE*********
rem************************************************
rem ********* Global variables ********************
dim flag
rem *******functions accessible from script *********
rem ************ wrap for input box ******************
function VBin(prompt)
VBin=inputbox(prompt)
end function

rem ************ clear global flag ******************
function VBclearFlag()
flag=0
end function
rem ********* test if reference has passed ***********
function VBrelPos(Ref, Current)
if Ref=Current then
VBRelPos="Reference"
flag=1
elseif flag=0 then
VBRelPos="Before "&Ref&" in table"
else
VBRelPos="After "&Ref&" in table"
end if
end function
// ************************************************
// *************THIS IS THE SCRIPT *****************
// ************************************************

let MaxPop=VBin('Max population in millions :');
```

```
// Ask limit

let RefCountry=VBin('Reference country :');
// Ask ref.

let dummy=VBclearFlag(); // Clears the global flag

Load
Country,recno(),
Capital,
"Area(km.sq)",
"Population(mio)",
VBrelPos('$(RefCountry)',Country)
as RelativePos
from country1.csv
(ansi, txt, delimiter is ',', embedded labels)
where "Population(mio)" <= $(MaxPop);
```

Transfer of Parameters

The following rules apply for parameter transfer of parameters between the load script and VBScript:

- Missing parameters are passed as NULL.
- If the actual expression evaluates to a valid number, the number is passed, else if the actual expression evaluates to a valid string, the string is passed, else NULL is passed.
- NULL is passed as VT_EMPTY.
- Return values are treated in a natural way.

6.18 Application Performance Optimization

Introduction

With small or medium sized QlikView applications you generally don't have to worry too much about the design of the application in terms of performance. As the amount of data grows, both time and memory constraints may become very evident if the application is poorly designed. It is possible that some simple design alterations improve performance substantially. This appendix points out a few common pit falls and suggests remedies for them.

In general performance is improved by moving the "problem" from application objects to the script driven database. This is often a trade off situation. Response time is enhanced and ad hoc capability is diminished. The recommendations below should not be seen as universally beneficial. Use them when they improve the general state of the application or when they make that little bit of difference that makes or breaks.

The following is a list of examples of applied methods for the handling of the problems above. They are meant to illustrate the problem and point at useful QlikView functionality. It is not possible to give a general recommendation as to which method is the best, but the order of the examples is an indication.

If (Condition(Text),....)

If clauses involving text comparisons is generally expensive. Solutions can be to map text to numbers, for example by using *autonumber* (see examples in the previous section) and/or do the test in the script.

The testing of text strings is slower than numeric testing. Consider the expression:

```
If (Alfa= ‘ABC’, ‘ABC’, left (Alfa, 2))
```
The test could be done directly in the script without losing any flexibility.

```
Load
*,
If (Alfa = ‘ABC’, 1, 0) as Flag
resident table_1 ;
```

The expression becomes:

```
If ( Flag = 1,’ABC’, left (Alfa, 2))
```
and the test is much simpler.

Sum (If (Condition, ‘FieldName’…))

Here the aggregation is independent of the table dimensions and the result is distributed over the dimensions of the table. The problem can be treated either by doing the test in the script and aggregating in the table or by doing the whole operation in the script. There are numerous techniques for this, such as *interval match*, *group by*, *peek*, *if....then....else*.

This case involves two steps namely the testing of “Condition“ and the aggregation of the result. If we take the previous example and add the aggregation

Sum (If (Alfa= ‘ABC’, Num*1.25 , Num))

```
Load
*,
If (Alfa = ‘ABC’, 1, 0) as Flag
resident table_1 ;
```
The expression becomes

```
Sum ( If ( Flag = 1, Num* 1.25 , Num ) )
```
The aggregation can also be done directly in the script as follows:

```
table_2:
Load
*,
If (Alfa = ‘ABC’, 1, 0) as Flag
resident table_1 ;
table_3:
Load
Alfa,
If ( Flag = 1, Num* 1.25 , Num ) as NewNum
resident table_2 ;

table_4:
Load
Alfa,
Sum( NewNum ) as SumNum
resident table_3
group by Alfa ;
```

The aggregation is done over Alfa as this is the dimension in the test.

If (Condition, Sum('FieldName')..)

This construction is included here only to emphasize the difference to the previous case. This aggregation is completely contextual and generally speaking does not cause performance problems.

If (Condition1, Sum('FieldName'), If (Condition2, Sum('FieldName')……..

The logic of nested *If...then else...* is conceptually easy but can often become troublesome to administer. We have seen cases with hundreds of nesting levels. This is both memory as well as CPU intensive. The "Conditions" can often be replaced by transforming them. A typical example is aggregating *quantity*price* where price is variable. This can be handled by "extended interval match". If two conditions, e.g. "*A* AND *B*" are to be satisfied the test might be replaced by a condition "*C*".

Example:

```
sum((GAC12_STD_COST * GAC15_EXCHANGE_RATE) * GIV24_DISP_QTY)
Replaces
Sum(
If((GAC12_EFCT_DT<= GIV23_REJ_DT and
GAC12_EXPIRE_DT>GIV23_REJ_DT) and
(GAC15_EFCT_DT<= GIV23_REJ_DT and GAC15_EXPIRE_DT>GIV23_REJ_DT),
GAC12_STD_COST * GAC15_EXCHANGE_RATE) * GIV24_DISP_QTY,
Null()))
and
Sum(
If(GAC12_EFCT_DT<= GIV23_REJ_DT,
If(GAC12_EXPIRE_DT>GIV23_REJ_DT,
If(GAC15_EFCT_DT<= GIV23_REJ_DT,
If(GAC15_EXPIRE_DT>GIV23_REJ_DT,
(GAC12_STD_COST * GAC15_EXCHANGE_RATE) * GIV24_DISP_QTY,
Null())))))
```

by reading the fields GAC12_STD_COST and GAC15_EXCHANGE_RATE as slowly changing dimensions.

Using the extended intervalmatch syntax to resolve slowly changing dimension problems (page 184)

Sorting Text

QlikView automatically evaluates if a *Field* is to be treated as *numeric*, *text* or *general*. Fields evaluated as *text* will be sorted as *text* which is the slowest sort operation. This can be replaced manually to sort by load order. If sorting of list boxes etc is not needed, turn it off.

QlikView sorts strings of mixed characters and numbers in alphanumeric order. That is, numbers are sorted in value order while non-numbers are sorted in ASCII order, as opposed to tradtional ASCII-only sort order. Example:

Sorting text example

ASCII sort	**Alphanumeric sort**
A1	A1
A10	A4
A11	A5

ASCII sort	Alphanumeric sort
A30	A6
A4	A10
A5	A11
A6	A30

Dynamic Captions and Text Objects

Dynamically calculated expressions can be entered almost anywhere where you can enter text. The resources required for evaluation of an expression is however dependent on its environment. Expressions in charts and tables that are defined in the expressions dialog are only calculated when the object is visible and data changes. They are e.g. not calculated when the object is minimized.

On the other hand, if the object title is calculated this calculation is performed every time any change occurs. There are also numerous ways of defining show conditions, calculation conditions etc. These tests will also be performed at all times.

Some expressions are more expensive than others and become even more expensive the more frequently they have to be evaluated. The introduction of asynchronous calculation has shifted the behavior and maybe these effects have become more noticeable in your applications.

The time functions e.g. **Now()** and **Today()** will be evaluated whenever a recalculation is required. Especially the **Now()** function can become quite costly since it causes a recalculation of the application every second.

For example:

```
If ( ReloadTime()+3>Now(), 'Old Data', 'New Data')
```
Here one might consider

```
If ( ReloadTime()+3>Today(), 'Old Data', 'New Data')
```
As a simple test, put the expressions into text boxes. Then try sizing the text box with **Now()** in it.

Macro Triggers (“on change“)

Macros can be set to be triggered by almost any event taking place in the application. Beware of cascading or recursive events where one event triggers the next which in turn.

6.19 Data Protection Issues

Most of the discussion below assumes that there is an existing database management system (DBMS) and that QlikView is used as an output tool. The arguments, however, still hold true when the raw data are in the form of text files.

Data Security and Integrity

Data protection usually means several different things. It can mean protecting entered data from being altered or destroyed by mistake, making sure that data is entered in a correct way or preventing the data from being shared by unauthorized people.

The terms integrity and security are often used in this context and although the two concepts seem similar at a first glance, they are in fact quite different. Security refers to the protection of data against unauthorized access, whereas integrity refers to the validity of data, i.e.:

- Security involves assuring that the users are allowed to do what they are trying to do.
- Integrity involves assuring that what the users are trying to do is correct.

We will mostly discuss data security, since the tools for data integrity are provided by the DBMS.

The Right to Alter Data

The first step in security is to make sure that users cannot erase or change data inadvertently. For multi-user systems this implies using an operating system and a database management system with adequate protection. Examples of such operating systems for PCs are Windows NT or Novell. Examples of such database management systems are ORACLE, SQL Server or Informix.

If data are not protected by the operating system, it will always be possible to delete data by mistake. This is true even if the file is password protected.

The next step is to set up privileges for the authorized users. In a correctly set up system it should be impossible to do anything with the data unless the correct tools are used, i.e. tools that can check whether you are authorized to do what you are trying to do.

For the single user most of the security problems do not exist. It is thus often sufficient to make regular back-ups of the data files.

The Right to View Data

The final issue in data security concerns the security when handling confidential information. If the security issues above concern the right to alter data, this point rather concerns the right to view data. Most database management systems have means to prevent people from looking at data residing in the database. They cannot, however, prevent people from looking at a copy of the data found in a QlikView file. For this purpose, QlikView has its own means of preventing unauthorized people from viewing data. One must, however, be aware of the fact that the QlikView access restriction tool only concerns the right to see data. QlikView can never prevent users from destroying data with other tools. Only the operating system can.

Data Integrity

Data integrity implies a structured data flow. Data entry procedures must be set up to make sure that data are entered in a uniform way. A good way to do this is to design forms with the DBMS. Forms also prevent users from entering non valid values, e.g. nonexistent customer numbers, into a database.

When working with single-user databases, one must also be careful not to have more than one person using the database at a time. Multi-user databases can, as the name implies, handle several people editing the database simultaneously.

Another aspect related to this issue is the following: One must always know if a file or a database is the original or a copy. If this is not the case, someone will most certainly start entering data into a copy of the database.

7 Creating documents and charts

A QlikView document consists of a number of sheets that contain graphical charts and other sheet objects that allow the user to interact and analyze the data. QlikView enables you to design and create your own clear, interactive charts and other sheet objects, and position them on the sheets in the document.

When creating a document you can use a palette of tables and chart types such as bar charts, pie charts and gauges. The tables and charts are simple to add and customize. Interactivity such as drill-down and filtering is built in because QlikView automatically highlights items associated with your selections. You can enhance interactivity further with functionality specific to the different charts.

While adding tables and charts on sheets, consider some rules of thumb:

- Using color, names, and styles consistently helps the user to navigate and understand the document.
- Keep the sheet tidy and let the tables and charts play center stage.
- Focus on a few metrics (KPIs) per sheet and present these in priority order.
- Make sure that the user can drill-down in data. For example, create dimensions for time and date to make it easy to drill down in year, month, week and day.
- Avoid using red and green colors as indicators because these colors can be hard for users with color-vision deficiency to distinguish.

You can get a lot of good inspiration by checking out the demos.

7.1 Learn more

QlikView Demos

Tutorials

7.2 Document Properties

Here the document specific parameters, such as opening picture and sound, default font, sort order etc. can be specified for this specific document.

Document Properties: General

General document properties

Property	Description
Title	Here the title that is to be displayed in the window caption can be entered. As default the document file name is used. To alter it, enter the selection in the **Title** edit box.
Author	In the **Author** edit box specify the author of the QlikView file.

Property	Description
Save Format	In this group set the level of compression for the QlikView files. • **Compression**: The options **Medium** and **High** substantially decrease the size of the QlikView file while sacrificing some load and save speed. Compression options set under **Document Properties** affect the current document. Compression options set under **User Preferences** affect all new documents.
Alert Pop-ups	This button opens the **Pop-up Window Settings** dialog where the default look of alert pop-up messages can be determined.
Help Pop-ups	This button opens the **Pop-up Window Settings** dialog where the default look of help pop-up messages can be determined.
Alternate States...	Alternate States functionality is enabled by a QlikView developer. The developer invokes the **Alternate States** dialog by clicking this button.  *Do not enable this functionality unless it is really needed in the QlikView Document.*
Memory Statistics	Click this button to save a table file containing memory usage statistics for the current QlikView document. This file can be read e.g. by QlikView for an analysis of memory requirements for different parts of the document.

Property	Description
Default Sheet Background	The **Background Color** for the **Default Sheet Background** of the document window(s) can be customized by checking this alternative. A color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. Alternatively, it is possible to specify a background image by checking **Wallpaper Image** and clicking the **Change** button. This will open the **Change Wallpaper** dialog where a picture file can be selected. The background image can be altered with the following options: **Image Formatting:** • **No Stretch:** The image is displayed as is, which may cause masking problems. • **Fill:** The image is stretched in order to fill the sheet, without regard to aspect ratio. • **Keep Aspect:** The image is stretched as far as possible while retaining the correct aspect ratio. • **Fill with Aspect:** The image is stretched as far as possible while retaining the correct aspect ratio. Areas not covered are then filled by cropping of the image. • **Tile:** If this option is selected, the image will be tiled the as many times as space allows. **Horizontal and Vertical orientation:** • **Horizontal:** The image can be horizontally aligned: **Left**, **Centered** or **Right**. • **Vertical:** The image can be vertically aligned: **Top**, **Centered** or **Bottom**.
Use Passive FTP Semantics	If the **Use Passive FTP Semantics** option is checked, the passive Ftp semantics will be enabled. The passive semantics option is used for communicating with a server through a firewall.
Generate Logfile	To track the execution of the load script select **Generate Logfile.** The information that is shown in the **Progress** window during script execution will be stored as qv.log.
Timestamp in Logfile Name	Puts a timestamp in the logfile name, e.g. *sales.qvw.2009_02_26_12_09_50.log*. The setting is only available if the **Generate Logfile** check-box is marked.
Hide Unavailable Menu Options	The setting **Hide Unavailable Menu Options** is used in conjunction with the security settings. Any menu options that should normally be grayed out, will instead be completely hidden from the user.
Hide Tabrow	The QlikView sheet tabrow may be removed by checking **Hide Tabrow**. In order to move between sheets use the **Next Sheet / Previous Sheet** actions or the **Sheet Toolbar** of the **View** menu. It is also possible to use automation control, which will e.g. make it possible to force the user to move between sheets and even making selections in a specific order.

Property	Description
Keep Unreferenced QVD Buffers	The **Keep Unreferenced QVD Buffers** setting overrules the normal procedure whereby any automatically created QVD files are purged immediately after script execution, provided they are no longer used by the document that created them. This setting should normally be left unchecked.
Legacy Fractile Calculation	If the **Legacy Fractile Calculation** check box is enabled, QlikView will use discrete values as results from the fractile aggregation function. Deselect the check box and QlikView will use an interpolated value, as known from the Percentile function in Microsoft Excel.
Disable Layout Undo	When the check box **Disable Layout Undo** is marked the layout undo buffer will be suspended. This may be useful to prevent unnecessary memory consumption when deploying certain QlikView documents. Each time a user or a macro changes the layout a chunk of data is normally added to the layout undo buffer. In extreme cases, the accumulated buffer data may cause problems when deploying documents on a QlikView Server.
Use WebView in Layout	Toggles **WebView** mode, which uses the internal web browser in QlikView to display the document layout as an AJAX page, on and off.
Default Export Encoding	Use **Default Export Encoding** to set the default character set for export in new documents. Choose one of these option: ANSI, Unicode or UTF-8.
Styling Mode	In the drop-down menu **Styling Mode** choose the object style for all the sheet objects. • The **Advanced** mode makes it possible to configure several settings, such as the **Sheet Object Style** and the type of border to be used, set on the **Layout** page of the objects. • The **Simplified** mode also gives the choice of **Sheet Object Style**, but configures most settings automatically. It sets such things as **Scrollbar Style** and borders. Some settings can still be changed on the layout page of the objects.
Sheet Object Style	In the drop-down **Sheet Object Style** select a style for sheet object captions. The style selected will be used for all sheet objects with a caption in the document.
Tabrow Style	Under **Tabrow Style** select one of the available styles for the tab row appearance in this drop-down. The style selected will be used for all tabs in the document.

Property	Description
Selection Appearance	QlikView supports several different ways of presenting data and making selections in list boxes and multi boxes. The **QlikView Classic**, **Corner Tag**, **LED** and **Led Checkboxes** styles all use color coding for indication of selected, possible and excluded values. The **Windows Checkboxes** style and the **LED Checkboxes** style mimic the standard Windows interface with a check box at each value. By choosing a specific style in this control, it is possible to force the document to appear in one style or another wherever opened. When using the selection styles based on color, there are a number of different color schemes available. The basic color scheme (green for selected, blue for locked etc.) cannot be changed, but variations of tone and intensity are possible. • **Style**: Sets the selection style for the document. Select from among the available alternatives in the drop-down list. By choosing **<User Default>** the document will always be opened with the selection style set as preferred by the user under **User Preferences** on the computer where it is opened. • **Color Scheme**: Sets the selection color scheme for the document. Select from among the available alternatives in the drop-down list. By choosing **<User Default>** the document will always be opened with the selection color scheme set as preferred by the user under **User Preferences** on the computer where it is opened. • **Transparency**: Sets the transparency of the selection color in list boxes and multi boxes.
Tabrow Background	Specify a custom color to the background of the tab row by clicking the corresponding **Tabrow Background** button.

Pop-up Window Settings

The **Pop-up Window Settings** dialog can be accessed from either the **Document Properties: General** or the **Alerts** dialog pages, both under the **Settings** menu. It is used for setting the properties of either **Help Pop-ups** or **Alert Pop-ups**.

Through the controls of the dialog the following properties can be customized:

The **Font** button opens the standard **Font** dialog, allowing the font settings for the pop-up text to be changed.

The **Background Color** of the pop-up window can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the colored button.

The default **Icon** for the pop-up is a **Question Icon** for **Help Pop-ups** and a **Warning Icon** for **Alert Pop-ups**, respectively. Choose between several other options or just set the display to **No Icon** from the spinner box.

Enter a time delay in the **Timeout** edit box to have pop-up windows automatically close after a set time delay (This delay is measured in milliseconds. By setting the timeout to 0 the pop-up will stay on the screen until the user clicks it away).

Check **Sound** in order to link a sound to the pop-up. The edit box below should contain a valid path to a .wav sound file. This may be an external path (e.g. c:\mysound.wav) or a path to a QlikView sound already bundled with the program (e.g. qmem://<bundled>/sounds/qv_ok.wav).

Color Area

Most colored surfaces in the QlikView layout can be formatted from the **Color Area** dialog. Specify either a solid color covering the entire area or a color gradient effect. The color gradient options described below are unavailable for some purposes and will then be grayed out in the dialog, e.g. for text colors.

- **Solid Color**: The basic option using a single uniform **Base Color**.
- **One Color Gradient**: This option introduces the use of varying **Brightness** to create a color gradient effect.
- **Two Colors Gradient**: A color gradient effect is created between the **Base Color** and a specified **Second Color**.

Color(s) can be fixed or calculated as specified in the **Base Color** and **Second Color** groups.

Any color settings can be previewed in the dialog.

In the **Base Color** group the base color are determined for solid surfaces and gradients.

- **Fixed**: This alternative specifies a single, basic color. Click the colored button to change the color.
- **Calculated**: The color may be dynamically calculated from an expression. The expression must be a valid color representation, which is achieved by using the color functions. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. If the result of the expression is not a valid color representation, the program will default to black.
- **Brightness**: When using a **One Color Gradient** this slider determines the relative shading/brightness of the color at the opposite end of the gradient. The slider setting goes from darker (left) to brighter (right). At the center position the setting translates as a uniform color.

In the **Second Color** group the second color is determined for two-color gradients.

- **Fixed**: This alternative specifies a single, basic color. Click the colored button to change the color.
- **Calculated**: The color may be dynamically calculated from an expression, using the color functions.

If **One Color Gradient** or **Two Colors Gradient** was selected, the direction of the gradient effect is determined by settings in the **Gradient Style** group. It is possible to achieve different results by combining the available alternatives (**Horizontal**, **Vertical** etc.) with clicking one of the four button areas, that represent gradient direction.

Document Properties: Opening

On this tab it is possible to customize the opening of a document.

Document Opening properties

Property	Description
Image	Mark this check box to have an opening image for the document.

Property	Description
Select...	Click this button to open the **Select Image** dialog where it is possible to select an image (bmp, jpg, jpeg or png).
Close on Mouse Click	Lets the user close the opening image by clicking it. Either this check box or the one below must be marked.
Close after N Seconds	Closes the opening image automatically. Either this check box or the one above must be marked.
Close when Loaded	Closes the opening image when the file has been loaded.
Sound	Mark this check box to add an opening sound for the document. This makes the **Select** button available.
Select...	This button opens the **Select Sound File** dialog where it is possible browse for a sound file.
Play	Click this button to play the sound that is selected.
Initial Data Reduction Based on Section Access	If the **Security** option is selected, QlikView will perform a procedure on opening the document (or on establishing a new session on QlikView Server) which permanently hides certain data from the user based on the identity with which the user has logged on to the document. When this feature is used on a document not run exclusively on a QlikView Server it should always be combined with the **Prohibit Binary Load** option (see below) in order to maintain data access security. This setting is mutually exclusive with **Initial Selection Based on Section Access**.
Strict Exclusion	If this check box is marked in combination with **Initial Data Reduction Based on Section Access**, strict exclusion will be used when reducing the data. This means that access to the document will be denied whenever the field values in the section access reduction fields lack matches in their corresponding section application field. This, however, does not apply for users with Admin status, who instead will see the unreduced data set if there are no matches.
Initial Selection Based on Section Access	If this option is marked, QlikView will perform a procedure on opening the document (or on establishing a new session on QlikView Server) which shows the selection based on the identity with which the user has logged on to the document. When this feature is used on a document not run exclusively on a QlikView Server it should always be combined with the **Prohibit Binary Load** option (see below) in order to maintain data access security. This setting is mutually exclusive with **Initial Data Reduction Based on Section Access**.
Prohibit Binary Load	If this option is selected it will not be possible to load data from the QlikView document via a **binary** statement in another QlikView document.

Property	Description
Document Thumbnail	Sets how the document will be displayed on the AccessPoint when the option **Thumbnail** is chosen. • **None**: A thumbnail with the message **Missing Image** will be displayed on the AccessPoint. • **Opening Sheet**: The opening sheet of the document will be displayed on the AccessPoint. • **Image**: Click on the **Browse** button to find the image to display on the AccessPoint.

Document Properties: Sheets

The **Document Properties: Sheets** tab helps to keep track of every sheet and sheet object of the QlikView-document. This dialog page consists of two lists, the **Sheets** list and the **Sheet Objects** list.

It is possible to sort either table on any column, by clicking its column header.

The **Sheets** list contains the following information:

Document Sheets properties

Property	Description
#	The sheet number (position), counting from 0.
SheetID	The unique **ID** of the sheet.
Title	The text currently shown in the sheet tab.
Status	Indicates whether the sheet is normal, hidden or has a show condition.
# Objects	The current number of sheet objects on the sheet.

After clicking a sheet in the list, use the buttons below to either **Delete** it or open its **Properties** dialog directly from this menu. It is also possible to **Promote**/**Demote** the sheet from here.

The **Sheet Objects** list contains the following information:

Document Sheet Objects properties

Property	Description
SheetID	The unique **ID** of the sheet.
ObjectID	Lists the unique **Object ID** of every existing sheet object. Linked objects have the same ID.
Type	Clarifies the object type.
Caption	The text currently shown in the caption of the sheet object.
ShowMode	Indicates whether the object is normal, minimized, maximized, hidden or has a show condition.

Property	Description
CalcTime	The time in milliseconds needed for the last recalculation of the object's contents. This information is only relevant for objects that are actually calculated (charts, Table boxes and any objects containing formulas).
Layer	The layer as defined on the **Layout** page of a sheet object properties dialog, defined as **Bottom**, **Normal** or **Top** corresponding to the numbers -1, 0 or 1 in the list. (The layer of a sheet object can however be set to any number between -128 and +127 via the Automation API.)
Memory	The amount of transient memory (in kBytes) needed for the last recalculation of the object's contents. This information is only relevant for objects that are actually calculated (charts, Table boxes and any objects containing formulas).
Left, Top, Right, Bottom	The current position of the indicated edge of the sheet object relative to the edge of the document window, expressed in pixels.
Width, Height	The size dimensions of the object, expressed in pixels.
Left (Min), Top (Min), Right (Min), Bottom (Min)	The current position of the object when iconized (=minimized), expressed in pixels.
Width	The current width of the sheet object's minimized icon, expressed in pixels.
Height	The current height of the sheet object's minimized icon, expressed in pixels.
Export Structure	By pressing this button it is possible to export the sheet and sheet object structure of the document to a set of text files. These text files, one for the sheets (*filename.Sheets.tab*), and one for the sheet objects (*filename.Objects.tab*) can easily be read back into QlikView for further analysis with the full power of the QlikView logic. A dialog will appear where the target folder for the export can be chosen. The default is to put the files in the same folder as the QlikView document.

After clicking an object in the list, use the buttons below to either **Delete** it or open its **Properties** dialog directly from this menu. Multiple objects can be selected with Ctrl-click.

Document Properties: Server

On this tab define certain aspects of the document's behavior when run on a QlikView Server.

Refresh Mode when Document is Updated on Server

This setting defines how an updated document on the QlikView Server will be handled.

Client initiates refresh. If old data not kept in server or client too old, session will be disconnected.

Choose this option if the server should never initiate a refresh of data in the client automatically. When a new version of the document becomes available on the server, the client will be offered to refresh according to the preferences set under **Client Refresh Initiation Mode** below. If this is not possible, because the server is set with **Allow only one copy of document in memory** enabled in the QlikView Server control panel, the session will simply be terminated.

Client initiates refresh. If old data not kept in server or client too old, refresh will be performed automatically

Choose this option if it is preferred to let the client initiate a refresh of data in the client when possible but will allow server to initiate a refresh automatically if necessary. When a new version of the document becomes available on the server, the client will be offered to refresh according to the preferences set under **Client Refresh Initiation Mode** below. If this is not possiblebecause the server is set with **Allow only one copy of document in memory** enabled in the QlikView Server control panel, the refresh will be performed automatically by the server.

Server performs refresh automatically, without client action

This is the option to choose if you prefer to always let the server initiate a refresh of data in the client automatically. When a new version of the document becomes available on the server, the data in the client will be refreshed.

Client Refresh Initiation Mode

This setting defines how the client should be notified of the availability of new data on the server and initiate a refresh. This setting is only valid when client initiated refresh has been selected in **Refresh Mode when Document is Updated on Server** (see above).

Indicate with toolbar button

In the Ajax client and QlikView plugin the availability of new data is indicated by the **Refresh** button in the toolbar being enabled. In QlikView Desktop the availability of new data is indicated by the **Refresh Document** command in the **File** menu being enabled. The availability of new data will not be indicated unless the user is interacting with a visualization. The refresh is performed at a time of the user's choice by clicking on the toolbar button in the Ajax client or QlikView plugin, or by clicking the **Refresh** command in QlikView Desktop.

Prompt with dialog

The availability of new data is indicated by a prompt dialog in addition to the **Refresh** button being enabled in the Ajax client and QlikView plugin toolbar, or in the QlikView Desktop **File** menu. The availability of new data will not be indicated unless the user is interacting with a visualization. In the dialog the user may choose between immediate refresh or wait, in which case the refresh can be performed at any later time of the user's choice by clicking on the toolbar button in the Ajax client or QlikView plugin, or by clicking the **Refresh** command in QlikView Desktop.

Just do it but tell the user it is happening

The refresh will be initiated as soon as the server indicates that new data is available. A dialog will be shown to indicate that the refresh is taking place.

Just do it

The refresh will be initiated as soon as the server indicates that new data is available. No dialog will be shown to indicate that the refresh is taking place. The user will experience a document "freeze" lasting from fractions of a second up to minutes depending on server settings and size of document.

Server Objects

The settings in this group make it possible to disable the clients' ability to create and share certain entities when running the document on QlikView Server. Please note that it is possible to disable all types of collaboration objects for all documents on a server by disabling the **Allow Server Collaboration** setting in the QlikView Server control panel. That setting overrides the settings below.

Allow Server Bookmarks

This check box must be enabled, if remote clients are to be allowed to create and share bookmarks with this document on the QlikView Server. Additionally, **Allow Server Objects** must be enabled.

Allow Server Objects

This check box must be enabled, if remote clients are to be allowed to create and share sheet objects with this document on the QlikView Server.

Allow Server Reports

This check box must be enabled, if remote clients are to be allowed to create and share reports with this document on the QlikView Server.

OEM Product ID

The settings in this group make it possible to add an OEM Product ID to the document. The OEM Product ID helps ensure that only OEM customers can open the document. This option is only available with an OEM Partner License.

OEM Product ID

Select **OEM Product ID** from the drop-down list.

QlikView Server Timeouts

If a document is published on a QlikView server, it could be a good idea to set a maximum session time for security purposes and have the server terminate sessions that are inactive or too long. The settings at the bottom of this page allows this to be set on a document level. Hence, it is possible to have harder restrictions for documents with sensitive data than for other documents.

Corresponding settings are also found on the server side, valid for all published documents. The more restrictive of the two settings will be used.

Maximum Inactive Session Time (seconds)

This check box enables an inactive session timeout, i.e. the Server will terminate a session where the user has not clicked in a given time. The length of the inactive session timeout is set in seconds.

Maximum Total Session Time (seconds)

This check box enables a total session timeout, i.e. the Server will terminate a session after a given time, regardless of whether the user has clicked or not. The length of the total session timeout is set in seconds.

Enable Push from Server

Mark this check box if the Server should allow graceful document refresh.

This is not supported using AJAX.

Enable Dynamic Data Update

Mark this check box if the Server should allow dynamic updates in a document.

Filter AccessPoint Document List Based on Section Access

When this option is enabled, users will only see those documents in the document list on the AccessPoint and in Open in Server, he or she has access to based on section access, in addition to other access rights. Note that those names present in the NTNAME column in section access will be saved as clear text in the QlikView document file, however, no passwords will be saved.

Even when this option is enabled, the AccessPoint may in some cases list documents that the user does not have access to based on Section Access. This is because of how the Section Access functionality works. However, the user can only see such documents, not open them.

Document Properties: Variables

The **Document Properties** : **Variables** page shows the script variables that have been added to **Displayed Variables** in the input box properties. The list of variables may be modified by the **Show System Variables** option. The **New...** button adds a new variable to the document. **Delete** button removes the selected variable.

In the **Settings for Selected Variable** group the edit box displays the current **Value** of the selected variable. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Variables are normally not included in bookmarks, but here it is possible to check the option **Include in Bookmarks**. **Include in Bookmarks** must be selected for the *Send to Excel* option to work in Qlik Cloud.

The **Input Constraints** group specify constraints against which all values entered into an input box variable by the user will be checked. If a value does not meet the constraints specified, it will be rejected and an error message may be shown. The following alternatives are available:

Input constraint options

Option	Description
No Constraints	Input values are not checked against any specified constraints.

Option	Description
Standard	Input values will be checked against one of a number of common standard constraints selected from the drop-down box. As default no constraint at all is selected, i.e. any value can be entered into the variable. Only one of the alternatives: **Standard**, **Custom**, **Predefined Values Only** and **Read-only** can be checked.
Custom	Input values will be checked against a user specified constraint. The constraint is entered in the edit box and must be expressed as a QlikView expression returning TRUE (non-zero value) if the input value is acceptable. The input value is referenced as a dollar sign ($) in the expression. **Example:** **$>0** will cause the input box to accept only positive numbers in the selected variable. The previous value of the variable can be referenced by the variable name. **Example:** **$>=abc+1** as a constraint on a variable named abc will cause the input box to accept only numeric entries with a value of the old value plus 1.
Predefined Values Only	Input values will be checked against a list of values defined in the **Predefined Values** group. Only input values found in the list will be accepted.
Read-only	Marks the variable as read-only. No values can be entered.
Enable Edit Expression Dialog	Check this alternative to enable editing of the variable value in the **Edit Expression** dialog, which is opened from the **...** button that appears when clicking on the value itself.

Constraint monitoring

Option	Description
Sound on Illegal Entry	Check this alternative to have QlikView issue a sound warning when the user attempts to enter a value which falls outside of the constraints.
Error Message	Normally, if the user attempts to enter a value which falls outside of the constraints it will just be rejected, leaving the present variable value in place. By checking this alternative it is possible to specify a custom error message which will be presented to the user in case of incorrect entries. The error message is typed in the edit box. It may be defined as an expression for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

In the **Value List** group it is specified if and how to present a list of values for an input box.

Value list options

Option	Description
No List	No list of values previously used in the variable is maintained.
List _ Recent Values	A drop-down (MRU) list with the values most recently used, will be available to the user for the selected variable in the input box. The number of previous values to store can be set in the box.
Predefined Values in Drop-down	A drop-down list with **Predefined Values** will be available to the user for the selected variable in the input box.
Predefined Values with Scroll	A scroll control will be available to the user for the selected variable in the input box. The scrolling will be made between the **Predefined Values**.

In the **Predefined Values** group a list of predefined values is specified, which can be presented to the user in a drop down and/or used for defining acceptable variable values.

Value field options

Option	Description
Number Series	Check this alternative to generate a list of predefined numeric values based on a lower limit (**From**), an upper limit (**To**) and a **Step** value. This option can be used alone or in combination with **Listed Values**.
Listed Values	Check this alternative to specify a list of arbitrary predefined values. The values can be either numeric or alphanumeric. Alphanumeric values must be enclosed in quotes (e.g. 'abc'). Each value is separated by a semicolon (**;**) (e.g. 'abc';45;14.3;'xyz'). This option can be used alone or in combination with **Number Series**.
Comment	This is a commentary field where the creator of a variable can describe its purpose and function.

New Variable

The **New Variable** dialog opens when you click **New Variable** under **Input Box Properties: General** or **New...** under **Document Properties: Variables**. Under **Variable Name** you can enter a name for the new variable.

Document Properties: Security

In this property tab it is possible to set the **User Privileges** on the document level. By default, all the options are checked (on). People with administrator privileges can always access this dialog and change the settings. The settings can however prevent ordinary users from altering the document in a number of ways. The options are:

Document Scrambling properties

Property	Description
Reduce Data	Permission to use the command **Reduce Data**.
Add Sheets	Permission to add more sheets to the document.
Edit Script	Permission to access the **Edit Script** dialog.
Reload	Permission to run the load script.  *The permissions to **Reload** and **Partial Reload** (see below) data are automatically disabled by the operation **Reduce Data - Keep Possible Values**, which is performed from the **File Menu**.*
Partial Reload	Permission to run a partial reload.
Edit Module	Permission to access the **Edit Module** dialog.
Save Document (Users)	Permission to save the document with USER privileges.
Access Document Properties (Users)	Permission to access the **Settings: Document Properties** with USER privileges.
Promote/Demote Sheets	Permission to use the **Promote Sheet** and **Demote Sheet** commands.
Allow Export	Permission to use any **Export, Print** or **Copy to Clipboard** commands.
Allow Print (When Export Is Prohibited)	Overrules the **Allow Export** settings for printing purposes (only).
Access Tabrow Properties	Permission to access the **Tabrow Properties**.
Macro Override Security	Overrides any security settings by means of macros and commands via automation.
Show All Sheets and Objects	Overrules conditional display of sheets and sheet objects, thus everything becomes visible. This functionality can be toggled by pressing Ctrl+Shift+S.
Show Progress for Hidden Script	Show it in the script progress dialog while executing hidden script.
Allow User Reload	Permission to reload the script when the document is opened in USER mode. When it is deselected, reload is not possible, even if the **Reload** check box above is selected.
Admin Override Security	Overrides any security settings on document or sheet level by logging in as Administrator.
Module Password	Allowing to set a password for accessing the **Edit Module** dialog. To change the password, click the **Module Password** button again.

Document Properties: Triggers

On the **Triggers** tab, it is possible to set actions (including macro actions) to be invoked on document events, variable events and field events.

Not all actions can be invoked from the following event triggers.

There are limitations as to the behavior of certain macro triggers when working with documents on QlikView Server.

Document Event Triggers

In this group actions are set to trigger on selected events in the document. An event has to be selected in the list before it is possible to assign actions or macros to it.

- **OnAnySelect**: Select this event to assign one or more actions to be executed each time a selection has been made in any field of the QlikView document.
- **OnOpen**: Select this event to assign one or more actions to be executed each time the QlikView document is opened. This event is not supported when running in the AJAX client.
- **OnPostReduceData**: Select this event to assign one or more actions to be executed after each time the **Reduce Data** command has been executed.
- **OnPostReload**: Select this event to assign one or more actions to be executed each time the script has been re-executed.
- **Add Action(s)**: This button opens the **Actions** page. On this page it is possible to add one or more actions to the trigger. Choose the action **macro** to assign an existing macro name or type any name for which a macro can be created later in the **Edit Module** dialog.

The action will be executed each time the selected document event occurs. When one or more actions have been assigned to the event, the button changes to **Edit Action** and it is possible to change the action for the event.

Field Event Triggers

In this group actions are set to trigger on changes in the logical state of a specified field in the document. Select a field in the list and press one of the buttons to assign one or more actions to it. The buttons open the **Actions** page. Here it is possible to assign one or more actions, including an existing macro name, or type any name for which a macro can be created later in the **Edit Module** dialog.

When an action has been assigned to the field, the button changes to **Edit Action**. The following **Field Event Triggers** exist:

- **OnSelect**: The action will be executed each time a selection has been made in the specified field.
- **OnLock**: The action will be executed each time the field is locked.
- **OnChange**: The action will be executed each time a selection has been made in any field which is logically associated with the specified field.
- **OnUnlock**: The action will be executed each time the field is unlocked.

Variable Event Triggers

In this group you can set actions to trigger on changes in the contents of a specified variable in the document.

Select a variable in the list and press one of the buttons to assign one or more actions to it. The buttons open the **Actions** page. On this page you can add one or more actions to the trigger. Choose the action macro to assign an existing macro name or type any name for which you later can create a macro in the **Edit Module** dialog.

When an action has been assigned to the variable, the button changes to **Edit Action** and you can change the action for the event. The following **Variable Event Triggers** exist:

- **OnInput**: The action will be executed each time a new value is directly entered in the selected variable.
- **OnChange**: The action will be executed each time the value of the selected variable changes as a result of changes in other variables or the logical state of the document. This typically applies when the variable contains a formula.

For backward compatibility to earlier versions of QlikView, the action must consist of a macro action. An action that consists of only one macro action is translated back to old string format on save.

Actions that trigger other actions, so called cascading actions, may cause unforeseen consequences and are not supported!

Document Properties: Groups

*In order for the **Groups** tab to be available the document must contain data and the script must have been reloaded once.*

In this tab it is possible to create drill-down or cyclic field groups.

A list shows all groups in the document. An icon to the left of each group name indicates whether it is a drill-down group or a cyclic group. A group can be selected by clicking in the list. The selected groups are shown in the **Used Fields** area.

Document Data Source properties

Property	Description
New	Clicking this button opens the **Group Settings** dialog where it is possible to define a new field group.
Delete	Deletes the selected group.
Edit	Opens the **Group Settings** dialog for the selected group. This page is used for accessing field groups.

Group Settings

The **Group Settings** dialog is opened when clicking the **New...** or **Edit...** buttons in the **Document Properties: Groups** dialog.

Group settings

Setting	Description
Group Name	Enter a name for the group and select either **Drill-down Group** or **Cyclic Group**. *Do not use a name identical to the name of any field that is used in the group.*
Available Fields	Available fields are listed in this column. Select the fields to include in the group.
Show Fields from Table	Select a table.
Add	Moves the selected fields from the column of **Available Fields** to the column of **Used Fields**.
Add All	Moves all fields from the column of **Available Fields** to the column of **Used Fields**.
Remove	Moves the selected fields listed in the column of **Used Fields** to the column of **Available Fields**.
Promote	Moves the selected field one step further up in the list of **Used Fields**.
Demote	Moves the selected field one step further down in the list of **Used Fields**.
Used Fields	Fields included in the current group are listed in this column. Initially the column is empty.
Add Expression	Opens the **Edit Expression** dialog for easy editing of long formulas.
Edit...	Opens the **Edit Expression** dialog for editing the selected formula in the **Used Fields** area.
Label	An alternative name for the displayed field can be entered here. It will be used as dimension name in the chart. The label may be defined as a calculated expression for dynamic update.
Sort Orders...	Clicking on this button opens the **Group Sort Order** dialog in which a separate sort order can be set for each field in the group.

Document Properties: Tables

When data that includes circular references is loaded into QlikView, loosely coupled tables are created automatically, to avoid that the circular references create a loop in the QlikView internal logic. These loosely coupled tables need to be handled in order to visualize data in a way that is expected and understandable.

Any table can also be made loosely coupled interactively from this dialog or via macros.

The normal QlikView associative logic is disconnected internally for loosely coupled tables. This means that selections in one field do not propagate through to the other fields in the table. This may be very useful in a number of situations, typically when it is needed to avoid circular references in the data structure.

Making one or more tables loosely coupled can radically change the behavior of the document. Use this feature only when you are absolutely sure about what you are doing!

This dialog page consists of two lists, the **Tables** list and the **Fields** list.

Either table can be sorted on any column, by clicking its column header.

The **Tables** list contains the following information:

Document Tables properties

Property	Description
Name	The name of the internal table.
Loosely Coupled	If the alternative is checked, the table is loosely coupled. It is possible to deliberately set this alternative for a table here.
# Records	The number of records (rows) of the table.
# Fields	The number of fields (columns) of the table.
# Keys	The number of key (connecting) fields (columns) of the table.
Comment	Displays the comments read from the data source and the comment made on the field.

The **Fields** list at the bottom of the page shows all fields of the QlikView document or, if one internal table has been selected in the list above, the fields of that table. The columns are as follows:

Document Table Fields properties

Property	Description
#	The internal number of the field. Numbers 0 to 5 are used by the QlikView system fields, which are not displayed in this list.
Name	The name of the field.
Dimensions	Mark the check box to the right of the field name to add the system tag `$dimension` to the field. This tag denotes a field recommended for use in chart dimensions, list boxes etc. A field tagged with `dimension` will be displayed at the top of all field selection controls in QlikView except in the **Edit Expression** dialog.
Measures	Mark the check box to the right of the field name to add the system tag `$measure` to the field.. This tag denotes a field recommended for use in expressions. A field tagged with `measure` will be displayed at the top of all field selection controls in the **Edit Expression** dialog.
Tags	Displays the field tags. `$` denotes a system tag.

Property	Description
Comment	Displays the comments read from the data source and an indicator for any special status of the field, such as **Semantic**, **AndMode**, **AlwaysOneSelected**, **Info**, **Locked** or **Hidden**.
# Tables	The number of tables in which the field occurs.
# Values	The total number of field values, disregarding selections. This information is not available for key (connecting) fields.
# Distinct	The total number of distinct field values, disregarding selections.
Type	Displays an indicator for any special status of the field, such as **Semantic**, **AndMode**, **AlwaysOneSelected**, **Locked** or **Hidden**.
Edit Tags...	Opens a dialog where it is possible to add and remove tags. System tags cannot be removed here. Tags added may not be given a name occupied by a system tag.
Export Structure	By pressing this button it is possible to export the table structure of the document to a set of text files. These text files, one for the tables (`file-name.Tables.tab`), one for the fields (`filename.Fields.tab`) and one for mapping in between (`filename.Mappings.tab`) can easily be read back into QlikView for further analysis with the full power of the QlikView logic. A dialog will appear where the target folder can be chosen for the export. The default is to put the files in the same folder as the QlikView document.
Tag Clean-Up	Click this button to clean up any tags that might be left after a field has been removed from the QlikView document.

Document Properties: Sort

On this property tab the sort order for the values of any field in the document can be configured. The sort order of a field can also be set from the **Sort** tab of the **Properties** dialog for different sheet objects.

Select a field in the **Fields** list to the left, then check one or more of the options to the right. The options are described below.

In the **Sort by** group the default sort order of the field values in the sheet objects can be set. Changes made in this group will affect fields in sheet objects created after the change. Previously created sheet objects will not be affected.

Document Sort properties

Property	Description
State	Toggles the status whether the sorting procedure of values should be made by selection state. The selected values appear at the top of the list if this option is set. The sort order is: **selected, possible, excluded** (ascending).
Expression	Field values will be sorted according to an arbitrary expression that is entered into the text edit box below this sort option.
Frequency	Toggles the status whether the sorting procedure of values should be made by frequency.

Property	Description
Numeric Value	Toggles the status whether the sorting procedure of values should be made by numeric value.
Text	Toggles the status whether the sorting procedure of values should be made in alphabetical order according to the ASCII standard.
Load Order	Toggles the status whether the sorting procedure of values should be made in load order.

The **Reset** button sort order is sort by state, ascending and sort by Text, A --> Z.

If more than one sort order is specified the sort order will be state, expression, frequency, numeric, text, load order.

Document Properties: Presentation

This property tab makes it possible to specify the default presentation settings of the field values used for subsequently created list boxes and multi boxes. The available fields are listed in the **Fields** group.

The **Multi Box and List Box Default** group contains the sub-groups **Alignment**, **Multiline Cells** and **Settings**. **Default Search Mode** specifies the initial default search mode to be used in text search.

Document Presentation properties

Property	Description
Default Theme for New Objects	A QlikView theme can be selected here which will applied to all newly created sheets and sheet objects in the document. The selected theme must be accessible from disc at all times in order to be used. It is also important that the theme used is defined for all types of objects that may occur in a QlikView document. At the bottom of the drop-down list there is a Browse... command in case the theme file resides in another location than in the default QlikView theme catalog. If no default theme is used, each new sheet object will inherit the properties of the last created or changed object.
Alignment	The default alignment of field values can be set separately for **Text** and **Numbers**. As default, text values are left aligned, numbers values are right aligned.
Multiline Cells	If the **Wrap Text** option is checked, the (text) contents of the cell (field value) will be displayed in two or more lines. The number of cell lines is set in the **Cell Height (Lines)** edit box.
Settings	• **Single Column**: Checking this option forces single column mode. • **Order by Column**: In multiple column displays the field values will be ordered by column, rather than by row. • **Cell Borders**: Checking this option will introduce horizontal lines between field values.

Property	Description
Default Search Mode	• **Use Previous**: The search mode of the last completed search will be used. • **Use Wildcard Search**: The initial search string will be two wildcards with the cursor between them to facilitate a wildcard search. • **Use Normal Search**: No additional characters will be added to the search string. Without wildcards, a Normal Search will be made.

Document Properties: Number

This property tab provides number formatting settings for all fields and variables of the document.

The list on the left is set to display either the **Fields** or the **Variables** of the document.

The **Field Options** group is only used for **Fields**:

The **Default from Input** button sets the formatting to that of the input.

Check the **Survive Reload** option if the formatting is to apply to the document permanently.

The following controls for formatting values are available:

Document Number properties

Property	Description
Mixed	Both numbers and text. Numbers shown in original format.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

The **ISO** button uses the ISO standard to format date, time and timestamp values.

The **System** button uses the system settings for the formatting.

Document Properties: Scrambling

This tab is only available when working with a QlikView document in ADMIN mode. It provides the possibility to scramble the data in one or more fields.

Document Scrambling properties

Property	Description
Fields	This is a list of all fields in the document. Select one or more fields for scrambling.
Scramble	Press this button to perform a random scrambling of the contents of selected field(s). Numbers are scrambled to numbers and text to text (spaces are kept). Once scrambled, the data cannot be recreated in its original form by Qlik or anyone else. If the script is re-executed, however, the scrambling will be lost.

Document Properties: Extensions

In this tab it is possible to select extensions to alter the appearance of the document.

Active Document Extensions will only affect the QlikView document when working in the AJAX client or in WebView mode inside QlikView.

Document Extensions are created by the application designer/developer. Document Extensions provide a mechanism for injecting JavaScript code into a QlikView application viewed through the AJAX client. Variations in the Extensions can occur on web browsers with different JavaScript engines.

The **Installed Extensions** list shows all installed extensions. An extension can be selected by clicking in the list. The selected extensions are shown in the **Active Extensions** area.

Extension properties

Property	Description
Installed Extensions	A list of installed extensions are shown here.
Add	Moves the selected fields in the column of **Installed Extensions** to the column of **Active Extensions**.
Add All	Moves all fields from the column of **Installed Extensions** to the column of **Active Extensions**.
Remove	Moves the selected fields in the column of **Active Extensions** to the column of **Installed Extensions**.

Property	Description
Active Extensions	A list of active extensions are shown here. These are the extensions added from the column of **Installed Extensions**.
Extension Description	A short description about the extension, highlighted in one of the columns, is displayed here.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

Border type options

Option	Description
Shadow Intensity	The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
Border Style	The following predefined border types are available: **Solid** A solid unicolored border. **Depressed** Border giving the impression of depressing the sheet object from the background. **Raised** Border giving the impression of raising the sheet object from the background. **Walled** Border giving the impression of a wall around the sheet object.
Border Width	This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Color	Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
Rainbow	Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

Rounded corners options

Option	Description
Rounded Corners	Checking this option makes the alternatives for rounded corner shapes possible.
Corners	Corners for which the check box remains unmarked will be drawn rectangular instead.
Squareness	A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
Corner Radius	This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

Layers

Layer	Description
Bottom	A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
Normal	When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
Top	A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
Custom	The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

Display options

Option	Description
Always	The sheet object will always be displayed.
Conditional	The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

More options

Options	Description
Allow Move/Size	If this option has been deselected it will be impossible to move or resize the sheet object.
Allow Copy/Clone	If this option has been deselected it will be impossible to make a copy of the sheet object.
Allow Info	When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.
Size to Data	Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

Scrollbar settings

Setting	Description
Preserve Scroll Position	With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
Scroll Buttons	Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
Scrollbar Width	This control affects both the width and the relative size of the scrollbar symbols.
Scroll Style	Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.

Application options

Option	Description
Apply To...	Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**:When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Caption and Border Properties

In this dialog you set to which objects in the document the caption and border properties should apply.

Apply properties to...

Mark this check box to apply the settings to other objects than the current one.

1. Choose one of the options:
   - **Objects on this sheet**: Applies the settings to objects on the current sheet only. Only available when this dialog is opened from the **Layout** page of a sheet object.
   - **Objects in this document**: Applies the settings to objects of the entire document.

2. Choose one of the options:
    - **Only this object type**: Applies the settings to all objects of this type. Only available when this dialog is opened from the **Layout** page of a sheet object.
    - **All object types**: Applies the settings to all objects.

Set as default for new objects in this document

Mark this check box to use the settings as default for all new objects in the current document. Only available when this dialog is opened from the **Layout** page of a sheet object.

7.3 The Sheet

A QlikView document can have one or several sheets on which sheet objects are placed. Each sheet can contain many sheet objects. The sheets have no connection with the logic - if two fields are logically connected, it does not matter if they are put on the same sheet or on different sheets. The logical result when making selections will still be the same.

Creation

New sheets are created by choosing **Add Sheet** from the **Layout** menu or by clicking the **Add Sheet** button in the toolbar.

Navigation

All sheets have tabs attached to them on which the sheet name is printed. By clicking on a tab, the sheet attached to it is activated. If the **Sheets** toolbar is active you may also activate a sheet by selecting it in the toolbar drop-down.

By right-clicking on a tab you open a context menu containing the following commands:

- **Tabrow Properties...**: Opens a dialog in which you can choose a font for the tab. Only Truetype fonts may be used.
- **Sheet Properties...**: Selects the sheet and opens the **Sheet Properties** dialog. Here sheet specific parameters such as the sheet background, the fields to display, the default font and the object look etc. can be specified. This alternative is only available when clicking on the tab belonging to the currently active sheet.
- **Copy Sheet**: Makes a complete copy of the entire sheet with all its sheet objects. The copy will be named "Copy of *Sheetname*" and positioned as the last sheet in the document.
- **Promote Sheet**: Moves the sheet one step further to the left.
- **Demote Sheet**: Moves the sheet one step further to the right.
- **Help**: Opens context-specific help.
- **Remove**: Makes the sheet active, then removes it.

If you click the tab of active sheet, the context menu also contains the commands **Select fields...** and **New sheet object**. For a description of these commands, see below.

On the sheet tabs you can sometimes see selection indicators, small beacons that will guide you to the selections made. These are shown on the tabs of hidden sheets on which you can see selections that are not visible on the active sheet.

Sheet: Object Menu

The menu commands are:

- Properties: Opens the **Sheet Properties** dialog page where you can set the parameters defining the sheet.
- Select Fields: Opens the **Sheet Properties: Fields** page where you can select a field or more to be displayed as a list box on the sheet.
- New Sheet Object: Opens a cascading menu listing sheet objects.
- Copy Sheet: Makes a complete copy of the entire sheet with all its sheet objects. The copy will be named "Copy of *Sheetname*" and positioned as the last sheet in the document.
- Paste Sheet Object: Pastes a sheet object, previously copied to clipboard, on the sheet. This command can also be invoked by the following keyboard shortcut: Ctrl+V.
- Paste Sheet Object as Link: Pastes a linked object, previously copied to the clipboard, on the sheet. The object is directly linked to the original, sharing all attributes and object ID.
- Print: Opens the **Print** dialog where print settings can be specified. The printout will consist of an image of the sheet area including any sheet objects.
- Copy Image to Clipboard: Copies a bitmap picture of the sheet area (only) to **Clipboard**.
- Export Image to File: Opens a dialog for saving an image of the current sheet to a file. The image can be saved as bmp, jpg, gif or png.
- Help: Opens QlikView help.
- Remove: Removes the sheet and all its sheet objects.

Sheet Properties: General

You open the **Sheet Properties** dialog either by choosing **Properties** from the sheet **Object** menu or by choosing **Sheet Properties** from the **Settings** menu.

*If the **Properties** command is dimmed, you probably don't have the privileges needed to perform property changes. This is configured in **Sheet Properties: Security**.*

To name the sheet, enter text in the **Title** edit box. The name will be displayed on the sheet tab.

- **Alternate State**:
  Choose one of the available states in the list. The following Alternate States are always available.
  - **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen.
  - **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

- **Sheet ID**: This is used for macro purposes. Every sheet is assigned a unique ID, starting with SH01. It is possible to edit this ID number later on. It is recommended that you use alphanumeric characters only in the ID.

In the **Show Sheet** group it is possible to specify a condition under which the sheet is displayed:

- Always: The sheet will always be displayed.
- Conditional: The sheet will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet will only be hidden when the condition returns FALSE.
  When all sheets in a document are disabled due to **Show Sheet** restrictions a message "No sheets available" will be displayed. Users with Admin privileges for the document can override this condition by checking **Show All Sheets and Sheet Objects** in the **Document Properties: Security** page. This functionality can be toggled by pressing Ctrl+Shift+S.

With the **Zoom (Percent)** option you can conveniently alter the size of the displayed active sheet and everything on it.

In the **Background** group you may define a background color for the sheet. The alternative **Document Default** applies the background color defined in the **Document Properties** dialog. Checking **Sheet Settings** and clicking the **Colored** button lets you define a custom background color which can be defined as a solid color or a gradient via the **Color Area** dialog.

Alternatively, the background of the sheet can be customized by checking **Image** and clicking the **Change** button. This will open the **Select Image** dialog where a file with the picture to be used can be selected.

Image Formatting:

- **No Stretch**: The image is displayed as is, which may cause masking problems.
- **Fill**: The image is stretched in order to fill the sheet, without regard to aspect ratio.
- **Keep Aspect**: The image is stretched as far as possible while retaining the correct aspect ratio.
- **Fill with Aspect**: The image is stretched as far as possible while retaining the correct aspect ratio. Areas not covered are then filled by cropping of the image.
- **Tiled**: If this option is selected, the image will be tiled the as many times as space allows.

Horizontal and **Vertical** orientation:

- **Horizontal**: The image can be horizontally aligned: **Left**, **Centered** or **Right**.
- **Vertical**: The image can be vertically aligned: **Top**, **Centered** or **Bottom**.

Theme Maker

Theme Maker...	Opens the**Theme Maker**wizard for creating a new theme or editing an existing one.
Apply Theme...	Opens a file browser dialog for choosing a layout theme file to be applied to the sheet object(s).

In the **Tab Settings** group you may define a background color for the sheet tab.

- **Classic Gray**: Select this option to use a gray tab coloring with black text.
- **Sheet Background**: Sets the tab color to the color of the sheet.
- **Custom Colors**: This setting lets you specify a custom **Tab Color** and **Tab Text Color** by clicking the corresponding buttons.
- **Apply to All**: Applies the tab color settings to all sheets of the document.

Sheet Properties: Fields

This is where you select fields to be displayed on the sheet from the **Available Fields** list. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column.

The selected fields will be displayed in default configured list boxes on the active sheet. To set the specific properties of a list box, right-click on it and select **Properties** from the object float menu (or from **Object** in the **Main** Menu).

To make the system fields selectable, check the **Show System Fields** option.

Show Fields from Table

From here, you control what fields appear in the **Available Fields** list. The drop-down list displays the alternative **All Tables** by default.
The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.)
It is also possible to view the fields of one table at a time.

Sheet Properties: Objects

The **Sheet Properties: Objects** page helps you to keep track of all sheet objects residing on the current sheet. This makes it much easier to get hold of objects that are hidden or have show conditions.

Sort the table on any column, by clicking its column header. The columns contain the following information:

- **Object ID**: Lists the unique **Object ID** of every existing sheet object. Linked objects have the same object ID.
- **Type**: Clarifies the object type.
- **Caption**: Gives the text, if any, that is displayed in the caption of the object.
- **ShowMode**: Indicates whether the object is normal, minimized, maximized, hidden or has a show condition.
- **State**: Displays which state the object is in.
- **CalcTime**: The time in milliseconds needed for the last recalculation of the object's contents. This information is only relevant for objects that are actually calculated (charts, table boxes and any objects containing formulas).
- **Layer**: The layers are set on the **Sheet Object Properties: Layout** page where **Bottom**, **Normal** and **Top** correspond to the numbers -1, 0 and 1. Choose **Custom** to enter a value of your choice. Valid layer numbers are -128 to 127.

- **Memory**: The amount of transient memory needed for the last recalculation of the object's contents. This information is only relevant for objects that are actually calculated (charts, table boxes and any objects containing formulas).
- **Left, Top, Right, Bottom**: The current position of the indicated edge of the sheet object relative to the edge of the document window, expressed in pixels.
- **Width, Height**: The size dimensions of the object, expressed in pixels.
- **Left (Min), Top (Min), Right (Min), Bottom (Min)**: The current position of the object when iconized (=minimized).
- **Width (Min), Height (Min)**: The dimensions of the object's icon.

After clicking an object in the list, you can use the buttons to either **Delete** it or open its **Properties** dialog directly from this menu. Multiple objects can be selected with Ctrl+Click.

Sheet Properties: Security

In this property page you may set the **User Privileges** at the sheet level. By default, all options are checked (on). Persons with administrator privileges can always access this dialog and change the settings. The settings can however prevent ordinary users from altering the sheet layout in a number of ways. The options are:

- **Add Sheet Objects**: Permission to add new sheet objects.
- **Remove Sheet Objects**: Permission to remove any of the sheet objects.
- **Move/Size Sheet Objects**: Permission to change the layout of existing sheet objects.
- **Copy/Clone Sheet Objects**: Permission to add a copy of existing sheet objects.
- **Access Sheet Object Properties**: Permission to access the **Sheet Properties** dialog.
- **Remove Sheet**: Permission to delete the sheet.
- **Access Sheet Properties (Users)**: Permission to access the different property pages of sheet objects.

Checking the **Apply to All Sheets** option, applies the above options to all sheets of the document.

- **Read Only**: Check this alternative to lock all sheet objects on this sheet for selections. This means that the sheet objects can only display the results of selections made in objects residing on other sheets.

Sheet Properties: Triggers

On **Triggers** page you can specify actions, including macros, to be invoked on sheet events.

Not all actions can be invoked from the following event triggers.

There are limitations as to the behavior of certain macro triggers when working with documents on QlikView Server.

Actions that trigger other actions, so called cascading actions, may cause unforeseen consequences and are not supported!

Sheet Event Triggers

In this group you can set actions to trigger on change of active sheet. Pressing the **Add Action(s)** button for either event brings you to the **Actions** page. On this page you can add an action to the event. Choose the action **Run Macro** to assign an existing macro name or type any name for which you later can create a macro in the **Edit Module** dialog. When an action has been assigned to the event, the button changes to **Edit Action** and you can change the action for the event. The following **Sheet Event Triggers** are configurable:

OnActivateSheet

The action will be executed each time the sheet is activated.

OnLeaveSheet

The action will be executed each time the sheet is deactivated.

Tabrow Properties

The properties of the tabrow are set in the **Tabrow Properties** dialog, which is opened by right-clicking the tabrow.

- **Font**: Here you can change the font of the text on the tab.
  Specify the font, style and size of the text. The font chosen applies to the text on all the tabs.

7.4 Quick Chart Wizard

The Quick Chart feature has been developed for users who want to create a simple chart in a quick and easy way, without bothering about the great number of different settings and options available.

The Quick Chart Wizard takes you through the following basic steps:

1. Select chart type
2. Define chart dimension(s)
3. Define the chart expression
4. Format chart

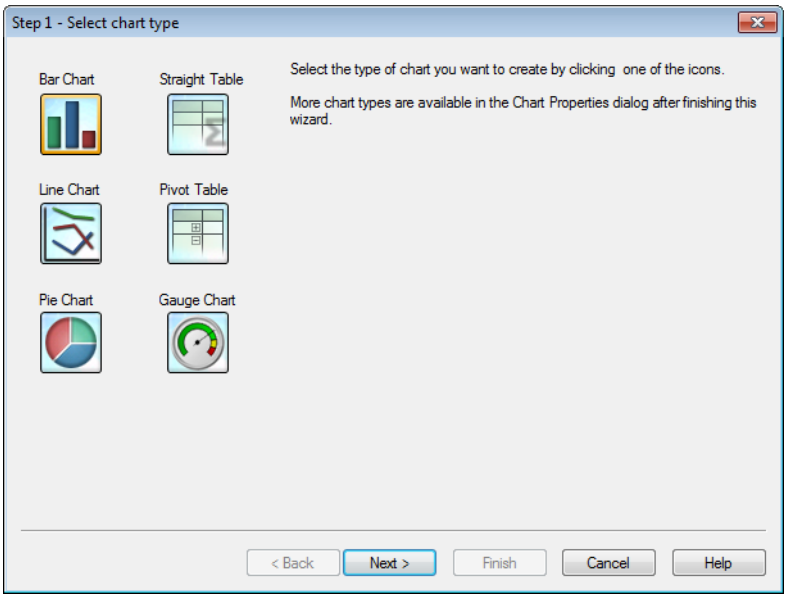
Depending on selections, some of the above steps may be skipped.

Starting the Quick Chart Wizard

Start the Quick Chart Wizard either by choosing **Quick Chart Wizard** from the **Tools** menu or by clicking on the corresponding button in the **Design** toolbar.

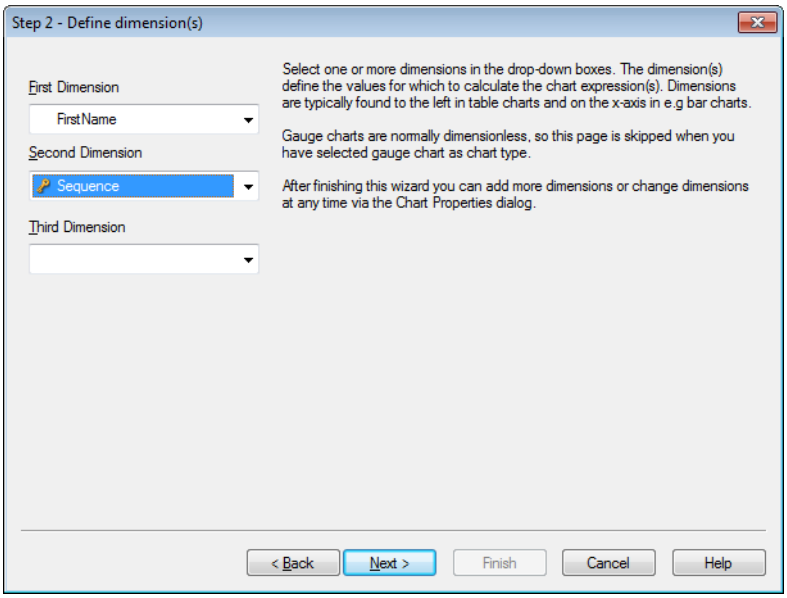
The first time the wizard is started a start page will open outlining the purpose of the wizard and the basic steps involved. If this start page should be skipped when the wizard is used in the future, mark the **Don't show this page again** check box. Click **Next** to continue. The Quick Chart Wizard goes through the following basic steps:

Step 1: Select chart type



Select the type of chart you want to create by clicking on one of the icons. The chart types available are those most commonly used in QlikView. It is possible to change the chart into any other QlikView chart type via the **Chart Properties** dialog after finishing the wizard. Click **Next** to continue.

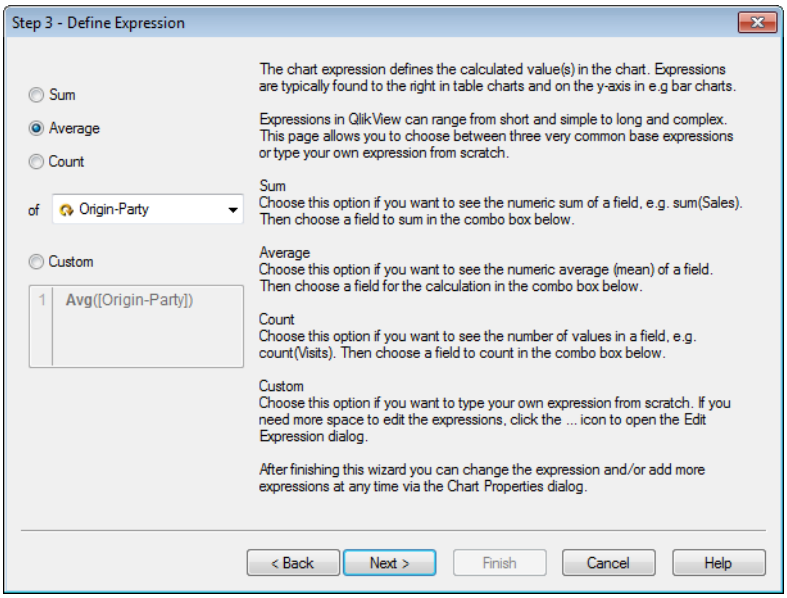
Step 2: Define dimension(s)



Unless you selected Gauge chart in the first step, you will now see the **Define Dimension** page. This page is automatically skipped for gauge charts because they do not normally have any dimensions.
Select one or more dimensions in the drop-down boxes. The dimension(s) define the values for which to calculate the chart expression(s). Dimensions are typically found to the left in the table charts and on the x-axis in e.g. bar charts.

After finishing this wizard you can add more dimensions or change dimensions at any time via the **Chart Properties** dialog.
Click **Next** to continue.

Step 3: Define Expression



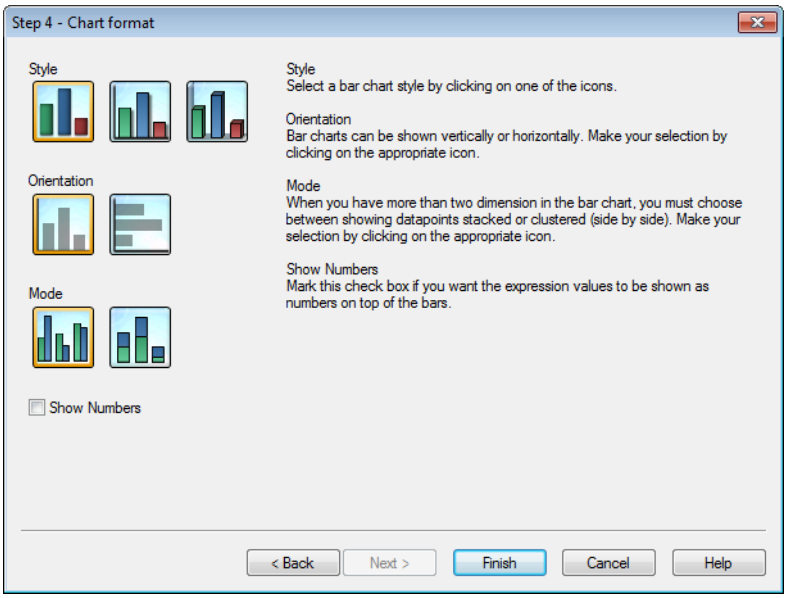
The chart expression defines the calculated value(s) in the chart. Expressions are typically found to the right in table charts and on the y-axis in e.g. bar charts.
Expressions in QlikView can range from short and simple to long and complex. This page allows you to choose between three very common base expressions or type your own expression from scratch.

- **Sum**: Choose this option if you want to see the numeric sum of a field, e.g. sum(Sales). Then choose a field to sum in the combo box below.
- **Average**: Choose this option if you want to see the numeric average (mean) of a field, e.g. avg(Score). Then choose a field for the calculation in the combo box below.
- **Count**: Choose this option if you want to see the number of values in a field, e.g. count(OrderID). Then choose a field to count in the combo box below.
- **Custom**: Choose this option if you want to type your own expression from scratch. If you need more space to edit the expressions, click on the ... icon to open the **Edit Expression** dialog.

After finishing this wizard you can change the expression and/or add more expressions at any time via the **Chart Properties** dialog.
Click **Next** to continue.

The fourth step in the wizard allows you to adjust the format of the chart. As format settings vary between chart types, the contents of the page will be different depending on which chart type you selected in step 1 of the wizard.

Step 4: Chart format (bar chart)

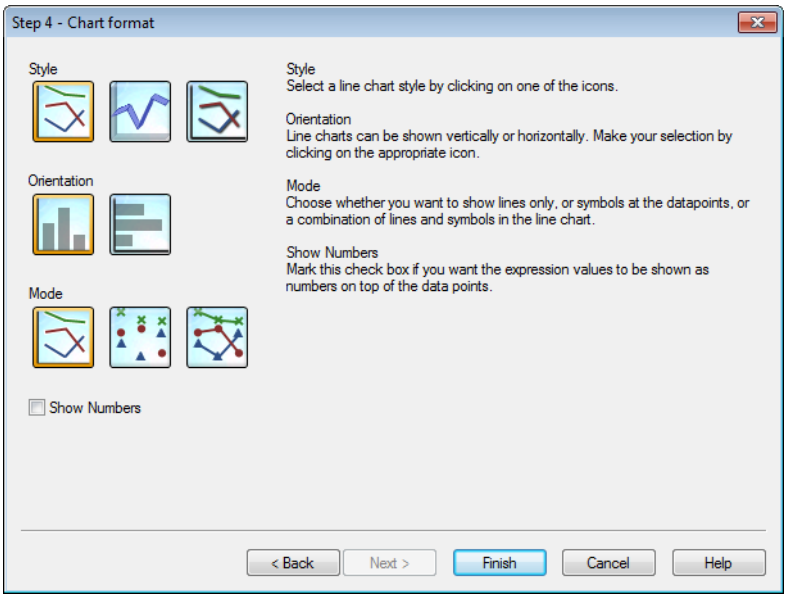


In this page you set formatting options for the selected chart type.

- **Mode**: When you have more than two dimensions in the bar chart, you must choose between showing data points stacked or clustered (side by side). Make your selection by clicking on the appropriate icon.
- **Show Numbers**: Mark this check box if you want the expression values to be shown as numbers on top of the bars.

Click **Finish** to finalize the chart and return to the layout. As mentioned before you can return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Step 4: Chart format (line chart)

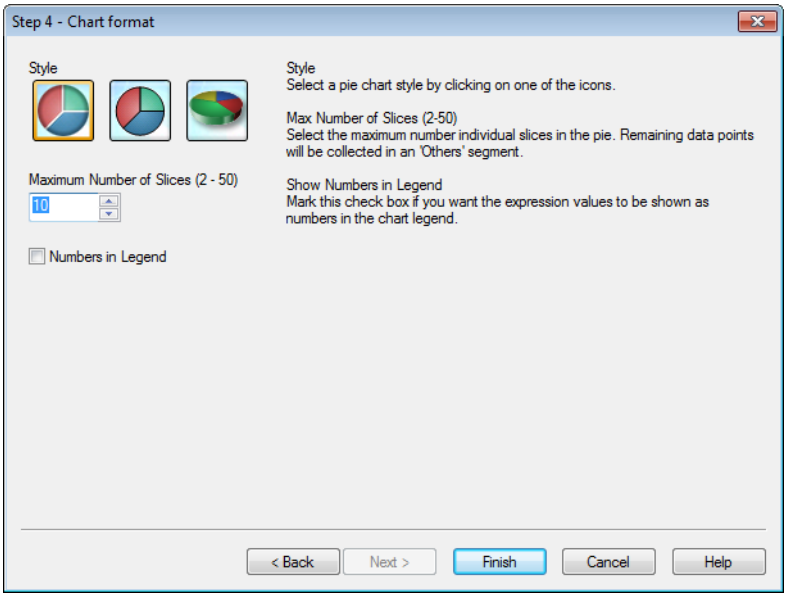


In this page you set formatting options for the selected chart type.

- **Mode**: Show data points as lines, symbols or a combination thereof. Make the selection by clicking on the appropriate icon.
- **Show Numbers**: Mark this check box if the expression values is to be shown as numbers on top of the data points.

Click **Finish** to finalize the chart and return to the layout. As mentioned before it is possible to return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Step 4: Chart format (pie chart)

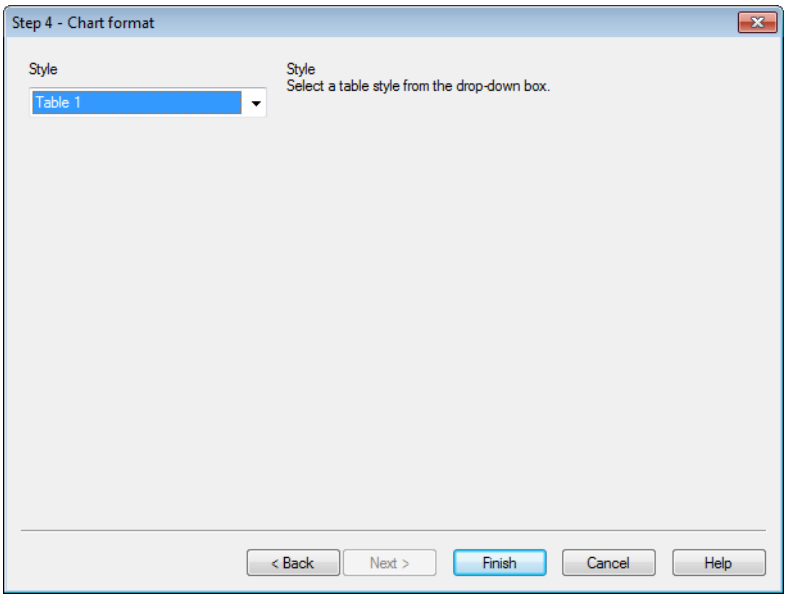


In this page you set formatting options for the selected chart type.

- **Max Number of Slices (2-50)**: Select the maximum number of individual slices in the pie. Remaining data points will be collected in an 'Others' segment.
- **Show Numbers in Legend**: Mark this check box if you want the expression values to be shown as numbers in the chart legend.

Click **Finish** to finalize the chart and return to the layout. As mentioned before you can return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Step 4: Chart format (straight table)

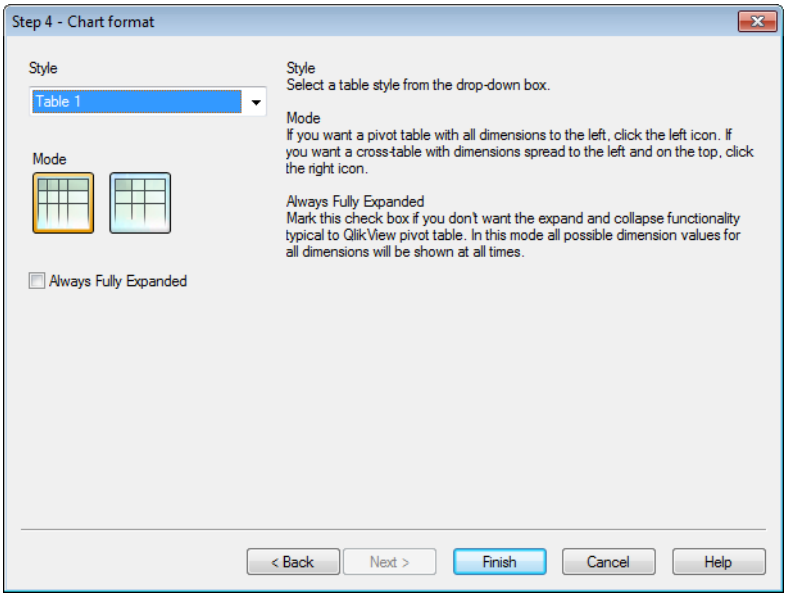


In this page you set formatting options for the selected chart type.

- **Style**: Select a table style from the drop-down box.

Click **Finish** to finalize the chart and return to the layout. As mentioned before you can return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Step 4: Chart format (pivot table)

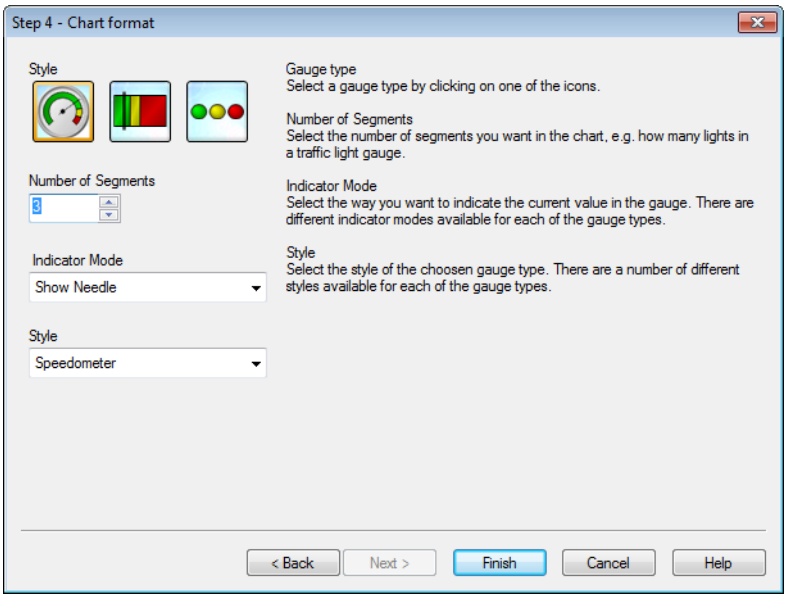


In this page you set formatting options for the selected chart type.

- **Style**: Select a table style from the drop-down box.
- **Mode**: If you want a pivot table with all dimensions to the left, click on the left icon. If you want a cross-table with dimensions spread to the left and on the top, click on the right icon.
- **Always Fully Expanded**: Mark this check box if you don't want the expand and collapse functionality typical to a QlikView pivot table. In this mode all possible dimension values for all dimensions will be shown at all times.

Click **Finish** to finalize the chart and return to the layout. As mentioned before you can return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Step 4: Chart format (gauge chart)



In this page you set formatting options for the selected chart type.

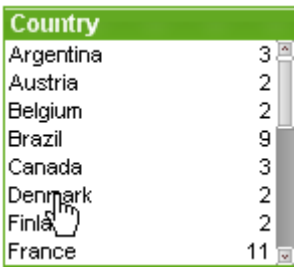
- **Number of Segments**: Select the number of segments you want in the chart, e.g. how many lights in a traffic light gauge.
- **Indicator Mode**: Select the way you want to indicate the current value in the gauge. There are different indicator modes available for each of the gauge types.

Click **Finish** to finalize the chart and return to the layout. As mentioned before you may return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

7.5 Sheet Objects

You add tables and charts to sheets to visualize the data and to make selections to filter the data.

List Box



The list box is the most basic sheet object. It contains a list of all possible values of a specific field. Each row in the list box can represent several records in the loaded table, all with identical values. Selecting one value may thus be equivalent to selecting several records in the loaded table.

A list box may also contain a cyclic or drill-down group. If a drill-down group is used, selecting a single value in the list box will cause the list box to drill down and switch to the next underlying field in the group. Drilling back up can be accomplished by clicking the drill-up icon in the list box caption.

If a cyclic group is assigned to a list box it can be made to show the next field in the group by clicking on the cycle icon that appears in the list box caption. You may also go directly to any field in the group by using the **Cycle** option on the list box object menu.

Right-click on the list box to display the **Object** menu.

Object Menu

The list box **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **List Box Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.
Cycle	Only available when the list box is set to display a cyclic group. Opens a cascade menu with the fields of the group for direct selection of which field to be displayed in the list box.
Search	Opens the search box.
Fuzzy Search	Opens the text search box in fuzzy search mode.
Advanced Search	Opens the advanced search dialog. The dialog makes it possible to enter advanced search expressions. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+F.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Change Value	Only available for list boxes displaying input fields. Sets the cell clicked on in input edit mode. Equivalent to clicking the input icon in the cell.
Restore Values	Only available for list boxes displaying input fields. Opens a cascade menu with three options: • **Restore Single Value**: Restores the value in the field value clicked on to its default value from the script. • **Restore Possible Values**: Restores the values of all possible field values to their default values from the script. • **Restore All Values**: Restores the values of all field values to their default values from the script.
Select Possible	All non-excluded values in the list box are selected.
Select Excluded	All excluded values in the list box are selected.
Select All	All values in the list box are selected.
Clear	Clears all the current selections in the active list box.
Clear other fields	Clears the selections in all the other sheet objects, while maintaining the ones in the current list box.
Lock	Locks the selected value(s) in the active list box. (Grayed if no selections have been made).
Unlock	Unlocks the locked value(s) in the active list box. (Appears instead of **Lock** if selections have been locked).
Create Quick Chart...	Opens the **Quick Chart** wizard that helps you create a chart in a quick and easy way.

Command	Description
Create Time Chart...	Opens the **Time Chart** that makes it possible to build a chart where a given measure (expression) should be qualified and often compared by different time periods.
Create Statistics Box	Performs various statistical calculations on selected values of a field (sample) and displays the results in a statistics box.
Print Possible...	Opens the **Print** dialog where print settings can be specified. All non-excluded values of the active list box are sent to the printer.
Print Possible as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.  *Mini charts will not be displayed when exporting to Excel!*
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. • **Possible Values**: Copies the possible (selected and optional) values to the clipboard. • **Cell Value**: Copies the text value of the list box cell right-clicked upon (when invoking the Object menu) to the clipboard. • **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. • **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the _ icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Command	Description
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

The **List box Properties: General** tab is opened by a right-click on a list box and choosing the **Properties** command in the float menu. Here it is possible to set general parameters of the list box.

List box parameters

Parameter	Description
Title	The text to appear in the list box caption. The default text is the name of the selected field. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Parameter	Description
Field	Select a field from the list. The list box will contain the values of the selected field. A list box may instead display a cyclic or drill-down group. Only one field will be shown at a time, though. Such groups are created from the **Document Properties: Groups** dialog and will be listed with the available fields. If a drill-down group is used, selecting a single value in the list box will cause the list box to drill down and switch to the next underlying field of the group. Drilling back up can be accomplished by clicking the drill-up icon appearing in the list box caption. If a cyclic group is assigned to a list box it can be made to switch to show the next field in the group by clicking on the cycle icon appearing in the list box caption. It is also possible to go directly to any field in the group by using the **Cycle->** option on the list box's object menu. Furthermore it is possible to display a calculated field in a list box. A calculated field does not come out of script execution, but is defined from an expression. The same rules applies on **Calculated Dimensions**. If a calculated field should be used in the list box, select <Expression> in the drop-down after which the **Edit Expression** dialog will open where it is possible to define the expression describing the calculated field. **Use as Title** By selecting this check box, the field name will be used as **Title**. The text <use field name> will appear in the **Title** edit box. **Edit...** This button is only available when **<Expression>** has been selected as a field name. The button opens the **Edit Expression** dialog where you can define the expression describing the calculated field. For more information, see *Calculated fields (page 246)*.
And mode	Multiple selections within a field must be of either **AND** or **OR** type. By default, the selection is of **OR** type. This command toggles the logical mode by which multiple value selections are made. This menu option is disabled if the field does not satisfy certain conditions. This option is not available for calculated fields.

Parameter	Description
Show Alternatives	Toggles whether a selection directly in the active field list box is to exclude the other values of the field or not. If **Show Alternatives** is checked, all values except the selected value will be displayed as Optional but may become excluded by association with selections in other fields. Otherwise, all other values are shown as excluded by default. This option is not available for calculated fields.
Hide Excluded	Toggles whether the excluded values of the field should be shown or not. Excluded values become unselectable as well.
Read Only	Checking this option will prevent you from making selections in the list box. However, it will still reflect selections made elsewhere in the document.
Always One Selected Value	Checking this option assures that only one value can be selected, which is useful in documents where the data only makes sense when one value is already selected, such as one currency rate. This option is enabled after one value is already selected in the list box. This option is not available for calculated fields.  *Enabling this option modifies the data model. As a result, existing bookmarks may stop working even if you retain the same field names.*
Override Locked Field	Checking this option enables selections to be made in the list box even if it is locked. The list box will still be locked for selections made elsewhere in the document.
Show as TreeView	Shows the list box as a tree view. This control is only relevant if the field contains the path representation of nodes in a hierarchy. Such a field can be generated using the **Path** parameter of the **Hierarchy** prefix.
With Separator	Sets the character that should be interpreted as separator in the path used for the **Tree View**.
Show Frequency	Toggles the status for whether the frequency of a field value is shown or not. By frequency is meant the number of selectable combinations in which the value occurs. This option is not available for calculated fields.

Parameter	Description
In Percent	Toggles the status for whether the frequency should be shown in absolute numbers or as percentages of the total number of entries.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For list boxes, the ID starts with LB01. Linked objects share the same object ID. You may edit this ID number later on.
Include Excluded Values in Search	The drop-down list lets you choose between **Yes**, **No** or **<use default>** which applies the default setting as specified under **User Preferences: General**.
Default Search Mode	Specifies the initial default search mode to be used in text searches. The mode can always be changed on the fly by typing * or ~ as part of the search string. The following alternatives are available: • **Use <default>**: The default as specified under **User Preferences** will apply. • **Use Wildcard Search**: The initial search string will be two wildcards with the cursor between them to facilitate a wildcard search. • **Use Fuzzy Search**: The initial search string will be a tilde (~) to denote a fuzzy search. • **Use Normal Search**: No additional characters will be added to the search string. Without wildcards, a Normal Search will be made. • **Use Associative Search**: Associative search will be used in the search box.
Print Settings	Here you set the print settings for the print job.
Print All Values	The normal print behavior for list boxes is to print only possible values. By marking this check box, all values (also excluded values) will be printed.

Parameter	Description
Layout Dependent Print	By marking this check box, the list box will be printed as it appears on the screen in terms of multiple columns, selection color coding of cells etcetera. This may be useful e g when including list boxes in reports.

Calculated fields

When a calculated field is used, some list box functionality will be different from regular field list boxes. Some property options are not available (see below). Furthermore statistics boxes cannot be created from such list boxes.

A calculated field must always be a transformation of one or more normal fields. Purely synthetic calculated fields created via the **valuelist** and **valueloop** functions are not permitted. When making selections in a calculated field, you actually make selections in the underlying normal field(s). When using more than one field as base for a calculated field, the logical implications of selections in the base fields or the calculated field may be quite complex.

The use of calculated fields in list boxes may cause performance issues with very large data sets.

Expressions

On the **Expressions** tab you define expressions to be displayed in the list box. Each expression will be placed in a new column in the list box. The upper left corner of the dialog contains a list of the expressions.

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the expression's attribute expressions.

You may choose to use any number and combination of attribute expressions on a given base expression. Formatting defined by means of attribute expression supersede default formatting of the data plots in terms of color etc.

Expression commands

Command	Description
Add	By clicking this button, you get to the **Edit Expressions** dialog, in which it is possible to create new expressions. This option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.
Delete	Deletes the selected expression. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Command	Description
Copy	The option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml. The expression may then be pasted back into the same object or into any other QlikView object in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another object.
Export...	The option is only available in the context menu that appears when right-clicking on a main expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file. The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive an extension, for example xml.
Paste	The option is only available in the context menu that appears when right-clicking in the list of expressions and only if an expression has previously been copied to the clipboard. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.
Import...	The option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expressions. The imported expression will appear as a new main expression in the chart.
Promote	Promotes the selected expression one step up in the list. Use this button if you want to change the order of the expressions.
Demote	Demotes the selected expression one step down in the list. Use this button if you want to change the order of the expressions.
Null Symbol	The symbol entered here will be used for displaying NULL values in the table.
Missing Symbol	The symbol entered here will be used for displaying missing values in the table.
Enable	Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
Definition	Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the … button the full **Edit Expressions** dialog is opened.
Show	If **Always** is selected, the expression will always be shown in an extra column in the list box. If **Conditional** is selected, the expression will be dynamically shown or hidden depending on the value of a condition expression entered in the edit box to the right.

Command	Description
Alignment	In this group, the default alignment of your expressions can be set. Text and numbers can be individually set to left-adjusted, centered or right-adjusted.
Display Options	This group defines what will be written in the list box expression cells.
Representation	The following alternatives are given: **Text**:When selecting this option the expression values will always be interpreted and displayed as text. **Image**: When selecting this option QlikView will try to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed. **Circular Gauge**: When selecting this option QlikView will display the expression value in a circular style gauge. The gauge chart will be inscribed in the available table cell. The visual settings for the gauge can be modified via the **Gauge Settings...** button. **Linear Gauge**: When selecting this option QlikView will display the expression value in a horizontal linear style gauge. The gauge chart will be inscribed in the available table cell. The visual settings for the gauge can be modified via the **Gauge Settings...** button. **Traffic Light Gauge**: When selecting this option QlikView will display the expression value in a horizontal traffic light style gauge. The gauge chart will be inscribed in the available table cell. The visual settings for the gauge can be modified via the **Gauge Settings...** button. **LED Gauge**: When selecting this option QlikView will display the expression value in a LED style gauge. The gauge chart will be inscribed in the available table cell. The visual settings for the gauge can be modified via the **Gauge Settings...** button. **Mini Chart**: When selecting this option QlikView will display the expression value in a miniature chart with the expression aggregated over an extra dimension. The chart will be inscribed in the available table cell. The mini chart dimension can be defined and visual settings for the chart can be modified via the **Mini Chart Settings** button (see below).  *The mini chart will not be displayed when exporting to Excel.*
Gauge Settings...	Only available when one of the gauge options has been selected above. Opens a dialog for setting the properties of the gauge. This dialog is essentially equal to the **Chart Properties: Presentation** dialog for gauge charts.
Mini Chart Settings	Only available when **Mini Chart** has been selected as **Display Option** for an expression in the table. Opens a dialog for setting the properties of the mini chart.

Command	Description
Image Formatting	Only available when the image options have been selected above. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives. **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled. **Fill**: If this option is selected, the image will be stretched to fit the cell without bothering about keeping the aspect ratio of the image. **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio. This typically results in areas either on both sides of or above and below which are not filled by the image. **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction. **Hide Text When Image Missing**: If this option is selected, QlikView will not display the field value text if interpretation as an image reference fails for some reason. The cell will then be left blank.

Mini chart settings

Only available when the **Mini Charts** option has been selected in the **Expressions** page of a straight table's **Properties** dialog. Opens a dialog for setting the properties of the mini chart.

Mini chart properties

Property	Description
Dimension	Choose the dimension for which the expression should be plotted.

Appearance

Appearance properties

Property	Description
Mode	Set the mini chart as sparklines, line with dots, dots, bars or whiskers.
Color	Opens the **Color Area** dialog where the color of the mini chart can be set.
Highlight Max Value With Color	Mark the check box and click on the colored button to open the **Color Area** dialog where the color for the maximum value can be set.
Highlight Min Value With Color	Mark the check box and click on the colored button to open the **Color Area** dialog where the color for the minimum value can be set.
Highlight Start Values With Color	Mark the check box and click on the colored button to open the **Color Area** dialog where the color for the start values can be set. Not available for **Bars** and **Whiskers**.

Property	Description
Highlight End Values With Color	Mark the check box and click on the colored button to open the **Color Area** dialog where the color for the end values can be set. Not available for **Bars** and **Whiskers**.
Set Default Colors	Sets the colors for the highlight settings to QlikView default colors.
Force Zero Based Scaling	Fixes the lower edge of the chart to zero on the axis. Not available for **Whiskers**.
Force Shared Scale for Y-Axis	Forces all cells in the column to use the same y-axis scale.

Sort

You reach the **Sort** tab by right-clicking a sheet object (List Box, Multi Box, Table Box, Chart or Slider/Calendar object) and choosing **Properties** from the float menu (or **Object, Properties** in the main menu). Here you set the sort order of the values in the sheet object. Some sort options may not be available for some sheet objects.

Sort options

Sort by:	Result
State	Sorts the field values according to their logical state (selected, optional or excluded). The **Auto Ascending** setting sorts the list box (or, in a multi box, the drop-down list containing the field values) according to **State** only if the list box contains a vertical scroll bar. However, if you enlarge the list box to show all values, the sort order **State** is completely switched off. *Do not use **Auto Ascending** order in a list box inside a **Container** object.*
Expression	Sorts the field values according to the expression entered into the text edit box below this sort option. If using sort by expression, an alternative set of records must be defined by a set expression, as the expression is calculated on selected/possible values in the list and the sort only would apply to selected/possible values in the list. *Sort by expression only works with numeric fields, and not with text fields.*
Frequency	Sorts the field values by frequency (number of occurrences in the table).
Numeric Value	Sorts the field values by numeric value.
Text	Sorts the field values in alphabetical order.
Load Order	Sorts the field values by the initial load order.

The **Default** button sort order sets the default sort order.

The order of priority is **State**, **Expression**, **Frequency**, **Numeric Value**, **Text**, **Load Order**. Each of these sort criteria can be set to **Ascending** or **Descending**.

Presentation

The **List Box Properties: Presentation** tab is opened by right-clicking on a list box and choosing the **Properties** command in the float menu. Here it is possible to adjust the layout of the list box cells.

In the **Image Options** group you can let a field value comprising a reference to an image in memory or on disk be interpreted as that image:

Under **Representation** you can choose between **Text** (default), **Image** and **Info as Image**.

When you select **Image**, QlikView will attempt to interpret each field value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the qvw document itself (e.g. *qmem://<Name>/<Peter>*). If QlikView cannot interpret a field value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

When you select **Info as Image**, QlikView will display image info linked to the field value via **info load/info select** in the script. If no image info is available for a field value, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Provided that either image option is selected, the settings under **Image Formatting** can be used for fitting the image into the cell.

Image formatting options

Option	Description
No Stretch	The image is displayed as is, which may cause masking problems.
Fill	The image is stretched in order to fill the cell, without regard to aspect ratio.
Keep Aspect	The image is stretched as far as possible while retaining the correct aspect ratio.
Fill with Aspect	The image is stretched as far as possible while retaining the correct aspect ratio. Areas not covered are then filled by cropping of the image.

When images are shown instead of text it may be necessary to use another selection style than the document default so that the logical state of the field values remains visible. Use the drop-down list under **Selection Style Override** to select a suitable selection style, e.g. **Corner Tag**.

List box presentation options

Option	Description
Single Column	With this option checked, the list box field values will always be presented in a single column.

Option	Description
Suppress Horizontal Scroll Bar	Check this option to suppress the horizontal scroll bar that is normally displayed when field values are too wide to for the specified width of the list box. Instead, field values will be truncated as needed.
Fixed Number of Columns	Check this option to set a fixed number of columns for the list box. The option is unavailable when **Single Column** is selected.
Order by Column	In list boxes with more than one column, values are displayed row-wise in the sort order specified. The **Order by column** option switches to column-wise display.
Cell Borders	The field values will be separated by horizontal lines, resembling the rows of a table. **Cell Borders** is automatically activated when the **Wrap Cell Text** option is checked, but may be subsequently deactivated.
Highlight Search Substring	The search string entered in a search object so far will be highlighted in the matches.
Background...	Opens the **Background Settings** dialog.
Alignment	Here you set the alignment of field values in the list box. The alignment of **Text** and **Numbers** is set separately.
Multiline Settings	In this group the list box cells may be set to display values in multiple rows, which is useful for long text strings. **Wrap Cell Text** With this option selected, a cell will display its contents in more than one row. **Height** n **Lines** Here the desired limits to the number of cell rows are specified.

Background Settings

Background settings

Setting	Description
Color	If this setting is enabled the background of the object will be colored. Choose a color by clicking on the **Color** button.
Color Transparency	Only available when the color option has been enabled. Sets the transparency of the background color.
Image	If this setting is enabled, the background of the object will be an image. Click **Browse** to choose an image. Click **Remove** to remove it from the background.

Setting	Description
Image Stretch	Only available when the image option has been enabled. The setting describes how QlikView formats the image to fit. **No Stretch**: The image will be shown as is, without any stretching. This may cause parts of the image to be invisible or only fill part of the background. **Fill**: The image will be stretched to fit the background without keeping the aspect ratio of the image. **Keep Aspect**: The image will be stretched as far as possible to fill the background while keeping the aspect ratio. **Fill with Aspect**: If this option is selected, the image will be stretched to fill the background in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.
Horizontal Alignment	Only available when the image option has been enabled. Aligns the image to the **Left**, **Center** or **Right**.
Vertical Alignment	Only available when the image option has been enabled. Aligns the image to the **Top**, **Center** or **Bottom**.
Image Transparency	Only available when the image option has been enabled. Sets the transparency of the background image.

Number

The **Properties: Number** page is opened by right-clicking a sheet object and choosing the **Properties** command from the float menu.

Each field has a default number format which can be set in the **Document Properties: Number** page. It is however possible to use a separate number format for an individual sheet object. To do this, check the alternative **Override Document Settings** and specify a number format in the group control below. This property page applies to the active object and contains the following controls for formatting values:

Number formats

Format	Description
Mixed	Both numbers and text. Numbers shown in original format.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows values in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box. The default format is the Windows Currency setting.

Format	Description
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).
Show in Percent (%)	This check box affects the following formats: **Number**, **Integer** and **Fixed**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

The **ISO** button uses the **ISO** standard for the formatting of date, time and timestamp.

The **System** button applies the settings of the system to the formatting.

The **Change Document Format** button opens the **Document Properties: Number** page where the default number format of any field can be edited.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed

in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Caption and Border Properties

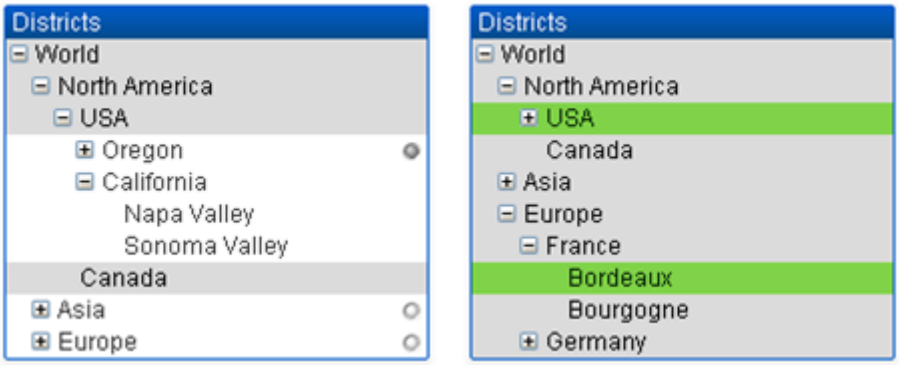
In the **Caption and Border Properties** dialog you set to which objects in the document the caption and border properties should apply.

- **Apply properties to...**: Mark this check box to apply the settings to other objects than the current one.
    1. Choose one of the options:
        - **Objects on this sheet**: Applies the settings to objects on the current sheet only. Only available when this dialog is opened from the **Layout** page of a sheet object.
        - **Objects in this document**: Applies the settings to objects of the entire document.
    2. Choose one of the options:
        - **Only this object type**: Applies the settings to all objects of this type. Only available when this dialog is opened from the **Layout** page of a sheet object.
        - **All object types**: Applies the settings to all objects.
- **Set as default for new objects in this document**: Mark this check box to use the settings as default for all new objects in the current document. Only available when this dialog is opened from the **Layout** page of a sheet object.

List Box Tree View

If a field contains paths of nodes in a hierarchy, e.g. *World/North America/USA/California/NapaValley*, a list box can be displayed as a tree view. The tree view will show the nodes with indentation to facilitate navigation and allow the user to collapse nodes so that one row in the list box represents a branch in the hierarchy, rather than an individual node.

Selections will be made in the usual manner, and multiple selections across different levels in the hierarchy are of course supported.



For expanded nodes and leaves (bottom nodes) the QlikView standard color coding is used. Collapsed nodes, however, may contain a mix of different states. In such a case, the node is displayed green only if all values have been selected, gray if all values are excluded, and white in other cases. In addition, a small beacon is displayed, indicating the status of the hidden nodes.

Statistics Box

Population (mio)	
Numeric count	188
Sum	6,825.21
Average	36.30
Min	0.00
Max	1,342.49

The statistics box is a compact way of showing a numeric field in which the separate records are of less interest than e.g. their sum or average. A selection of statistical functions are available. When no specific range of values is selected QlikView treats all the values listed in the corresponding field list box (option values) as the sample.

The default name of the box is the same as that of the field to which the selected values belong.

Right-click on the statistics box to display the **Object** menu.

Object Menu

The statistics box **Object** menu is opened by right-clicking the object. The menu commands are:

- **Properties...**: Opens the **Statistics Box Properties** dialog where a number of parameters can be set.
- **Notes**: Allows creating and sharing notes about the current object.
- **Order**: This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.
    - **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
    - **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
    - **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
    - **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
- **Select Possible**: All non-excluded values in the corresponding list box are selected.
- **Select Excluded**: All excluded values in the corresponding list box are selected.
- **Select All**: All values in the corresponding list box are selected.
- **Clear**: Clears all the current selections in the corresponding list box.
- **Clear Other Fields**: Clears the selections in all the other sheet objects, while maintaining the ones in the corresponding list box.
- **Lock**: Locks the selected value(s) in the corresponding list box.
- **Unlock**: Unlocks the locked value(s) in the corresponding list box.
- **Print...**: Opens the **Print** dialog to let you print the contents of the statistics box.

- **Print as PDF...**: Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
- **Export...**: Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.

- **Copy to Clipboard**: This cascade menu contains the various copy options for the sheet object.
  - **Data**: Copies the data rows of the statistics box to the clipboard.
  - **Cell Value**: Copies the text value of the statistics box cell right-clicked upon (when invoking the Object menu) to the clipboard.
  - **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page.
  - **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
- **Linked Objects**: Opens a menu with the following commands for linked objects. **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
  Unlink This Object/Unlink Objects: This destroys the link between the objects, making them different objects with different object IDs.
- **Minimize**: Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Maximize**: Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Restore**: Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
- **Help**: Opens QlikView help.
- **Remove**: Removes the sheet object from the sheet.

General

The **General** property page is opened by selecting **Statistics Box** from **New Sheet Object** in the **View** menu, or by a right-click on a statistics box and choosing **Properties** from the float menu. Here it is possible to choose the statistics to be calculated and displayed in the statistics box.

- **Title**: Here you can enter a text that will be shown in the sheet object's title area.
- **Alternate State**:
  Choose one of the available states in the list. The following Alternate States are always available.
  - **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen.
  - **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
- **Object ID**: This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For statistics boxes, the ID starts with SB01. Linked objects share the same object ID. You may edit this ID number later on.
- **Field**: Select the field that contains the values to be used from the list in the **Field** group box.

- **Use as Title**: Click the button **Use as Title** if you want the field name as box title if not, type a title in the **Title** edit box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

- **Available Functions**: Select the statistical functions you want from the list in the **Available Functions** window and move them to the **Displayed Functions** window by double-clicking or clicking the **Add** button.
- **Show Standard Error**: Check **Show standard Error** to display standard error values for **Average** and **Std dev** calculations.
- **Cell Borders**: Check **Cell Borders** to display separation by horizontal lines, resembling the rows of a table.
- **Background...**: Opens the **Background Settings** dialog.
- **Displayed Functions**: Lists the statistical functions that will be used in the statistics box.
- **Settings for Selected Row**: The appearance of the statistics box can be further modified from the **Settings for Selected Row** group.
- **Label**: Replace default function names by entering alternative labels here.
- **Background Color**: Specifies the background color of the selected row. The background color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the button.
- **Text Color**: This alternative lets you pick a text color for the selected row.
- **Apply Colors to all Rows**: Check this alternative before clicking **Apply** or **OK** to apply the selected color to all rows of the statistics box.

The available statistical functions are:

- **Numeric count**: Sample size. Number of numeric values among the possible values)
- **Null count**: Number of empty field values among the possible values
- **Text count**: Number of alpha-numeric values among the possible values
- **Total count**: Total number of possible values. This is the same number as the frequency that can be shown in a list box. (sum of *Numeric count* and *Text count*)
- **Missing count**: Number of non-numeric values among the possible values (sum of *Null count* and *Text count*)
- **Sum**: Sample sum
- **Average**: Sample arithmetic mean (average value)
- **Std dev**: Sample standard deviation
- **Skewness**: Sample skewness
- **Kurtosis**: Sample kurtosis
- **Min**: Sample minimum
- **Max**: Sample maximum
- **Only value**: Only possible numeric value
- **Median**: Sample median
- **Fractile**: Sample fractile

Sample consists of all not excluded (i.e. selected + optional) values of the field.

If the values that represent recognizable field values, such as **Min**, **Max**, are clicked the corresponding field values will become selected.

Number

The **Statistics Box Properties: Number** tab is opened by a right-click on a statistics box and choosing the **Properties** command from the float menu.

Statistically correct number formats for the various statistical functions that can be displayed in statistics box are automatically derived from the base field's data and number format. Here it is possible to set override number formats for individual functions. To do this, select a statistical function from the **Functions** list, check the alternative **Override Document Settings** and specify a number format in the group control below. This property page applies to the active object and contains the following controls for formatting values:

- **Number**: Shows numeric values with the number of digits set in the **Precision** spinner box.
- **Integer**: Shows numeric values as integers.
- **Fixed to _ Decimals**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
- **Money**: Shows values in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
- **Interval**: Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

The **ISO** button uses the **ISO** standard for the formatting of date, time and timestamp.

The **System** button applies the settings of the system to the formatting.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

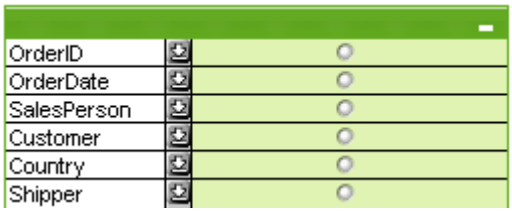
Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to

open the **Edit Expression** dialog for easier editing of long formulas.
Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Multi Box



Due to its unique option to sort the displayed fields by applicability (), the multi box offers the ultimate solution to the problem of displaying a large number of list boxes on the same sheet. This **Sort by Applicability** option is accessed from the **Multi Box Properties: General** page.

Right-click on the multi box to display the **Object** menu.

Object Menu

The multi box **Object** menu has three different versions. If the caption area is clicked the float menu will contain commands that are applicable to the whole box, whereas if an individual field is under the pointer the menu will be extended to include commands that apply to that field. Finally, if you first open a file, the float menu will have yet another layout. The combined commands of the menus are:

Object menu commands

Command	Description
Properties...	Opens the **Multi Box Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Search	Opens the search box.
Fuzzy Search	Opens the text search box in fuzzy search mode.

Command	Description
Advanced Search	Opens the advanced search dialog. The dialog makes it possible to enter advanced search expressions. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+F.
Select Possible	All non-excluded values of the field are selected.
Select Excluded	All excluded values of the field are selected.
Select All	All values of the field are selected.
Clear All Selections	Clears all the current selections of the multi box.
Clear	Clears all the current selections of the field.
Clear Other Fields	Clears the selections in all the other sheet objects, including selections in other fields of the current multi box, while maintaining selections in this specific field of the current multi box.
Lock	Locks the selected value(s) of the field.
Lock All Selections	Locks the selected value(s) of the multi box.
Unlock	Unlocks the locked value(s) of the field.
Unlock All Selections	Unlocks the locked value(s) of the multi box.
Print...	Opens the **Print** dialog where print settings can be specified. Printing the multi box is only meaningful when a single value is displayed in each field (either because it's the only selected value or the only associated value).
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. This operation is only meaningful when a single value is displayed in each field (either because it's the only selected value or the only associated value).
Export...	Opens a dialog where you can export the multi box as a table to a file of your choice. The file can be saved as any of the following formats: Comma Delimited, Semicolon Delimited, Tab Delimited, Hypertext (HTML), XML and Excel (xls or xlsx). The default format is *.qvo (QlikViewOutput), a tab separated file.

Command	Description
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Data** Copies the data rows of the multi box to the clipboard. **Cell Value** Copies the text value of the multi box cell right-clicked upon (when invoking the Object menu) to the clipboard. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

Multi box options

Option	Description
Title	In the **Title** window the multi box can be given a name which will be displayed in the window caption.The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Option	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Available Fields	In this column the names of the data source fields are shown. Initially all fields (excluding system fields) appear in this column. To include the system fields check **Show System Fields**. Key fields will be indicated with a key symbol. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column.
Fields Displayed in Multibox	In this column the names of the fields selected from the **Available Fields** list to be included in the multi box are shown. Initially no fields are shown in this column. When a field is selected in this list, you may give it a custom **Label** in the edit window.
Show Fields from Table	From here, you control what fields appear in the **Available Fields** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table (s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time.
Expression	Opens the **Edit Expression** dialog where an expression can be created that can then be used as a displayed field in the multi box.
Edit...	Opens the **Edit Expression** dialog for the field chosen in the **Fields Displayed in Multibox** column.
Promote	Moves a field upwards in the display order.
Demote	Moves a field downwards in the display order.
Count Order	Sorts the fields in the **Fields Displayed in Multibox** column in numerical order.
Load Order	Sorts the fields in the **Fields Displayed in Multibox** column in load order, i.e. the order in which they are read from the database.
Text Order	Sorts the fields in the **Fields Displayed in Multibox** column in alphabetical order.
Sort by Applicability	When this option is checked, the sort order of the **Fields Displayed in Multibox** will be dynamically updated during selections so that fields with non-excluded field values will move upwards in the list while fields without possible values will move downwards. This option will in many cases make it possible to use literally hundreds of fields in a single multi box.

Option	Description
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For multi boxes, the ID starts with MB01. Linked objects share the same object ID. You may edit this ID number later on.

Sort

You reach the **Sort** tab by right-clicking a sheet object (List Box, Multi Box, Table Box, Chart or Slider/Calendar object) and choosing **Properties** from the float menu (or **Object, Properties** in the main menu). Here you set the sort order of the values in the sheet object. Some sort options may not be available for some sheet objects.

Sort by options

Sort by:	Result
State	Sorts the field values according to their logical state (selected, optional or excluded). The **Auto Ascending** setting sorts the list box (or, in a multi box, the drop-down list containing the field values) according to **State** only if the list box contains a vertical scroll bar. However, if you enlarge the list box to show all values, the sort order **State** is completely switched off.
Expression	Sorts the field values according to the expression entered into the text edit box below this sort option. If using sort by expression, an alternative set of records must be defined by a set expression. Note that sort by expression here only works with numeric fields and not text fields.
Frequency	Sorts the field values by frequency (number of occurrences in the table).
Numeric Value	Sorts the field values by numeric value.
Text	Sorts the field values in alphabetical order.
Load Order	Sorts the field values by the initial load order.

The **Default** button sort order sets the default sort order.

The order of priority is **State**, **Expression**, **Frequency**, **Numeric Value**, **Text**, **Load Order**. Each of these sort criteria can be set to **Ascending** or **Descending**.

Presentation

The **Multi Box Properties: Presentation** tab is opened by a right-click on a multi box and choosing the **Properties** command in the **Object** menu. Here it is possible to adjust the layout of the multi box cells. Adjustments are made independently for the different fields of the multi box. It is also possible to adjust the layout for the - Closed Multi Box -.

Alignment properties

Property	Description
Alignment	Here you set the alignment of field values. The alignment of **Text** and **Numbers** is set separately.

Multiline properties

Property	Description
Multiline Settings	In this group the multi box field cells may be set to display values in multiple rows, which is useful for long text strings. **Wrap Text** With this option selected, a cell will display its contents in more than one row. **Cell Height*n* Lines** Here the desired limit to the number of cell rows is specified.
Frequency	**Show** Toggles the status for whether the frequency of the selected field value is shown or not. By frequency is meant the number of selectable combinations in which the value occurs. **In Percent** Toggles the status for whether the frequency should be shown in absolute numbers or as percentages of the total number of entries.

Presentation properties

Property	Description
Advanced	This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options.
Single Column	With this option checked, the multi box field values will always be presented in a single column.
Suppress Horizontal Scroll Bar	Check this option to suppress the horizontal scroll bar that is normally displayed when field values are too wide to for the specified width of the multi box. Instead, field values will be truncated as needed.
Order by Column	In multi box fields with more than one column, values are displayed row-wise in the sort order specified. The **Order by column** option switches to column-wise display.
Cell Borders	The field values will be separated by horizontal lines, resembling the rows of a table. **Cell borders** is automatically activated when the **Wrap Text** option is checked, but may be subsequently deactivated.
Hide Excluded	Toggles whether the excluded field values should be shown or not. Excluded values become unselectable as well.
Read Only	This checkbox disables selections made directly in this particular multi box field, making it a display tool only.

Property	Description
Ignore Null	NULL-values are not considered for the sake of displaying possible values of a specific field.  *Incorrect use of this option may lead to the display of non-correlated data in the multi box.*
Override Locked Field	This check box allows selections to be made in a particular field of the multi box even if that field is locked. The field will remain locked for selections made elsewhere in the document.
Grid Style	This checkbox changes the multi box layout, so that each label is positioned above its corresponding field.
Read Only	This checkbox disables selections made directly in the multi box fields, making it a display tool only.
Closed Color	Sets the color of the data column cells of a closed multi box. A color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button.
Limit Drop-down to *n* Lines	Limits the length of opened drop-down list boxes in the multi box. Enter the maximum number of values to be shown in the edit box.
Style	Choose between the styles **Borders** and **Light**.
Background...	Opens the **Background Settings** dialog.

Advanced Field Settings

The **Advanced Field Settings** dialog can be accessed from **Multi Box Properties: Presentation**, **Table Box Properties: Presentation** and **Chart Properties: Dimensions**. The image options described below are unavailable for bitmap charts.

Image Options

Image options

Option	Description
Representation	The following alternatives are given: **Text** When selecting this option the expression values will always be interpreted and displayed as text. **Image** When selecting this option QlikView will try to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed. **Info as Image** When selecting this option QlikView will display image info linked to the field value via **info load/select** in the script. If no image info is available for a field value, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked. The option is not available for bitmap charts.
Image Formatting	Only available when the image options have been selected above. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives. **No Stretch** If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled. **Fill** If this option is selected, the image will be stretched to fit the cell without bothering about keeping the aspect ratio of the image. **Keep Aspect** If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio. This typically results in areas either on both sides of or above and below which are not filled by the image. **Fill with Aspect** If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.
Hide Text When Image Missing	If this option is selected, QlikView will not display the field value text if interpretation as an image reference fails for some reason. The cell will then be left blank.
Selection Style Override	When images are shown instead of text it may be necessary to use another selection style than the document default so that the logical state of the field values remains visible. Use the drop-down list under **Selection Style Override** to select a suitable selection style, e.g. **Corner Tag**.

Search Options

This group allows you to control certain aspects of text search applicable to opened multi boxes and drop-down select in tables.

Search options

Option	Description
Include Excluded Values in Search	This setting specifies whether excluded values should be included in text searches. The following alternatives are available: **<use default>** The default as specified under **User Preferences** applies. **Yes** Excluded values are always included in text search. **No** Excluded vales are never included in text search, whereas optional values are included as usual.
Default Search Mode	This setting specifies the initial default search mode to be used in text searches. The mode can always be changed on the fly by typing * or ~ as part of the search string. The following alternatives are available: **<use default>** The default as specified under **User Preferences** applies. **Use Wildcard Search** The initial search string will be two wildcards with the cursor between them to facilitate a wildcard search. **Use Fuzzy Search** The initial search string will be a tilde (~) to denote a fuzzy search. **Use Normal Search** No additional characters will be added to the search string. Without wildcards, a Normal Search will be made.

Number

The **Multi Box Properties: Number** tab is opened by a right-click on a multi box and choosing the **Properties** command from the float menu.

This property page provides formatting settings for all fields of the multi box. The number formatting can be set individually for fields by selecting one or several fields (Click, Shift-click or Ctrl-click) in the **Fields** text box.

Each field has a default number format which can be set in the **Document Properties: Number** page. It is however possible to use a separate number format for an individual sheet object. To do this, check the alternative **Override Document Settings** and specify a number format in the group control below. This property page applies to the active object and contains the following controls for formatting values:

Number properties

Property	Description
Mixed	Both numbers and text. Numbers shown in original format.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to _ Decimals	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows values in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

The **ISO** button uses the **ISO** standard for the formatting of date, time and timestamp.

The **System** button applies the settings of the system to the formatting.

The **Change Document Format** button opens the **Document Properties: Number** page where the default number format of any field can be edited.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to

open the **Edit Expression** dialog for easier editing of long formulas.
Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Table Box

Supplier	Category	Product
ABC	Baby Clothes	Mehmet-Napp
ABC	Baby Clothes	Mehmet-Skor
ABC	Baby Clothes	Mehmet-Tröja
Asin Fashion Ltd Co	Swimwear	Summer Shorts
Asin Fashion Ltd Co	Women's Clothes	Okkaba Skin Jackets
Asin Fashion Ltd Co	Women's Footwear	Walking Shoes
Austerlich	Children's Clothes	RDL Suit
Austerlich	Men's Clothes	Bow tie
Austerlich	Men's Footwear	Davenport Shoes

The table box is a sheet object that shows several fields simultaneously. The content of every row is logically connected. The columns may be fetched from different internal tables, letting the user create tables from any possible combination of fields.

Right-click on the table box to display the **Object** menu.

If you add large amounts of field data from unlinked data tables to a table box, QlikView will create Cartesian joins to resolve the required linking, which may result in high memory consumption and other performance issues.

Using the Table Box

Sorting

It is possible to sort the table box by any column: simply right-click on the column and choose **Sort** from the context menu. Double-click the caption of the column to sort by. Choosing **Sort** from the context menu or double-clicking the same column caption will invert the sort order.

Changing the Column Order

The order of the columns can be changed by means of the drag-and-drop method. Point at the column title, then keep the mouse button depressed while dragging the column to its new position. Disable this feature by deselecting the **Allow Drag and Drop** check box in the **Table Box Properties: Presentation** page.

Object Menu

The table box **Object** menu has two different versions. If the caption area is clicked the float menu will contain commands that are applicable to the whole box, if an individual field is under the pointer the menu will be extended to include commands that apply to that field. The combined commands of the menus are:

- **Properties...**: Opens the **Table Box Properties** dialog where a number of parameters can be set.
- **Notes**: Allows creating and sharing notes about the current object.
- **Fit Columns to Data**: Adjusts the width of all columns in the tables to the widest data in each column. The header is included in the calculation.

- **Equal Column Width**: Sets the column width in the table equal to that of the column on which you clicked.
- **Sort**: Sorts the records by the field on which you click.
- **Custom Format Cell**: Opens the **Custom Format Cell** dialog which lets you format cells in the column and stripe which you clicked upon. This cascade menu is only available when the **Design Grid** command of the **View** menu is activated.
- **Order**: This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.
    - **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
    - **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
    - **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
    - **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
- **Change Value**: Only available for table box columns displaying input fields. Sets the cell clicked on to input mode. Equivalent to clicking the input icon in the cell.
- **Restore Values**: Only available for table box columns displaying input fields. Opens a cascade menu with three options.
    - **Restore Single Value**: Restores the value in the field value clicked on to its default value from the script.
    - **Restore Possible Values**: Restores the values of all possible field values to their default values from the script.
    - **Restore All Values**: Restores the values of all field values to their default values from the script.
- **Select Possible**: All non-**excluded** values of the field are selected.
- **Select Excluded**: All excluded values of the field are selected.
- **Select All**: All values of the field are selected.
- **Clear All Selections**: Clears selections in all fields displayed in the table box.
- **Clear**: Clears all the current selections of the field.
- **Clear Other Fields**: Selects all possible values in the current field, then clears the selections in all other fields.
- **Lock**: Locks the selected value(s) of the field.
- **Unlock**: Unlocks the locked value(s) of the field.
- **Print...**: Opens the **Print** dialog where print settings can be specified.
- **Print as PDF...**: Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.

- **Export...**: Exports the contents of the table to a file of your choice. The file can be saved as any of the following formats: Comma Delimited, Semicolon Delimited, Tab Delimited, Hypertext (HTML), XML and Excel (xls or xlsx). The default format is *.qvo (QlikViewOutput), a tab separated file. Images in a table box will not be included when exporting to HTML format.
- **Copy to Clipboard**: This cascade menu contains the various copy options for the sheet object.
    - **Full Table**: Copies the table to the clipboard, complete with header and selection status.
    - **Table Data Area**: Copies only the values of the table to the clipboard.
    - **Cell Value**: Copies the text value of the list box cell right-clicked upon (when invoking the Object menu) to the clipboard.
    - **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. Tables generated by the hidden part of the script will not be represented by name in the *$Table* system field.
    - **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
- **Linked Objects**: Opens a menu with the following commands for linked objects. **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
  Unlink This Object/Unlink Objects: This destroys the link between the objects, making them different objects with different object IDs.

- **Minimize**: Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Maximize**: Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Restore**: Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
- **Help**: Opens QlikView help.
- **Remove**: Removes the sheet object from the sheet.

Custom Format Cell dialog

This dialog lets you apply custom formats to one or more groups of table cells. It can be invoked from the object menus of a table box, a straight table or a pivot table, provided that the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked.

The group of cells to be affected by the formatting is determined by where you right-click in the table to invoke the command. The smallest group of cells to be formatted as a unit is one field (normally column) in a table box or one expression/dimension in a table chart. If striping is used, each stripe is formatted separately.

Whenever this dialog is used to custom format any part of a table, the **Style** as set in the **Style** page of the table's **Properties** dialog will be set to **[Custom]**. If you change the **Style** setting back to one of the pre-defined styles, the custom formatting will be lost.

Table styles in general will be superseded by any formatting resulting from attribute expressions.

- **Table Preview Pane**: The preview pane shows format changes made to the group/groups of table cells. Unlike the smaller preview to the right, **Sample Text**, it shows the changes in context and after the application of visual cues and/or attribute expression formatting.
  Within this pane it is possible to freely move about the table and apply formats to the different groups of cells. Just click in a cell to move formatting focus.
- **Undo**: The **Undo** button can be used for undoing the changes made within the **Custom Format Cell** dialog step by step.
  After leaving the **Custom Format Cell** dialog all changes made in the dialog may be undone with just one click on the **Undo** button in the main toolbar.
- **Redo**: The **Redo** button can be used for reapplying changes previously undone with the **Undo** button within the **Custom Format Cell** dialog step by step.
- **Sample Text**: This is the preview cell which shows the settings made.
- **Background Color**: Defines the cell background color.
- **Text Color**: Defines the cell text color.
- **Border before cell**: Here you define the border to precede the cell. There is a drop-down for setting border style and a button to set border color. Note that cell borders will be merged between cells, which may cause the actual border in the table to look differently from the preview.
- **Border after cell**: Here you define the border to succeed the cell. There is a drop-down for setting border style and a button to set border color. Note that cell borders will be merged between cells, which may cause the actual border in the table to look differently from the preview.
- **Text settings**: In this group you fins a number of text modifiers applicable to the cell.
  - **Text Size**: Use the drop-down to apply a size modification to the general font used in the table.
  - **Bold**: Mark this check box for bold text.
  - **Italic**: Mark this check box for italic text.
  - **Underlined**: Mark this check box for underlined text.
  - **Drop Shadow**: Mark this check box for text with drop shadow.
- **Apply change to**: Changes are normally applied only to the expression, dimension or field (table boxes) in which you right-clicked to access the dialog. With the help of this drop-down you may choose to apply the same formatting to other expressions, dimensions or fields.

General

The **Table Box Properties: General** page is opened by a right-click on a table box and choosing the **Properties** command from the float menu, or by selecting **Properties** in the **Object** menu when a table box is active.

- **Title**: In the **Title** window the table box can be given a name which will be displayed in the window caption. The title can also be defined as a calculated formula for dynamic update of the label text.

Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

- **Available Fields**: In this column the names of the data source fields are shown. Initially all fields (excluding System fields) appear in this column. To include the system fields, check **Show System Fields**. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column.
- **Fields Displayed in Tablebox**: In this column the names of the fields selected from the **Available Fields** list to be included in the table box are shown. Initially no fields are in this column.
  When a field is selected in this list, you may give it a custom **Label** in the edit window.
- **Show System Fields**: Check this box to make the system fields appear in the **Available Fields** column.
- **Show Fields from Table**: From here, you control what fields appear in the **Available Fields** list. The drop-down list displays the alternative **All Tables** by default. If you want the list to show fields from a specific table, select the table name in the drop-down list.
  The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.)
- **Promote**: Moves a field upwards in the display order.
- **Demote**: Moves a field downwards in the display order.
- **Count Order**: Sorts the fields in the **Fields Displayed in Tablebox** column in numeric order.
- **Load Order**: Sorts the fields in the **Fields Displayed in Tablebox** column in load order, i.e. the order in which they are read from the database.
- **Text Order**: Sorts the fields in the **Fields Displayed in Tablebox** column in alphabetical order.
- **Alternate State**:
  Choose one of the available states in the list. The following Alternate States are always available.
  - **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen.
  - **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
- **Object ID**: This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For table boxes, the ID starts with TB01. Linked objects share the same object ID. You may edit this ID number later on.
- **Calculation Condition**: Specify a **Calculation Condition** which must be fulfilled for the table box to be displayed. As long as the condition is not met, the message "Calculation condition unfulfilled" will be displayed instead.
- **Error Messages**: The standard error messages in table boxes (and charts) can be customized in the **Custom Error Messages** dialog which is opened from the **Error Messages** button.

Sort

The **Table Box Properties: Sort** tab is opened by a right-click on a table box and choosing the **Properties** command from the float menu.

In the **Sort Priority** list the fields of the table box are displayed. The order of the fields determine the sort order applied when the **Sort** command is executed. The order of the fields can be changed by using the **Promote** and **Demote** buttons. For each field in the list the criteria to be used in the sorting procedure can be specified. The sort criteria are described below.

Sort by:

- **Expression**: Field values will be sorted according to an arbitrary expression that is entered into the text edit box below this sort option.
- **Frequency**: Toggles the status whether or not the sorting procedure of values should be made by frequency.
- **Numeric value**: Toggles the status whether or not the sorting procedure of values should be made by numeric value.
- **Text**: Toggles the status whether or not the sorting procedure of values should be made in alphabetical order according to the ASCII standard.
- **Load order**: Toggles the status whether or not the sorting procedure of values should be made in load order.

If more than one sort order is specified, the sort order will be expression, frequency, numeric, text, load order.

Presentation

The **Table Box Properties: Presentation** tab is opened by a right-click on a table box and choosing the **Properties** command from the float menu.

In this dialog you determine the layout of the table box.

- **Alignment**: The default alignment of field values can be set separately for **Text** and **Numbers** by selecting the field in the **Fields** list and the appropriate option in the **Alignment** group. As default, text values are left aligned, numbers values are right aligned.
- **Omit Rows Where Field is NULL**: If checked, rows containing a field value that is NULL from the selected field are removed. By NULL "no value" is understood.
- **Dropdown Select**: If checked, a dropdown arrow icon is added to the left side of the column header of the selected field. Click the icon to access the field values from a dropdown field list. This works exactly like making selections in a multi box.

- **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options.
- **Multiline Settings**: In this group the table header and data cells may be set to display values in multiple rows, which is useful for long text strings.
    - **Wrap TextHeader Height *n* Lines**: With this option selected, the header will display its contents in more than one row. Here the desired limits to the number of header lines is specified.
    - **Wrap TextCell Height *n* Lines**: With this option selected, a cell will display its contents in more than one row. Here the desired limits to the number of cell row lines is specified.

- **Vertical Labels**: If checked, all field labels will be rotated to the vertical position.
- **Allow Drag and Drop**: If checked, it will be possible to sort the table box fields by clicking and dragging the headers.
- **Sort Indicator**: If checked, a sort indicator icon is added to the right side of the column header of the field that the table box is currently sorted by. The icon is flipped to reflect ascending or descending sort order.
- **Selection Indicators**: If checked, a sort indicator icon is added to the right side of the column header of the field that the table box is currently sorted by. The icon is flipped to reflect ascending or descending sort order.
- **Suppress Header Row**: If checked, the table will be displayed without header (label) row.

Style

This style page applies to all QlikView tables; table boxes, pivot tables and straight tables. Here you make settings for the table formatting style.

- **Current Style**: Choose an appropriate table style from the drop-down list. If the value **[Custom]** appears in the drop-down control a custom style has been applied to the table. If you change the setting back to one of the pre-defined styles, the custom formatting will be lost.
- **Stripes every _ Rows**: Here you can specify if and at how long intervals shaded stripes should appear.
- **Indent Mode**: This setting is only valid for pivot tables. With this alternative checked, you can achieve a slightly different table style that is especially useful when you need to accommodate a number of dimension labels within a limited table width.
    - **Use Only First Dimension Label**: This setting is only available for pivot tables already in **Indent Mode** and modifies the style of the pivot table further.
- **Vertical Dimension Cell Borders**: This setting determines whether vertical cell borders are displayed for dimension columns.
- **Vertical Expression Cell Borders**: As above, but for expression columns.
- **Border Above Spacing**: Provided that a **Spacing** has been determined in the **Advanced Field Settings** dialog, the table style can be slightly modified by checking this alternative.
- **Background...**: Opens the **Background Settings** dialog.
- **Cell Background Color Transparency**: If a color or an image has been applied in **Background Settings**, you can adjust the transparency of that color or image in the cell background here.
- **Cell Borders Transparency**: Sets how pronounced the cell borders should be.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Charts

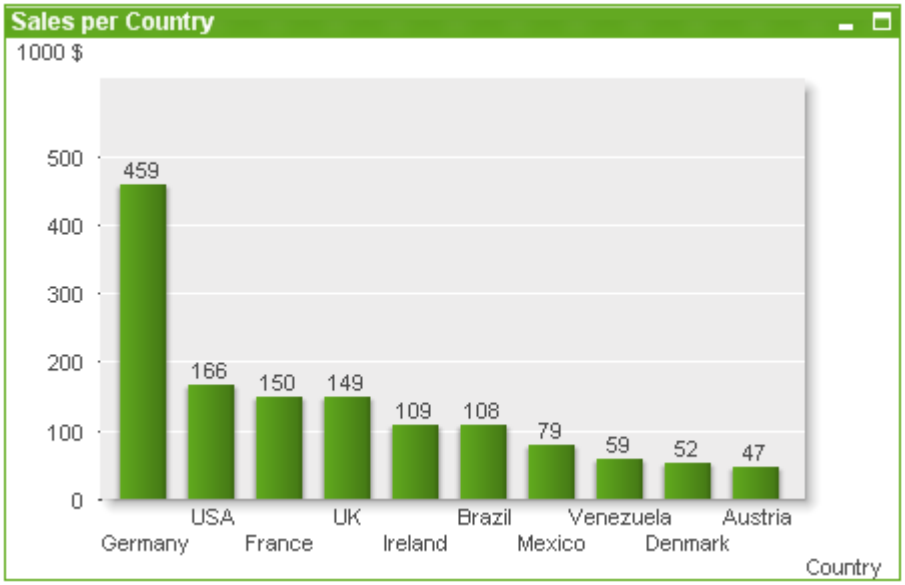
Charts and tables are sheet objects that can show numbers very compactly. It is possible e.g. to show sums of money, distributed over different fields such as year, month, account number, etc.

Charts and tables can be set to display either the frequencies of different values of a field, or a calculated entity, e.g. the sum of the possible values of a field. In both cases, a certain field must be chosen as x-axis, i.e. this field will be used to label the slices of the pie, the different bars in the bar chart and the rows in the pivot table, respectively.

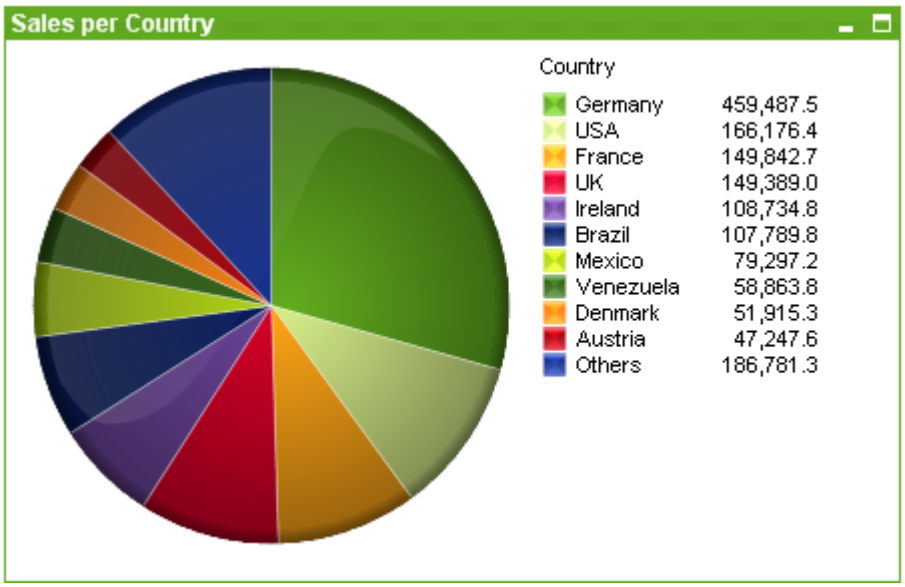
The Different Chart Types Available

The chart types you can choose between are bar chart, pie chart, combo chart, scatter chart, line chart, radar chart, grid chart, gauge chart, block chart, funnel chart, pivot table, straight table, and mekko chart.

Bar Chart

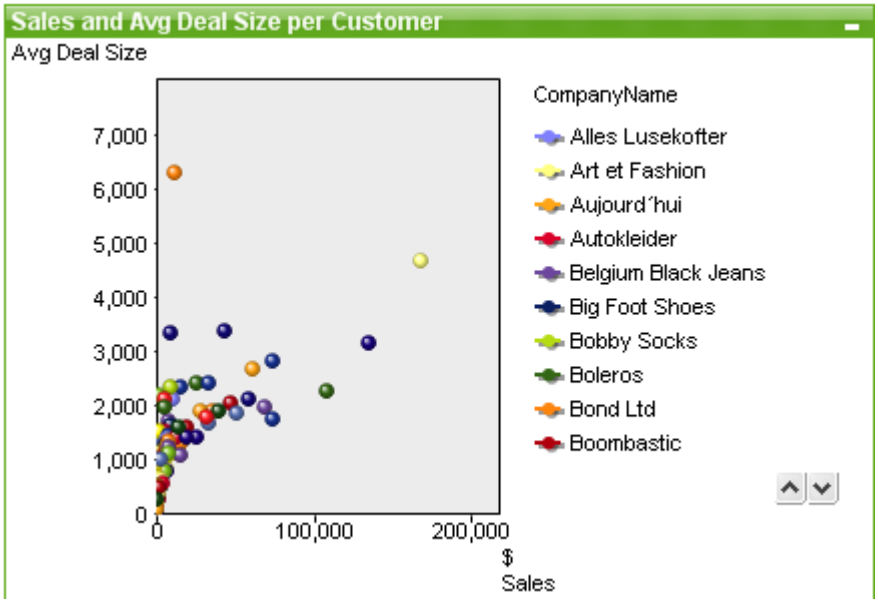


Pie chart

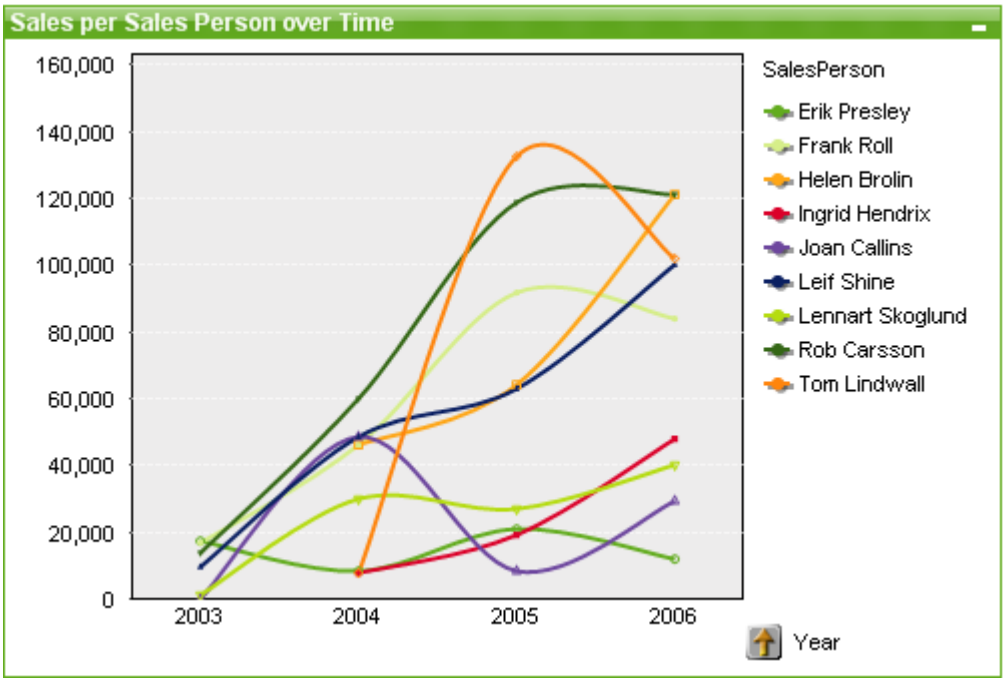


Combo chart

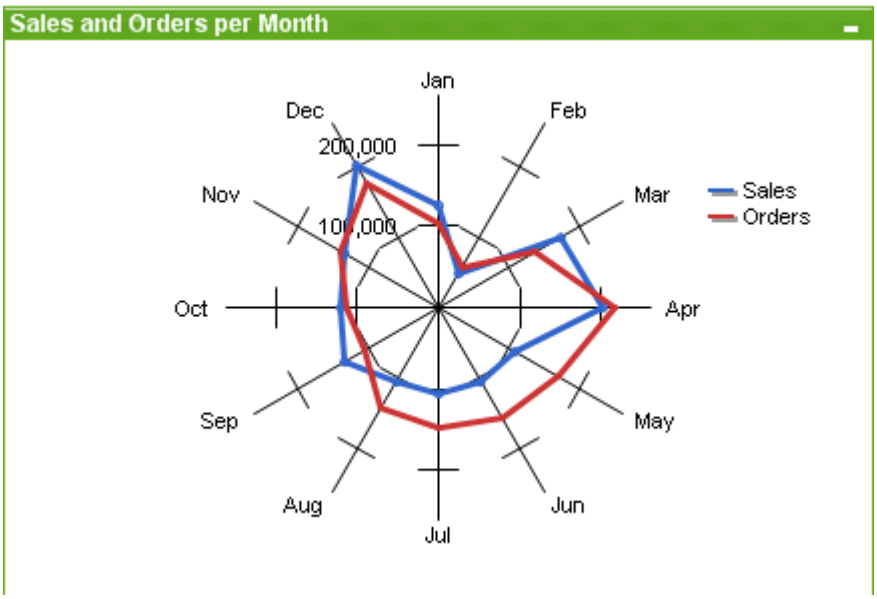
Scatter chart



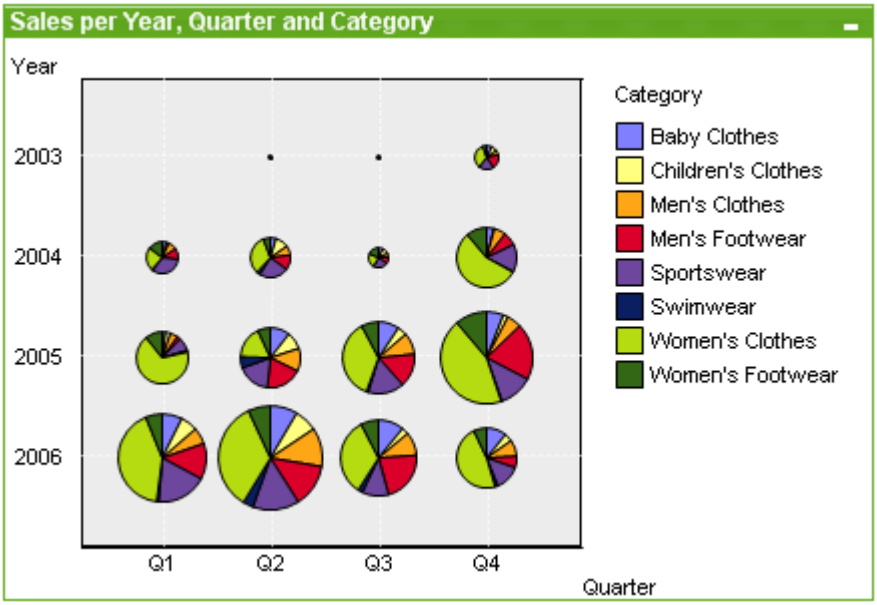
Line chart



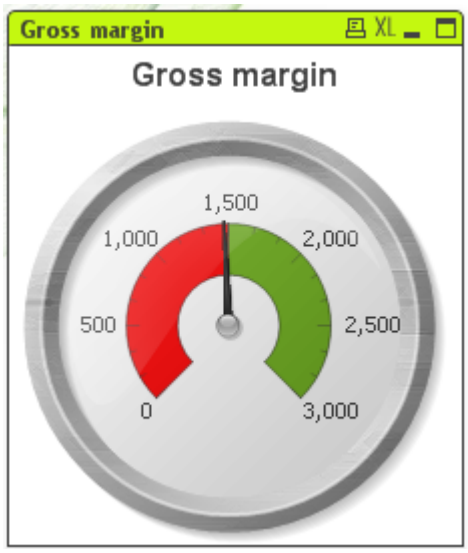
Radar chart



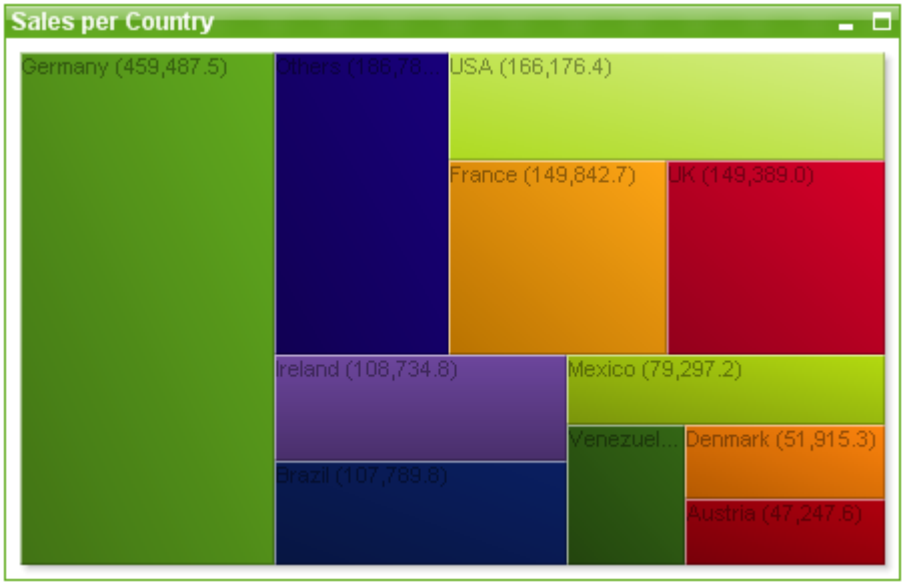
Grid chart



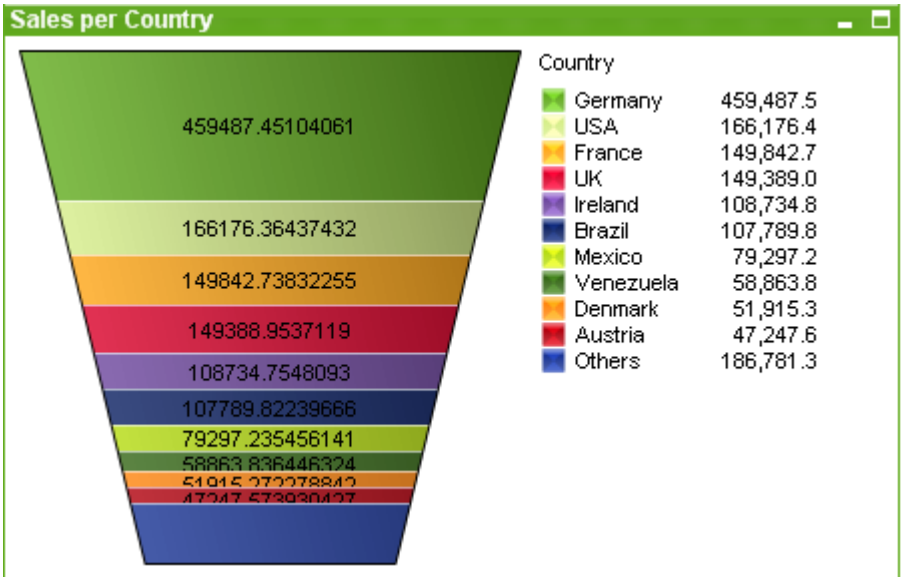
Gauge chart



Block chart



Funnel chart



Pivot table

Pivot Table

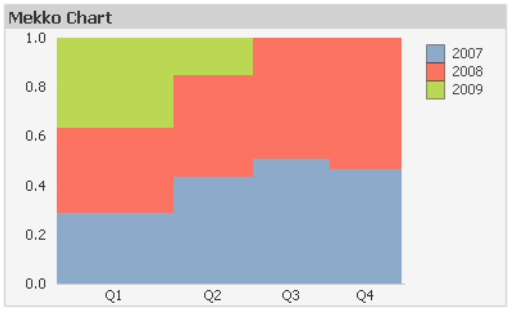
Country	Salesman	Year	Sales
Australia	Rolf Wesenlund	2005	1,030
		2006	1,210
		Total	**2,240**
	Total		**2,240**
Azerbaijan			5,329
Bahrain			1,090
Bangladesh			4,240
Belarus			26,065
Belgium	Charles Ingvar Jönsson	2006	1,210
		2008	3,159
		2009	3,690
		Total	**8,059**
	John Cleaves	2008	2,550
		Total	**2,550**
	Tony Cedholt	2008	2,500
		2009	4,249
		Total	**6,749**
	Total		**17,358**

Straight table

Sales per CategoryName

CategoryName	ProductName	Sales	Quantity
		$1,565,525.31	51952
Men's Clothes	Atles Lussekofta	$30,126.55	1057
Men's Clothes	Bow tie	$9,534.57	1315
Men's Clothes	Desperado Jeans	$18,240.68	706
Men's Clothes	Lenin Jeansshorts	$14,900.64	828
Men's Clothes	Mr2 Trousers	$17,944.48	1067
Men's Clothes	O-Man Underwear	$1,649.87	298
Men's Clothes	Rossi Bermuda Shorts	$10,947.25	1397
Men's Clothes	Samba Soccer Socks	$4,941.14	1175
Men's Clothes	US-Master Jeans	$21,764.94	817
Women's Clothes	Chantell Shirt	$7,504.70	388
Women's Clothes	Halter Dress	$361,096.85	981
Women's Clothes	Jack Flash Dress	$42,638.00	722
Women's Clothes	Langoste Shirt	$4,433.35	246
Women's Clothes	Le Baby Dress	$47,571.88	623
Women's Clothes	Minnki Pälsii	$10,472.71	184
Women's Clothes	Okkaba Skin Jackets	$42,258.78	601
Women's Clothes	Oyaki Kimono	$9,084.42	806

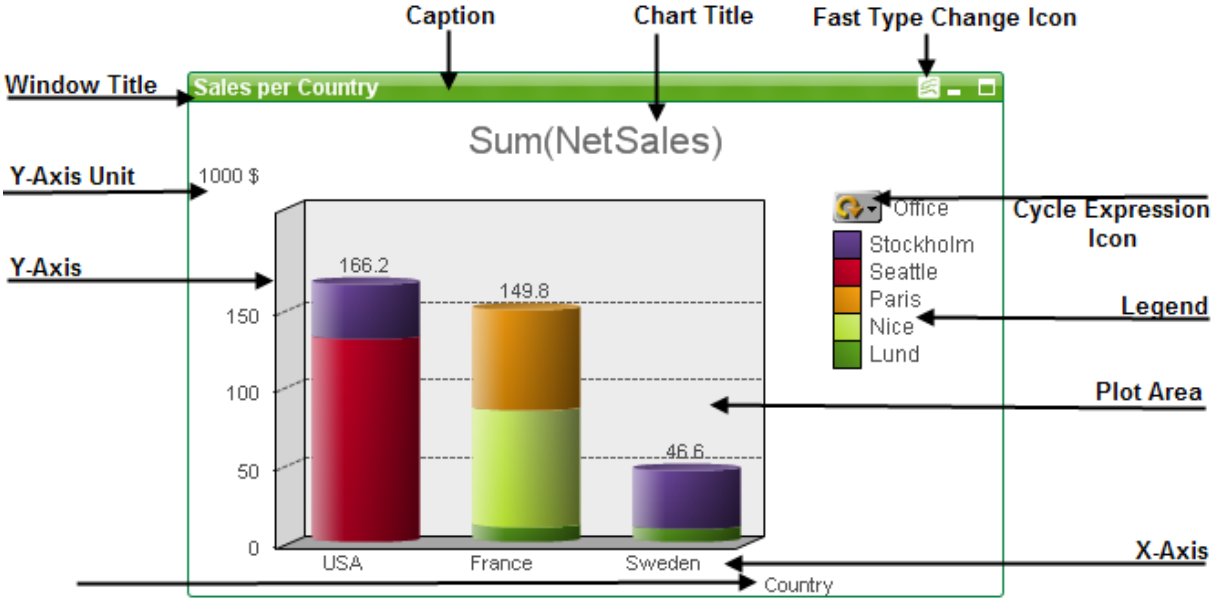
Mekko chart



QlikView charts can be divided into two major categories. The first, graph charts, consists of bar, line, combo, pie, scatter, radar, grid, block, mekko and gauge charts. The second category, table charts, consists of straight tables and pivot tables. These chart types are drawn as tables with cells in columns and rows. Please note that table boxes, although in many respects similar to table charts are not charts but a separate type of sheet objects.

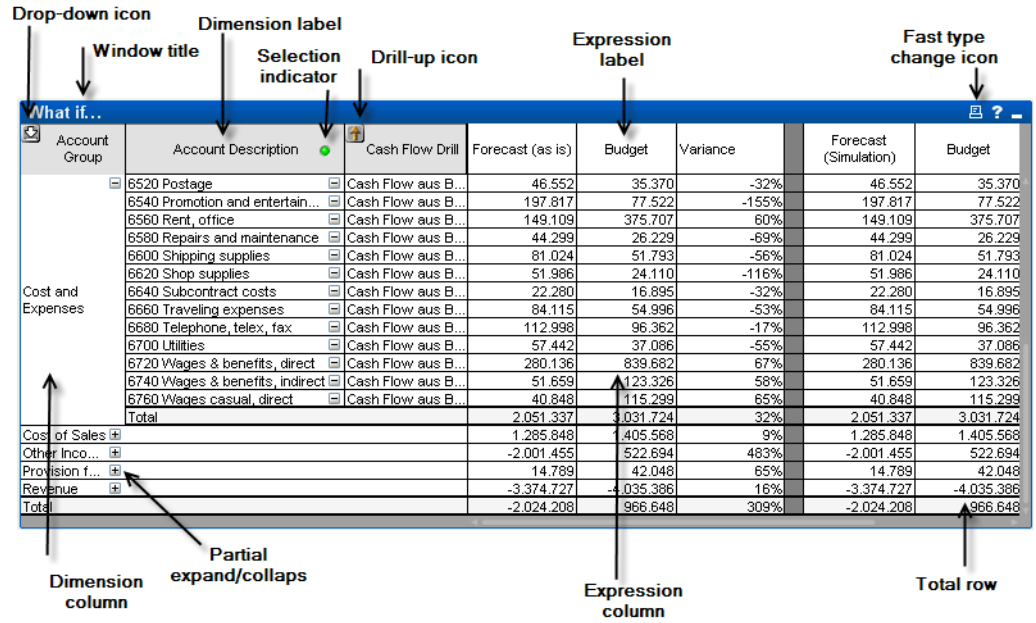
Graph Charts

The bar chart below shows some of the more common components of a QlikView graph chart:



The position of the different components can in many cases be altered by the user.

Table Charts



The pivot table above shows some of the more common components of a QlikView table chart.

New Chart

A new chart can be created by clicking on the **Create Chart** tool in the toolbar, by a right-click on an empty sheet area and selecting **New Sheet Object, Chart** from the **Object** menu or by selecting **New Sheet Object, Chart** from the **Layout** menu. This will open a sequence of chart property pages.

In the page that appears first, name and type of graph and title (optional) is set, clicking the **Next** button opens the second page, etc. As soon as sufficient information has been entered the **Next** and/or **Finish** buttons are enabled and the user can proceed to the next page in the sequence or finish it.

Once the chart is displayed on the sheet it can be modified by right clicking the graph and selecting **Properties** or by activating the graph (click on caption area) and selecting **Properties** in the **Object** menu.

Chart types

Charts are graphical representations of numerical data. Choose from the following chart types: **Bar, Line, Combo, Radar, Scatter, Grid, Pie, Funnel, Block and Gauge Chart** as well as **Pivot Table** and **Straight Table**. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.
A brief introduction to chart types:

Bar Chart

This is the most basic chart type. Each x-axis value corresponds to a bar. The bar height corresponds to its numerical y-axis value.

Line Chart

The line chart is essentially defined in the same way as the bar chart. Instead of using bars the data can be presented as lines between value points, as value points only or as both lines and value points.

Combo Chart

The combo chart allows the combination of the features of the bar chart with those of the line chart. One expression will be displayed by lines and/or symbols, the other as bars.

Radar Chart

The radar chart is a variant of the line chart where the x-axis is plotted in a circle around the chart, resulting in a projection reminiscent of a radar screen or a spider's web.

Scatter Chart

The scatter chart plots data points representing combinations of expressions, iterated over one or several dimensions. Both axes are continuous, representing one expression each.

Grid Chart

The grid chart is a variant of the scatter chart that plots dimension values on the axes and uses an expression to determine the plot symbol. It can also show a third dimension in the form of small pie charts as plot symbols.

Pie Chart

Shows the relation between single fields (primary dimension) and a single expression. A variant chart type is drawn when a secondary dimension is introduced. If more expressions than one are enabled in the **Chart properties: Expressions** page, the first in the expression list will be displayed. To switch expression use the **Promote**/**Demote** buttons in the **Expressions** property page.

Block Chart

The block chart shows the relation between expression values as blocks of varying area. It uses a single expression and up to three dimensions, with each dimension block further divided into sub-blocks. The total area of the block chart always equals 100% of the possible expression values. Sometimes a color function is used for creating a so called "heat chart".

Funnel Chart

The funnel chart is typically used for showing data in flows and processes. From a display standpoint it is related to the pie chart. The chart may be shown with either segment height/width or segment area proportional to data. It is also possible to draw the chart with equal segment heights/widths without regards to data points.

Gauge Chart

Gauge charts are used to display the value of a single expression, lacking dimensions.

Mekko Chart

Mekko charts present data using variable width bars. They can display up to three levels of data in a two-dimensional chart. Mekko charts are useful in such areas as market analysis.

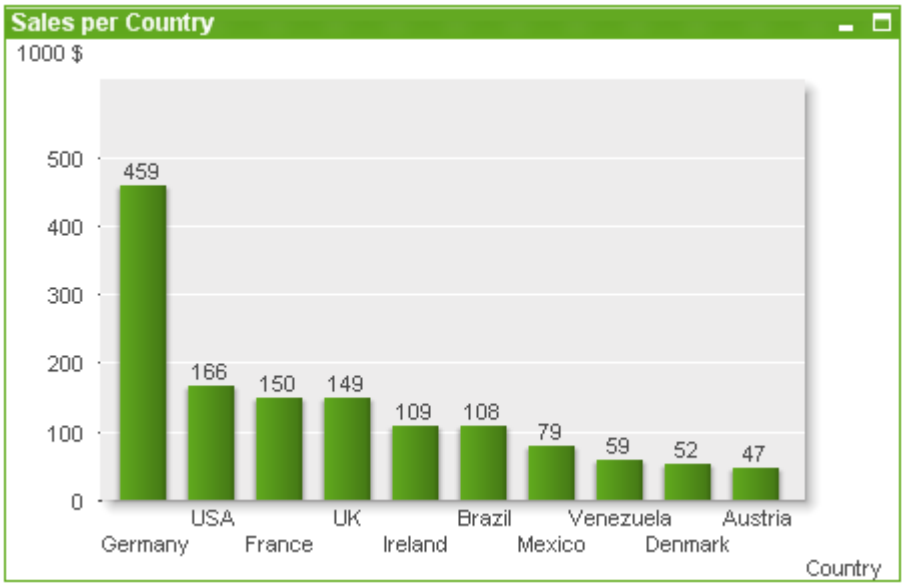
Pivot Table

The pivot table presents dimensions and expressions in table form. There is no formal limit to the number of dimensions or expressions possible.
A pivot table can be defined without expressions, generating a tree view for navigating the dimension levels.

Straight Table

The straight table differs from the pivot table in that it can not display subtotals and that the grouping of dimensions is shown in record form so that each row of the table contains field and expression values.

Bar Chart



The bar chart is the most basic chart type.

Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

The quickest way to create a new bar chart is to select **Quick Chart** wizard from the **Tools** menu.

By right-clicking the object, the **Bar Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the bar chart is the active object.

New Chart

A new chart can be created by clicking on the **Create Chart** tool in the toolbar, by a right-click on an empty sheet area and selecting **New Sheet Object, Chart** from **Object** menu or by selecting **New Sheet Object, Chart** from **Layout** menu. This will open a sequence of chart property pages.

In the page that appears first, name and type of graph and title (optional) is set, clicking the **Next** button opens the second page etc. As soon as sufficient information has been entered the **Next** and/or **Finish** buttons are enabled and the user can proceed to the next page in the sequence or finish it.

Once the chart is displayed on the sheet it can be modified by right clicking the graph and selecting **Properties** or by activating the graph (click on caption area) and selecting **Properties** in the **Object** menu.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.

Command	Description
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

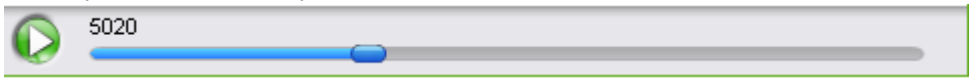
Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Animation dialog

Chart animation is not supported when using the Ajax/WebView client.

Animation settings

Setting	Description
Animate First Dimension	By marking this check box you indicate that the chart's first dimension should be used for chart animation. Animation is only available for bitmap charts excluding pie charts. Some functionality limitations apply when using animation. For example, it is not possible to make painted or clicked selections in an animated chart. Trend lines will not be drawn in animated charts. Animation will only be possible when there are more than one possible values in the animation dimension. When a chart is animated an **Animation Bar** will appear at the bottom of the chart plot area. The **Animation bar** features a **Play** button, which starts the animation. When the animation is running the **Play** button is replaced by a **Pause** button. It is possible to stop or start the animation whenever you like using these controls. A **Progress Bar** shows the progress of the animation. It is possible to animate manually by pointing at the progress bar handle with the mouse, press down the left mouse button and drag to any position. Manual animation normally skips interpolated frames (see **Frames per Second** setting below) and moves only between actual values in the animation dimension. By pressing the Ctrl-key on the keyboard while dragging, it is possible to drag over interpolated frames. Above the progress bar the value of the animation dimension for the current frame (in case of interpolated frames the previous actual animation dimension value) will be shown. 
Time Between Values (ms)	Sets the time in milliseconds between each value in the animation dimension. This value may be given as a calculated formula.
Frames per Second	Sets the number of frames per second. QlikView will interpolate plotting between the actual values of the animation dimension. The value must be an integer between 1 and 30. This value may be given as a calculated formula.
Autoplay	Enable this check box if an animation is to start automatically whenever a selection is made in the document.
Loop	Enable this option if you want the animation to play repeatedly until stopped with the **Pause** button in the **Animation Bar**.
Play Once	Enable this option if you want the animation to run only once from beginning to end, whenever it is started. **Return to First Frame** Enable this option if you want the animation to return to the first frame after completion.

Setting	Description
Show Animation Dimension Value	By enabling this check box, the value of the data will be shown in the chart during the animation. **Alignment** Sets the alignment of the displayed value. **Horizontal** Aligns the value to the right, center or left. **Vertical** Aligns the value at the top, center or bottom. **Font...** Sets the font color for the displayed value.

Trellis Settings

Trellis settings

Setting	Description
Enable Trellis Chart	Enable this check box to create an array of charts based on the chart's first dimension.
Enable Secondary Trellis Dimension	Enable this check box to include the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the second dimension values will be displayed as rows in the trellis matrix.
Number of Columns	Choose **Auto** to let QlikView decide how many columns to display or choose **Fixed** to set the number yourself.
Number of Rows	Choose **Auto** to let QlikView set the number of rows to display or choose **Fixed** to set the number yourself

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension's attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.
- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will

then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression's trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.
- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked

    - **Four dimensions**
        - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
        - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
    - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
    - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
    - **Solid Color**: Sets all colors in the color map to solid colors.
    - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.
    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Bar- Line- Combo- Radar- Mekko Chart)

This tab is used collectively for bar charts, line charts, combo charts, radar charts and mekko charts.

The **Bar Settings** group contains various display options for bars that are used in bar charts and combo charts.

Bar settings

Setting	Description
Bar Distance (-6 - 8)	Sets the distance between the bars in the cluster. A negative number results in overlapping bars. Values between -6 and 8 are allowed.
Cluster Distance (0 - 8)	Denotes the distance between grouped values in a clustered bar chart. Values between 0 and 8 are allowed.

Setting	Description
Allow Thin Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Bars are by default drawn with a minimum width of four pixels, to make them clearly distinguishable. Check this option to allow compression of bars to a width of 1 pixel.
Show All Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Check this option to force the drawing of all data points. Bars can be compressed (as for **Allow Thin Bars**) and some may also be partially obscured by others.

In the **Values on Data Points** group you can set display options for values on data points, provided that this option has been selected for one or more chart expressions under **Display Options** in **Chart Properties: Expressions** page.

Values on data points settings

Setting	Description
Max Values Shown	In this box you can specify an upper limit for the number of data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
Vertical	Shows the values vertically.
Plot Values Inside Segments	Marking this check box will plot values on data points inside the segments instead of on top of them.
Still Show Total on Top	Marking this check box will additionally show the total value on top of each bar for stacked bar charts and mekko charts. This option is only available if you have selected **Plot Values Inside Segments**.

In the **Error Bars** group display options for any error bars used in the chart is determined

Error bars display options

Option	Description
Width	Specifies the width of error bars.
Thickness	Specifies the thickness of error bars.
Color	Sets a color for error bars.

In the **Line/Symbol Settings** group display options for lines and data point symbols that are used in line charts and combo charts are determined. It is also possible to determine the width of trendlines.

Line/Symbol settings

Setting	Description
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Trendline Width	This setting determines the width of trendlines.
Use Full Symbol Set	This alternative makes more symbol representation available (rings, triangles etc.)

Display settings

Setting	Description
Semi-transparent	Check this option if you want filled lines to be drawn semi-transparent.
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.
Suppress Zero-Values	This check box eliminates dimensions that are empty or contain only zeros. This option is selected by default. **Zero on Bars** This option is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected for the chart expression under **Display Options** in **Chart Properties: Expressions**, zero values will appear as text above the data points. In other cases zero values will be suppressed.
Suppress Missing	If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if you want to count null values in a chart.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend settings

Setting	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Chart scrolling settings

Setting	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.
Reversed	Checking the box displays the values in reversed order.

In the **Reference Lines** group you can define reference (grid) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference lines options

Option	Description
Add	Opens the **Reference Lines** dialog where you can create a new reference line in the chart.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in chart options

Option	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in the layout edit mode.

Legend Settings

The layout of the chart legend is controlled by the various settings of this dialog.

Legend settings

Setting	Description
Legend Style	Sets the basic style for the legend. Choose between several styles.
Background Color	Sets the color of the legend background. The color can be defined as a solid color or as a gradient via the color area dialog that opens when clicking the button.
Vertical Alignment	Specifies how the legend is positioned in relation to the plot area, when it needs less vertical space than the plot area.
Font	Opens the standard font dialog where a font for the legend can be specified.
Line Spacing	Specifies the distance between items in the legend.
Reverse Order	Reverses the sort order of the legend.
Multiline	Sets the options for multi line legend items: **Wrap Text** Wraps the text of the legend items in two or more lines. **Cell Height (Lines)** If the **Wrap Text** option is enabled, this setting specifies how many lines that should be used for each item.

Reference Lines

The **Reference Lines** dialog may vary slightly in appearance depending on the kind of chart that is used. A reference line is a line intersecting the chart plot area from a given point on one or both axes. It may be used, for example, to indicate a certain level or percentiles of chart data. The reference line is only drawn if it falls within the current range of the axis from which it origins.

Reference Lines settings

Setting	Description
Label	Enter a label to be drawn next to the reference line. The default value used is the expression. The label may be defined as a calculated expression.
Show Label in Chart	Enable this setting if the label should appear next to the reference line.
Location	Sets from which axis the reference line should originate: **Continuous X** The reference line originates from the x-axis. This option is only available if the chart has a continuous x-axis. **Primary Y** The reference line originates from the primary y-axis (left/bottom). **Secondary Y** The reference line originates from the secondary y-axis (right/top).
Definition	Sets the value at which the reference line should be drawn. The value be either a fixed **Percentile** (enter a value between 1 and 100 in the edit box) of the current chart data or an arbitrary numeric **Expression**.

Setting	Description
Line Formatting	Defines the layout of the reference line: **Weight** Specifies the weight of the reference line. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit). **Color** Sets the color for the reference line. **Style** Specifies the style for the reference line, for example, continuous, dashed or dotted.
Show	Specifies the condition for displaying the reference line. **Always** The reference line will always be displayed. **Conditional** The reference line will be displayed or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.

Chart texts

Chart texts options

Option	Description
Text	Enter a text that should be displayed in the chart. The text entered can also be defined as a calculated formula for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas or for typing multi line text.
Font	Opens the standard font dialog where a font for the text can be specified.
On Top	Forces the text to the foreground when the chart is drawn.
Background	Defines the background of the text. **Transparent** With this option, only the text itself will be visible. Any sheet object covered by the text will be fully visible. **Fixed** This option lets you pick a background color by clicking the **Color** button to the right of the radio button. **Calculated** The background color may be dynamically calculated from an expression. The expression must be a valid color representation, which is achieved by using color functions. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. If the result of the expression is not a valid color representation, the program will default to black.
Angle (degrees)	Specifies the angle for the text. 0 to 360 degrees is allowed, the default value is 0.
Alignment	Sets the horizontal alignment of the text within its background.

Chart Properties: Axes (Bar- Line- Combo- Radar- Mekko Chart)
The dialog is opened from the **Chart Properties** dialog of bar charts, line charts, combo charts and radar charts.

In this dialog the appearance of the axes and the expressions, represented by the y-axes of the chart, can be set. One or two y-axes scales may be defined. In case the x-axis represents numeric values it may be set to **continuous** (see below).

The contents of the dialog:

Expression Axes

Expression settings

Setting	Description
Expressions	The available expressions displayed here are defined in the **Chart Properties: Expressions** dialog.

Set a separate **Axis Color** and **Width** for the y-axis as well as a separate **Font** for the scale numbering, by clicking the appropriate options.

Axis settings

Setting	Description
Log Scale	A logarithmic scale can be used, provided that all data points in the chart have positive values (>0).
Forced 0	The x-axis will cross at y = 0. This option is not available when a logarithmic axis is used.
Hide Axis	Hides the axis for the selected expression.
Truncate Label	The text is truncated if it cannot be displayed in full at the top of the bar. The setting is checked by default.
Show Grid / Show Minor Grid	The scale ticks of the y-axis that will be used for showing horizontal (y-axes **Position** is set to **Left** and/or **Right**) and vertical (y-axes **Position** is set to **Top** and/or **Bottom**) grid lines.
Scale	**Static Min** The scale of the y-axis will not change with document state. Check this alternative to set a fixed minimum value for the y-axis in the edit box. **Static Max** Check this alternative to set a fixed maximum value for the y-axis. **Static Step** Check this alternative to set a fixed interval between scale ticks for the y-axis.

Values entered in the **Scale** group may be specified as a calculated formula. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Expression axes settings

Setting	Description
Position	When two expressions are available, you may select different positions for them so that one is displayed to the **Left (Bottom)** and the other is displayed to the **Right (Top)**. In this way the y-axes will display different scales for the expressions.
Split Axis	Splitting the y-axis into two parts creates the impression of two charts sharing a common x-axis. The **Primary *n* %** setting defines the percentage of the available axis length that will be used for the primary part of the axis.

Dimension Axis

Dimension axis settings

Setting	Description
Primary Dimension Labels	Set the display of labels for main dimension as either horizontal, diagonal or vertical text.
Secondary Dimension Labels	Display labels for secondary dimension as either horizontal, diagonal or vertical text.
Continuous	Scale axes as continuous numeric (linear). When using continuous axes scaling, stacked layout is the only allowed bar chart layout.
Forced 0	The y-axis will cross at x = 0.
Hide Axis	The x-axis will not be shown.
Show Grid	The tick marks of the x-axis will be extended into grid lines. The Grid layout can be modified via the **Grid Style** and **Grid Color** settings (See end of page).
Show Minor Grid	This alternative enables a subdivision of the grid.
Stagger Labels	When there is not enough room for displaying the labels of all x-axis values, labels will be staggered. When this option is deselected, fewer labels may be displayed. This setting only affects horizontal labels. Labels are normally staggered from left to right. If you mark the check box **Reverse Stagger**, the stagger will be reversed to right to left.

Set a separate **Axis Color** and **Width** for the x-axis as well as a separate **Font** for the scale numbering, by clicking the appropriate alternatives.

Scale settings

Setting	Description
Scale	**Static Min** The scale of the x-axis will not change with document state. Check this alternative to set a fixed minimum value for the x-axis in the edit box. **Static Max** Check this alternative to set a fixed maximum value for the x-axis. **Static Step** Check this alternative to set a fixed interval between scale ticks for the x-axis.

Values entered in the **Scale** group may be specified as a calculated formula. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Trendline settings

Setting	Description
Backcast	This function operates on trend lines. Enter into the text edit box how far back you would like to estimate the trend line. The backcast portion of trend lines is displayed as dotted.
Forecast	Enter into the text edit box how far you wish to predict the trend line. The forecast portion of trend lines is displayed as dotted.

Grid settings

Setting	Description
Grid Style	With **Show Grid** checked, you can choose from the available grid styles in the drop-down list.
Grid Color	This alternative lets you pick a color for the grid.
Synchronize Zero Level for Expression-Axes	When two y-axes are displayed, this setting is used for synchronizing the zero level of them.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.
Use Patterns Instead of Colors	**When Printing** The chart will be printed in black and white, with bar areas hatched. If unchecked, a monochrome printer will use gray scaling instead. **On Screen** Displays the chart with hatched bar areas.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog. *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.

Setting	Description
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Advanced Color Map

In the **Advanced Color Map** dialog, color settings for several different levels can be retrieved, set or cleared.

Advanced color map settings

Setting	Description
Current Color Map	When the dialog is opened, the color map of the current chart is displayed. Change the color map by clicking individual colors or by pressing the **Retrieve** button for **Sheet Default**, **Document Default**, **User Default** or **QlikView Default**.
Sheet Default	Sets, retrieves or clears the default color map for the current sheet. Press **Retrieve** to retrieve the current sheet default color map (the option is only available if a sheet default is available). Press **Update** to apply the current color map as sheet default. Press **Remove** to clear the default for the current sheet (the option is only available if a sheet default is available).
Document Default	Sets, retrieves or clears the default color map for the current document. Press **Retrieve** to retrieve the current document default color map (the option is only available if a document default is available). Press **Update** to apply the current color map as document default. Press **Remove** to clear the default for the current document (the option is only available if a document default is available).
User Default	Sets, retrieves or clears the default color map for the current user. Press **Retrieve** to retrieve the current user default color map (the option is only available if a user default is available). Press **Update** to apply the current color map as user default. Press **Remove** to clear the default for the current user (the option is only available if a user default is available).
QlikView Default	Press **Retrieve** to retrieve the QlikView default color map. This default cannot be changed.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

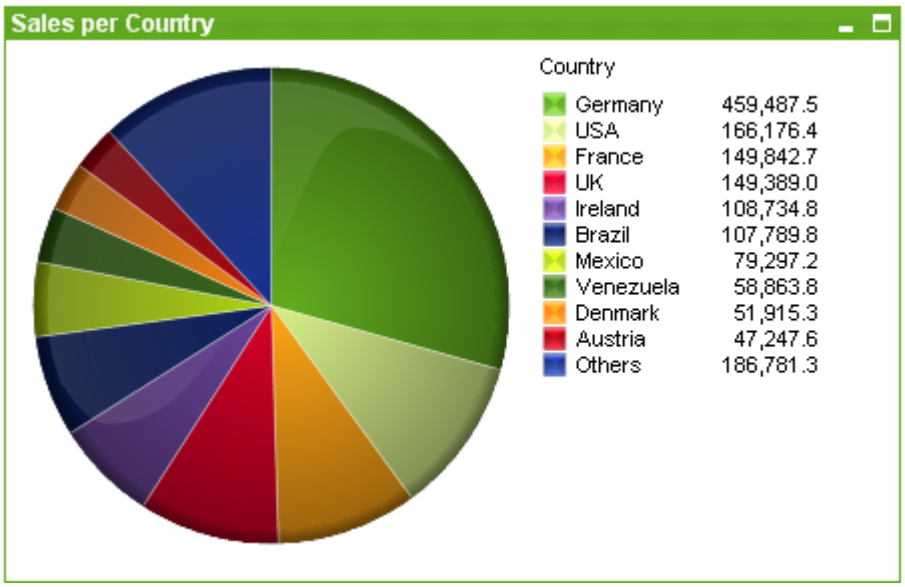
Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Pie Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

Pie charts normally show the relation between a single dimension and a single expression, but can sometimes have two dimensions.

The quickest way to create a new pie chart is to select **Quick Chart** wizard from the **Tools** menu.

By a right-click on the pie chart the **Pie Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the pie chart is the active object.

The pie chart object is limited to displaying 500 slices.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Pie Chart)

In this dialog you specify settings that determine how the pie-slices are displayed.

The default values are:

Default values

Value	Description
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.
Suppress Zero-Values	If enabled, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is enabled by default.
Suppress Missing	If enabled, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is enabled by default. Turning it off can be useful only in special cases, for example, if you want to count null values in a chart.
Highlight	If enabled, hovering with the mouse over a pie segment will result in the segment being highlighted for better overview. The highlighting also applies in the legend where applicable.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend options

Option	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Show Numbers in Legend	If enabled, a legend showing numerical values will be included in the chart.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

The **Texts in Chart** group is used for adding free-floating text to the chart.

Texts in chart options

Option	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in chart layout edit mode.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Colour properties

Property	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.
Use Patterns Instead of Colors	**When Printing** The chart will be printed in black and white, with bar areas hatched. If unchecked, a monochrome printer will use gray scaling instead. **On Screen** Displays the chart with hatched bar areas.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background colour settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

You can assign a color to the lines separating segments in a chart using **Sector Outline**.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.

Format	Description
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font
Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.

- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

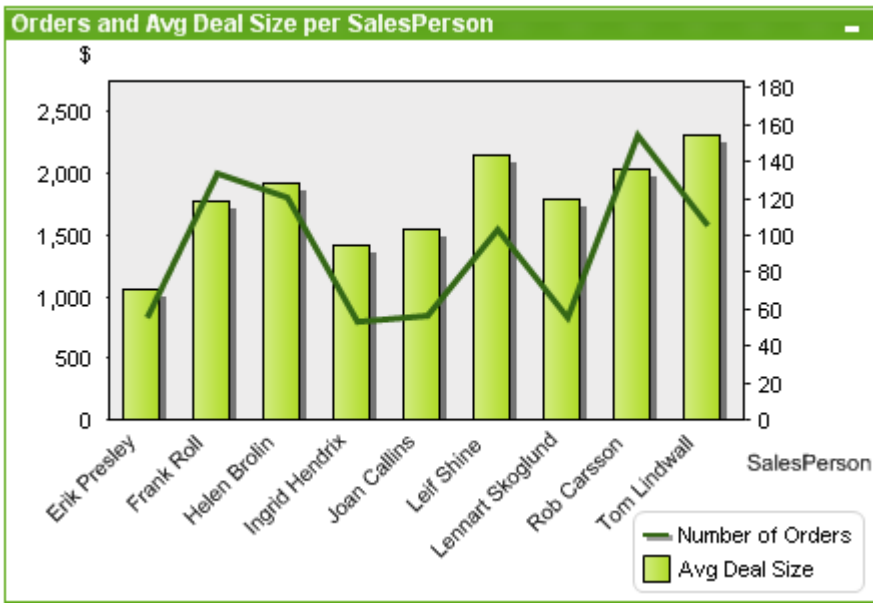
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Combo Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

The combo chart allows you to combine the features of the bar chart with those of the line chart: you can show the values of one expression as bars while displaying those of another expression as a line or symbols.

The easiest way to create a combo chart is to click the **Create Chart** button in the toolbar.

By a right-click on the combo chart the **Combo Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the combo chart is the active object.

Object Menu

The combo chart **Object** menu is opened by right-clicking the object. The menu commands are:

Properties...

Opens the **Properties** dialog where the parameters defining the chart can be set.

Notes

Allows creating and sharing notes about the current object.

Detach

The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.

Attach

Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.

Set Reference

By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.

Clear Reference

This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.

Clone

Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Order

This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.

- **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
- **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
- **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
- **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.

Clear All Selections

Clears all selections in the dimensions and expressions of the chart.

Print...

Opens the **Print** dialog where print settings can be specified.

Print as PDF...

Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.

Send Values to Excel

Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.

Export...

Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.

Copy to Clipboard

This cascade menu contains the various copy options for the sheet object.

- **Values**: Copies the values to the clipboard in the form of a table.
- **Image**: Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page.
- **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Linked Objects

Opens a menu with the following commands for linked objects.

- **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
- **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.

Minimize

Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Maximize

Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.

Restore

Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.

Help

Opens QlikView help.

Remove

Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

Property	Description
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.

Property	Description
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Bar- Line- Combo- Radar- Mekko Chart)

This tab is used collectively for bar charts, line charts, combo charts, radar charts and mekko charts.

The **Bar Settings** group contains various display options for bars that are used in bar charts and combo charts.

Bar Settings

Setting	Description
Bar Distance (-6 - 8)	Sets the distance between the bars in the cluster. A negative number results in overlapping bars. Values between -6 and 8 are allowed.
Cluster Distance (0 - 8)	Denotes the distance between grouped values in a clustered bar chart. Values between 0 and 8 are allowed.
Allow Thin Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Bars are by default drawn with a minimum width of four pixels, to make them clearly distinguishable. Check this option to allow compression of bars to a width of 1 pixel.
Show All Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Check this option to force the drawing of all data points. Bars can be compressed (as for **Allow Thin Bars**) and some may also be partially obscured by others.

In the **Values on Data Points** group you can set display options for values on data points, provided that this option has been selected for one or more chart expressions under **Display Options** in **Chart Properties: Expressions** page.

Values on Data Points display options

Option	Description
Max Values Shown	In this box you can specify an upper limit for the number of data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.

Option	Description
Vertical	Shows the values vertically.
Plot Values Inside Segments	Marking this check box will plot values on data points inside the segments instead of on top of them.
Still Show Total on Top	Marking this check box will additionally show the total value on top of each bar for a stacked bar chart. This option is only available if you have selected **Plot Values Inside Segments**.

In the **Error Bars** group display options for any error bars used in the chart is determined

Error Bars display options

Option	Description
Width	Specifies the width of error bars.
Thickness	Specifies the thickness of error bars.
Color	Sets a color for error bars.

In the **Line/Symbol Settings** group display options for lines and data point symbols that are used in line charts and combo charts are determined. It is also possible to determine the width of trendlines.

Line/Symbol Settings

Setting	Description
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Trendline Width	This setting determines the width of trendlines.
Use Full Symbol Set	This alternative makes more symbol representation available (rings, triangles etc.)
Semi-transparent	Check this option if you want filled lines to be drawn semi-transparent.
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.

Setting	Description
Suppress Zero-Values	This check box eliminates dimensions that are empty or contain only zeros. This option is selected by default. • **Zero on Bars**: This option is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected for the chart expression under **Display Options** in **Chart Properties: Expressions**, zero values will appear as text above the data points. In other cases zero values will be suppressed.
Suppress Missing	If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if you want to count null values in a chart.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend settings

Setting	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Chart Scrolling settings

Setting	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.
Reversed	Checking the box displays the values in reversed order.

In the **Reference Lines** group you can define reference (grid) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference Lines settings

Setting	Description
Add	Opens the **Reference Lines** dialog where you can create a new reference line in the chart.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in Chart settings

Setting	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in the layout edit mode.

Axes

On the **Axes** page you can set the display properties for the x- and y-axes.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.

Setting	Description
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

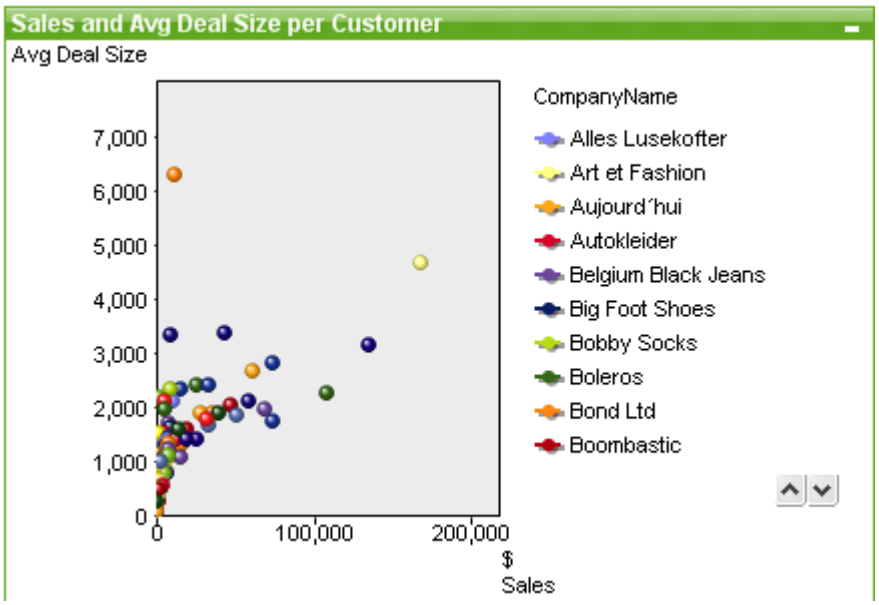
Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Scatter Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

The scatter chart presents pairs of values from two expressions. This is useful when you want to show data where each instance has two numbers, for example, country (population and population growth).

The easiest way to create a new scatter chart is to click the **Create Chart** button in the toolbar.

By a right-click on the scatter chart the **Scatter Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the scatter chart is the active object.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu properties

Property	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Property	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Property	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions (Scatter Chart)

The **Chart Properties: Expressions** page is reached by a right-click on a scatter chart and selecting **Properties** from the **Object** menu. This is a simplified **Expressions** dialog that is only displayed when the alternative **Advanced Mode** is not checked.

The **X** group is used for determining the x-dimension. In the same manner, the y-dimension is created in the **Y** group. In this simplified **Expressions** dialog, all x- and y-dimensions will be defined as **Avg(*FieldName*)**. The Avg (average) is used as default, since it is the function most likely to produce a valid scatter.

For either dimension, a **Label** can be specified. This label can also be defined as a calculated formula. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

In the **Z** group you can specify an optional expression which will be used to calculate the size of each data point plotted in the scatter:

Optional expressions

Option	Description
Bubble Chart	If this option is checked a third (z) chart expression will be used to calculate the relative size of the scatter points. The value of the expression will determine the area of the bubble plotted.
Bubble Size Expression	This is where you enter the expression that determines the relative size of the bubble drawn at each scatter point. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.

If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.
- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked

- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
    - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
    - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
    - **Solid Color**: Sets all colors in the color map to solid colors.
    - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.
    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Scatter- Grid Chart)

This property page is used collectively for scatter charts and grid charts, with some options available only for one of the chart types. When a scatter chart has two field dimensions instead of one defined on the **Dimensions** page, each value in the first field dimension will result in one scatter data point for each of its associated values in the second one. These may then be connected by lines. The following display options are available in the **Representation** group:

Display options

Option	Description
Only Lines	Data is represented by lines between data points.
Only Symbols	Data is represented by symbols, drawn at the data points.
Both Lines and Symbols	A combination of the alternatives above.
Autosize Symbols	Adjusts the maximum bubble size to the size of the scatter chart/to the number of values in the grid chart.

Option	Description
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Trendline Width	This setting determines the width of trend lines.
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Max Bubble Size	Sets the size of the largest bubble in the chart. Available only for some looks (selected on the **Style** tab) in combination with **Only Symbols** or **Both Line and Symbol** for **Representation**, and if **Autosize Symbols** is deselected.

More display options

Option	Description
Show Arrows	Set display options for arrows on connecting lines (See the **Representation** group, above!). Arrows will be directed between scatter points in the sequential order defined by the sort order of the second field dimension. Check this alternative to have arrow heads displayed on the connecting lines.
Arrow Size	The size of the arrow head can be edited here.
Style	Select from several styles from the drop-down list.
Bubble Scaling	Select how to scale the bubbles in a grid chart based on either of: • **Radius** The bubbles are scaled according to radius. • **Area** The bubbles are scaled according to area. This is the default option for a new grid chart. In most cases this option provides the best visual representation of the data.

In the **Labels in Chart** group you may set display options for labels on data points. The labels plotted are the same as the ones in the legend.

Label options

Option	Description
Max Labels Shown	Limits the number of plotted labels. Setting this number too high may degrade chart clarity.
Labels on Datapoints	Check this alternative to have labels displayed.
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.

Option	Description
Horizontal Position	Select the horizontal orientation from the drop-down list: **Left**, **Centered** or **Right**.
Vertical Position	Select the vertical orientation from the drop-down list: **Above**, **Centered** or **Below**.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

The check boxes **Suppress Zero-Values** and **Suppress Missing** eliminate dimensions that are empty or contain only zeros from the table.

More label options

Option	Description
Show X Label	The label of x-dimension specified in the **X** group of **Chart Properties: Expressions** page is drawn at the end of the x-axis.
Show Y Label	The label of y-dimension specified in the **Y** group of **Chart Properties: Expressions** page is drawn at the end of the y-axis.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend options

Option	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Scroll options

Option	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.

In the **Reference Lines** group you can define reference (grid-) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference line options

Option	Description
Add	Opens the **Reference Lines** dialog where a new reference line in the chart can be created.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Texts in Chart** group is used for adding free-floating text to the chart.

Text options

Option	Description
Add	Opens the **Chart Text** dialog where a new chart text in the chart can be created.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in chart layout edit mode.

Reference Lines

The dialog may vary slightly in appearance depending on the kind of chart that is used. A reference line is a line intersecting the chart plot area from a given point on one or both axes. It may be used, for example, to indicate a certain level or percentiles of chart data. The reference line is only drawn if it falls within the current range of the axis from which it origins.

Reference line options

Option	Description
Label	Enter a label to be drawn next to the reference line. The default value used is the expression. The label may be defined as a calculated expression.
Show Label in Chart	Enable this setting if the label should appear next to the reference line.
Location	Sets from which axis the reference line should originate, choose between **X-axis**, **Y-axis** and **X-axis and Y-axis**
Definition	Sets the value at which the reference line should be drawn. The value be either a fixed **Percentile** (enter a value between 1 and 100 in the edit box) of the current chart data or an arbitrary numeric **Expression**.

Option	Description
Line Formatting	Defines the layout of the reference line: **Weight** Specifies the weight of the reference line. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit). **Color** Sets the color for the reference line. **Style** Specifies the style for the reference line, for example, continuous, dashed or dotted.
Show	Specifies the condition for displaying the reference line. **Always** The reference line will always be displayed. **Conditional** The reference line will be displayed or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog. *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.

Format	Description
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

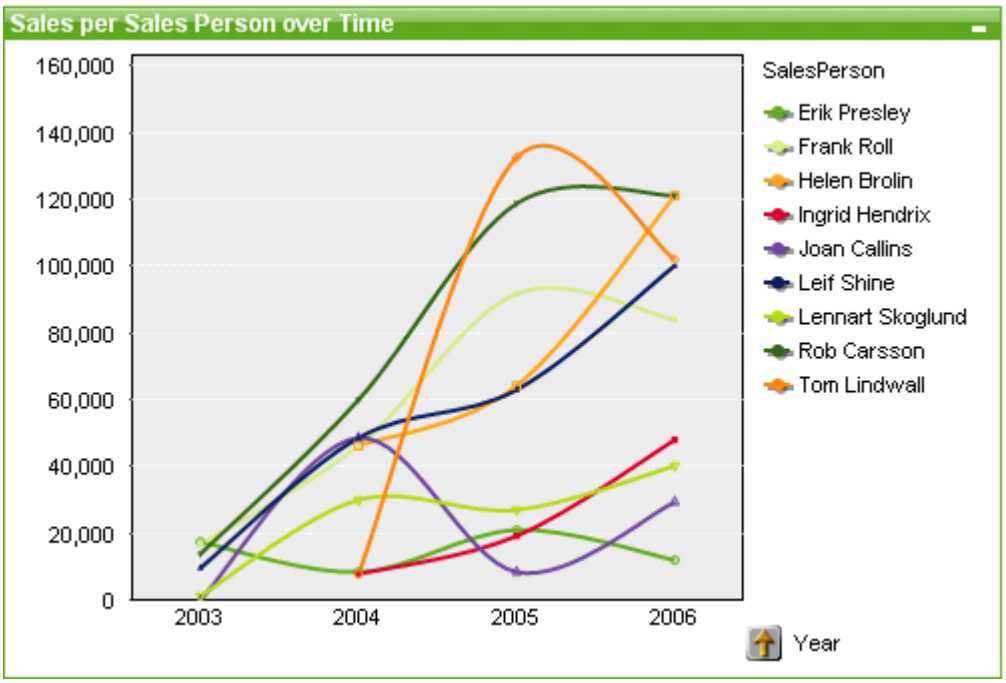
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Line Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

Line charts present data as lines between value points, as value points only or as both lines and value points. Line charts are useful when you want to show changes or trends.

The quickest way to create a new line chart is to select **Quick Chart** wizard from the **Tools** menu.

By a right-click on the line chart the **Line Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the line chart is the active object.

New Chart

A new chart can be created by clicking on the **Create Chart** tool in the toolbar, by a right-click on an empty sheet area and selecting **New Sheet Object, Chart** from **Object** menu or by selecting **New Sheet Object, Chart** from **Layout** menu. This will open a sequence of chart property pages.

In the page that appears first, name and type of graph and title (optional) is set, clicking the **Next** button opens the second page etc. As soon as sufficient information has been entered the **Next** and/or **Finish** buttons are enabled and the user can proceed to the next page in the sequence or finish it.

Once the chart is displayed on the sheet it can be modified by right clicking the graph and selecting **Properties** or by activating the graph (click on caption area) and selecting **Properties** in the **Object** menu.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Bar- Line- Combo- Radar- Mekko Chart)

This tab is used collectively for bar charts, line charts, combo charts, radar charts and mekko charts.

The **Bar Settings** group contains various display options for bars that are used in bar charts and combo charts.

Bar settings

Setting	Description
Bar Distance (-6 - 8)	Sets the distance between the bars in the cluster. A negative number results in overlapping bars. Values between -6 and 8 are allowed.
Cluster Distance (0 - 8)	Denotes the distance between grouped values in a clustered bar chart. Values between 0 and 8 are allowed.
Allow Thin Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Bars are by default drawn with a minimum width of four pixels, to make them clearly distinguishable. Check this option to allow compression of bars to a width of 1 pixel.
Show All Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Check this option to force the drawing of all data points. Bars can be compressed (as for **Allow Thin Bars**) and some may also be partially obscured by others.

In the **Values on Data Points** group you can set display options for values on data points, provided that this option has been selected for one or more chart expressions under **Display Options** in **Chart Properties: Expressions** page.

Values on data points settings

Setting	Description
Max Values Shown	In this box you can specify an upper limit for the number of data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.

Setting	Description
Vertical	Shows the values vertically.
Plot Values Inside Segments	Marking this check box will plot values on data points inside the segments instead of on top of them.
Still Show Total on Top	Marking this check box will additionally show the total value on top of each bar for stacked bar charts and mekko charts. This option is only available if you have selected **Plot Values Inside Segments**.

In the **Error Bars** group display options for any error bars used in the chart is determined

Error bars settings

Setting	Description
Width	Specifies the width of error bars.
Thickness	Specifies the thickness of error bars.
Color	Sets a color for error bars.

In the **Line/Symbol Settings** group display options for lines and data point symbols that are used in line charts and combo charts are determined. It is also possible to determine the width of trendlines.

Line/Symbol settings

Setting	Description
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Trendline Width	This setting determines the width of trendlines.
Use Full Symbol Set	This alternative makes more symbol representation available (rings, triangles etc.)

More presentation settings

Setting	Description
Semi-transparent	Check this option if you want filled lines to be drawn semi-transparent.

Setting	Description
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.
Suppress Zero-Values	This check box eliminates dimensions that are empty or contain only zeros. This option is selected by default. **Zero on Bars** This option is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected for the chart expression under **Display Options** in **Chart Properties: Expressions**, zero values will appear as text above the data points. In other cases zero values will be suppressed.
Suppress Missing	If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if you want to count null values in a chart.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend settings

Setting	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Chart scrolling settings

Setting	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.
Reversed	Checking the box displays the values in reversed order.

In the **Reference Lines** group you can define reference (grid) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference line options

Option	Description
Add	Opens the **Reference Lines** dialog where you can create a new reference line in the chart.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in chart options

Option	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in the layout edit mode.

Axes

On the **Axes** page you can set the display properties for the x- and y-axes.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.

Setting	Description
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

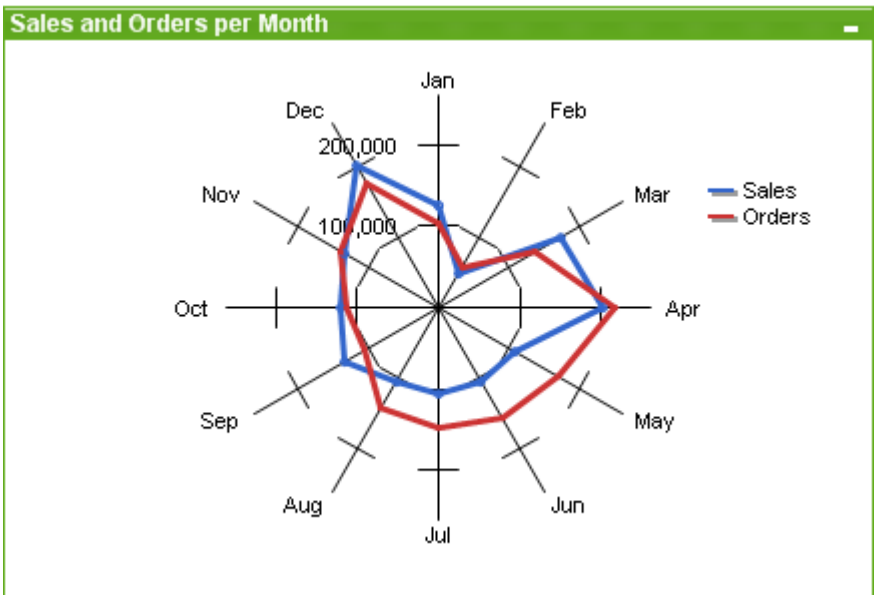
Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Radar Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

Radar charts could be described as line charts where the x-axis is wrapped around 360 degrees and with one y-axis for each x-value. The result is similar to a spider web or a radar screen.

The easiest way to create a radar chart is to click the **Create Chart** button in the toolbar.

By a right-click on the radar chart the **Radar Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the radar chart is the active object.

A radar chart can display a data set containing positive values only or negative values only. If the data set contains a mix of positive and negative values an error message is displayed.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu properties

Property	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Property	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Property	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Bar- Line- Combo- Radar- Mekko Chart)

This tab is used collectively for bar charts, line charts, combo charts, radar charts and mekko charts.

The **Bar Settings** group contains various display options for bars that are used in bar charts and combo charts.

Bar settings

Setting	Description
Bar Distance (-6 - 8)	Sets the distance between the bars in the cluster. A negative number results in overlapping bars. Values between -6 and 8 are allowed.
Cluster Distance (0 - 8)	Denotes the distance between grouped values in a clustered bar chart. Values between 0 and 8 are allowed.
Allow Thin Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Bars are by default drawn with a minimum width of four pixels, to make them clearly distinguishable. Check this option to allow compression of bars to a width of 1 pixel.
Show All Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Check this option to force the drawing of all data points. Bars can be compressed (as for **Allow Thin Bars**) and some may also be partially obscured by others.

In the **Values on Data Points** group you can set display options for values on data points, provided that this option has been selected for one or more chart expressions under **Display Options** in **Chart Properties: Expressions** page.

Values settings

Setting	Description
Max Values Shown	In this box you can specify an upper limit for the number of data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.

Setting	Description
Vertical	Shows the values vertically.
Plot Values Inside Segments	Marking this check box will plot values on data points inside the segments instead of on top of them.
Still Show Total on Top	Marking this check box will additionally show the total value on top of each bar for a stacked bar chart. This option is only available if you have selected **Plot Values Inside Segments**.

In the **Error Bars** group display options for any error bars used in the chart is determined

Error bars settings

Setting	Description
Width	Specifies the width of error bars.
Thickness	Specifies the thickness of error bars.
Color	Sets a color for error bars.

In the **Line/Symbol Settings** group display options for lines and data point symbols that are used in line charts and combo charts are determined. It is also possible to determine the width of trendlines.

Line/Symbol settings

Setting	Description
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Trendline Width	This setting determines the width of trendlines.
Use Full Symbol Set	This alternative makes more symbol representation available (rings, triangles etc.)

More line/symbol settings

Setting	Description
Semi-transparent	Check this option if you want filled lines to be drawn semi-transparent.

Setting	Description
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.
Suppress Zero-Values	This check box eliminates dimensions that are empty or contain only zeros. This option is selected by default. **Zero on Bars** This option is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected for the chart expression under **Display Options** in **Chart Properties: Expressions**, zero values will appear as text above the data points. In other cases zero values will be suppressed.
Suppress Missing	If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if you want to count null values in a chart.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend settings

Setting	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Chart scrolling settings

Setting	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.
Reversed	Checking the box displays the values in reversed order.

In the **Reference Lines** group you can define reference (grid) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference lines commands

Command	Description
Add	Opens the **Reference Lines** dialog where you can create a new reference line in the chart.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in chart commands

Command	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in the layout edit mode.

Axes

On the **Axes** page you can set the display properties for the x- and y-axes.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.

Setting	Description
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

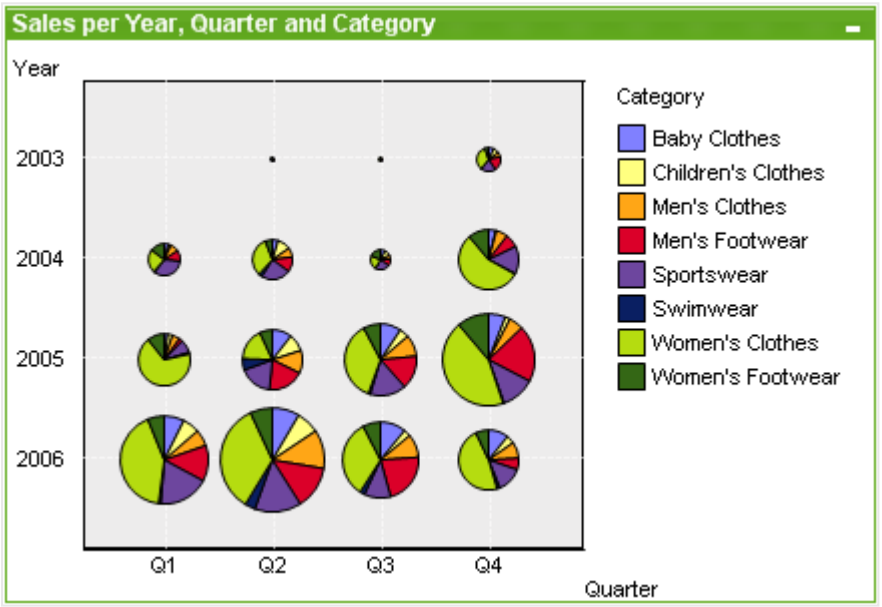
Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Grid Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

The grid chart is similar to the scatter chart but plots dimension values on the axes and uses an expression to determine the plot symbol. A special mode makes it possible to show a third dimension in the form of small pie charts as plot symbols.

The easiest way to create a new grid chart is to click the **Create Chart** button in the toolbar.

By a right-click on the grid chart the **Grid Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the grid chart is the active object.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Scatter- Grid Chart)

This property page is used collectively for scatter charts and grid charts, with some options available only for one of the chart types. When a scatter chart has two field dimensions instead of one defined on the **Dimensions** page, each value in the first field dimension will result in one scatter data point for each of its associated values in the second one. These may then be connected by lines. The following display options are available in the **Representation** group:

Line and symbol options

Option	Description
Only Lines	Data is represented by lines between data points.
Only Symbols	Data is represented by symbols, drawn at the data points.
Both Lines and Symbols	A combination of the alternatives above.
Autosize Symbols	Adjusts the maximum bubble size to the size of the scatter chart/to the number of values in the grid chart.
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Trendline Width	This setting determines the width of trend lines.
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Max Bubble Size	Sets the size of the largest bubble in the chart. Available only for some looks (selected on the **Style** tab) in combination with **Only Symbols** or **Both Line and Symbol** for **Representation**, and if **Autosize Symbols** is deselected.

Presentation options

Option	Description
Show Arrows	Set display options for arrows on connecting lines (See the **Representation** group, above!). Arrows will be directed between scatter points in the sequential order defined by the sort order of the second field dimension. Check this alternative to have arrow heads displayed on the connecting lines.
Arrow Size	The size of the arrow head can be edited here.
Style	Select from several styles from the drop-down list.
Bubble Scaling	Select how to scale the bubbles in a grid chart based on either of: • **Radius** The bubbles are scaled according to radius. • **Area** The bubbles are scaled according to area. This is the default option for a new grid chart. In most cases this option provides the best visual representation of the data.

In the **Labels in Chart** group you may set display options for labels on data points. The labels plotted are the same as the ones in the legend.

Label options

Option	Description
Max Labels Shown	Limits the number of plotted labels. Setting this number too high may degrade chart clarity.
Labels on Datapoints	Check this alternative to have labels displayed.
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.
Horizontal Position	Select the horizontal orientation from the drop-down list: **Left**, **Centered** or **Right**.
Vertical Position	Select the vertical orientation from the drop-down list: **Above**, **Centered** or **Below**.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

The check boxes **Suppress Zero-Values** and **Suppress Missing** eliminate dimensions that are empty or contain only zeros from the table.

More label options

Option	Description
Show X Label	The label of x-dimension specified in the **X** group of **Chart Properties: Expressions** page is drawn at the end of the x-axis.
Show Y Label	The label of y-dimension specified in the **Y** group of **Chart Properties: Expressions** page is drawn at the end of the y-axis.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend options

Option	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Scroll options

Option	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.

In the **Reference Lines** group you can define reference (grid-) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference line options

Option	Description
Add	Opens the **Reference Lines** dialog where a new reference line in the chart can be created.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Texts in Chart** group is used for adding free-floating text to the chart.

Text in chart options

Option	Description
Add	Opens the **Chart Text** dialog where a new chart text in the chart can be created.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in chart layout edit mode.

Axes

On the **Axes** page you can set the display properties for the x- and y-axes.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.

Format	Description
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

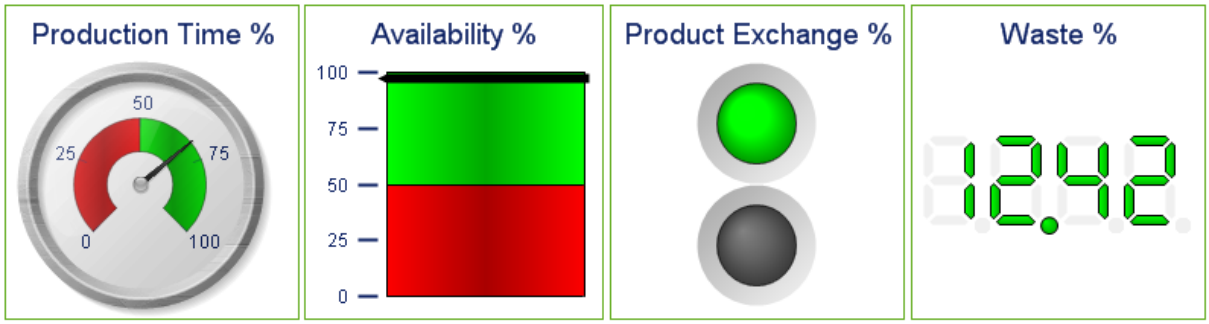
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Gauge Chart



Some examples of gauge charts

Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

Gauge charts are used to display the value of a single expression without dimensions.

The quickest way to create a new gauge chart is to select **Quick Chart** wizard from the **Tools** menu.

By a right-click on the gauge chart the **Gauge Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the gauge chart is the active object.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.

Command	Description
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.

Command	Description
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Property	Description
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **`CH01`**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.

Property	Description
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Gauge Chart)

The **Gauge Settings** group is used for determining the limits for the gauge. The selected gauge style determines what options become available in this dialog.

Gauge settings

Setting	Description
Min	This is the minimum value limiting the range of the gauge. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Max	This is the maximum value limiting the range of the gauge. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

The **Segments Setup** group is used for defining the segments making up the gauge. All gauges except LED style gauges must have at least one segment. For circular and linear gauges the segments make up differently colored areas in the gauge background. For traffic light gauges each segment corresponds to one light.

Segments options

Option	Description
Add	Click this button to add a new segment to the gauge.
Delete	Click this button to remove the currently selected segment from the gauge.
Promote	Use this button for sorting the segments in the list.
Label	Specifies a name for the selected segment. This name is for identification only and is not used when drawing the gauge chart.
Lower Bound	Specifies the gauge value where the selected segment starts. If the **Autowidth Segments** option is deselected (see below) this text box is enabled to edit the numerical value of the lower limit of the selected segment here. If the **Relative Segment Bounds** option is selected (see below) the segment bounds should be entered as numbers between 0 and 1, indicating a fraction of the total range between the **Min** and **Max** values.
Color	Assign a color to the selected segment by clicking the colored button. This opens the **Color Area** dialog.

In the **Indicator** group you determine display options for the gauge indicator. This group is not available for LED style gauge charts.

Indicator options

Option	Description
Mode	Select one of the indication modes from the drop-down list.
Style	Select one of the gauge variants from the drop-down list.

Scale options

Option	Description
Show Scale	The number entered for *n* **Major Units** determines the main division of the scale. The labeling of the scale can be modified by the **Show Labels on Every** *n* **Major Unit** setting and the **Font** button. The scale can be further detailed by the *n* **Minor Units per Major Unit** setting.

In the **Circular Gauge Settings** group, which is specific to circular style gauge charts, you specify the properties of the gauge shape.

Circular gauge settings

Setting	Description
Cylinder Thickness	The gauge is normally drawn as a solid circle or circle segment. The greater the number here, the thicker the cylinder. The value which indicates the percentage of the radius to be left unfilled must be between 0 and 99.
Angle Span	The angle in degrees between the Min and Max values in the gauge. Must be a value between 45 and 360.
Center Angle	The angle of the gauge's center value in relation to the clock. Must be a value between 0 and 360. 0 indicates the center at the top of the gauge (12 o'clock).

In the **Reference Lines** group you can define reference (grid-) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Add	Opens the **Reference Lines** dialog where you can create a new reference line in the chart.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in chart options

Option	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.

Option	Description
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in chart layout edit mode.

Presentation settings

Option	Description
Autowidth Segments	While this option is checked (default), the sizing of segments is calculated automatically, based on the gauge's **Min** value, **Max** value and the number of segments defined. If the option is deselected, the following options become available: **Lower Bound**, which is available from the **Segments Setup** group, **Relative Segment Bounds** and **Logarithmic Scale**.
Relative Segment Bounds	If this option is selected the segment bounds can be entered as numbers between 0 and 1 indicating a fraction of the total range between the **Min** and **Max** values.
Hide Segment Boundaries	If this option is selected no outline will be drawn between the segment boundaries of circular and linear gauges, which is useful for creating background gradients with more than two colors.
Hide Gauge Outlines	If this option is selected no outline will be drawn around the gauge.
Logarithmic Scale	A logarithmic scale can be used, provided that all data points have positive values (>0).
Pop-up Labels	By selecting this check box the value expression(s) will appear as a pop-up balloon when hovering with the cursor over data points in the chart.

In the **LED** group, which is specific to LED style gauge charts, you set the visual properties for the LED display.

LED properties

Property	Description
Digits	Specifies the number of LED display digits shown.
Color	Assign a color to the selected LED by clicking the colored button. This opens the **Color Area** dialog.
Style	Select one of the LED variants from the drop-down list.

Actions

In the **Actions** tab you can specify what actions should be performed when you click on the object. The page is identical to the **Actions** page for the button object.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.

Setting	Description
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font
Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.

- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.

- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

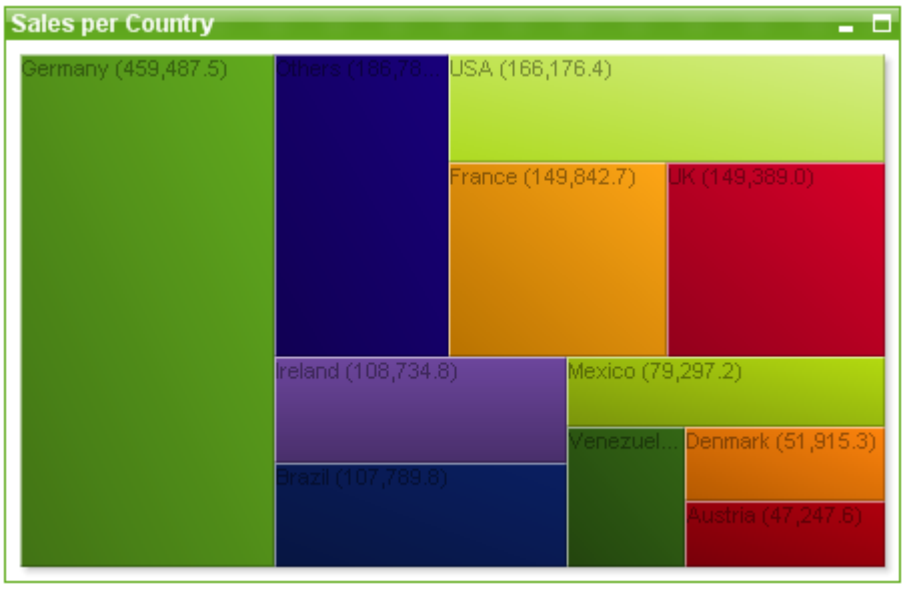
Special Icons

Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Block Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

The block chart shows the relation between expression values as blocks of varying area. Up to three dimensions can be displayed, where each dimension is subdivided into sub-blocks. An extra expression is often used to calculate the color of each block, in which case the chart type is also known as a heat chart.

The easiest way to create a new block chart is to click the **Create Chart**  button in the toolbar.

By right-clicking the block chart the **Block Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the block chart is the active object.

Object Menu

The block chart **Object** menu is opened by right-clicking the object. The menu commands are:

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.
- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.

- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
    - **Solid Color**: Sets all colors in the color map to solid colors.
    - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.
    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Block Chart)

In this dialog you specify settings that determine how the data blocks are displayed.

The default values are:

Default values

Setting	Value
Visible Levels	A block chart can display a maximum of three levels of blocks, equivalent to the three dimensions allowed. By selecting **1**, **2** or **3** you set the number of levels actually displayed.

By picking from the following options in the **Pop-up** group you control what information is shown in the pop-up that appears when you let the mouse pointer hovers over the data.

Pop-up settings

Setting	Description
Show	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.
1st Dimension Relative Total	With this option, the percentage of the indicated 1st dimension value relative to the total is included in the pop-up.

Setting	Description
2nd Dimension Relative Total	The percentage of the indicated 2nd dimension value as defined within the indicated 1st dimension value relative to the total.
3rd Dimension Relative Total	As above, but for the 3rd dimension level.
Value Relative 1st Dimension	The percentage of the indicated block relative to the total of the indicated 1st dimension value.
Value Relative 2nd Dimension	The percentage of the indicated block relative to the total of the indicated 2nd dimension value.

Dimension labels settings

Setting	Description
Show Dimension Labels	Check this alternative to include labels in the chart (checked by default). It is also possible to change the font settings, by clicking the corresponding button. If **Show Numbers with Labels** is checked, numerical values will be included with the labels.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in chart commands

Command	Description
Add	Opens the **Chart Text** dialog, where it is possible to create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in chart layout edit mode.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend settings

Setting	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the *Legend Settings (page 705)* by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Block Borders** group you can set the width and color of the borders drawn around the blocks on the three different dimension levels. Block borders are not applicable when the caption style of block charts is used.
For any dimension, click the spinner control to change the border width and the **Color** button to select a different border color.
In the **Caption Settings** group you can set the font and color of the caption used for top and intermediate dimension levels. These settings are only applicable when the caption style of block charts is used.

Caption settings

Setting	Description
Font...	Opens the **Font** dialog for setting a caption font.
Color	Opens the **Color Area** dialog for setting a caption base color.
Intermediate Level Captions	Mark this check box if you want captions drawn on the intermediate dimension level in three-dimensional block charts.

Axes

On the **Axes** page you can set the display properties for the x- and y-axes.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.

Setting	Description
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when

the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

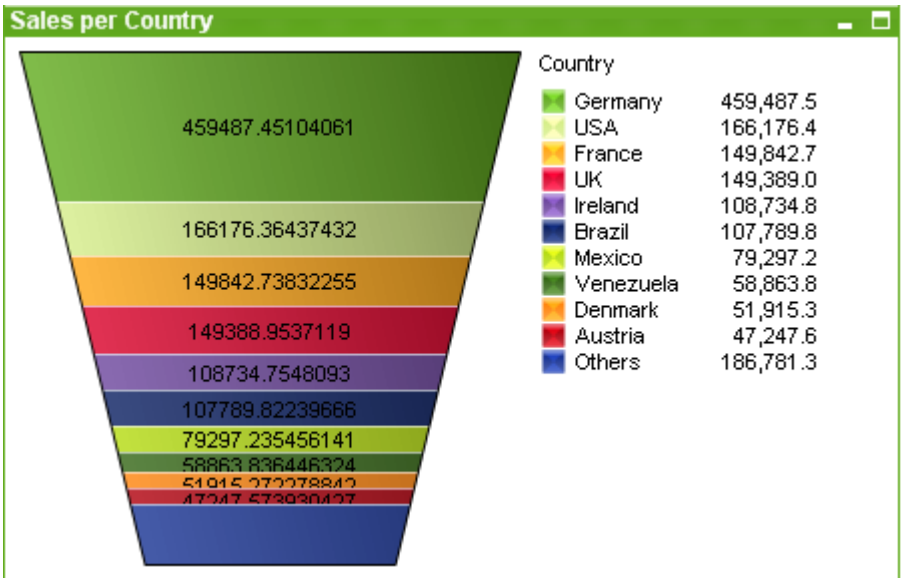
Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it

possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Funnel Chart



Charts are graphical representations of numerical data. The funnel chart is typically used for showing data in flows and processes. From a display standpoint it is related to the pie chart. The chart may be shown with either segment height/width or segment area proportional to data. It is also possible to draw the chart with equal segment heights/widths without regards to data points.

It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

By a right-click on the funnel chart the **Funnel Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the funnel chart is the active object.

Object Menu

Right-click on a chart and a float menu appears. This menu can also be found under **Object** menu when the chart is active.

The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the fields used as dimensions in the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent of the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as png, jpg, bmp or gif.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression's trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Funnel Chart)

By changing the settings on this page, you modify the way the funnel chart is presented on the screen.

Presentation options

Option	Description
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.
Tip Width (%)	Defines the width of the funnel tip as a percentage of the funnel mouth width.
Reversed Orientation	Enable this check box if you want to make the funnel point to the left or upwards
Data Proportionality	This setting controls the degree to which the segments are proportional to the underlying data. **Equal Segment Heights** No proportionality to data. Each segment is drawn with the same height (width for horizontal funnels) as all others. Typically only makes sense with numbers displayed in the chart. **Segment Height Proportional to Data** Each segment is drawn with the a height (width for horizontal funnels) proportional to underlying data. **Segment Area Proportional to Data** Each segment is drawn with the total area proportional to underlying data.

Option	Description
Show Legend	In the **Show Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart. **Settings...** Opens the **Legend Settings** dialog where the legend settings can be modified. **Show Numbers in Legend** Enable this check box to show values next to the dimension data labels. **Limit Legend (Characters)** Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.
Text in Chart	In the **Text in Chart** group you can add free-floating text to the chart. **Add** By pressing this button you open the **Chart Text** dialog where you may create and edit free-floating texts to be displayed in the chart. **Edit** Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog. Double-clicking the text in the list has the same effect. **Delete** Highlight an existing text in the list and click this button to delete it from the list.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.

Setting	Description
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Pivot Table

Country	Salesman	Year	Sales
Australia	Rolf Wesenlund	2005	1,030
		2006	1,210
		Total	**2,240**
	Total		**2,240**
Azerbaijan			5,329
Bahrain			1,090
Bangladesh			4,240
Belarus			26,065
Belgium	Charles Ingvar Jönsson	2006	1,210
		2008	3,159
		2009	3,690
		Total	**8,059**
	John Cleaves	2008	2,550
		Total	**2,550**
	Tony Cedholt	2008	2,500
		2009	4,249
		Total	**6,749**
	Total		**17,358**

Charts are graphical representations of numerical data. The pivot table and the straight table are special cases as they display the data in table form while retaining all the properties of a chart. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

The pivot table is one of the most powerful tools for analyzing data. It offers substantial functionality but is still easy to use. Pivot tables show dimensions and expressions in rows and columns, for example in cross tables. The data in pivot tables may be grouped. Pivot tables can show partial sums.

The quickest way to create a new pivot table is to select **Quick Chart** wizard from the **Tools** menu.

By a right-click on the pivot table the **Pivot Table: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the pivot table is the active object.

Using the Pivot Table

In a pivot table dimensions (fields and expressions) can be shown on one vertical and one horizontal axis. The dimensions may be moved freely between or within the axes. This process is called "pivoting". In QlikView, pivoting is done by dragging and dropping with a mouse. Simply point the mouse somewhere in the field, click and drag it to the desired position. To make this easier, while a field is being moved, its borders are highlighted in blue.

*Pivoting is disabled if the **Allow Pivoting** check box in the **Chart Properties: Presentation (Pivot Table)** is unchecked.*

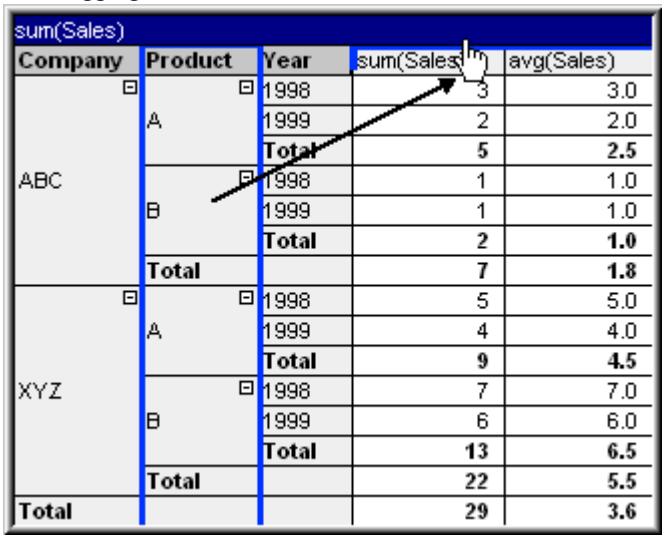
In QlikView, multi-dimensional pivot tables will display small + and - icons in its variable fields. A + icon indicates that the table can be further expanded for detail by revealing further variables, while a - icon indicates that it can be collapsed, which sacrifices detail for clarity or space.

From the **Pivot Table: Object Menu** you also have access to the commands **Expand all**, **Collapse all**, **Collapse Dimension Rows** and **Collapse Dimension Columns** which effect these setting accordingly.

*If you use cyclic dimension groups, it is recommended that you always first **Expand all** and then expand or collapse at individual dimension level to ensure that all levels, even levels not displayed, are properly expanded.*

Example:

To move the field *Product* in the pivot table below from the vertical axis to the horizontal axis, point with the mouse in the *Product* column. Press the left mouse button and keep it depressed while dragging the mouse cursor up above the expression label row. The selected column and its target are highlighted in blue while you are dragging.



sum(Sales)				
Company	Product	Year	sum(Sales)	avg(Sales)
ABC	A	1998	3	3.0
		1999	2	2.0
		Total	**5**	**2.5**
	B	1998	1	1.0
		1999	1	1.0
		Total	**2**	**1.0**
	Total		**7**	**1.8**
XYZ	A	1998	5	5.0
		1999	4	4.0
		Total	**9**	**4.5**
	B	1998	7	7.0
		1999	6	6.0
		Total	**13**	**6.5**
	Total		**22**	**5.5**
Total			**29**	**3.6**

The result:

sum(Sales)							
	Product	A		B		Total	
Company	Year	sum(Sales)	avg(Sales)	sum(Sales)	avg(Sales)	sum(Sales)	avg(Sales)
ABC	1998	3	3.0	1	1.0	4	2.0
	1999	2	2.0	1	1.0	3	1.5
	Total	5	2.5	2	1.0	7	1.8
XYZ	1998	5	5.0	7	7.0	12	6.0
	1999	4	4.0	6	6.0	10	5.0
	Total	9	4.5	13	6.5	22	5.5
Total		14	3.5	15	3.8	29	3.6

Not only the dimension fields, but also the expression row can be pivoted:

sum(Sales)							
	Product	A		B		Total	
Company	Year	sum(Sales)	avg(Sales)	sum(Sales)	avg(Sales)	sum(Sales)	avg(Sales)
ABC	1998	3	3.0	1	1.0	4	2.0
	1999	2	2.0	1	1.0	3	1.5
	Total	5	2.5	2	1.0	7	1.8
XYZ	1998	5	5.0	7	7.0	12	6.0
	1999	4	4.0	6	6.0	10	5.0
	Total	9	4.5	13	6.5	22	5.5
Total		14	3.5	15	3.8	29	3.6

The result:

sum(Sales)					
Company	Year	Product	A	B	Total
ABC	1998	sum(Sales)	3	1	4
		avg(Sales)	3.0	1.0	2.0
	1999	sum(Sales)	2	1	3
		avg(Sales)	2.0	1.0	1.5
	Total	sum(Sales)	5	2	7
		avg(Sales)	2.5	1.0	1.8
XYZ	1998	sum(Sales)	5	7	12
		avg(Sales)	5.0	7.0	6.0
	1999	sum(Sales)	4	6	10
		avg(Sales)	4.0	6.0	5.0
	Total	sum(Sales)	9	13	22
		avg(Sales)	4.5	6.5	5.5
Total		sum(Sales)	14	15	29
		avg(Sales)	3.5	3.8	3.6

Expanding and Collapsing the Dimension Axes

QlikView pivot tables allow you to expand and collapse dimensions on the axes by single field values. This allows you to drill down into details for one or more field values while keeping the totals for others.

After a reload, any expanded columns in a pivot table will be collapsed.

*It is possible to disable the expand and collapse options for a pivot table by selecting the check box **Always Fully Expanded** on the **Chart Properties: Presentation** page of the pivot table.*

Example: Example (Expanding):

In the pivot table below, the + icons to the right of the field values in the *Company* column indicate that the table can be expanded for further detail.

sum(Sales)		
Company	sum(Sales)	avg(Sales)
ABC ⊞	7	1.8
XYZ ⊞	22	5.5
Total	29	3.6

A click on the first + icon displays the *Product* details for the company ABC:

sum(Sales)			
Company	**Product**	sum(Sales)	avg(Sales)
ABC	A	5	2.5
	B	2	1.0
	Total	**7**	**1.8**
XYZ		22	5.5
Total		**29**	**3.6**

Each field value can be separately expanded to show the next level. In order to expand all field values in a certain column, right-click in that column and select **Expand all** from the **Object** menu. If you do so for the *Company* column in the table above, the result will be as follows:

sum(Sales)			
Company	**Product**	sum(Sales)	avg(Sales)
ABC	A	5	2.5
	B	2	1.0
	Total	**7**	**1.8**
XYZ	A	9	4.5
	B	13	6.5
	Total	**22**	**5.5**
Total		**29**	**3.6**

The + icons in the *Product* column indicate that another level exists. Right-click in the *Product* column and select **Expand all** again. The result will be as follows:

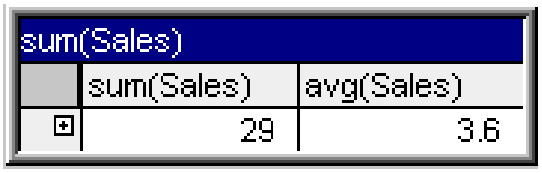
sum(Sales)				
Company	**Product**	**Year**	sum(Sales)	avg(Sales)
ABC	A	1998	3	3.0
		1999	2	2.0
		Total	**5**	**2.5**
	B	1998	1	1.0
		1999	1	1.0
		Total	**2**	**1.0**
	Total		**7**	**1.8**
XYZ	A	1998	5	5.0
		1999	4	4.0
		Total	**9**	**4.5**
	B	1998	7	7.0
		1999	6	6.0
		Total	**13**	**6.5**
	Total		**22**	**5.5**
Total			**29**	**3.6**

As no + icons are available in the *Year* column, we can conclude that there are only three dimension fields available in this pivot table.

Example: Example (Collapsing):
Just as you expand with the + icons, you can collapse individual values by clicking on the - icons.
If you click on the - icon to the right of the value A in the table above, the result will be as follows:

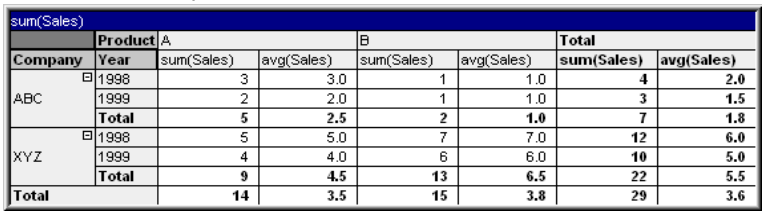
sum(Sales)				
Company	**Product**	**Year**	sum(Sales)	avg(Sales)
ABC	A		5	2.5
	B	1998	1	1.0
		1999	1	1.0
		Total	**2**	**1.0**
	Total		**7**	**1.8**
XYZ	A		9	4.5
	B	1998	7	7.0
		1999	6	6.0
		Total	**13**	**6.5**
	Total		**22**	**5.5**
Total			**29**	**3.6**

Finally, even the first column can be collapsed, leaving only the grand total of the expression for the vertical axis. This is done by right-clicking in any of the field dimension columns and choosing **Collapse Dimension Columns** from the **Object** menu. The result will be as follows:



sum(Sales)		
	sum(Sales)	avg(Sales)
⊞	29	3.6

From here you may expand again!
The expand and collapse possibilities apply equally for multiple dimension fields on the horizontal axis as is illustrated in the pivot table below.



sum(Sales)							
	Product	A		B		Total	
Company	Year	sum(Sales)	avg(Sales)	sum(Sales)	avg(Sales)	sum(Sales)	avg(Sales)
⊟ ABC	1998	3	3.0	1	1.0	**4**	**2.0**
	1999	2	2.0	1	1.0	**3**	**1.5**
	Total	**5**	**2.5**	**2**	**1.0**	**7**	**1.8**
⊟ XYZ	1998	5	5.0	7	7.0	**12**	**6.0**
	1999	4	4.0	6	6.0	**10**	**5.0**
	Total	**9**	**4.5**	**13**	**6.5**	**22**	**5.5**
Total		**14**	**3.5**	**15**	**3.8**	**29**	**3.6**

Object Menu

The pivot table **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set. This command can also be invoked by the following keyboard shortcut: Alt+Enter.
Notes	Allows creating and sharing notes about the current object.
Expand all Collapse all Collapse Dimension Rows Collapse Dimension Columns	These commands operate on the expand (+) and collapse (-) icons that are displayed in multi-dimensional pivot tables.
Detach	The chart title is appended with the text ”(Detached)” and the table is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the table is attached. By making a copy of a pivot table and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached pivot table. The pivot table becomes dynamically linked to the data. The command is available only if the pivot table is detached.
Clone	Makes an identical copy of the pivot table. If a detached pivot table is cloned the clone will be attached.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Fit Columns to Data	Adjusts the width of each table column to its longest data string. Headers are included in the calculations.
Equal Column Width	If the mouse pointer is placed over a column in the pivot table this command becomes available in the float menu (not in the main menu bar **Object** menu). The command sets column width for all columns of the table to that of the column pointed at. Column width can be individually adjusted by moving the pointer to the right edge of the column (pointer changes appearance) and dragging.
Custom Format Cell	Opens the **Custom Format Cell** dialog which lets you format cells in the column and stripe which you clicked upon. This cascade menu is only available when the **Design Grid** command of the **View** menu is activated.
Change Value	Only available for expression columns containing an inputsum aggregation of an input field. Sets the cell clicked on in input edit mode. Equivalent to clicking the input icon in the cell.
Restore Values	Only available for expression columns containing an inputsum aggregation of an input field. Opens a cascade menu with three options. **Restore Single Value** Restores the field values underlying the cell clicked upon on to their default values from the script. **Restore Possible Values** Restores the values of all possible underlying field values to their default values from the script. **Restore All Values** Restores the values of all underlying field values to their default values from the script.
Clear All Selections	Clears all selections in the dimensions and expressions of the table.

Print menu commands

Command	Description
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send to Excel	Exports the table to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified. The file can be saved as any of the following formats: Comma Delimited, Semicolon Delimited, Tab Delimited, Hypertext (HTML), XML and Excel (xls or xlsx). The default format is *.qvo (QlikViewOutput), a tab separated file.

More object menu commands

Command	Description
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Full Table** Copies the table to the clipboard, complete with header and selection status. **Table Data Area** Copies only the values of the table to the clipboard. **Cell Value** Copies the text value of the cell right-clicked upon (when invoking the Object menu) to the clipboard. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.

Command	Description
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **CH01**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.

Property	Description
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.

Property	Description
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Presentation (Pivot Table)

In the **Dimensions and Expressions** group all the field-dimensions and expressions of the pivot table are listed. Select one from the list in order to make individual adjustments to it.

Presentation options

Option	Description
Dropdown Select	If enabled for a field column, a drop-down icon will appear to the right in the column header. By clicking the icon, a list box displaying all field values of the field will be opened over the table. Selections and searches may then be made in the same manner as if the field had been a row in a multi box.
Label for Column/Row	The text entered here will be shown as title label for the selected dimension or expression, if applicable.
Label for Totals	Here you can specify the text to be shown in the label cells for totals. If no explicit label is specified, the string "Total" will be used.
Show Partial Sums	Displays partial sums in the pivot table.
Alignment	In this group, the alignment of the expression values and their labels within the pivot table can be set. **Label**, **Data (Numeric)** and **Data (Text)** can be individually set to **Left**, **Center** or **Right**. When multi line cells and labels are used, **Label (Vertical)** and **Data (Vertical)** can be set to **Top**, **Center** or **Bottom**.

More presentation options

Option	Description
Allow Pivoting	If this option is de-selected, the usual pivoting function of the pivot table will be disabled.
Vertical Text on Column Labels	Text for the column headers will be rotated to vertical.
Selection Indicators	With this option checked, a colored Indicator is displayed in the header of any field dimension where a selection has been made.
Always Fully Expanded	This alternative means that you will not be able to collapse dimensions by clicking on the - icons.
Suppress Expansion Icons in Print	Select this check box if you don't want the + and - icons for partial expand and collapse to be visible when printing the pivot table.
Suppress Zero-Values	This check box eliminates columns or rows that contain only zeros from the table.
Suppress Missing	This check box eliminates columns or rows that are empty from the table.

Option	Description
Populate Missing Cells	When this check box is marked, cells in cross tables representing missing combinations of dimensions will be mapped to a regular null value. Thereby it becomes possible to apply expressions testing for null and for attribute expressions and style formats to be applied. This setting is activated by default for all pivot tables created in QlikView 7.5 and later.
Null Symbol	The symbol entered here will be used for displaying NULL values in the table.
Missing Symbol	The symbol entered here will be used for displaying missing values in the table.

The **Subtotals** group is used for setting the display of totals and subtotals in the pivot table.

Subtotal options

Option	Description
Subtotals on Top	If this option is checked, totals will be displayed top/left in the pivot table.
Subtotals at Bottom	If this option is checked, totals will be displayed bottom/right.

In the **Multiline Settings (Expression Data Cells)** group you can specify for values to be displayed in multiple rows, in order to handle longer text strings.

Multiline settings

Setting	Description
Wrap Header Text	If this option is checked, the contents of a label cell will be displayed in two or more rows. The **Header Height _ Lines** determines the number of cell lines.
Wrap Cell Text	Same as above, but the setting applies to data cells. The value is set as **Cell Height _ Lines**.

Chart Properties: Visual Cues

The **Chart Properties: Visual Cues** page is only available for pivot tables and straight tables. It is opened by a right-click on a chart window and choosing the **Properties** command from the float menu.

Visual cues are used for highlighting expression values and are displayed by applying a different font style, font color and/or cell color. Values belonging to different intervals are typically given different cues.

Values can be specified for three different intervals with the **Upper >=**, **Normal** and **Lower <=** options, each with different settings. The upper interval specifies values above the numeric value entered in the edit box, the lower interval specifies values below the value entered. The normal values are the values between these two limits. **Text** values are values lacking a valid numerical interpretation.

Chart Properties: Style

This style page applies to all QlikView tables; table boxes, pivot tables and straight tables. Here you make settings for the table formatting style.

Style settings

Setting	Description
Current Style	Choose an appropriate table style from the drop-down list. If the value **[Custom]** appears in the drop-down control a custom style has been applied to the table. If you change the setting back to one of the pre-defined styles, the custom formatting will be lost.
Stripes every _ Rows	Here you can specify if and at how long intervals shaded stripes should appear.
Indent Mode	This setting is only valid for pivot tables. With this alternative checked, you can achieve a slightly different table style that is especially useful when you need to accommodate a number of dimension labels within a limited table width. **Use Only First Dimension Label** This setting is only available for pivot tables already in **Indent Mode** and modifies the style of the pivot table further.
Vertical Dimension Cell Borders	This setting determines whether vertical cell borders are displayed for dimension columns.
Vertical Expression Cell Borders	As above, but for expression columns.
Border Above Spacing	Provided that a **Spacing** has been determined in the **Advanced Field Settings** dialog, the table style can be slightly modified by checking this alternative.
Background...	Opens the **Background Settings** dialog.
Cell Background Color Transparency	If a color or an image has been applied in **Background Settings**, you can adjust the transparency of that color or image in the cell background here.
Cell Borders Transparency	Sets how pronounced the cell borders should be.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.

Format	Description
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.

- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

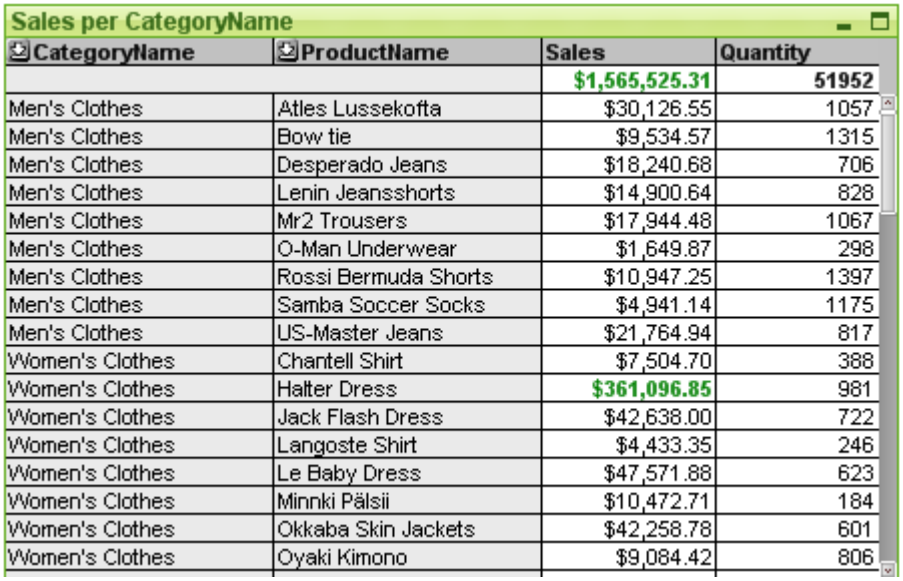
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Straight Table



Sales per CategoryName

CategoryName	ProductName	Sales	Quantity
		$1,565,525.31	51952
Men's Clothes	Atles Lussekofta	$30,126.55	1057
Men's Clothes	Bow tie	$9,534.57	1315
Men's Clothes	Desperado Jeans	$18,240.68	706
Men's Clothes	Lenin Jeansshorts	$14,900.64	828
Men's Clothes	Mr2 Trousers	$17,944.48	1067
Men's Clothes	O-Man Underwear	$1,649.87	298
Men's Clothes	Rossi Bermuda Shorts	$10,947.25	1397
Men's Clothes	Samba Soccer Socks	$4,941.14	1175
Men's Clothes	US-Master Jeans	$21,764.94	817
Women's Clothes	Chantell Shirt	$7,504.70	388
Women's Clothes	Halter Dress	$361,096.85	981
Women's Clothes	Jack Flash Dress	$42,638.00	722
Women's Clothes	Langoste Shirt	$4,433.35	246
Women's Clothes	Le Baby Dress	$47,571.88	623
Women's Clothes	Minnki Pälsii	$10,472.71	184
Women's Clothes	Okkaba Skin Jackets	$42,258.78	601
Women's Clothes	Oyaki Kimono	$9,084.42	806

Charts are graphical representations of numerical data. The pivot table and the straight table are special cases as they display the data in table form while retaining all the properties of a chart. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

In opposition to the pivot table, the straight table cannot display sub-totals or serve as a cross table. On the other hand, any of its columns can be sorted and each of its rows contains one combination of dimension (s)+expression(s).

The quickest way to create a new straight table is to select **Quick Chart** wizard from the **Tools** menu.

By a right-click on the straight table the **Straight Table: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the straight table is the active object.

Using the Straight Table

Sorting

It is possible to sort the straight table by any column: simply right-click in the column and choose **Sort** from the context menu. This is equivalent to moving the column to the top of the **Priority** list in the **Sort** page of the straight table **Properties** dialog. An alternative method is to sort by double-clicking the column header.

Rearranging the Columns

Move the dimension columns and the expression columns by dragging and dropping them with the mouse. Point at the column title, then press the mouse button and keep it depressed while dragging the column to its new position. It is possible to mix dimension and expression columns in any order.

You can reset the column order from *Chart Properties: Presentation (Straight Table) (page 662)*.

Object Menu

The straight table **Object** menu is opened by right-clicking the object. The menu commands are:

- **Properties...**: Opens the **Properties** dialog where the parameters defining the straight table can be set.
- **Notes**: Allows creating and sharing notes about the current object.
- **Detach**: The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
- **Attach**: Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
- **Clone**: Makes an identical copy of the straight table. If a detached straight table is cloned the clone will be attached.
- **Fit Columns to Data**: Adjusts the width of each table column to its longest data string. Headers are included in the calculations.
- **Equal Column Width**: If the mouse pointer is placed over a column in the straight table this command becomes available in the float menu (not in the main menu bar **Object** menu).
  The command sets column width for all columns of the table to that of the column pointed at. Column width can be individually adjusted by moving the pointer to the right edge of the column (pointer changes appearance) and dragging.
- **Sort**: If the mouse pointer is placed over a column in the straight table this command becomes available in the float menu (not in the main menu bar **Object** menu). The rows of the table will be sorted by the specified column. The sort order is set in the **Chart Properties: Sort** page.
- **Custom Format Cell**: Opens the **Custom Format Cell** dialog which lets you format cells in the column and stripe which you clicked upon. This cascade menu is only available when the **Design Grid** command of the **View** menu is activated.

- **Order**: This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.
  - **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
  - **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
  - **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
  - **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
- **Change Value**: Only available for expression columns containing an inputsum aggregation of an input field. Sets the cell clicked on in input edit mode. Equivalent to clicking the input icon in the cell.
- **Restore Values**: Only available for expression columns containing an inputsum aggregation of an input field. Opens a cascade menu with three options.
  - **Restore Single Value**: Restores the field values underlying the cell clicked upon on to their default values from the script.
  - **Restore Possible Values**: Restores the values of all possible underlying field values to their default values from the script.

    - **Restore All Values**: Restores the values of all underlying field values to their default values from the script.
- **Clear All Selections**: Clears all selections in the dimensions and expressions of the table.
- **Print...**: Opens the **Print** dialog where print settings can be specified.
- **Print as PDF...**: Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
- **Send to Excel**: Exports the table to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
- **Export...**: Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified. The file formats offered include a range of delimited text file formats, HTML, XML, XLS, XLSX, and QVO (QlikView Export Files).

  Mini charts will not be displayed when exporting to Excel!
- **Copy to Clipboard**: This cascade menu contains the various copy options for the sheet object.
    - **Full Table**: Copies the table to the clipboard, complete with header and selection status.
    - **Table Data Area**: Copies only the values of the table to the clipboard.
    - **Cell Value**: Copies the text value of the cell right-clicked upon (when invoking the Object menu) to the clipboard.
    - **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page.
    - **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
- **Linked Objects**: Opens a menu with the following commands for linked objects. **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
  Unlink This Object/Unlink Objects: This destroys the link between the objects, making them different objects with different object IDs.
- **Minimize**: Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Maximize**: Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Restore**: Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
- **Help**: Opens QlikView help.
- **Remove**: Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **`CH01`**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Property	Description
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort (Straight Table)

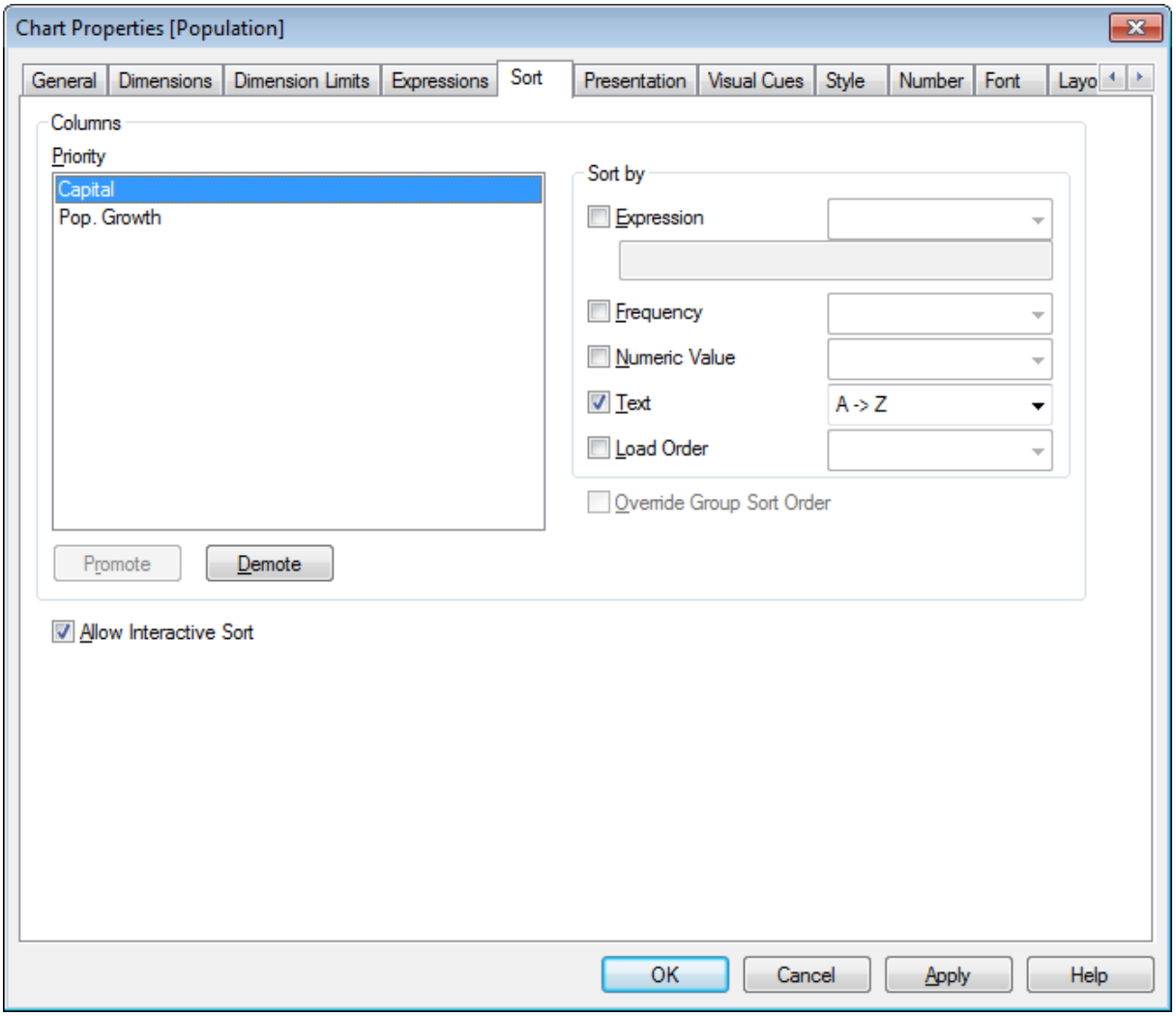


Chart Properties, Sort (Straight Table)

The **Chart Properties: Sort** page is reached by a right-click on a straight table and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The variables and expressions that define the straight table are listed in the **Columns** group.

- **Priority**: Contains the dimensions/expressions chosen as columns listed in sort priority. Selecting one of the columns makes it possible to set the sort order of its values in the **Sort by** group.
  It is also possible to change the sort priority by clicking the **Promote** and **Demote** buttons.
- **Sort by**: In this group the sort order of the column values can be set.
  - **Expression**: Sorts the column values according to the expression entered into the text edit box below this sort option.
  - **Frequency**: Sorts the column values by frequency (number of occurrences in the table).
  - **Numeric value**: Sorts the column values by their numeric values.

    - **Text**: Sorts the column values in alphabetical order.
    - **Load Order**: Sorts the column values according to their initial load order.
- **Override Group Sort Order**: This check box is only available when a group dimension is selected in the **Priority** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By marking this check box you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

- **Allow Interactive Sort**: Disable the **Object - Sort** command by unchecking this option.

Chart Properties: Presentation (Straight Table)

The dimensions and expressions that define the straight table are listed in the **Columns** group. Selecting one column makes it possible to change its settings.

- **Column Label**: The column label displays the label of the field, which may also be edited.
- **Show Column**: By selecting this radio button, the selected column will be visible when the table is drawn in the layout.
- **Reset column order**: By clicking this button, columns will be ordered with all dimensions listed before the expressions.
- **Hide Column**: In some situations you may want to sort a straight table on a field that is not to be visible to the user. The **Hide Column** option lets you hide a field while still having it available for sorting purposes. The sort criteria are stated in the **Priority** of the **Columns** group on **Chart Properties: Sort (Straight Table)**page.
- **Conditional**: The column will be shown or hidden depending on a condition expression which will be evaluated each time the table is drawn. The sheet will only be hidden when the condition returns FALSE. By clicking the **...** button the full **Edit Expression Dialog** is opened for easier editing of long formulas.
- **Alignment**: In this group, the alignment of the dimension values, expression values and their labels within the straight table can be set. **Label**, **Data (Numeric)** and **Data (Text)** can be individually set to **Left**, **Center** or **Right**. When multi line cells and labels are used, **Label (Vertical)** and **Data (Vertical)** can be set to **Top**, **Center** or **Bottom**.
- **Dropdown Select**: The **Dropdown Select** option adds a drop-down arrow icon to the left side of the header of any selected column. Click the icon to access the data from a drop-down data list. This is very similar to making selections in a multi box.
- **Searchable**: If the checkbox **Searchable** is selected for an expression column, a search icon will appear to the left in the column header. Click the icon and a search box opens. Then type a search criterion (e.g. >100 000). When you hit Enter, all table rows with an expression value matching the search criteria will be selected.
- **Max Number (1 - 100)**: Denotes the maximum number of rows to be displayed.
- **Allow Drag and Drop**: With this alternative it will be possible to sort the sequence of the fields of the table by clicking and dragging the headers. It is possible to mix dimension and expression columns in any order.
- **Horizontal**: With this option checked, the straight table is transposed 90 degrees, so that the data columns are displayed horizontally.

- **Suppress Zero-Values**: The check box **Suppress Zero-Values** eliminates expressions that contain only zeros or null values from the table.
- **Sort Indicator**: This option adds a sort indicator to the right side of the column header of the field that the table is currently sorted by. The icon is flipped to reflect ascending or descending order.
- **Vertical Columns Labels**: Labels for the column headers will be rotated to vertical.
- **Selection Indicators**: With this option checked, a colored indicator is displayed in the header of any field column where selections have been made.
- **Suppress Header Row**: With this option checked, the table is displayed without header (label) row.
- **Suppress Missing**: This option is not functional on straight tables.
- **Null Symbol**: The symbol entered here will be used for displaying NULL values in the table.
- **Missing Symbol**: The symbol entered here will be used for displaying missing values in the table.

- **Totals**: Totals are shown for the expression columns, according to the settings below.
    - **Totals on First Row**: Totals are displayed near the top of the table.
    - **Totals on Last Row**: Totals are displayed at the end of the table.
    - **Use Label**: Here you may enter a label for totals.

- **Multiline Settings**: In this group the table header and data cells may be set to display values in multiple rows, which is useful for long text strings.
    - **Wrap Header Text**: With this option selected, the header will display its contents in more than one row.
    - **Header Height _ Lines**: Here you specify a limit to the number of header lines.
    - **Wrap Cell Text**: With this option selected, a cell will display its contents in more than one row.
    - **Cell Height _ Lines**: Here you specify a limit to the number of cell rows.

Chart Properties: Visual Cues

The **Chart Properties: Visual Cues** page is only available for pivot tables and straight tables. It is opened by a right-click on a chart window and choosing the **Properties** command from the float menu.

Visual cues are used for highlighting expression values and are displayed by applying a different font style, font color and/or cell color. Values belonging to different intervals are typically given different cues.

Values can be specified for three different intervals with the **Upper >=**, **Normal** and **Lower <=** options, each with different settings. The upper interval specifies values above the numeric value entered in the edit box, the lower interval specifies values below the value entered. The normal values are the values between these two limits. **Text** values are values lacking a valid numerical interpretation.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.

- **Orientation**: Set the orientation of the chart, vertical or horizontal.
- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:

- **Solid Color**: Sets all colors in the color map to solid colors.
- **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.
- **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
- **Glossy**: Gives a glossy look to all bars.

- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
  - **Frame**: A frame is drawn around the plot area.
  - **Shadow**: This option gives a shadow effect on the plot area background.
  - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font
Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.

- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be

found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

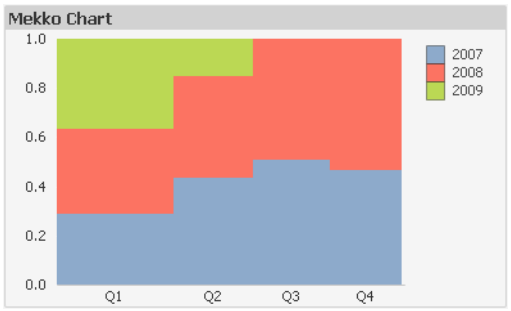
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Mekko Chart



Charts are graphical representations of numerical data. It is possible to switch between different representations of an existing chart, by changing the **Chart Type** in the **Chart Properties: General** page.

Mekko charts present data using variable width bars. They can display up to three levels of data in a two-dimensional chart. Mekko charts are useful in such areas as market analysis.

By a right-click on the chart the **Mekko Chart: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the chart is the active object.

Object Menu

Mekko charts present data using variable width bars. They can display up to three levels of data in a two-dimensional chart. Mekko charts are useful in such areas as market analysis.

The mekko chart **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog where the parameters defining the chart can be set. This command can also be invoked by the following keyboard shortcut: Alt + Enter.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Clone	Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Clear All Selections	Clears all selections in the dimensions and expressions of the chart.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send Values to Excel	Exports the underlying data (the straight table equivalent to the chart) to Microsoft Excel, which is automatically launched if not already running. The table will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog for saving an image of the chart to file. The image can be saved as bmp, jpg, gif or png.

Command	Description
Copy to Clipboard	This menu contains the various copy options for the chart. **Values** Copies the values to the clipboard in the form of a table. **Image** Copies an image of the chart object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

Chart Properties: General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

General chart properties

Property	Description
Window Title	The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Property	Description
Show Title in Chart	By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. The chart title is not displayed in pivot tables or straight tables.
Title Settings	Define advanced settings for the chart title by clicking the **Title Settings** button.
Print Settings	Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For charts, the ID starts with **`CH01`**.
Detached	If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.
Read Only	If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.
Calculation Condition	Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.
Chart Type	The **Chart Type** group is where you select the basic layout of the chart. For more information on each chart type, see *Chart types (page 301)*.

Property	Description
Fast Type Change	In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog. • **Allowed Types**: In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled. • **Preferred Icon Position**: In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.
Reset User Sizing	By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.
Reset User Docking	By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.
Error Messages	Opens the **Custom Error Messages** dialog.
Reference Mode	Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Chart Properties: Dimensions

The **Chart Properties: Dimensions** page is reached by right-clicking a chart and selecting **Properties** or by selecting **Properties** from the **Object** menu when the chart is active.

When you create a chart, you should first ask yourself two questions:

- What do you want to look at? What should the sizes of the bars in the bar chart correspond to? The answer might be the "sum of sales", or something similar. This is set on the **Expressions** tab.
- What do you want to group it by? Which field values do you want to use as labels for the bars in the bar chart? The answer might be "per country", or something similar. This is set on the **Dimensions** tab.

A chart can display one or more dimensions. The upper limit depends on the actual chart type, the complexity of the data and the available memory. Pie, line and scatter charts can display a maximum of two dimensions, bar, block and grid charts three. Radar and funnel charts can only display a single dimension, and gauge charts use no dimensions at all. Further dimensions are ignored.

A chart dimension gets its values from a field which is specified on the **Chart Properties: Dimensions** page. Instead of being a single field a dimension can also consist of a group of fields (see **Edit Groups** below).

A dimension can be a single field, a group or an expression (calculated dimension). It can also be a synthetically created dimension

Move fields back and forth by selecting (click, Ctrl-click) and using the **Add>** or **<Remove** buttons, or by double-clicking your selections directly.

Chart dimensions may also be calculated from an expression.

Dimension properties

Property	Description
Available Fields/Groups	Lists all fields/field groups that are available for use as dimensions (i.e. along the x-axis in a typical bar chart). Field groups will be preceded by a vertical arrow for drill-down groups or a curved arrow for cyclic groups. Groups are defined in the **Document Properties: Groups** page. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column. The number of dimensions that can be displayed varies with different chart types. All fields which appear in more than one internal table will be preceded with a key symbol. Pie charts, line charts and scatter charts cannot display more than two dimensions. In bar charts, up to three dimensions can be shown.
Show System Fields	Checking this option will display the system fields in the **Available Fields/Groups** column.
Show Fields from Table	From here, you control what fields/groups appear in the **Available Fields/Groups** list. The drop-down list displays the alternative **All Tables** by default. The alternative **All Tables (Qualified)** shows the fields qualified by the name of the table(s) they occur in. This means that key (connecting) fields will be listed more than once. (This alternative is only used for viewing purposes and has nothing to do with *Qualify (page 938)* fields in the load script.) It is also possible to view the fields of one table at a time. Note that available groups are always listed.
Edit Groups...	This button takes you directly to the **Document Properties: Groups** page, where field groups to be used as dimensions can be defined.
Animate...	Opens the **Animation** dialog, by which you can make use of the chart's first dimension for animation. Animation is only available for bitmap charts excluding pie charts. Some functional limitations apply when using animations.
Trellis...	Opens the **Trellis Settings** dialog where you can create an array of charts based on the first dimension. Any type of bitmap chart can be made into a trellis display.

Property	Description
Used Dimensions	This list contains the dimensions currently selected to be used as dimensions in the chart. The number of dimensions that can be used varies with the type of chart. Superfluous dimensions for any given type will be disregarded. When used in tables, the dimension data cells can be dynamically formatted by means of attribute expressions. Whenever an attribute expression is entered for a dimension, its icon will turn from gray scale to color, or as in the case of **Text Format**, from gray to black. These settings will have precedence over chart settings. Click on the "+" expansion icon in front of any dimension to display the placeholders or the dimension's attribute expression. • **Background Color**: Double-click on **Background Color** in order to enter an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Color**: Double-click on **Text Color** in order to enter an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic). This is done by using one of the special chart color functions. If the result of the expression is not a valid color representation, the program will default to black. • **Text Format**: Double-click on **Text Format** in order to enter an attribute expression for calculating the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. With the **Promote** and **Demote** buttons, dimensions in the **Used dimensions** list can be sorted.
Add calculated dimension...	Adds a new dimension and opens it for editing in the **Edit Expression** dialog. A chart dimension is often in a single field, but can also be dynamically calculated. A calculated dimension consists of an expression involving one or more fields. All standard functions may be used. Aggregation functions may not be used, but the Aggr function can be included for achieving nested aggregation.
Edit...	Opens the dimension for editing in the **Edit Expression** dialog. See **Add calculated dimension...** above for details on calculated dimensions.

Property	Description
Settings for Selected Dimension	In this group you find settings for individual dimensions. **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the ... button in the edit box below. **Suppress When Value Is NULL**: If this check box is enabled, the selected dimension in the **Used Dimensions** above will not be displayed in the chart if its value is NULL. **Show All Values**: Enable this check box to show all the dimension values regardless of the selection. As the expression value is zero for excluded dimension values, the option **Suppress Zero-Values** in the **Presentation** page must be deselected for **Show All Values** to work. **Show All Values** does not apply if you use an expression as dimension. **Show Legend**: When **Show Legend** is checked, the "names" of field values are shown along the x-axis. **Label**: With the **Label** option checked, the name of the field is shown. Labels can be edited in the text box below. A label can also be defined as a calculated label expression for dynamic update of the label text. Click on the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. **Advanced...**: This button opens the **Advanced Field Settings** dialog which offers settings for image representation of field values and special text search options. **Comment**: A commentary field where the selected dimension can be described. The comment may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. **Page Breaks**: This setting only applies to the employment of page breaks in the printout from a pivot table or straight table. Three modes are available, with the following effects: • **No Breaks**: Will only insert page breaks at the end of each page, as required. • **Conditional Breaks**: Inserts a page break, unless all rows with the following dimension value can be fitted on the current page. • **Forced Breaks**: Inserts a page break whenever the dimension value changes

Chart Properties: Dimension Limits

Dimension limits can be set for chart types, except for gauge charts and pivot tables.

The **Dimension Limits** tab controls the number of dimension values you can see in a given chart.

Before getting to that, it is important to describe the effect that the three options in the dropdown produce. The dropdown contains three values: **First**, **Largest** and **Smallest**. These values control the way the calculation engines sorts the values it returns to the charting engine. It is mandatory to have one of these options selected, if the dimension is to be restricted. The sorting only occurs for the first expression, except in pivot tables when the primary sort may override the first dimension sort.

This property page is used for defining dimension limits. Each dimension in the chart is configured separately.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

Show only

Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that are:

Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show only values that accumulate to:

When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.

Negative values will not be included when calculating the accumulated restriction sum. We recommend that you don't use relative restrictions for fields that can contain negative values.

If you add a limit to a calculated dimension and the data is sorted on the same calculated dimension, the dimension limit will be applied before the sort order is applied.

Options

Show Others

Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Show Total

The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog.
Label: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Global Grouping Mode

The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expression Totals Compared to Dimension Totals

Dimension Totals are generated by the calculation engine, and are then returned to the charting engine as separate rows (or dimension values). This will have an impact on the Others rows. The difference between using Expression Totals and Dimension Totals can be seen below.

Expression Total

Region	Product Family	Sales
		12,250,605
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896
Scandinavia	Women's Clothes	286,116
Scandinavia	Sportswear	164,486

Dimension Total

Region	Product Family	Sales
Overall Total		**12,250,605**
Europe	**Total**	**7,753,390**
Europe	Women's Clothes	3,138,666
Europe	Men's Footwear	1,280,513
Europe	Sportswear	1,187,870
Europe	Men's Clothes	582,220
Europe	Women's Footwear	566,168
Europe	Baby Clothes	563,183
Europe	Children's Clothes	315,448
Europe	Swimwear	119,322
North America	**Total**	**2,329,970**
North America	Women's Clothes	707,181
North America	Sportswear	423,914
North America	Women's Footwear	333,858
North America	Men's Footwear	307,859
North America	Men's Clothes	217,669
North America	Children's Clothes	153,353
North America	Baby Clothes	142,239
North America	Swimwear	43,896

Expression Totals and Dimension Totals

When Dimension Totals is used, it is possible to have sub-totals within a straight table.

Chart Properties: Expressions

To reach the **Chart Properties: Expressions** tab, right-click on a chart or table and select **Properties** from the **Object** menu.

When creating a chart, two questions should be asked:

- What should the size of the bars etc. illustrate? These are the **Expression(s)** (e.g. **sum of NetSales**).
- How should the data be grouped? These are the **Dimension(s)** (e.g. per **Country**).

*The **Expressions** tab looks different for different chart and table types. If an option is grayed out, it is not available for that particular chart or table type.*

Expression List

The expression list in the top-left pane is a complete tree control with numerous control options.

In front of each expression (or expression group) an expansion icon (a box with a ' + ') is shown. Clicking the icon opens up underlying sub-expressions or attribute expressions. The icon is simultaneously replaced by a collapse icon (' - '). Certain plot options utilize sub-expressions, i.e. a set of two or more expressions that together define the plot symbol (e.g. **Stock** or **Box Plot** described below).

Expression data can also be dynamically formatted by means of attribute expressions. Click on the expansion icon in front of any expression to display the placeholders for the dimension’s attribute expressions. These are:

Background Color

Edit the default **Background Color** expression to create the attribute expression for calculating the plot color of the data point. The calculated color will have precedence over the default QlikView color selection and must be a valid color representation, which is achieved by using the color functions. If the result of the expression is not a valid color representation, the program will default to black. An auxiliary expression for **Text Color** can be created using the same method.

Text Color

An auxiliary expression for **Text Color** can be created using the same method as for the background color (see above).

Text Format

Edit the **Text Format** expression to enter an attribute expression for calculating the font style of text associated with the data point (For tables: text in the table cell for each dimension cell. The calculated text format will have precedence over table style defined in the **Chart Properties: Style**.

The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text. Note that = is necessary before the string.

Pie Popout

Click on the **Pie Popout** in order to enter an attribute expression for calculating whether the pie slice associated with the data point should be drawn in an extracted "popout" position. This type of attribute expression only has effect on pie charts.

Bar Offset

Click on **Bar Offset** in order to enter an attribute expression for calculating an offset for the bar or bar segment associated with the data point. The offset can be positive or negative and will move the bar or segment accordingly. This is useful e.g. when making so called waterfall charts. This type of attribute expression only has effect on bar charts.

Line Style

Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts. The relative width of the line can be controlled by including a tag <W*n*> where *n* is a multiplying factor to be applied on the default line width of the chart. The number *n* must be a real number between 0.5 and 8.

Example: <W2.5>

The style of the line can be controlled by including a tag <S*n*> where *n* is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <W*n*> and <S*n*> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

Show Value

Click on **Show Value** in order to enter an attribute expression for calculating whether the data point plot should be complemented with a "value on data point" value, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded. This type of attribute expression only has effect on bar, line, pie, funnel and combo charts.

Add

New expressions and sub-expressions, are created by means of the **Add** button. The option is also available in the context menu that appears when right-clicking in the list of expressions.

Delete

The **Delete** button lets you remove previously created expressions from the list. The option is also available in the context menu that appears when right-clicking on an expression in the list of expressions.

Copy

The **Copy** option is only available in the context menu that appears when right-clicking on an expression or a sub/attribute expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) will be copied to the clipboard as a piece of xml.

The expression may then be pasted back into the same chart or into any other QlikView chart in the same or another document. If you use the command on an attribute expression, only the attribute expression definition will be copied. An attribute expression may then be pasted onto any main expression in the same or another chart.

Export...

The **Export...** option is only available in the context menu that appears when right-clicking on an expression in the list of expressions. When using this command on a main expression, all data and settings associated with the expression (including label) may be exported to an xml file.

The expression may then be imported back into the same chart or into any other QlikView chart in the same or another document. The command opens the **Export Expression as** dialog from which you can choose the destination of the export file. The file will receive the extension Ex.xml.

Paste

The **Paste** option is only available in the context menu that appears when right-clicking on an expression or sub/attribute expressions in the list of expressions. If a main expression has previously been copied to the clipboard, you may paste it into the blank area in the list of expressions, creating a new expression identical to the copied one. If an attribute expression has been copied, you may paste it onto a main expression.

Import

The **Import** option is only available in the context menu that appears when right-clicking in the blank area in the list of expressions. The command opens a dialog where you can browse to previously exported expression. The imported expression will appear as a new expression in the chart.

Promote/Demote

If several expressions are displayed, they can be sorted by means of the **Promote** and **Demote** buttons. This affects the order in which columns etc. are displayed in the chart.

Group

The **Group** button can be used for merging expressions into one or more cyclic groups, provided that two or more expressions are available. In the QlikView layout, you can cycle through the expressions belonging to one group by clicking the cycle icon that is displayed in the chart (= **Cycle Group**). Right-click the same cycle icon to get a pop-up list of the expressions belonging to the group that are currently unused, for direct selection.

*Do not confuse **Cycle Group** with cyclic groups!*

Ungroup

Selecting an expression belonging to a group and clicking **Ungroup**, extracts the expression from the group. If only one expression remains in the cycle group after extraction, that last expression is also extracted and the group is removed.

Enable

Disabling this check box will set the expression to be omitted from the chart.

Relative

Enabling this check box will set the chart to show the result in percent instead of absolute numbers. This option is not available for pivot tables.

Invisible

Enabling this check box prevents the plotting of this expression while retaining the space allocated for it.

Conditional

Enabling this checkbox allows you to define a condition, based on the current selection, that determines if the expression should be displayed or not. If the condition evaluates to TRUE or NULL the expression is displayed, if the condition evaluates to FALSE the expression is not displayed.

Label

In front of the expression label one or several icons are used for indicating the chart type used and/or the **Display Options** selected for the expression (see below).

Definition

Shows the composition of the selected expression. It is possible to edit the expression directly in this box. By clicking the **...** button the full **Edit Expression** dialog is opened.

Comment

This is a commentary field where the creator of the expression can describe the purpose and function of the expression.

Display Options

This group is used for modifying the way that data points are plotted or what will be entered in the expression cells of chart tables. Note that some options are only available for certain chart types, some options cannot be combined and some options will utilize one or more additional expressions in order to create complex plots.

Bar

Shows the values of the selected expression as bars. This option is only available for bar and combo charts.

Symbol

Shows the values of the selected expression as symbols. This option is only available for line and combo charts. Choose between several different symbols in the drop-down menu.

Line

Shows the values of the selected expression as a line. This option is only available for line and combo charts. Choose between **Normal**, **Smooth** and three different **Plateau** lines in the drop-down menu.

Stock

Mark this check box to plot the expression as a stock marker. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with four sub expressions.

The first sub expression will be used for plotting a high point of the stock marker. The second sub expression will be used for a low point. These two sub expressions must contain valid definitions in order for the stock marker to be drawn.

The third sub expression is optional but is otherwise used for a close point of the stock marker. The forth sub expression is also optional but is otherwise used for an open point of the stock marker.

New empty sub expressions will be created automatically when **Stock** check box is marked for the expression. When **Stock** check box has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Box Plot** or **Has Error Bars** check boxes for the same expression. **Stock** check box cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Box Plot

Mark this check box to plot the expression as a box plot, often used for the display of statistical data. The expression will be preceded by its own icon in the Expressions list and appear as an empty placeholder with five sub expressions.

The first sub expression will be used for plotting a box top point of the box plot. The second sub expression will be used for a box bottom point. These two expressions must contain valid definitions in order for the box plot to be drawn.

The third to fifth sub expressions are optional. If used, those sub expression define a median, an upper whisker, and a lower whisker.

A common extension to a **Box Plot** is so called outliners for extreme values. These can be achieved by plotting separate expressions as symbol. New empty sub expressions will be created automatically when **Box Plot** is marked for the main expression. When **Box Plot** has been selected for an expression you cannot select **Bar**, **Line**, **Symbol**, **Stock** or **Has Error Bars** check boxes for the same expression. **Box Plot** cannot be selected for an expression if any of those options are already selected for the expression. This option is only available for combo charts.

Has Error Bars

Mark this check box to utilize one or two expressions following the selected expression as auxiliary expressions for error bars plotted on top of the main expression's data points. If Symmetric is selected only one auxiliary expression will be used and plotted symmetrically around the data point. If Asymmetric is selected two auxiliary expressions will be used and plotted above and below the data point respectively.

The error bar expressions should return positive numbers. The auxiliary expressions utilized for error bars are preceded by their own icons (symmetric), (asymmetric high) or (asymmetric low) in the Expressions list and cannot be utilized for anything else in the chart. If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically. This option is only available for bar, line and combo charts.

Values on Data Point

Mark this check box to have the result of an expression plotted as text on top of the data points. This option is only available for bar, line, combo and pie charts. When used for pie charts, the value will be shown next to the pie slices.

Text on Axis

Mark this check box to have the result of an expression plotted as text at each x-axis value, the axis and the axis labels. This option is only available for bar, line and combo charts.

Text as Pop-up

Mark this check box to have the result of an expression shown in the pop-up balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself but only in hover pop-ups.

Representation

This option is only available for straight tables and pivot tables.

Text

The expression values are always interpreted and displayed as text.

Image

With this option QlikView will attempt to interpret each expression value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document itself (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret an expression value as a valid image reference, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Circular Gauge, Linear Gauge, Traffic Light Gauge, LED Gauge

With either gauge option, the gauge chart will be inscribed in the available table cell as an image. The layout of the gauge can be modified in the **Chart Properties: Presentation** dialog that is reached from the **Gauge Settings** button.

Mini Chart

With this option QlikView will display the expression values in a bar or line chart. The chart will be inscribed in the available table cell. The visual settings for the chart can be modified via the **Mini Chart Settings** button. This option is only available for straight tables.

The mini chart will not be displayed when exporting to Excel!

Link

Select this option to enter an expression in the **Definition** field that will create a clickable link in the table cell. The expression should return a text that can be interpreted as *DisplayText<url>LinkText*. The *DisplayText* will be displayed in the table cell and *LinkText* will be the link that is opened in a new browser window.

If a link is defined, the value in the table cell will be underlined. If no link is defined the value will not be underlined. Note that it is not possible to make selections in a cell with Link as display mode. By clicking the **...** button the full **Edit Expression** dialog is opened.

URL links only works in the Ajax client due to security restrictions.

Examples:

```
=Name & '<url>' & Link
=Name & '<url>www.qlikview.com'
```

where *Name* and *Link* are table fields loaded in the script.

Image Formatting

Only available when the **Image** option has been selected above. This option is only available for straight tables and pivot tables. This setting describes how QlikView formats the image to fit in the cell. There are four alternatives:

- **No Stretch**: If this option is selected, the image will be shown as is, without any stretching. This may cause parts of the picture to be invisible or only part of the cell to be filled.
- **Fill**: If this option is selected, the image will be stretched to fit the cell without keeping the aspect ratio of the image.
- **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the cell while keeping the aspect ratio.
- **Fill with Aspect**: If this option is selected, the image will be stretched to fill the cell in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.

Accumulation

By choosing between the settings in this group, you decide whether the values in the chart should be accumulated or not. In an accumulated chart, each y-value is added to the y-value of the following x-value. In an accumulated bar chart showing the sum of sales per year, e.g. the value of the year 1996 is added to that of the year 1997.

If your chart contains several expressions, select the expression which values to be accumulated in the Expressions list. Accumulation is not available for pivot tables.

No Accumulation

If this option is selected, the y-values of the selected chart expression will not be accumulated.

Full Accumulation

If this option is selected, each y-value will accumulate all previous y-values of the expression. See above under **Accumulation**. Full accumulation does not work for multiple dimensions containing Null or 0 values.

Full accumulation does not work if the chart trellis is enabled.

Accumulate *n* Steps Back

By entering a number in the box, you set the number of y-values in the expression to be accumulated. See above under **Accumulation**.

Total Mode

This group is enabled for the selected expression for Straight Table chart objects only. There are three possible settings:

- **No Totals**: Totals are not calculated for the selected expression.

- **Expression Total**: The total of the expression evaluated on the next level. For example, if an expression generates the average monthly salary for a number of employees, the **Expression Total** will generate the total average of all the salaries.
- **F(x) of Rows**: If this option is selected, the individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be aggregated using the aggregation function selected from the drop-down list (typically summed up).

*The value of **First string** or **Last string** is the highest or lowest value, in alphanumerical order, found in the table. The alphanumeric sequence order starts with 0 to 9 followed by A to Z.*

Bar Border Width

Specifies the width of the border line around bars plotted by this expression in bar and combo charts. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Expressions as Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Trendlines

In selected QlikView charts expression plots can be complemented or replaced by statistical trend lines.

Trend lines can only be displayed in scatter charts, line charts and in bar/combo charts with maximally one dimension and one expression shown as bars. For other types of charts, the settings in the **Trendlines** group are unavailable and have no effect. In scatter charts the data points are treated as if y=f(x). For bar, line and combo charts it is allowed to deselect all options under **Display Options** and still add trend lines, which will then be plotted without the underlying data points. Trend lines in bar, line and combo charts may be extrapolated by specifying a forecast and/or backcast interval (**Axes** page). The extrapolated lines will be dotted. Trend lines in charts with a discrete x-axis will be shown as lines with symbols. On a continuous axis only the line will be shown.

- **Average**: The average is plotted as a straight line.
- **Linear**: A linear regression line is plotted.
- **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
- **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
- **Show Equation**: If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the trendline equation expressed as text in the chart.
- **Show R2**:If this check box is marked for a specific expression, the expression’s trend lines will be complemented by the coefficient of determination expressed as text in the chart.

Chart Properties: Sort

The **Chart Properties: Sort** page is reached by a right-click on a chart and selecting **Properties** from the **Object** menu.

This is where you decide the sort order of the chart dimension(s) from a number of available sort orders.

The **Chart Properties: Sort** page for straight tables holds slightly different options.

The **Dimensions** list contains the chart's dimensions. To assign a sort order, mark a dimension and choose one or more sort orders on the right side.

Dimension sort options

Option	Description
Y-value	Dimension values will be sorted by the numeric value of the y-axis. This option is not available for calculated dimensions.
State	Dimension values will be sorted according to their logical state, i.e. selected values before optional values, before excluded values.
Expression	Dimension values will be sorted according to the expression that is entered into the text edit box below this sort option.
Frequency	Dimension values will be sorted according to the number of occurrences in the table.
Numeric Value	Dimension values will be sorted according to their numeric value.
Text	Dimension values will be sorted according to their alphabetical order.
Load Order	Dimension values will be sorted according to their initial load order.

There is a hierarchy in the group from top to bottom so that when conflicting sort orders are selected, the first one encountered will take precedence. The selected sort order can be reversed by switching between **Ascending** and **Descending** or **A -> Z** and **Z -> A**.

By clicking the **Default** button, dimension values will be set to the default defined in the **Document Properties: Sort** dialog.

The check box **Override Group Sort Order** is only available when a group dimension is selected in the **Dimensions** list. Normally the sort order of a group dimension is determined for each field in a group via the group properties. By enabling this option you can override any such settings on group level and apply a single sort order for the dimension, regardless of which field is active in the group.

Chart Properties: Style

On this page you can determine a basic style for the chart. Not all the listed features are available for every chart type.

- **Look**: Choose one of the available styles. This may in some instances affect not only the appearance of the chart but also its functionality.
- **Orientation**: Set the orientation of the chart, vertical or horizontal.

- **Subtype**: The mode is set in this group, either **Grouped** or **Stacked** mode for bars (**Overlayed** or **Stacked** for Radar charts. This setting is only functional when the chart displays two dimensions or one dimension and more than one expression. Negative values in stacked bars are stacked separately downwards below the x-axis. For bar charts, when using continuous axes scaling, stacked layout is the only allowed layout.

  For the presentation of bar charts with multiple dimensions and expressions the following principles apply:
  - A maximum of two dimensions can be shown on the x-axis.
  - A third dimension can be shown with multicolored stacked bars.
  - Only table charts can display more than three dimensions.
  - When two or more expressions are enabled, the two first dimensions are shown on the x-axis and the expression with multicolored stacked bars.
  - When two or more expressions are enabled and the subgroup is set to stacked, all expressions within one stack will be calculated according to one axis (by default the left). This will be the case even if you set one expression to be calculated according to the left axis and one to be calculated according to the right axis.

  The following list shows how subtypes are presented with multiple dimensions and expressions:
  - **One dimension**
    - **1 expression**: single bar
    - **2+ expressions**: expressions are grouped or stacked
  - **Two dimensions**
    - **1 expression**: Dimensions are grouped or stacked
    - **2+ expressions**: Dimensions are grouped
  - **Three dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
  - **Four dimensions**
    - **1 expression**: 1st and 2nd dimensions are grouped, 3rd dimension is stacked
    - **2+ expressions**: 1st and 2nd dimensions are grouped, expressions are stacked
- **3D View**: The settings in this group define the angle from which the chart is viewed in 3D modes.
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.
- **Plot Color Style**: This control can be used to impose a color style on all plot colors in the chart. When a style is selected in the drop-down list all colors under **Color Map** on the **Colors** page will be changed to the selected style. The change is instantaneous and the setting itself will not be saved until the next time you enter this page of the dialog. The actual base colors in the color map are unaffected. The **Plot Color Style** is not available for all chart looks. The following options are available:
  - **Solid Color**: Sets all colors in the color map to solid colors.
  - **Dark Gradient**: Sets all colors in the color map to a color gradient going towards black.

    - **Light Gradient**: Sets all colors in the color map to a color gradient going towards a darker tone.
    - **Glossy**: Gives a glossy look to all bars.
- **Plot Area Background Style**: This control can be used to change the appearance of the plot area background. This setting is only available for charts with a plot area. The following options are available:
    - **Frame**: A frame is drawn around the plot area.
    - **Shadow**: This option gives a shadow effect on the plot area background.
    - **Minimal**: This setting removes the plot area background.
- **Preview**: Offers a preview of the basic visual properties of the chart.

Chart Properties: Presentation (Bar- Line- Combo- Radar- Mekko Chart)

This tab is used collectively for bar charts, line charts, combo charts, radar charts and mekko charts.

The **Bar Settings** group contains various display options for bars that are used in bar charts and combo charts.

Bar settings

Setting	Description
Bar Distance (-6 - 8)	Sets the distance between the bars in the cluster. A negative number results in overlapping bars. Values between -6 and 8 are allowed.
Cluster Distance (0 - 8)	Denotes the distance between grouped values in a clustered bar chart. Values between 0 and 8 are allowed.
Allow Thin Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Bars are by default drawn with a minimum width of four pixels, to make them clearly distinguishable. Check this option to allow compression of bars to a width of 1 pixel.
Show All Bars	For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Check this option to force the drawing of all data points. Bars can be compressed (as for **Allow Thin Bars**) and some may also be partially obscured by others.

In the **Values on Data Points** group you can set display options for values on data points, provided that this option has been selected for one or more chart expressions under **Display Options** in **Chart Properties: Expressions** page.

Values on Data Points settings

Setting	Description
Max Values Shown	In this box you can specify an upper limit for the number of data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.

Setting	Description
Vertical	Shows the values vertically.
Plot Values Inside Segments	Marking this check box will plot values on data points inside the segments instead of on top of them.
Still Show Total on Top	Marking this check box will additionally show the total value on top of each bar for stacked bar charts and mekko charts. This option is only available if you have selected **Plot Values Inside Segments**.

In the **Error Bars** group display options for any error bars used in the chart is determined

Error bars settings

Setting	Description
Width	Specifies the width of error bars.
Thickness	Specifies the thickness of error bars.
Color	Sets a color for error bars.

In the **Line/Symbol Settings** group display options for lines and data point symbols that are used in line charts and combo charts are determined. It is also possible to determine the width of trendlines.

Line/Symbol settings

Setting	Description
Line Width	Determines the width of the line, if a line representation is specified. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Symbol Size	Determines the size of symbols, if a symbol representation is specified.
Trendline Width	This setting determines the width of trendlines.
Use Full Symbol Set	This alternative makes more symbol representation available (rings, triangles etc.)

Display settings

Setting	Description
Semi-transparent	Check this option if you want filled lines to be drawn semi-transparent.

Setting	Description
Highlight	With this option checked, symbols and/or lines are highlighted when the mouse pointer hovers over them. Where a legend is included in the chart, the highlighting applies here as well, making it possible to single out one of several overlapping values.
Suppress Zero-Values	This check box eliminates dimensions that are empty or contain only zeros. This option is selected by default. **Zero on Bars** This option is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected for the chart expression under **Display Options** in **Chart Properties: Expressions**, zero values will appear as text above the data points. In other cases zero values will be suppressed.
Suppress Missing	If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if you want to count null values in a chart.
Pop-up Labels	Select whether or not to display dimension and expression values in a pop-up window when the mouse pointer touches a value. Click **Settings...** to customize which dimensions and expressions to show pop-up labels for.

In the **Legend** group you can control the display of dimension data labels in the chart. Mark the check box to display data labels. Data labels are shown only for the current top level of the chart.

Legend settings

Setting	Description
Show Legend	Check this alternative to include a legend in the chart (checked by default). It is possible to change the legend by clicking the **Settings...** button. If the chart is dimensionless, but has several expressions, unmarking this check box will show the expressions on the axis instead.
Limit Legend (Characters)	Enable this check box to limit the length of the dimension value strings that are displayed on axes and in the chart legend. Truncated values will be followed by ... in the chart.

In the **Chart Scrolling** group you can make settings for scrolling in the chart.

Chart Scrolling settings

Setting	Description
Enable X-Axis Scrollbar	Enable this check box to show a scroll control in place of the X-axis. The scroll bar can be used to scroll the selection of the X-axis values that are displayed. The number of values shown at any one time will be the number set under **When Number of Items Exceeds**.
Reversed	Checking the box displays the values in reversed order.

In the **Reference Lines** group you can define reference (grid) lines intersecting the chart plot area from a given point on a continuous x-axis or a y-axis. Existing reference lines are listed in the window.

Reference Lines settings

Setting	Description
Add	Opens the **Reference Lines** dialog where you can create a new reference line in the chart.
Edit	Highlight an existing reference line in the list and click this button to edit its properties in the **Reference Lines** dialog.
Delete	Highlight an existing reference line in the list and click this button to delete it from the list.

The **Text in Chart** group is used for adding free-floating text to the chart.

Text in Chart settings

Setting	Description
Add	Opens the **Chart Text** dialog, where you can create a new chart text.
Edit	Highlight an existing text in the list and click this button to edit its properties in the **Chart Text** dialog.
Delete	Highlight an existing text in the list and click this button to delete it from the list.

Free-floating texts appear at the top left position in the chart, but can be repositioned when the chart is in the layout edit mode.

Axes

On the **Axes** page you can set the display properties for the x- and y-axes.

Chart Properties: Colors

The **Chart Properties: Colors** page is opened by right-clicking a chart window and choosing the **Properties** command from the **Object** menu.

In the **Data Appearance** group it is possible to assign up to 18 different colors to the dimension field values of charts.

Appearance settings

Setting	Description
Colors 1 - 18	Colors can be defined as solid colors or color gradients. To customize a color, click its button to open the **Color Area** dialog. The **Get Default Colors** button resets the color map to the default settings of QlikView. The **Undo Color Changes** button returns the color settings that applied upon entry to this dialog. The **Advanced...** button opens the **Advanced Color Map** dialog where color maps can be set and retrieved on sheet, document, user and QlikView default level.
Multicolored	Unchecking this option results in all bars having the same color.

Setting	Description
Persistent Colors	Checking this option locks the color map so that each value has a color permanently assigned to it.
Repeat Last Color	Checking this option assigns the 18th color in the color map to any value after the 18th value. If unchecked, colors are just repeated in succession from 1 to 18.

In the **Frame Background** group color settings are made for the plot area background and the background of the area surrounding the plot area.

Background settings

Setting	Description
Color	The chart will be plotted with a colored background. Different colors can be set for the plot area and the surrounding area. Clicking either button opens the **Color Area** dialog.  *The **Background Color** setting can be combined with the **Image** and/or **Plot Area Only** options below.*
Background	The color used for the background around the plot area or, in the case of some charts, for the entire chart background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is white.
Plot Area	The color used for the plot area of the chart. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The default color is light gray. This setting is unavailable for pie charts, block charts, funnel charts and radar charts.
Image	Select this alternative and click the **Image** button to open the **Select Image** dialog, where it is possible to import a background picture. Limit the imported picture to the **Plot Area Only** by checking this alternative.
Dynamic Image	Enter a calculated expression to show dynamic background images that change with the selection. Available for bar, line, combo, scatter and grid charts.
Transparency	Sets the degree of transparency of the chart background. At 0% the background will be completely opaque with the color defined under **Background Color** above. At 100% the background will be completely transparent.

In the **Plot Area Border** group you can assign **Width** and **Color** for the rectangle surrounding the plot area.

Chart Properties: Number

This property page applies to the active chart and contains the following controls for formatting values:

Number formats

Format	Description
Expression Default	Shows numeric values using the number format provided by the expression.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows numeric values in the format shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

In the **Symbol** edit boxes symbols for unit, 1000, 1000 000 and 1000 000 000 can be entered.

The **ISO** button sets the time, date and timestamp formatting to ISO standard.

The **System** button sets the formatting to system settings.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout
A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.

- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption
A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Selections in charts and tables

The selection procedure in charts and tables has been designed to be as intuitive as possible. In most cases you will find it possible to make selections directly in the chart plot area by clicking individual values (bars etc.) or by “painting” over a larger selection.

If you find that you cannot make selections in a chart as indicated, the chart may be in **Detached** mode or **Read Only** mode.

Selections in Bar, Line, Combo, Radar, Grid and Scatter charts

Selections can be made inside the plot area by clicking on a single data point or painting over several data points. When painting, a green raster indicates the selection until the mouse button is released. The selection will be made for the dimension values used for calculating the selected data point(s).

Selections can be made by clicking or painting in the chart legend (except when the legend is indicating chart expressions rather than dimension values).

Selections can be made by clicking or painting over the dimension axes and its labels (except scatter charts). The corresponding field values will be selected.

Selections can be made by painting over the expression axes and its labels. The field values which generate data points in the indicated result area will be selected.

Selections made directly in line charts and bar charts (not combo charts) showing more than one dimension will primarily apply to just one dimension. Selections In line charts primarily apply to the second dimension so that painting over a line selects the entire line over all x-axis dimension values. In bar charts the opposite applies, i.e. selections primarily apply to the first dimension.

Selections in Pie charts

Selections can be made inside the plot area by clicking on a single pie slice or painting over several slices. When painting, a green raster indicates the selection until the mouse button is released. The selection will be made for the dimension values used for calculating the selected data point(s).

Selections can be made by clicking or painting in the chart legend.

Selections in Block charts

Selections can be made inside the plot area by clicking a single block or by painting over several blocks. When clicking, selections are made with drill-down functionality so that the first click selects a single value in the 1st dimension. Clicking a second time (i.e. within the selection) selects a single value in the 2nd dimension and so on.

When painting, a green raster indicates the selection until the mouse button is released. The selection will be made for the dimension values used for calculating the selected data point(s). By painting across the boundaries of several values of the 1st dimension, all sub-values of the 2nd and 3rd dimensions belonging to these values are selected, not just the ones touched by the selection.

Selections in Gauge charts

Selections cannot be made in gauge charts.

Selections in Straight tables

Selections can be made in the dimension columns by clicking on a cell or painting over several cells. The selected area is marked green until the mouse button is released.

Selections can be made in the expression columns by clicking in a single cell. The selection will be made for the dimension values used for calculating the selected expression cell.

Selections in Pivot tables

Selections can be made in the dimension columns/rows by clicking on a single cell. The selected cell is marked green until the mouse button is released.

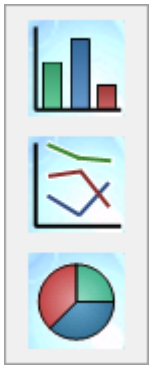
Selections can be made in the expression columns/rows by clicking in a single cell. The selection will be made for the dimension values used for calculating the selected expression cell.

Selections in Table boxes

Selections can be made by clicking in any cell or by painting over an area covering one or more rows and one or more columns. The selected area is marked green until the mouse button is released.

Fast Chart Type Change

The type of chart can be changed by the user without going via the **Chart Properties** dialog, provided that the **Fast Type Change** option has been selected on the **Chart Properties: General** page.



An icon showing the next available chart type (**Allowed Types** selected for fast type change) will appear in the chart. By left-clicking the icon, the chart will change to the indicated type. By right-clicking the icon you get a drop-down menu with all selected types.

The application designer can choose **Preferred Icon Position** of the fast type change icon. By choosing **In Caption** the icon will appear in the chart caption, provided that a caption is shown. By choosing **In Chart** the icon will appear inside the chart, provided that the chart is not a pivot table or straight table. If the preferred position is not available, QlikView will try to use the other option. In table charts without caption, no icon will be shown.

Sizing and moving chart components

Many of the individual chart components can be resized or moved to suit your preferences.

By pressing the Shift and Ctrl keys and keeping them depressed while a chart is active you will enter the chart layout edit mode. In edit mode, thin red rectangles will appear around those components of the chart that can be sized or moved. Use the mouse drag and drop technique to move things around.

The following components can be edited:

The **chart title** and **chart legend** can be both moved and resized. They can be docked to the top, bottom, left and right border of the chart and also be positioned free-floating anywhere within the chart.

Free-floating chart text can be moved to a position anywhere in the chart. The outlining rectangle can be resized to accommodate longer or multiline text.

The areas taken up by the **chart axes** and their **labels** can be resized.

Cycle expression icons and **fast chart type change icons** can be moved to a free-floating position anywhere within the chart.

The **plot area** itself cannot be resized or moved in edit mode, but will be drawn in the available space between the axes and docked legend and title.

Chart Properties

When you click the **Create Chart** button in the toolbar, the **Chart Properties** dialog is opened. Here you can set the properties of the chart, that is the chart type, the dimensions, titles etc.

Once a chart is created, you can change its properties at any time. Choose **Properties** from the chart **Object** menu to open the **Chart Properties** dialog. If the Properties command is dimmed, you probably lack the privileges needed to perform property changes.

The settings available in the **Chart Properties** dialog's different property pages depend on the chart type you have chosen on the first page (**General** page). For information on the different pages of the **Chart Properties** dialog (except for the **General** page, which is described below), we therefore refer to the chapters on the specific charts.

General

On the **General** page you can set such properties as titles and chart type. It is the first page in the **Quick Chart Wizard** and in the **Chart Properties** dialog.

Window Title

The title to be displayed in the window header. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Show Title in Chart

By default, the label of the first expression defined is set as chart title. Clear the check box if no chart title should be displayed. To display the original title, simply mark the check box. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

The chart title is not displayed in pivot tables or straight tables.

Title Settings

Define advanced settings for the chart title by clicking the **Title Settings** button.

Print Settings

Clicking the **Print Settings** button takes you to the **Print Settings** dialog where it is possible to define margins and header/footer format. The **Print Settings** dialog holds two pages, **Print Layout** and **Print Header/Footer**.

Alternate State

Choose one of the available states in the list. The following Alternate States are always available.

- **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen.
- **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

Object ID

This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on.

For charts, the ID starts with **CH01**.

Detached

If enabled, the chart will be detached, that is, it will no longer be dynamically updated when selections are made.

Read Only

If enabled, the chart will be read only, that is, selections cannot be made by clicking or painting with the mouse in the chart.

Calculation Condition

Typing an expression in this text box sets a condition that needs to be fulfilled for the chart to be displayed. If the condition is not fulfilled, the text "Calculation condition unfulfilled" will be displayed in the chart.

The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Chart Type

The **Chart Type** group is where you select the basic layout of the chart.

For more information on each chart type, see *Chart types (page 301)*.

Fast Type Change

In this group you can enable an icon in the chart from which the user can change chart type without going through the chart properties dialog.

Allowed Types

In this list you select which chart types that should appear in the drop-down. Two or more types have to be chosen for fast type change to be enabled.

Preferred Icon Position

In graphical charts, the fast type change icon can be positioned either inside the chart or in the sheet object caption. In table charts, the caption is the only alternative.

Reset User Sizing
By pressing this button, all user sizing of legend, title etc. in graphical charts will be reset. Docking of individual items will not be affected.

Reset User Docking
By pressing this button, all user docking of legend, title etc. in graphical charts will be reset.

Error Messages
Opens the **Custom Error Messages** dialog.

Reference Mode
Settings for how the reference background should be plotted when using the **Set Reference** option from the chart's context menu. This setting is only meaningful for some charts.

Legend Settings

The layout of the chart legend is controlled by the various settings of this dialog.

Legend settings

Setting	Description
Legend Style	Sets the basic style for the legend. Choose between several styles.
Background Color	Sets the color of the legend background. The color can be defined as a solid color or as a gradient via the color area dialog that opens when clicking the button.
Vertical Alignment	Specifies how the legend is positioned in relation to the plot area, when it needs less vertical space than the plot area.
Font	Opens the standard font dialog where a font for the legend can be specified.
Line Spacing	Specifies the distance between items in the legend.
Reverse Order	Reverses the sort order of the legend.
Multiline	Sets the options for multi line legend items: **Wrap Text** Wraps the text of the legend items in two or more lines. **Cell Height (Lines)** If the **Wrap Text** option is enabled, this setting specifies how many lines that should be used for each item.

Trellis Settings

The layout of the chart trellis is controlled by the various settings of this dialog.

- **Enable Trellis Chart**: Enable this check box to create an array of charts based on the chart's first dimension.
- **Enable Secondary Trellis Dimension**: Enable this check box to include the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the second dimension values will be displayed as rows in the trellis matrix.
- **Number of Columns**: Choose **Auto** to let QlikView decide how many columns to display or choose **Fixed** to set the number yourself.
- **Number of Rows**: Choose **Auto** to let QlikView set the number of rows to display or choose **Fixed** to set the number yourself.

Title Settings

The layout of the chart title is controlled by the various settings of this dialog.

- **Title Style**: Sets the basic style for the title.
- **Background Color**: Sets the color of the title background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button.
- **Horizontal Alignment**: Specifies how the title text is positioned in relation to the plot area.
- **Font**: Sets the font in the chart title. The standard Font dialog is opened when you click the button.

Reference Lines

The **Reference Lines** dialog may vary slightly in appearance depending on the kind of chart that is used. A reference line is a line intersecting the chart plot area from a given point on one or both axes. It may be used, for example, to indicate a certain level or percentiles of chart data. The reference line is only drawn if it falls within the current range of the axis from which it origins.

Reference line properties

Property	Description
Label	Enter a label to be drawn next to the reference line. The default value used is the expression. The label may be defined as a calculated expression.
Show Label in Chart	Enable this setting if the label should appear next to the reference line.
Location	Sets from which axis the reference line should originate: **Continuous X** The reference line originates from the x-axis. This option is only available if the chart has a continuous x-axis. **Primary Y** The reference line originates from the primary y-axis (left/bottom). **Secondary Y** The reference line originates from the secondary y-axis (right/top).

Property	Description
Definition	Sets the value at which the reference line should be drawn. The value be either a fixed **Percentile** (enter a value between 1 and 100 in the edit box) of the current chart data or an arbitrary numeric **Expression**.
Line Formatting	Defines the layout of the reference line: **Weight** Specifies the weight of the reference line. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit). **Color** Sets the color for the reference line. **Style** Specifies the style for the reference line, for example, continuous, dashed or dotted.
Show	Specifies the condition for displaying the reference line. **Always** The reference line will always be displayed. **Conditional** The reference line will be displayed or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be visible when the expression returns true.

Chart texts

Chart text properties can be configured.

Text

Enter a text that should be displayed in the chart. The text entered can also be defined as a calculated formula for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas or for typing multi line text.

Font

Opens the standard font dialog where a font for the text can be specified.

On Top

Forces the text to the foreground when the chart is drawn.

Background

Defines the background of the text.

- **Transparent**: With this option, only the text itself will be visible. Any sheet object covered by the text will be fully visible.
- **Fixed**: This option lets you pick a background color by clicking the **Color** button to the right of the radio button.
- **Calculated**: The background color may be dynamically calculated from an expression. The expression must be a valid color representation, which is achieved by using color functions. Click the **...** button to

open the **Edit Expression** dialog for easier editing of long formulas. If the result of the expression is not a valid color representation, the program will default to black.

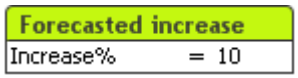
Angle (degrees)

Specifies the angle for the text. 0 to 360 degrees is allowed, the default value is 0.

Alignment

Sets the horizontal alignment of the text within its background.

Input Box



The input box is a sheet object that is used for entering data into QlikView variables and displaying their values.

Right-click on the input box to display the object menu. It can also be accessed from the **Object** menu, when the input box is the active object.

Using the Input Box

An input box consists of three columns in a multi box like layout. The first column shows a list of variables. The second column equal signs '=' and the third column the values of the variables. It can contain one or many variables, each one on a separate row.

Variables in QlikView are named entities containing a single data value, unlike fields which can (and normally do) contain multiple values. Also, whereas fields get their values from **load** and **select** statements in the script, variables get their values from **let** and **set** statements in the script, via automation calls, or by the help of input boxes in the layout.

Variables can contain numeric or alphanumeric data. If the first character of a variable value is an equal sign '=' QlikView will try to evaluate the value as a formula (QlikView expression) and then display or return the result rather than the actual formula text.

In an input box the current value of the variable is shown. By clicking on a value in the input box, the cell will turn into edit mode, so that a new value can be entered or the old one modified. If the variable contains a formula, that will now be shown rather than its result. The cell in edit mode will normally contain a **...** button which opens up a full editor window to facilitate creation of advanced formulas. The function of a variable value cell in an input box could very well be compared to that of a cell in a spreadsheet.

Sometimes the input box variable value cell will contain a drop-down icon, giving fast access to recently used values or predefined values. A variable may have input constraints attached to it, barring input of all values which do not meet certain criteria. In certain cases a variable in an input box may be read-only, in which case it is impossible to enter edit mode.

Object Menu

The input box **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **Input Box Properties** page where its parameters can be set.
Notes	Allows creating and sharing notes about the current object.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Print...	Opens the **Print** dialog where print settings can be specified.
Print as PDF...	Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.
Send to Excel	Exports the input box values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Export...	Opens a dialog where you can export the contents of the input box to a file of your choice. The file can be saved as any of the following formats: Comma Delimited, Semicolon Delimited, Tab Delimited, Hypertext (HTML), XML and Excel (xls or xlsx). The default format is *.qvo (QlikViewOutput), a tab separated file.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Data** Copies the data rows of the input box to the clipboard. **Cell Value** Copies the text value of the input box cell right-clicked upon (when invoking the **Object** menu) to the clipboard. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Command	Description
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

The **Input Box Properties** : **General** page is opened by a right-click on an input box and choosing the **Properties** command in the float menu. Here it is possible to set general parameters of the input box.

General properties

Property	Description
Title	The text to appear in the input box caption area. The title can be defined as an expression for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Available Variables	All available variables are listed in this column. To include the system variables, mark the **Show System Variables** check box. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column.
Show System Variables	Makes the system variables show in the list of **Available Variables**.
New Variable	Opens the **New Variable** dialog where a custom variable may be defined.
Displayed Variables	Variables to be displayed in the input box are listed in this column. Initially the column is empty.

Property	Description
Promote	Moves a variable upwards in the display order.
Demote	Moves a variable downwards in the display order.
Label	An alternative name to be used as variable title in the input box, can be entered here. The label may be defined as an expression for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID, which for input boxes start with IB01. Linked sheet objects share the same object ID. You may edit this ID number later on.

Presentation

Presentation options

Option	Description
Variables	Shows a list of all variables in the current input box. When a variable name in the list is selected the properties of that variable can be modified.
Show Equal Sign	Uncheck this box if you do not want the equal sign to be displayed in the input box. This setting is general for all variables.
Background...	Opens the **Background Settings** dialog.
Alignment	The alignment of the variables can be set. The variables can be individually set to left, center or right aligned.
Row Colors	In this group individual color settings can be made for the row selected in the **Variables** list to the left. **Background** Specifies the background color of the selected row. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. **Text** Specifies the text color of the selected row. **Apply to all rows** By selecting this check box before clicking **Apply** or **OK** the selected colors will be applied to all rows of the input box.

Constraints

The **Input Box Properties**: **Constraints** page is opened by right-clicking on an input box and choosing the **Properties** command in the float menu. The script variables that have been added to **Displayed Variables** in the input box properties are listed in the **Variables** list on the **Constraints** tab where it can be modified.

The **Document Properties** : **Variables** page is accessed from **Settings**: **Document Properties**: **Variables**. The list of variables may be modified by the **Show System Variables** option. The **New...** button adds a new variable to the document. **Delete** button removes the selected variable.

In the **Settings for Selected Variable** group the edit box displays the current **Value** of the selected variable. The value may be entered as a calculated formula. Click on the **...** button to open the **Edit Expression** dialog.

Variables are normally not included in bookmarks, but here it is possible to check the option **Include in Bookmarks**.

In the **Input Constraints** group specify constraints against which all values entered into an input box variable by the user will be checked. If a value does not meet the constraints specified, it will be rejected and an error message may be shown. The following alternatives are available:

Input constraints settings

Setting	Description
No Constraints	Input values are not checked against any specified constraints.
Standard	Input values will be checked against one of a number of common standard constraints selected from the drop-down box. As default no constraint at all is selected, i.e. any value can be entered into the variable. Only one of the alternatives: **Standard**, **Custom**, **Predefined Values Only** and **Read-only** can be checked.
Custom	Input values will be checked against a user specified constraint. The constraint is entered in the edit box and must be expressed as a QlikView expression returning TRUE (non-zero value) if the input value is acceptable. The input value is referenced as a dollar sign ($) in the expression. **Example:** **$>0** will cause the input box to accept only positive numbers in the selected variable. The previous value of the variable can be referenced by the variable name. **Example:** **$>=abc+1** as a constraint on a variable named abc will cause the input box to accept only numeric entries with a value of the old value plus 1.
Predefined Values Only	Input values will be checked against a list of values defined in the **Predefined Values** group. Only input values found in the list will be accepted.

Setting	Description
Read-only	Marks the variable as read-only. No values can be entered.
Enable Edit Expression Dialog	Check this alternative to enable editing of the variable value in the **Edit Expression** dialog, which is opened from the **...** button that appears when clicking on the value itself.

Constraint monitoring

Option	Description
Sound on Illegal Entry	Check this alternative to have QlikView issue a sound warning when the user attempts to enter a value which falls outside of the constraints.
Error Message	Normally, if the user attempts to enter a value which falls outside of the constraints it will just be rejected, leaving the present variable value in place. By checking this alternative it is possible to specify a custom error message which will be presented to the user in case of incorrect entries. The error message is typed in the edit box. It may be defined as an expression for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

In the **Value List** group it is specified if and how to present a list of values for an input box.

Value list options

Option	Description
No List	No list of values previously used in the variable is maintained.
List _ Recent Values	A drop-down (MRU) list with the values most recently used, will be available to the user for the selected variable in the input box. The number of previous values to store can be set in the box.
Predefined Values in Drop-down	A drop-down list with **Predefined Values** will be available to the user for the selected variable in the input box.
Predefined Values with Scroll	A scroll control will be available to the user for the selected variable in the input box. The scrolling will be made between the **Predefined Values**.

In the **Predefined Values** group a list of predefined values is specified, which can be presented to the user in a drop down and/or used for defining acceptable variable values.

Value field options

Option	Description
Number Series	Check this alternative to generate a list of predefined numeric values based on a lower limit (**From**), an upper limit (**To**) and a **Step** value. This option can be used alone or in combination with **Listed Values**.
Listed Values	Check this alternative to specify a list of arbitrary predefined values. The values can be either numeric or alphanumeric. Alphanumeric values must be enclosed in quotes (e.g. 'abc'). Each value is separated by a semicolon (**;**) (e.g. 'abc';45;14.3;'xyz'). This option can be used alone or in combination with **Number Series**.
Comment	This is a commentary field where the creator of a variable can describe its purpose and function.

Number

The **Input Box Properties** : **Number** page is opened by a right-click on an input box and choosing the **Properties** command from the float menu.

This property page provides formatting settings for all variables of the input box. The number formatting can be set individually for variables by selecting one or several variables (Click, Shift-click or Ctrl-click) in the **Variables** text box.

Each variable has a default number format which can be set in the document properties.

It is however possible to use a separate number format for an individual sheet object. To do this, check the alternative **Override Document Settings** and specify a number format in the group control below. This property page applies to the active object and contains the following controls for formatting variable values:

Number properties

Property	Description
Mixed	Both numbers and text. Numbers shown in original format.
Number	Shows numeric values with the number of digits set in the **Precision** spinner box.
Integer	Shows numeric values as integers.
Fixed to _ Decimals	Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** spinner box.
Money	Shows values in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box. The default format is the Windows Currency setting.
Date	Shows values that can be interpreted as dates in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Time	Shows values that can be interpreted as time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.
Timestamp	Shows values that can be interpreted as date + time in the format set in the **Format Pattern** edit box. An example of this format is shown in the **Preview** text box.

Property	Description
Interval	Shows time as sequential time increment (e.g. format = *mm* shows the value as the number of minutes since calendar start (1899:12:30:24:00).

The **Show in Percent (%)** button operates on the following formats: **Number**, **Integer** and **Fixed to**.

Decimal and **Thousand** separators can be set in the edit boxes of the **Separators** group.

The **ISO** button uses the ISO standard for the formatting of date, time and timestamp.

The **System** button applies the settings of the system to the formatting.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.

- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Current Selections Box

In the current selections box, selections are listed by field name and field value. This tool displays the same information as the free-floating current selections window but it is positioned directly on the sheet like any other sheet object. The indicators are used for distinguishing between selected and locked values.

By a right-click on a current selections box the **Current Selections Box: Object Menu)** will be displayed. It can also be accessed from the **Object** menu, when the current selections box is the active object.

If you select in a field by using search, the search string is displayed as the field value.

Object menu

The current selections box **Object** menu is opened by right-clicking the object. The menu commands are:

Properties...

Opens the **Current Selections Box Properties** dialog where a number of parameters can be set.

Notes

Allows creating and sharing notes about the current object.

Order

This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.

- **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
- **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
- **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
- **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.

Detach

The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.

Attach

Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.

Set Reference

By choosing this option you set a chart reference, i.e. a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes etc will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot, i.e. some portions of the reference plot may be obscured by the current data set plot. The way the background is dimmed can be controlled via the **Reference Mode** setting on the **Chart Properties: General** page. The display of reference chart plots is only possible in some chart types, e.g. bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.

Clear Reference

This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.

Clone

Makes an identical copy of the chart. If a detached chart is cloned the clone will be attached.

Order

This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.

- **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
- **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
- **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
- **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.

Select Possible

All non-excluded values of the field are selected.

Select Excluded

All excluded values of the field are selected.

Select All

All values of the field are selected.

Clear

Clears all the current selections of the field.

Clear other fields

Clears the selections in all the other sheet objects, including selections in other fields of the current selections box, while maintaining selections in this specific field of the current selections box.

Lock

Locks the locked value(s) of the field.

Unlock

Unlocks the locked value(s) of the field.

Print...

Opens the **Print** dialog where print settings can be specified.

Print as PDF...

Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.

Send Values to Excel

Exports the text to Microsoft Excel, which is automatically launched if not already running. The text will appear in the cells of a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.

Export...

Opens a dialog where you can export the contents in the current selections to a file of your choice. The file can be saved as any of the following formats: Comma Delimited, Semicolon Delimited, Tab Delimited, Hypertext (HTML), XML and Excel (xls or xlsx). The default format is *.qvo (QlikViewOutput), a tab separated file.

Copy to Clipboard

This cascade menu contains the various copy options for the sheet object.

- **Data**: Copies the data (selections) in the selected current selections box to the clipboard.
- **Cell Value**: Copies the text value of the current selections box cell right-clicked upon (when invoking the Object menu) to the clipboard.
- **Image**: Copies an image of the current selections box to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page.
- **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Linked Objects

Opens a menu with the following commands for linked objects.

- **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
- **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.

Minimize

Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Maximize

Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.

Restore

Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.

Help

Opens QlikView help.

Remove

Removes the sheet object from the sheet.

General

The **Current Selections Box Properties: General** page is opened by a right-click on a current selections box and choosing the **Properties** command in the float menu. Here it is possible to set general parameters of the current selections box.

Current Selections Box properties

Property	Description
Title	The text to appear in the current selections box caption area. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. Linked objects share the same object ID. You may edit this ID number later on. For current selections boxes, the ID starts with **CS01**.

In the **Displayed Columns** group, you determine if the status and/or the values columns will appear in the current selections box.

- **Status**: Checking this box will add a **Status** column with indicator to the current selections box.
- **Values**: Checking this box will add a **Values** column to the current selections box, listing selected field value.
- **Drop-down Select**: Enable this setting to display a drop-down icon for each field in the current selections box, thus making it possible to modify selections within the object.
- **Clear Icons**: If this check box is marked each field row in the current selections box will display a small clear icon. Clicking on the clear icon will clear selections in the field. No clear icon will be shown for locked fields.
- **Lock/Unlock Icons**: If this check box is marked each field row in the current selections box will display a small lock or unlock icon. Clicking on the icon will lock or unlock selections in the field.

Checking **Use Column Labels** enables the following settings:

- **Fields**: The label to be shown above the **Fields** column can be edited in the text box.
- **Status**: The label to be shown above the **Status** column can be edited in the text box.
- **Values**: The label to be shown above the **Values** column can be edited in the text box.

In the **Color** group you may edit the colors of the different components of the current selections box.

- **Label Background**: Defines the background color of the label row.
- **Label Text Color**: Defines the text color of the label row.
- **Text Color**: Defines the text color of the display area.
- **Background...**: Opens the **Background Settings** dialog.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.

    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.

- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Button

Buttons can be created and defined in QlikView to perform commands or actions. There are basically three types of buttons; the **Launch/Export Button**, the **Shortcut Button** and the **Macro** button.

By right-clicking the object, the **Button: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the button is the active object.

Object Menu

The button **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **Button Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Send to Excel	Exports the text to Microsoft Excel, which is automatically launched if not already running. The text will appear in a single cell in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. • **Text**: Copies the text displayed on the button to the clipboard. • **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page. • **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.

Command	Description
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

In the **Text** group you can set the properties of the text to be displayed on the button.

Text properties

Property	Description
Text	Entering a text in the text field labels the button. The text may be defined as a calculated formula. The text may consist of several lines, divided when you press Enter.
Alignment	The button text can be left-aligned, centered or right-aligned.

In the **Background** group you can specify the background of the button. The drop-down gives you three different basic button styles to choose from, and additional settings:

Background styles and properties

Option	Description
Aqua	Default for new buttons. Gives a rounded button with three-dimensional glassy look.
Plain	Produces a traditional plain QlikView button. • **System Default**: Provides a solid background in the color defined for buttons in the operating system.
Image	Produces an image button. The image could be either a single static image or a combined image with three parts, one for each of the button's three possible states (active, inactive or depressed). • **Combined Image**: Mark this radio button and browse to an image file using the **Select Image...** button in order to assign a three-state combined image to the button. The image file must consist of three images, side by side, of the button: the first one of an active button, the second of a depressed button and the third one of a dimmed (inactive) button. • **Single Image**: Mark this radio button and browse to an image file using the **Select Image...** button in order to assign a single-state image to the button. Image types supported include jpg, png, bmp, gif and animated gif.
Color	Select this radio button if you want the button to be displayed with a colored background (not available with the Image setting). The color can be defined as a solid color or as a gradient via the **Color Area** dialog that opens when clicking the color button.

Option	Description
Transparency	Sets the degree of transparency of the button background. At 100% the background will be completely transparent. The transparency will apply regardless if a color or an image is used for background.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

Additional button properties

Option	Description
Object ID	The unique ID of the current button. Upon creation, every sheet object is assigned a unique ID for control via Automation. The ID consists of a combination of letters defining the type of object, as well as of a number. The first button of an document will be assigned the ID BU01. Shared objects share the same object ID. An object ID may be changed to any other string that is currently not used for any other sheet object, sheet or bookmark in the document.
Enable Condition	The expression entered here determines the status of the button. If the expression returns 0, the button will be disabled; if the expression returns 1, the button will be enabled. If no expression is entered, 1 is assumed. Buttons that are disabled due to underlying status cannot be enabled by means of a condition.
Print Settings...	By pressing this button you will gain access to the **Print Settings** dialog where margins and header/footer format can be defined.

Actions

On this page actions can be set for certain objects:

- buttons
- text objects
- gauges
- line/arrow objects

Actions include launching an external application or exporting data from QlikView.

- **Add**: Opens the **Add Action** dialog where the actions for the object are chosen. Choose the type of action in the lists. Depending on the action, different parameters for the action will appear on the **Actions** page. Input parameters for listed actions are calculated before the first action is executed. If a parameter is changed after the execution has started (for example if an action is changed by a previous action), the change is not registered in the chain of actions.

- **Delete**: Removes the action from the object.
- **Promote**: Moves the selected action up in the list of actions.
- **Alternate State**: Sets the state that the action refers to. This setting is only relevant for actions related to selections or bookmarks.

Add Action dialog

The following actions can be added from the **Add Action** dialog. In all fields with the ... button it is possible to enter a calculated formula.

Selection

Selection actions

Action	Description
Select in Field	Selects the values and fields that are specified. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B. Quoting is only required with non-numeric values and can be omitted with numeric values.
Select Excluded	Selects the excluded values in the specified field.
Select Possible	Selects the possible values in the specified field.
Toggle Select	Toggles between the current selection and the specified **Field** and **Search String**. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
Forward	Goes one step forward in the list of selections.
Back	Goes back one step in the list of selections.
Pareto Select	Makes a pareto selection in the specified field based on an expression and percentage. This type of selection is used to select the top contributors to a measure, typically in line of a general 80/20 rule. For example, to find the top customers that contribute to 80% of the turnover, `Customer` should be used as field, `sum(Turnover)` should be used as expression and 80 should be used as percentage.
Lock Field	Locks the selections in the specified field.
Lock All	Locks all values in all fields.
Unlock Field	Unlocks the selections in the specified field.
Unlock All	Unlocks all values in all fields.
Unlock and Clear All	Unlocks all values and clears all selections in all fields.
Clear Other Fields	Clears all related fields except the one specified.
Clear All	Clears all selections except locked ones.

Action	Description
Clear Field	Clears a specific field.
Copy State Contents	Copies the selection from the **Source State** to the **Target State**. Only available when alternate states have been defined.
Swap State Contents	Swaps the selections between **State 1** and **State 2**. Only available when alternate states have been defined.

Layout

Layout actions

Action	Description
Activate Object	Activates the object specified by **Object ID**. This function does not work in Ajax client.
Activate Sheet	Activates the sheet specified by **Sheet ID**.
Activate Next Sheet	Opens the next sheet in the document.
Activate Previous Sheet	Opens the previous sheet in the document.
Minimize Object	Minimizes the object specified by **Object ID**.
Maximize Object	Maximizes the object specified by **Object ID**.
Restore Object	Restores the object specified by **Object ID**.
Set State Name	Applies the specified **State** to the object specified by **Object ID**. Only available when having defined alternate states.

Bookmark

- **Apply Bookmark**: Applies a bookmark specified by **Bookmark ID**. If two bookmarks have the same ID, the document bookmark is applied. To apply the server bookmark specify Server\bookmarkID.
- **Create Bookmark**: Creates a bookmark from the current selection. Specify **Bookmark ID** and **Bookmark Name**. Select **Hidden** to create a hidden bookmark.
- **Replace Bookmark**: Replaces the bookmark specified by **Bookmark ID** with the current selection.

Print

- **Print Object**: Prints the object specified by **Object ID**. Specify the **Printer name** if the object should be sent to another printer than the default printer. (Not available as document and sheet trigger.)
- **Print Sheet**: Prints the sheet specified by **Sheet ID**. (Not available as document and sheet trigger.) This function does not work in AJAX client.
- **Print Report**: Prints the report specified by **Report ID**. Specify the **Printer name** if the report should be sent to another printer than the default printer. Mark the check box **Show Print Dialog** if you want the Windows print dialog to be shown. (Not available as document and sheet trigger.)

External

- **Export**: Exports a table containing a specific set of fields, but only those records that are applicable according to the made selection are exported. Click on the **Setup** button on the **Actions** page to open the **Export Action Settings** dialog. This is not available as document or sheet trigger.

  This function does not work in AJAX client.

- **Launch**: Launches an external program. The following settings can be configured in the **Actions** dialog:
  - **Application**: Click on **Browse...** to find the application that should be launched. (Not available as document and sheet trigger.)
  - **Filename**: Enter the path to the file that should be opened with the application specified above. (Not available as document and sheet trigger.)
  - **Parameters**: Specify parameters for the command line from which the application is started. (Not available as document and sheet trigger.)
  - **Working Directory**: Sets the working directory for the application to be launched. (Not available as document and sheet trigger.)
  - **Exit application when QlikView is closed**: Forces the application to be closed when QlikView is exited. (Not available as document and sheet trigger.)

    This function does not work in AJAX client.

- **Open URL**: You can use **Open URL** to open a URL to a QlikView document from within another QlikView document (document chaining). This setting opens the URL in the default web browser. This function cannot be used as a document and sheet trigger. If using **Open URL**, make sure to enter the document name in the action-string in lower case.
  Where possible, use **Open QlikView Document** instead of **Open URL**.

  The use of Javascript in URLs is prevented by default.
  You can allow Javascript in URLs by changing the `PreventJavascriptInObjectActions` parameter in the custom.config file.

- **Open QlikView Document**: You can use **Open QlikView Document** to open a QlikView document from within another QlikView document (document chaining). This function cannot be used as a document or sheet trigger. For more information, see *Document chaining examples (page 735)*.
- **Run Macro**: Enter the path and name of the macro to be run. Type any name for which it is possible to later create a macro in the **Edit Module** dialog, or a **calculated expression** for dynamic update.
- **Set Variable**: Assigns a value to the specified variable.
- **Show Information**: Shows the associated information, such as a text file or an image for the field specified by **Field**. This function does not work in AJAX client.
- **Close This Document**: Closes the active QlikView document.
- **Reload**: Performs a reload on the current document. This function does not work both in AJAX client and IE-plugin.

- **Dynamic Update**: Performs a dynamic update of the data in the currently loaded document. The statement for the dynamic update is to be entered in the **Statement** field.
  The intended usage of Dynamic Update allows a QlikView Administrator to feed limited amounts of data in to a QlikView document from a single source without running a reload of the document. Analysis can then be performed by multiple clients connecting to the QlikView Server.

  The uploaded information is stored in RAM only so any data added or updated using Dynamic Update will be lost if a reload of the document is performed.

  The following grammar describes the possible statements and their components that can be used with the Dynamic Update feature:
  - statements ::= statement { “;” statement }
  - statement ::= insert_statement | update_statement | delete_statement | begin_transaction_ statement | commit_transaction_statement
  - insert_statement ::= "INSERT" "INTO" ("*" | table_name) field_list "VALUES" value_list {"," value_list} ["KEY" ["AUTO" | (" (" field_list ")")] ["REPLACE" (["WITH" "ONE"] | "EACH")]]
  - update_statement ::= "UPDATE" ("*" | table_name) set_clause {"," | set_clause} "WHERE" condition ["AUTO" "INSERT"]
  - delete_statement ::= "DELETE" "FROM" ("*" | table_name] "WHERE" condition
  - begin_transaction_statement ::= "BEGIN" ("TRANSACTION" | "TRAN") [trans_name]
  - commit_transaction_statement ::= "COMMIT" ["TRANSACTION" | "TRAN"] [trans_name]
  - table_name ::= identifier | quoted_name
  - field_list ::= "(" field_name {"," field_name} ")"
  - value_list ::= "("value {"," value} ")"
  - set_clause ::= "SET" field_name "=" any_valid_non_aggregated_qlikview_expression
  - field_name ::= identifier | quoted string
  - value ::= identifier | any_qlikview_number | quoted string
  - condition ::= any_valid_non_aggregated_qlikview_expression
  - identifier ::= any_qlikview_identifier
  - quoted_string ::= "[" [^]]+ "]"

  Example:

  ```
  UPDATE AbcTable SET Discount = 123 WHERE AbcField=1
  ```

  To use this feature, Dynamic Update must be allowed both on the Document and on the Server.

Document chaining examples

You can use **Open QlikView Document** to create document chaining.

The following settings can be applied:

- **Transfer State**: to transfer the selections from the original document to the destination document. The destination document will first be cleared of selections.
- **Apply state on top of current**: to retain the destination document's selections and apply the original document's selections on top of them.

*Using **Apply state on top of current** can return unexpected results if the selections made in the two documents are conflicting.*

- **Open in same Window**: to open the new document in the same browser tab when using the AJAX ZFC client.

Open QlikView Document action is not supported for non domain users when using the QlikView plug-in.

QlikView documents: The extension of the destination file must be included. Relative paths to navigate from one QlikView document to another are supported in all clients, as long as the chained documents are stored in the same folder structure (mount).

The following examples show how to write the file path to the destination file:

Example: File located in the same folder structure (same mount).

- If the destination file is in the same folder:
  DestinationDoc.qvw
- If the destination file is in a sub folder:
  SubFolder/DestinationDoc.qvw
- If the destination file is in an upper folder:
  ../DestinationDoc.qvw
- If the destination file is in an upper and parallel folder:
  ../ParallelFolder/DestinationDoc.qvw

Example: File located in a different folder structure (different mount). The relative path between different mounts is supported in the Ajax client only.

- If the destination file is in a different mount:
  ../DifferentMount/DestinationDoc.qvw

Example: Using the mount path to point to a QlikView document. Setting the path to mounted folders is supported in the Ajax client only.

- If the destination file is in the same mounted folder:
  \Mount\DestinationDoc.qvw
- If the destination file is in a different mounted folder:
  \DifferentMount\DestinationDoc.qvw

Document chaining with mounted folders does not work with the QlikView plug-in.

Example: Using the absolute path to point to a QlikView document. The use of absolute paths for document chaining is supported in the Ajax client and in QlikView Desktop.

- Absolute path to the Local Root folder or mount:
  C:\...\DestinationDoc.qvw
- Absolute path to a Network Share:
  \\SharedStorage\...\DestinationDoc.qvw

QlikView apps in the Qlik Sense Cloud hub: you need the AppId, not the path. Apps need to be prepared and updated in QlikView Desktop. The AppId is found in the URL when the app is open in the hub.

Example

If the URL is *https://qcs.us.qlikcloud.com/qv/opendoc.htm?document=1cc71b323f172f93a8121ce1456cdg*. Then the AppId is *1cc71b323f172f93a8121ce1456cdg*.

Actions that trigger other actions, so called cascading actions, may cause unforeseen consequences and are not supported!

There are limitations as to the behavior of certain macro triggers when working with documents on QlikView Server.

Export Action Settings Dialog

Selection

In this group you set what fields should be selected for export.

Selection options

Option	Description
Fields	In the fields box you find a list of the available fields.
Export Lines	In this box you find the fields you have selected for export. The fields for which you have allowed multiple values are marked with an asterisk.
Add >	Adds fields to the **Export Lines** box.
< Remove	Removes fields from the **Export Lines** box.
Promote	Moves the selected field one step up, i.e. one step to the left in the export table.
Demote	Moves the selected field one step down, i.e. one step to the right in the export table.
Multi Value (*)	By marking a field in the **Export Lines** box and checking this control, you allow a field to have several values in the export listing.

Export to

In this group you can choose whether you want to export the values to a file or to the clipboard.

Export options

Option	Description
File	If you export to a file you must mark this check box and enter the file name. If no file name is entered, the values will be exported to the clipboard. The file name may be entered as a calculated formula.
Browse	Opens the **Export File** dialog, allowing you to browse for a file to which the values should be exported.
Clipboard	Default setting. If no file is specified above, the values will be exported to the clipboard.
Field Selections	If this control is checked, the export file will, for each selected field, have all the possible field values on one row, separated by tabs.
Include Labels	If this control is checked, the first position on the line (when **Field Selections** is set) or the first record (when **Records** is set) will contain the field names.
Records	If this control is checked, the export file will have one column for each selected field, separated by tabs.
Append to Existing File	If this control is checked the export will be appended to the export file, if the file already exists. Labels will not be exported when appending to an existing file. If the export file does not exist, this flag has no meaning.

Number Formatting

Some other programs may have difficulties to handle numbers with number format correctly. QlikView offers three options for number formatting of numeric data to be exported to files or to the clipboard.

New export buttons will inherit the default setting from the **User Preferences: Export** page. The setting can however be individually set for each export button.

- **Full Format**: Instructs QlikView to export numeric data with its full number format, just as it is shown in the document's sheet objects.
- **No Thousand Separator**: Removes any thousand separator from numeric data.
- **No Formatting**: Removes all number formatting from the data and exports the raw numbers. The decimal separator will be as defined in the system settings (Control Panel).

There are limitations as to the behavior of certain macro triggers when working with documents on QlikView Server.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Text Object

Text objects are used for adding information to the document, such as labels etc. They can be moved around and positioned anywhere in the sheet area, even to areas covered by other sheet objects.

By a right-click on a text object the **Text Object: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the text object is the active object.

Object Menu

The text object **Object** menu is opened by right-clicking the object. The menu commands are:

- **Properties...**: Opens the **Text Object Properties** dialog where a number of parameters can be set.
- **Notes**: Allows creating and sharing notes about the current object.
- **Order**: This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.
  - **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
  - **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
  - **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
  - **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
- **Print...**: Opens the **Print** dialog where print settings can be specified.
- **Print as PDF...**: Opens the **Print** dialog with the *Microsoft Print to PDF* printer pre-selected. After pressing the **Print** button you will be prompted for a file name for the PDF output file. This command is only available if a PDF printer is available on the system.

- **Send to Excel...**: Exports the text to Microsoft Excel, which is automatically launched if not already running. The text will appear in a single cell in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer.
- **Copy to Clipboard**: This cascade menu contains the various copy options for the sheet object.
    - **Text**: Copies the text displayed in the text object to the clipboard.
    - **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page.
    - **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
- **Linked Objects**: Opens a menu with the following commands for linked objects. **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
  Unlink This Object/Unlink Objects: This destroys the link between the objects, making them different objects with different object IDs.
- **Minimize**: Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Maximize**: Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
- **Restore**: Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
- **Help**: Opens QlikView help.
- **Remove**: Removes the sheet object from the sheet.

General

The **Text Object Properties: General** page is opened by a right-click on a text object and choosing the **Properties** command from the float menu, or by selecting **Properties** in the **Object** menu when a text object is active. Here settings for the text, its background, alignment etcetera can be made.

- **Foreground**: Here you can specify the foreground of the text object. The foreground usually consists of the text itself, but it can also be an image.
    - **Text**This is where you enter the text to be displayed. The text may be defined as a calculated formula for dynamic update.
    - **Representation**The text in the Text object may be interpreted as a reference to an image in memory or on disk. When selecting **Text** the contents of the Text object will always be interpreted and displayed as text. When selecting **Image** QlikView will try to interpret the text contents as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.jpg) or inside the QlikView document (e.g. qmem:// <Name>/<Peter>). It can also be an info function linked to a field containing image info (e.g. =info(MyField)). If QlikView cannot interpret the text contents as a valid reference to an image, the text itself will be displayed.

- **Hide Text When Image Missing**: If this option is selected, QlikView will not display text in the text object if interpretation as an image reference fails for some reason. The text object will then be left blank.
- **Horizontal Scrollbar**: If this check box is marked a horizontal scroll bar will be added to the text object when its text content is too wide to be displayed within the given area.
- **Vertical Scrollbar**: If this check box is marked a vertical scroll bar will be added to the text object when its text content is too long to be displayed within the given area.

- **Layout**: In this group you define how QlikView should display the text or foreground image within the text object area.
  - **Horizontal Alignment**: The text can be horizontally left-aligned, centered or right-aligned within the text object.
  - **Vertical Alignment**: The text can be vertically top-aligned, centered or bottom-aligned within the text object.
  - **Image Stretch**: This setting describes how QlikView formats a foreground image to fit in the text object area. There are four alternatives.
  - **No Stretch**: If this option is selected, the image will be shown as is without any stretching. This may cause parts of the picture to be invisible or only part of the text object to be filled.
  - **Fill**: If this option is selected, the image will be stretched to fit the text object area without bothering about keeping the aspect ratio of the image.
  - **Keep Aspect**: If this option is selected, the image will be stretched as far as possible to fill the text object area while keeping the aspect ratio. This typically results in areas either on both sides of or above and below which are not filled by the image.
  - **Fill with Aspect**: If this option is selected, the image will be stretched to fill the text object area in both directions while keeping the aspect ratio. This typically results in cropping of the image in one direction.
  - **Text Margin**: With this setting you may create a margin between the outer borders of the text object and the text itself. The width of the margin can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Background**: In the **Background** group you can specify the background of the text object. The current settings are reflected in the preview pane to the right.
  - **Color**: Select this radio button if you want the text to be displayed on a colored background. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button.
  - **Image**: Select this radio button if you want to display an image as background. To change the current image, click the **Change** button. If no text is entered in the **Text** field, the text object can be used for displaying a fixed image as a sheet object in the layout. Image types supported include jpg, png, bmp, gif and animated gif.
  - **Transparency**: Sets the degree of transparency of the text object background. At 100% the background will be completely transparent. The transparency will apply regardless if a color or an image is used for background.
  - **Image Stretch**: This setting describes how QlikView formats the background image to fit in the text object area. For details on the different options, see the section on **Image Stretch** above.
  - **Alignment**: The background can be horizontally or vertically aligned.

- **Alternate State**: Choose one of the available states in the list. The following Alternate States are always available. **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
- **Object ID**: This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For text objects, the ID starts with TX01. Linked objects share the same object ID. You may edit this ID number later on.
- **Print Settings...**: By pressing this button you will gain access to the **Print Settings** dialog where margins and header/footer format can be defined.

Actions

In the **Actions** tab you can specify what actions should be performed when you click on the object. The page is identical to the **Actions** page for the button object.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.

- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Line/Arrow Object

Line/arrow objects are used for adding lines or arrows to the layout. They can be moved around and positioned anywhere in the sheet area, even to areas covered by other sheet objects.

By a right-click on a line/arrow object the **Line/Arrow Object: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the line/arrow object is the active object.

Object Menu

The line/arrow **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **Line/Arrow Object Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.

Command	Description
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

This property page is opened by a right-click on a line/arrow object, or by selecting **Properties** in the **Object** menu when a line/arrow object is active.

In the **Orientation** group you determine the general direction of the line/arrow object by selecting one of the alternatives: **Horizontal**, **Vertical**, **Diagonal(Climbing)** or **Diagonal(Falling)**.

In the **Style** group you can alter the style of the line/arrow object to be used.

Line/Arrow style options

Option	Description
Line Style	Choose between a solid line and several types of dashed and/or dotted ones.
Line Weight	Determines the thickness of the line. The value can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
Arrow Style	Several choices of style and orientation of the arrow head(s) are available here.

In the **Color** group you can set the color of the line/arrow object by clicking the colored button which opens the **Color Area** dialog.

In the **Background** group you may define a background of the line/arrow object.

Background options

Option	Description
Color	Choose this alternative if you want the object to be displayed with a colored background. The color can be defined as a solid color or it may be dynamically calculated from an expression via the **Color Area** dialog that opens when you click the colored button to the right of the radio button.
Image	If you select this alternative, you will have to import a picture by clicking the **Select Image** button.

Option	Description
Transparency	This alternative sets the degree of transparency of the object background. At 0% the background will be completely opaque. At 100% the background will be completely transparent. The transparency will apply regardless if a color or an image is used for background.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For line/arrow objects, the ID starts with LA01. Linked objects share the same object ID. You may edit this ID number later on.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

Actions

In the **Actions** tab you can specify what actions should be performed when you click on the object. The page is identical to the **Actions** page for the button object.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.

- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be

found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

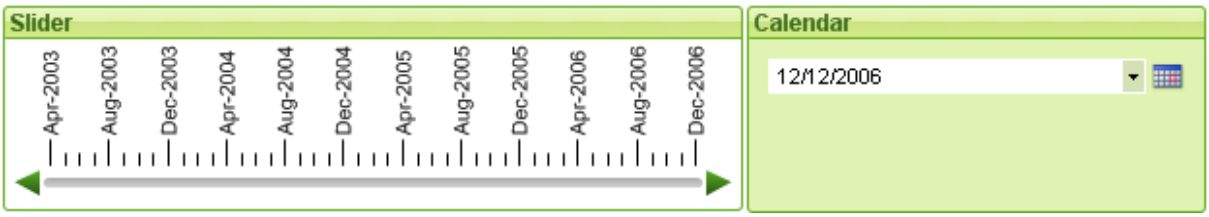
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Slider/Calendar Object



Slider/Calendar objects provide alternative means for selecting field values in QlikView. They can also be used for entering values in QlikView script variables. As its name suggests, the slider/calendar object has two completely different modes. As different as they may look, they still work very much the same way behind the visual user interface.

Right-click on a slider/calendar object and the **Slider/Calendar Object: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the slider/calendar object is the active object.

Using a Slider/Calendar Object

Slider Mode

A single value, two values or a range of values (depending on the properties of the object) is selected in a field or inserted into one or two variables by means of dragging a thumb tack along the slider background. The thumb tack can also be moved by means of scroll arrows. Some sliders may incorporate a scale and tick marks for navigation.

Calendar Mode

A slider/calendar object in calendar mode appears in the layout as drop-down box with a calendar icon to the right. When clicking on the calendar icon it will expand to a calendar control. It is possible to navigate between months and years by means of the arrow buttons or the month and year drop-down controls. After

selecting a date or a range of dates (depending on the properties of the object) in the calendar control the selection will be applied to the underlying field or variable.
If the object is connected to a field, selections in the field will be reflected in the expanded calendar control, using the same selection color codes as found in list boxes (e.g. green for selected values). Provided that the object is configured for multiple values, it will be possible to paint over multiple values just like in a list box. By pressing the Ctrl-key it is even possible to select multiple ranges of values, even if they appear in different months or years. Once the calendar control is closed after the selection, the drop-down box will function essentially as a field drop-down in a multi box.

Object Menu

The slider/calendar object **Object** menu is opened by right-clicking the object. The menu commands are:

Menu commands

Command	Description
Properties...	Opens the **Slider/Calendar Object Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences: Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

The **Slider/Calendar Object Properties: General** page is opened by a right-click on a slider/calendar object and choosing the **Properties** command in the float menu. Here you can make general settings for the data to be manipulated by the slider/calendar object. It is also possible to reach this information via the dialog **New Slider/Calendar Object**.

Under **Input Style** select the basic mode of the slider/calendar object. Use the drop-down to select whether the object should be represented by a **Slider** control or a **Calendar** input control.

The **Data** group is where it is defined which data object the slider/calendar is connected to. A slider/calendar can be connected to either a field or to one or a pair of variables.

- **Field**: Select this radio button if to connect the slider/calendar object to a field or an expression. Select the field in the drop-down box. If **Expression** is chosen in the drop-down the **Edit Expression** dialog will open.
- **Edit...**: Opens the **Edit Expression** dialog for the expression chosen in the drop-down list.
- **Variable(s)**: Check the radio button and select the desired variable(s) in the drop-down list(s). The second variable is only available if you select **Multi Value** under **Mode** (see below).

In the **Mode** group specify if the slider/calendar should be used for selecting a **Single Value** or a range of values - **Multi Value**.

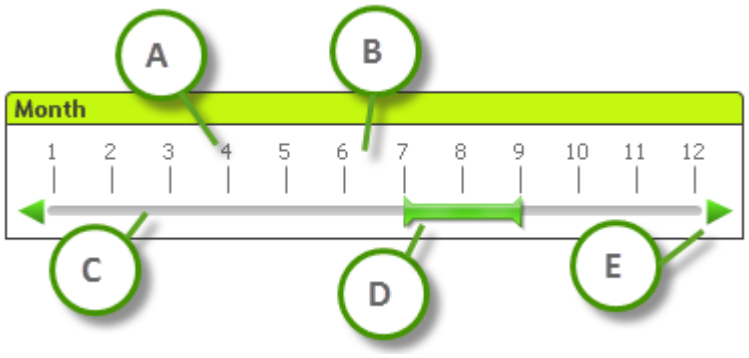
In the **Value Mode** group you specify if the slider/calendar should select **Discrete** values (unavailable for **Multi Value** mode) or define a **Continuous/Numeric** range of values (unavailable for **Single Value** mode with **Field** data). This group is not available in **Calendar** mode. In **Calendar** mode discrete values are always assumed.

- **Min Value**: Sets the minimum value for the slider/calendar in **Continuous/Numeric** value mode.
- **Max Value**: Sets the maximum value for the slider/calendar in **Continuous/Numeric** value mode.
- **Static Step**: Check the box and enter a value in the edit box to specify a static step for slider/calendar values in the **Continuous/Numeric** value mode.
- **Value 1**: Shows current value for the slider in **Continuous/Numeric** value mode if the slider/calendar is **Single Value**. In **Multi Value** mode the low value is shown.
- **Value 2**: Shows current high value for the slider/calendar in **Continuous/Numeric** value mode. Only relevant in **Multi Value** mode.
- **Override Locked Field**: If this check box is marked, selections can be made via the slider/calendar object in a field even if the field is locked. The field will still be locked for logical changes stemming from selections in other fields. This option is selected by default for slider/calendar objects.
- **Fixed Range**: When this alternative is checked, the user will not be able to widen or narrow the range by dragging the edges of the slider thumb-tack.
- **Alternate State**:
  Choose one of the available states in the list. The following Alternate States are always available.
  - **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen.
  - **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
- **Object ID**: This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For slider objects, the ID starts with SL01.Linked objects share the same object ID. You may edit this ID number later on.
- **Print Settings**: This button takes you to the **Print Settings** dialog where margins and header/footer format can be defined.

Presentation (Slider Mode)

The **Slider/Calendar Object Properties: Presentation** tab is opened by a right-click on a **Slider/Calendar** object and choosing the **Properties** command from the float menu. This is where the visual properties of the slider/calendar object can be configured.

The **Colors** group lets you define colors for the different parts of the slider/calendar, as shown in this figure:



Example: Legend

- **A**: Value ticks
- **B**: Scale background
- **C**: Slider background
- **D**: Thumb tack
- **E**: Scroll arrows

Slider Background and **Scale Background** color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the corresponding button. The degree of transparency of the slider background can be set using the Transparency control to the right of the button. At 0% the background will be completely opaque. At 100% the background will be completely transparent.

Thumb Tack, **Scroll Arrows** and **Unit Ticks** color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the corresponding button.

In the **Scroll Orientation** group the slider can be displayed in the **Horizontal** or **Vertical** direction.

In the **Label Orientation** you can determine whether scale text should be oriented in **Horizontal** or **Vertical** direction.

In the **Scale** group you can define a slider scale. Select **Use Automatic Scale** for the scale to be automatically generated based on slider size and underlying values. The alternative **Use Custom Scale** lets you specify a number of scale settings:

- **Major Units**: The number defines the number of major units on the slider scale.
- **Labels on Every n Major Unit**: Defines the density of scale label text.
- **Minor Units per Major Unit**: Defines the number of minor units between each major unit on the slider scale.

Scroll arrows can be visible or hidden with the alternative **Show Scroll Arrows**.

Slider Style can be set as **Solid** or **Shimmer**.

There are limitations to the automatic scale and vertical label orientation functions in AJAX/WebView mode.
*If it is possible, it is recommended that you **Use Custom Scale** to define the scale settings.*

Presentation (Calendar Mode)

The **Slider/Calendar Object Properties: Presentation** tab is opened by a right-click on a **Slider/Calendar** object and choosing the **Properties** command from the float menu. This is where the visual properties of the slider/calendar object can be configured.

The **Colors** group lets you define the color of the calendar control background. The **Background** color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. The

degree of transparency of the calendar control background can be set using the **Transparency** control to the right of the button. At 0% the background will be completely opaque. At 100% the background will be completely transparent.

Sort

On the **Sort** tab the sort order can be set for the slider data. This dialog is very similar to its counterpart under **Document Properties**.

Number

On the **Number** tab the number format can be set for the slider scale. This dialog is very similar to its counterpart under **Document Properties**.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
    - **Solid**: A solid unicolored border.
    - **Depressed**: Border giving the impression of depressing the sheet object from the background.
    - **Raised**: Border giving the impression of raising the sheet object from the background.
    - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.

- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Custom Object

The custom object is a sheet object specifically intended to carry custom defined OCX replacement controls.

The **Custom Object: Object Menu** can be accessed from the **Object** menu, when the custom object is the active object.

Replacement controls are windowless OCX controls programmed by Qlik, yourself or third party vendors, which comply with the specifications for QlikView replacement OCX controls. The OCX control will be drawn in a rectangle on the sheet outlined by the underlying custom object. Communication between the OCX control and the QlikView document is maintained via the internal macro interpreter.

Object Menu

The custom object **Object** menu is opened by right-clicking the object. The menu commands are:

Properties for Replacement Control

Opens the **Properties** dialog for the OCX replacement control used. This dialog is provided with the OCX replacement control and may be absent.

Properties...

Opens the **Custom Object Properties** dialog where a number of parameters can be set.

Order

This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.

- **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
- **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
- **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
- **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.

Copy to Clipboard

This menu contains the various copying options for the sheet object.

- **Image**: Copies a bitmap picture of the custom object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page.
- **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Linked Objects

Opens a menu with the following commands for linked objects.

- **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
- **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.

Minimize

Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Maximize

Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.

Restore

Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.

Help

Opens QlikView help.

Remove

Removes the sheet object from the sheet.

General

The **Custom Object Properties: General** page is opened by a right-click on a custom object and choosing the **Properties** command in the float menu. This is where settings for title and configuration of the custom object can be made.

Custom Object properties

Property	Description
Currently Selected OCX	The name of the currently selected OCX replacement.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For custom objects, the ID starts with CO01. Linked objects share the same object ID. You may edit this ID number later on.
Select OCX Replacement	Click this button to open the **Insert Object** dialog where you may select or change an OCX replacement control.
OCX Properties	Opens the **Properties** dialog for the OCX replacement control used. This dialog is programmed by the provider of the OCX replacement control and may vary in looks and functionality. It may also be unavailable for certain replacement controls.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.

- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.

- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Search Object

Search objects can be used for searching for information anywhere in the document.

To create a new **Search Object** select **Layout - New Sheet Object - Search Object** in the Main Menu, right-click in the sheet area and select **New Sheet Object - Search Object** or click on the **Create Search Object** tool in the toolbar (if the tool has been activated).

By a right-click on a search object the **Search Object: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the search object is the active object.

Object Menu

The search object **Object** menu is opened by right-clicking the object. The menu commands are:

Search Object menu commands

Command	Description
Properties...	Opens the **Search Object Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.

Command	Description
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

On the **General** tab you can configure the search options.

- **All Fields**: Mark this radio button to allow the search object to search all fields in the document. By default, system fields are not included in the **All Fields** option. To include system field, specify the system field name in **List of Fields**.
- **List of Fields**: Mark this radio button and list the fields in the field below to set which fields should be searchable. Use semicolon (;) as separator between fields. The wildcard characters * and ? are allowed in field names. The list may be defined as a **calculated formula** for dynamic update.
- **Selected Fields**: Mark this radio button and choose what fields should be searchable.
- **Show Fields from Table**: This drop-down menu shows the value **All Tables** which contains all fields of the document. By selecting a specific table name in the drop-down menu you may limit the **Selected Fields** list to only fields from that internal table. Finally, you may select the value **All Tables (Qualified)** which will show all fields in the document qualified with their table name. A field will appear one time for each table it appears in.
- **Default Search Mode**: Specifies the initial default search mode to be used in text searches. The mode can always be changed on the fly by typing * or ~ as part of the search string. The following alternatives are available:
    - **<use default>**: The default as specified under **User Preferences** will apply.
    - **Use Wildcard Search**: The initial search string will be two wildcards with the cursor between them to facilitate a wildcard search.
    - **Use Fuzzy Search**: The initial search string will be a tilde (~) to denote a fuzzy search.
    - **Use Normal Search**: No additional characters will be added to the search string. Without wildcards, a Normal Search will be made.
- **Object ID**: The unique ID of the current search object. Upon creation, every sheet object is assigned a unique ID for control via Automation. The ID consists of a combination of letters defining the type of object, as well as of a number. The first search object of a document will be assigned the ID SO01. Linked sheet objects share the same object ID. An object ID may be changed to any other string that is currently not used for any other sheet object, sheet or bookmark in the document.
- **Alternate States**:
  Choose one of the available states in the list. The following Alternate States are always available.
    - **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen.
    - **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.

Presentation

Search Result

- **Include Excluded**: Mark this check box to include those values in the search that have been excluded by selections.

- **Highlight Search Substring**: The search string so far will be highlighted in the matches.
- **Collapse when result in field exceeds**: Limit the number of displayed matches in each field.

Visual Style

- **Appearance**: Choose between a **Rounded** and **Squared** look.
- **Show Reflection**: A reflection of the search object will be shown in the layout.
- **Text in Search Field**: Enter the text that should be visible in the search object before you enter a search string. By clicking the **...** button the full **Edit Expression** dialog is opened for easier editing of long formulas.

Sort

In **Sort Fields by** group the sort order of the fields in the search object can be set.

- **Text**: Sorts the fields containing search hits in alphabetical order.
- **Number of Hits**: Sorts the fields containing search hits according to the number of hits in each field.
- **As Listed on General Tab**: Sorts the fields containing search hits according to the order in which the fields are listed on the **General** tab.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Bookmark Object

The bookmark object is a sheet object that is used for displaying bookmarks for selections. Bookmarks can be searched by name or selected from the drop-down. Depending on its configuration it can also be used for adding new bookmarks or deleting old ones. The bookmark object basically offers the options of the **Bookmarks** menu.

By right-clicking the object, the **Bookmark Object: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the bookmark object is the active object.

Bookmark Objects in Alternate States

Bookmark objects can be placed in an alternate state. Since a bookmark contains selections in all states, however, the use of a bookmark is not affected by the state of the bookmark object. The state of the bookmark object is, however, used for all properties of the object itself, such as show conditions and dynamic labels.

Object Menu

The bookmark **Object** menu is opened by right-clicking the object. The menu commands are:

Object menu commands

Command	Description
Properties...	Opens the **Bookmark Object Properties** dialog where a number of parameters can be set.
Notes	Allows creating and sharing notes about the current object.
Order	This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127. • **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet. • **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet. • **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127. • **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.
Add Bookmark	Opens the **Create Bookmark** dialog where the bookmark name can be edited.
Replace Bookmark	Opens a cascade menu with the ten most recently used bookmarks currently defined in the document. If you choose one of these, the contents of that bookmark will be replaced with the current state of selections and variable values.
Remove Bookmark	Opens a cascade menu with the ten most recently used bookmarks currently defined in the document. Selecting one of these removes it from the document.
Import Bookmarks...	After browsing for and selecting a previously saved bookmark (.qbm) file, the **Import Bookmarks** dialog will open to let you import bookmarks.
Export Bookmarks...	Opens the **Export Bookmarks** dialog where you can export selected bookmarks to a QlikView bookmark (.qbm) file.

Command	Description
Copy to Clipboard	This cascade menu contains the various copy options for the sheet object. **Image** Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page. **Object** Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.
Linked Objects	Opens a menu with the following commands for linked objects. • **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted. • **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Help	Opens QlikView help.
Remove	Removes the sheet object from the sheet.

General

The **Bookmark Object Properties: General** tab is opened by a right-click on a bookmark object and choosing the **Properties** command in the float menu. Here it is possible to set general parameters for the bookmark object.

General properties

Property	Description
Title	The text to appear in the bookmark object caption area. The title can be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Property	Description
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Object ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For bookmark objects, the ID starts with BM01. Linked objects share the same object ID. You may edit this ID number later on.
Background	• **Color**: This can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the button. • **Transparency**: Sets the degree of transparency of the bookmark object background. At 0% the background will be completely opaque with the color defined under Background Color above. At 100% the background will be completely transparent.

Add Button options

Option	Description
Show Add Button	Check this alternative to display an **Add Bookmark** button in the bookmark object. This option is selected by default. • **Text**: Here you may type a text to be shown on the **Add Bookmark** button. This can be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. If no text is typed the edit box will show <use default> and the text "Add Bookmark" will be shown on the button. • **Text Color**: Sets the text color of the **Add Bookmark** button.
Button Alignment	Here you decide how the **Add** and **Remove** buttons are to be positioned in relation to each other, when both are shown: Choose between **Horizontal** (side by side) or **Vertical** (stacked) orientation.

Remove Button options

Property	Description
Show Remove Button	Mark this checkbox if a **Remove Bookmark** button is to appear in the bookmark object. This option is deselected by default. • **Text**: Here you may type a text to be shown on the **Remove Bookmark** button. This can be defined as a calculated label expression for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. If no text is typed the edit box will show <use default> and the text "Remove Bookmark" will be shown on the button. • **Text Color**: Sets the text color of the **Remove Bookmark** button.
Show My Bookmarks	Check this option in order to display personal bookmarks in the bookmark object list of bookmarks. Personal bookmarks will be listed last with a divider separating the document bookmarks from the personal bookmarks.
Show Bookmark Info Text	Check this option in order to display the text entered under **Edit Info**.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.
- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

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- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

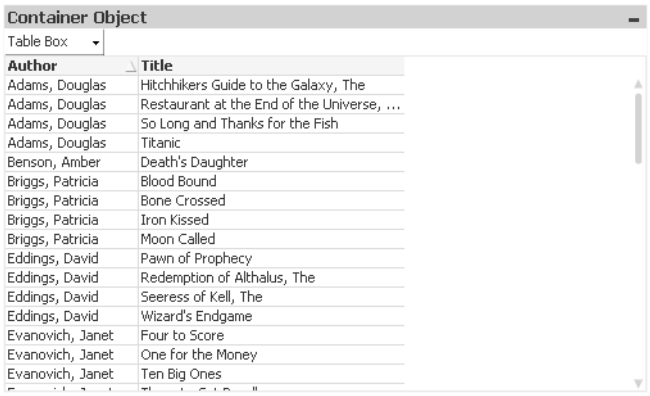
- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Container Object



The container is an object that contains other objects. The container can contain all other sheet objects. The objects are grouped together and have common settings for font, layout and caption.

By a right-click on the container the **Container: Object Menu** will be displayed. It can also be accessed from the **Object** menu, when the container is the active object.

Object Menu

The container **Object** menu is opened by right-clicking the object. The menu commands are:

Properties...

Opens the **Container Object Properties** dialog where a number of parameters can be set.

Notes

Allows creating and sharing notes about the current object.

Order

This cascade menu is only available when the **Design Grid** command of the **View** menu is activated or when the **Always Show Design Menu Items** under **User Preferences: Design** is checked. It contains four commands to set the layout layer of the sheet objects. Valid layer numbers are -128 to 127.

- **Bring to Front**: Sets the layout layer of the sheet object to the largest value currently used by any sheet object on the current sheet.
- **Send to Back**: Sets the layout layer of the sheet object to the smallest value currently used by any sheet object on the current sheet.
- **Bring Forward**: Increases the layout layer of the sheet object by one. Maximum value is 127.
- **Send Backward**: Decreases the layout layer of the sheet object by one. Minimum value is -128.

Copy to Clipboard

This cascade menu contains the various copy options for the sheet object.

- **Image**: Copies an image of the sheet object to the clipboard. The image will include or exclude the sheet object caption and border depending on the settings in the **User Preferences** dialog, **Export** page.

- **Object**: Copies the entire sheet object to the clipboard for pasting elsewhere in the layout or in another document opened within the current instance of QlikView.

Linked Objects

Opens a menu with the following commands for linked objects.

- **Adjust Position of Linked Objects**: All linked objects on all sheets are adjusted to the same position and size as the one/ones highlighted.
- **Unlink This Object/Unlink Objects**: This destroys the link between the objects, making them different objects with different object IDs.

Minimize

Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Maximize

Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.

Restore

Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.

Help

Opens QlikView help.

Remove

Removes the sheet object from the sheet.

General

The **Container Object: General** tab is opened by right-clicking on a container and choosing **Properties**. If the **Properties** command is dimmed you probably don't have the privileges needed to perform property changes.

When the desired properties are set, they can be implemented with the **OK** or **Apply** buttons. The **OK** button also closes the dialog, whereas the **Apply** button does not.

In the **Title** window the container can be given a name which will be displayed in the window caption. The title can also be defined as a calculated formula for dynamic update of the label text. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.

Existing Objects	A list of the available objects in the document. Select the items to be used/removed by clicking them. Use the **Add >** or the **< Remove** button to move them to the desired column.

Filter	With this setting it is possible to filter the list of **Existing Objects** by, for example, object type.
Objects Displayed in Container	A list of the objects already in the container object.
Promote	Moves the selected object one step up.
Demote	Moves the selected object one step down.
Object ID	The unique ID of the current container. Upon creation every sheet object is assigned a unique ID for control via Automation. Linked objects share the same object ID. The ID consists of a combination of letters defining the type of object, as well as of a number. An object ID may be changed to any other string that is currently not being used for any other sheet object, sheet or bookmark in the document. The first container in a document will be assigned the ID **CT01**.
Alternate State	Choose one of the available states in the list. The following Alternate States are always available. • **Inherited**: The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer. This setting is inherited from the object on the level above, a chart in a sheet gets the same settings as the sheet if inherited is chosen. • **Default state**: This is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**.
Label for Selected Object	An alternative name for the displayed object can be entered here. The label may be defined as a calculated formula for dynamic update. By clicking the **...** button the full **Edit Expression** dialog is opened for easier editing of long formulas.

Presentation

Here you can set properties concerning the appearance of the container.

Container Type	Select container type from the drop-down list.

Appearance	Here you set how the different objects in the container should be displayed. Only available in Single Object mode. • **Tabs at top**: All objects in the container are displayed as tabs at the top of the container. • **Tabs on the left**: All objects in the container are displayed as tabs on the left hand side of the container. • **Tabs to the right**: All objects in the container are displayed as tabs on the right hand side of the container. • **Tabs at bottom**: All objects in the container are displayed as tabs in the lower part of the container. • **Dropdown at top**: All objects in the container are displayed in a drop-down menu at the top of the container. • **Hide tabs**: Hides all tabs and only displays the first object in the object list, or the first object with a show condition that returns TRUE.
Display Object Type Icons	Enable this setting to have icons symbolizing the different objects in the tabs. Only available in Single Object mode.
Tab Color	Specifies the color of the tabs. The color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when clicking the button. Only available in Single Object mode.
Columns	Select number of columns. Only available in Grid mode.
Rows	Select number of rows. Only available in Grid mode.
Spacing	Select the size of the spacing. Only available in Grid mode.
Background...	Opens the **Background Settings** dialog.

Font

Here the **Font**, **Font style** and **Size** of the font to be used can be set.

The font can be set for any single object (**Object Properties: Font**), or all objects in a document (**Apply to Objects** on **Document Properties: Font**).

Further, the default document fonts for new objects can be set on **Document Properties: Font**. There are two default fonts:

1. The first default font (**List Boxes, Charts, etc**) is used for most objects, including list boxes and charts.
2. The second default font (**Text Objects and Buttons**) is used for buttons and text boxes, which are objects that usually need a larger font.

Finally, the default fonts for new documents can be set on **User Preferences: Font**.

For charts, buttons and text objects (except search objects) a font **Color** can also be specified. The color may **Fixed** or it can be dynamically **Calculated** from an expression. The expression must be a valid color representation, which is created using the color functions. If the result of the expression is not a valid color representation, the font color will default to black.

Additional settings are:

- **Drop Shadow**: If this option is checked a drop shadow will be added to the text.
- **Underline**: If this option is checked the text will be underlined.

A sample of the selected font is shown in the preview pane.

Layout

A Layout setting will apply to the current object only, if it is made from the Object Properties page.
A Layout setting will apply to all objects of the specified type(s) in the document, if it is made from the Document Properties page.

Use Borders

Enable this setting in order to use a border around the sheet object. Specify the type of border by selecting it in the drop-down menu.

- **Shadow Intensity**: The **Shadow Intensity** drop-down menu makes it possible to set the intensity of the shadow that surrounds the sheet objects. There is also the choice of **No Shadow**.
- **Border Style**: The following predefined border types are available:
  - **Solid**: A solid unicolored border.
  - **Depressed**: Border giving the impression of depressing the sheet object from the background.
  - **Raised**: Border giving the impression of raising the sheet object from the background.
  - **Walled**: Border giving the impression of a wall around the sheet object.
- **Border Width**: This option is available for all border types. The width can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).
- **Color**: Click this button to open a dialog in which an appropriate base color can be chosen from the color palette for all border types.
- **Rainbow**: Creates a rainbow colored border for all border types. The rainbow will start with the selected base color on top of the sheet object.

When **Simplified** is the chosen **Styling Mode** in **Document Properties: General**, there is no choice of border type, there is only the **Shadow Intensity** drop-down menu and the **Border Width** setting.

Rounded Corners

In the **Rounded Corners** group the general shape of the sheet object is defined. These settings allow for drawing of sheet objects ranging from perfectly circular/elliptical via super elliptical to rectangular. **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.

- **Rounded Corners**: Checking this option makes the alternatives for rounded corner shapes possible.
- **Corners**: Corners for which the check box remains unmarked will be drawn rectangular instead.
- **Squareness**: A variable number between 2 and 100 where 100 defines a rectangle with perfectly square corners and 2 corresponds to a perfect ellipse (a circle for a 1:1 aspect ratio). A squareness between 2 and 5 is usually optimal for achieving rounded corners.
- **Corner Radius**: This setting determines the radius of the corners in fixed distance (**Fixed**) or in percent of the total quadrant (**Relative (%)**). This setting lets you control the extent to which the corners will

be affected by the underlying general shape set under **Squareness**. The distance can be specified in mm, cm, inches (", inch), pixels (px, pxl, pixel), points (pt, pts, point) or docunits (du, docunit).

Layer

In the **Layer** group an object can be defined as residing in one of three layers:

- **Bottom**: A sheet object with the **Bottom** layer property can never obscure sheet objects in the **Normal** and **Top** layers. It can only be placed on top of other sheet objects in the **Bottom** layer.
- **Normal**: When created, sheet objects reside in the **Normal** (middle) layer. A sheet object in the **Normal** layer can never be obscured by sheet objects in the **Bottom** layer and can never obscure sheet objects in the **Top** layer.
- **Top**: A sheet object in the **Top** layer can never be obscured by sheet objects in the **Normal** and **Bottom** layers. Only other sheet objects in the **Top** layer can be placed on top of it.
- **Custom**: The **Top**, **Normal** and **Bottom** layers correspond to internally numbered layers 1, 0 and -1 respectively. In fact all values between -128 and 127 are accepted. Choose this option to enter a value of your choice.

Theme Maker...

Opens the **Theme Maker** wizard where you can create a layout theme.

Apply Theme ...

You can apply a layout theme to the object, sheet or document.

Show

In the **Show** group it is possible to specify a condition under which the sheet object is displayed:

- **Always**: The sheet object will always be displayed.
- **Conditional**: The sheet object will be shown or hidden depending on a conditional function which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns FALSE.

*Users with Admin privileges for the document can override all show conditions by selecting **Show All Sheets and Sheet Objects** in **Document Properties: Security**. This functionality can be toggled by pressing Ctrl+Shift+S.*

Options

In the **Options** group, it is possible to disallow moving and resizing of the sheet object. The settings in this group are only relevant if the corresponding check boxes are enabled in **Document Properties: Layout** and **Sheet Properties: Security**.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object.

- **Allow Info**: When the **info** function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option.

  Info (page 885)
- **Size to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

Scrollbars

Various controls for changing the scrollbar layout are located in the **Scrollbars** group:

- **Preserve Scroll Position**: With this setting enabled, QlikView will try to preserve the scroll position of tables and charts with a scroll bar when a selection is made in another object. The setting must be enabled in **User Preferences: Objects** as well. The scroll position is not preserved when you close the document.
- **Scroll Buttons**: Sets the scroll button color. Select a color by clicking the button. Note that medium gray tones often render the best results for scroll bars. Either color can be defined as a solid color or a gradient via the **Color Area** dialog that opens when you click the appropriate button.
- **Scroll Background**: Sets the scrollbar background color. Select a color by clicking the button.
- **Scrollbar Width**: This control affects both the width and the relative size of the scrollbar symbols.
- **Scroll Style**: Sets the scroll bar style. Select a style in the drop-down control. The **Classic** scroll bar style corresponds to QlikView 4/5 scroll bars. The **Standard** scroll bar style gives a more modern look. The third style is **Light**, which is a thinner, lighter bar.
  The **Styling Mode** must be set to **Advanced** for the scroll bar style to be visible. This setting can be found on the **General** tab by opening the **Settings** drop-down menu and selecting **Document Properties**.

- **Apply To...**: Opens the **Caption and Border Properties** dialog where you can set where to apply the properties that have been set on the **Layout** page.

Caption

A Caption setting will apply to the current object only, if it is made from the **Object Properties** page.
A Caption setting will apply to all objects of the specified type(s) in the document, if it is made from the **Document Properties** page.

On the **Caption** page, specify layout options that are completely different from the general layout of the object.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Title Text**: In the text box you can enter a title to be shown in the caption of the sheet object. Use the **Font...** button to change the caption font.

Set the colors of the caption in its different states. The settings for **Active Colors** and **Inactive Colors** can be made separately from each other.

Click the **Background Color** or **Text Color** button to open the **Color Area** dialog. The **Background Color** can be defined as a **solid** or a **gradient** color on the **Color Area** dialog. **Text Color** can be defined a **Fixed** or a **Calculated** color using color functions.

- **Wrap Text**: If this option is checked, the caption will be displayed in two or more rows.
- **Caption Height (Lines)**: Set the number of caption lines in this edit box.

The precise size and position of the QlikView object can be determined and adjusted by the size/position settings for the **Normal** or **Minimized** QlikView sheet object. These settings are measured in pixels:

- **X-pos**: Sets the horizontal position of the left side of sheet object in relation to the sheet's left edge.
- **Y-pos**: Sets the vertical position of the top side of sheet object in relation to the sheet's upper edge.
- **Width**: Sets the width of the QlikView sheet object.
- **Height**: Sets the height of the QlikView sheet object.

The orientation of the caption label can be altered with the **Caption Alignment** options:

- **Horizontal**: The label can be horizontally aligned: **Left**, **Centered** or **Right** within the caption area.
- **Vertical**: The label can be vertically aligned: **Top**, **Centered** or **Bottom** within the caption area.

Special Icons
Many of the object menu commands of the sheet objects can be configured as caption icons. Select commands to be shown as caption icons by marking the check box to the left of each command in the list.

Use the special caption icons with care. Too many icons will only confuse the user.

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that the object is minimizable. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Maximize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that the object is maximizable. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. The help text may be specified as a calculated formula. This option is not available at document level. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
  Enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Local objects and server objects

There are three different types of sheet objects:

Document sheet objects are stored inside the QlikView document. They will always be available to whoever opens the document locally or from a QlikView Server.
Personal server objects are only available when working with a document on QlikView Server and only to authenticated users. They are stored in a repository on the server and are accessible to the user from any computer where authenticated. Your personal server objects can be managed from the server objects pane, accessible from the **View** menu.
Shared server objects are only available when working with a document on QlikView Server and only to authenticated users. Any user who has created a personal server object may flag this as shared. They will then become available to other users. Just like personal server objects, shared server sheet objects are stored in a repository on the server. Available shared server objects can be managed from the server objects pane, accessible from the **View** menu.

Actions

On this page actions can be set for certain objects:

- buttons
- text objects
- gauges
- line/arrow objects

Actions include launching an external application or exporting data from QlikView.

Actions

Action	Details
Add	Opens the **Add Action** dialog where the actions for the object are chosen. Choose the type of action in the lists. Depending on the action, different parameters for the action will appear on the **Actions** page. The actions will be executed in the order in which they appear in the list. Actions are then handled by separate threads and do not wait for the previous command to finish before starting. Because of this, the order in which they are completed is not necessarily the same as that in which they are started.
Delete	Removes the action from the object.
Promote	Moves the selected action up in the list of actions.
Alternate State	Sets the state that the action refers to. This setting is only relevant for actions related to selections or bookmarks.

Notes and Comments

Notes and comments can be added to all objects when connected to a QlikView server, allowing users to create and share notes about the current object.

Notes are shared with other QlikView users, and these users can respond by leaving their own comments. It is also possible to save a snapshot (bookmark) of the data with each note.

When right-clicking an object, it is possible to add a new note and to view existing notes, by selecting **Notes** from the context menu. After having selected **Add a New Note** or **View Attached Notes**, all objects in the current document with existing notes are supplied with an indication in the top left corner. The number of attached notes for each object is displayed in the indication.

7.6 Layout Themes

About QlikView Layout Themes

Theme Basics

A QlikView layout theme is a set of formatting properties that can be applied to a whole QlikView layout or to parts thereof. Theme files are coded in xml and normally kept in a special QlikView theme folder under Windows' Application Data folder for the active user.

Themes can significantly reduce time and effort needed to make a QlikView layout good-looking and consistent. They can also be used to enforce a certain graphical style within a company etc.

Theme Topology

A QlikView theme file consists of individual sections for each type of layout object (document, sheet and all different types of sheet objects). Each of these sections has three sub-sections, one for object type specific properties, one for border/caption properties and one for printer setting properties (only for printable object types). Each section and sub-section can be created or replaced separately using the **Theme Maker Wizard**, without affecting other sections in the theme file.

A theme section is created as follows:

1. Format a specific object according to your wishes
2. Use the **Theme Maker Wizard** to extract selected properties from that object and insert them into a theme file

General Purpose Themes

General purpose themes are themes which have defined sections for all different object types. There are a number of such themes provided with the QlikView installation package.

If you want to create such a theme yourself you must:

1. Format **Document Properties** to your liking
2. Format the **Sheet Properties** of one sheet to your liking
3. Create (if necessary) and format one sheet object of each type to your liking. Caption/Border properties typically only need to be formatted for once one sheet object type which usually uses caption (list boxes, charts etc) and once for one sheet object type which normally goes without caption (text object, button etc).
4. Run the **Theme Maker Wizard** creating a new theme and insert properties from the first of the formatted entities listed above (order doesn't matter).
5. Run the **Theme Maker Wizard** repeatedly, once for every remaining formatted entity listed above.

Specific Purpose Themes

It is possible to create themes for specific uses. Depending on the purpose these may only need to define a small sub-set of the available theme sections and sub-sections. As an example, you may define a theme which sets only chart objects to a given size and position on the sheet. In order to do that you need to define a theme with one single property from the caption/border group only for charts, i.e. one single sub-section.

Applying Themes in the Layout

QlikView layout themes can be applied either manually at any given time or automatically every time a new layout object is created. Themes can be applied to

- individual sheet objects
- a group of sheet objects
- a sheet
- the whole document

Applying a Theme to Individual Objects

Do as follows:

1. Activate the sheet object by clicking on it.
2. Open the **Properties** dialog for the sheet object from the context menu.
3. Go to the **Layout** page
4. Click on the **Apply Theme...** button
5. Select a theme in the browser dialog that opens
6. Click OK

All properties in the theme which are applicable to the selected sheet object will now be applied. If you want to apply a theme to a group of sheet objects, you must first make them all active by means of Shift+clicking or rectangle selection (draw a rectangle with the left mouse button pressed to select all objects within the rectangle).

Applying a Theme to a Sheet

Do as follows:

1. Activate the sheet by clicking on its tab.
2. Open the **Sheet Properties** dialog from the **Settings** menu.
3. Go to the **General** page
4. Click on the **Apply Theme...** button
5. Select a theme in the browser dialog that opens
6. Click **OK**

All properties in the theme which are applicable to the selected sheet will now be applied. Additionally the theme will also be applied to all sheet objects on the sheet.

Applying a Theme to a Whole Document

Do as follows:

1. Open the document or activate it.
2. Open the **Document Properties** dialog from the **Settings** menu.
3. Go to the **Layout** page
4. Click on the **Apply Theme...** button
5. Select a theme in the browser dialog that opens
6. Click **OK**

All properties in the theme which are applicable to the document will now be applied. Additionally the theme will also be applied to all sheets and all sheet objects in the document.

Theme Maker Wizard

Step 1 - Select Theme File

Step 2 - Source Selection

Step 3 - Select Specific Properties

Step 4 - Insertion of Properties in Theme

Step 5 - Save Theme

Select **Theme Maker Wizard** command from the **Tools** menu to start the Theme Maker wizard.

The first time a start page outlining the purpose and the basic steps of the wizard is opened. To skip the start page in the future, mark the **Don't show this page again** check box. Click **Next** to continue.

Step 1 - Select Theme File

Choose between creating a new theme from scratch, creating a new theme based on an existing one or modifying an existing theme.

- **New Theme**: Choose this option to create a new theme.
- **Template**: To base the new theme on an existing one, choose the base theme in this drop-down. The drop-down will list all existing themes in your default QlikView theme folder. At the bottom of the list is a **Browse...** option for browsing for theme files in other locations.
- **Modify Existing Theme**: To modify an existing theme, choose this option. Select a theme in the drop-down. The drop-down will list all existing themes in the default QlikView theme folder. At the bottom of the list is a **Browse...** option for browsing for theme files in other locations.

Click **Next** to continue. The **Save As** dialog will appear when creating a new theme.

Step 2 - Source Selection

When building a theme take one or more groups of formatting properties from an existing object. The source object can be any sheet object, any sheet or even the document itself.

- **Source**: Select the source object from the list in the drop-down box. The drop-down list contains a list of all available objects in the document. The active object will be pre-selected.
- **Property Groups**: There are three main groups of formatting properties that can be extracted from a layout object and inserted into a theme. Mark one or more of the three check boxes below for

extraction from the source object to the theme:

- **Object Type Specific**: Mark this check box to extract object type specific properties from the source object for inclusion in the theme. Object type specific properties are such properties that only exist in a given object type, e.g. charts. This type of properties can only be copied to other objects of the same type as the source object type.
- **Caption & Border**: Mark this check box to extract caption and border properties from the source object for inclusion in the theme. This type of properties can be copied to other object types than the source object type.
- **Printer Settings**: Mark this check box to extract printer settings properties from the source object for inclusion in the theme. This type of properties can be copied to other object types than the source object type. For each of the selections above you will be able to choose specific properties for inclusion in or exclusion from the theme in the wizard steps that follow.

Click **Next** to continue.

Step 3 - Select Specific Properties

In step 3 more detailed selections of properties to be extracted from the source object and included in the theme can be made. This wizard step will be repeated for each of the three main property groups selected in step 2.

Each item in the list indicates a single property or a group of properties, which can be included in or excluded from the theme. Mark the items to include.

When modifying an existing theme, those items marked when entering this step are those currently included in the theme. By changing selections all previous settings in the theme will be overwritten.

When creating a new theme from scratch, those items marked when entering this step are those which are typically suitable for inclusion in a general purpose theme.

Click **Next** to continue.

Step 4 - Insertion of Properties in Theme

In the fourth step in the wizard you decide which sections and sub-sections of the theme should be written to the theme with the extracted object properties. There are three columns with check boxes, each check box representing one sub-section of the theme. Based on your selections in step 2 and 3 of the wizard only some of the check boxes will be available for selection, the remainder being grayed out.

Those check boxes surrounded by green frames indicate sub-sections which are currently defined in the theme (only applicable when modifying an existing theme).

The columns with check boxes correspond to the three check boxes in step 2. It is only possible to make selections in a column if the corresponding check box was selected in step 2, followed by appropriate selections in step 3.

The object type specific sub-section can only be selected for the type of source object selected in step 2. Caption/border settings and printer settings can be set across object types.

Click **Next** to continue.

Step 5 - Save Theme

There are two options available for a theme to be saved as defaults for new documents or objects.

- **Set as default theme for this document**: Mark this check box to use this theme as default theme in the current document. This means that it will be applied to all newly created sheets and sheet objects in the document. The selected theme must be accessible from disc at all times in order to be used. It is also important that the theme used is defined for all types of objects that may occur in a QlikView document. Default theme can be set at all times from the **Document Properties: Presentation** page.
- **Set as default theme for new document**: Mark this check box to use this theme as default theme for new documents. This means that it will be set as default theme in newly created documents. The selected theme must be accessible from disc at all times in order to be used. It is also important that the theme used is defined for all types of objects that may occur in a QlikView document. Default theme for new documents can be set at all times from the **Design** page of the **User Preferences** dialog.

Click **Finish** to save the theme and return to the layout.

7.7 Time Chart Wizard

The time chart wizard helps you to with the common task of building charts where a given measure (expression) should be qualified and often compared by different time periods.

As an example, you may want to show an expression such as sum(Sales) but just for the last year or the current quarter to date. Often you will also want to compare that result with the same measure for a previous period, e.g. the year before or the same quarter last year. QlikView contains a number of functions to build expressions to do this, but to the beginner they may seem hard to master. The time chart wizard has been designed to help you with the task of enclosing your basic measure expression in suitable time qualification functions according to your specifications.

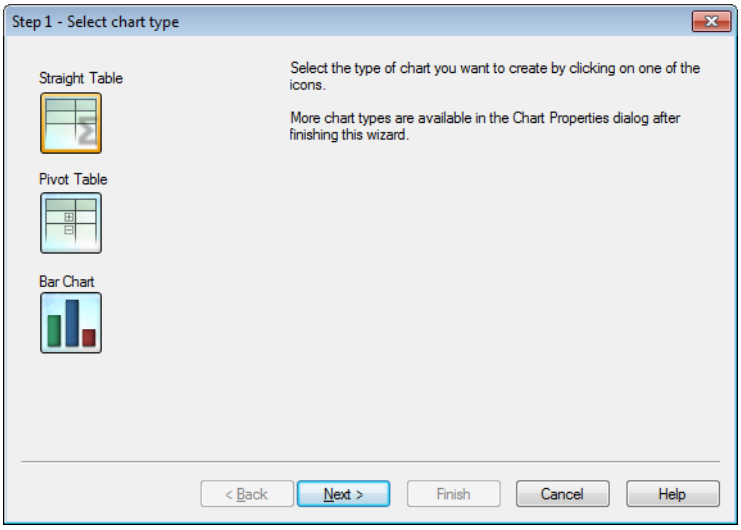
Starting the Time Chart Wizard

Start the time chart wizard either by choosing **Time Chart Wizard** from the **Tools** menu or by clicking on the corresponding button in the **Design** toolbar.

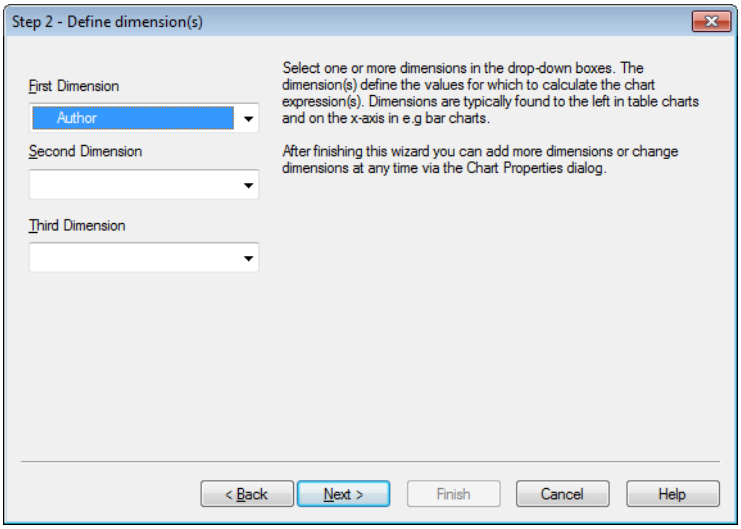
The first time you start the wizard you are met by a start page outlining the purpose of the wizard and the basic steps involved. If you want to skip the start page when you use the wizard in the future, mark the **Don't show this page again** check box.

Depending on selections some of the below steps may be skipped. Move forward in the wizard by clicking **Next**. Click **Finish** in order to finalize the chart and return to the layout. Return to the chart at any time via the regular **Chart Properties** dialog in order to make further adjustments.

The time chart wizard takes you through the following basic steps:



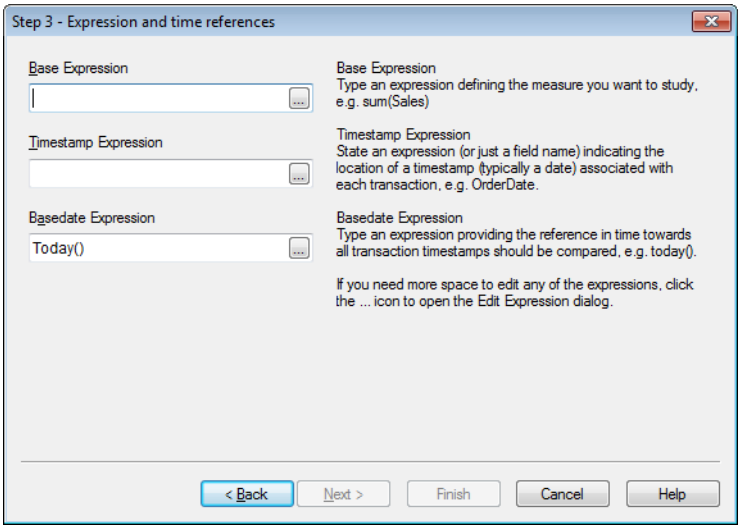
1. Select the type of chart you want to create by clicking on one of the icons. The chart types available are those typically used in charts involving time period qualification. It is possible to change the chart into any other QlikView chart type via the **Chart Properties** dialog after finishing the wizard.



2. Select one or more dimensions in the drop-down boxes. The dimension(s) define the values for which to calculate the chart expression(s).

Dimensions are typically found to the left in table charts and on the x-axis in e.g. bar charts.

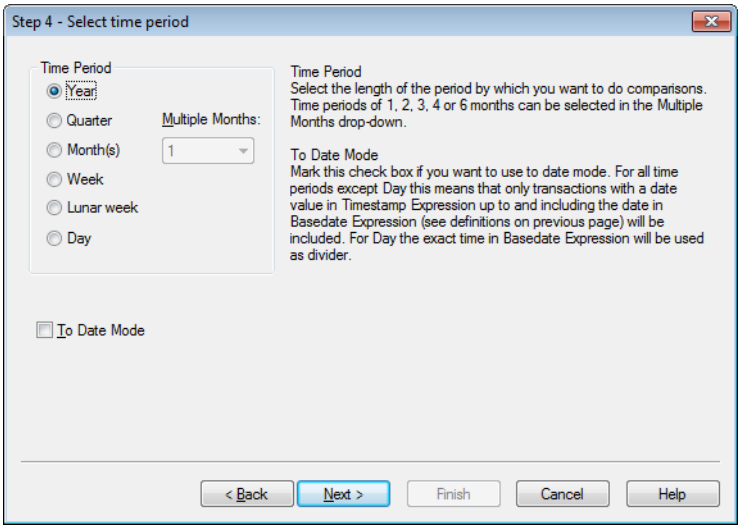
*After finishing this wizard you can add more dimensions or change dimensions at any time via the **Chart Properties** dialog.*



3. Under Base Expression, type an expression defining the measure you want to study, e.g. sum(Sales).

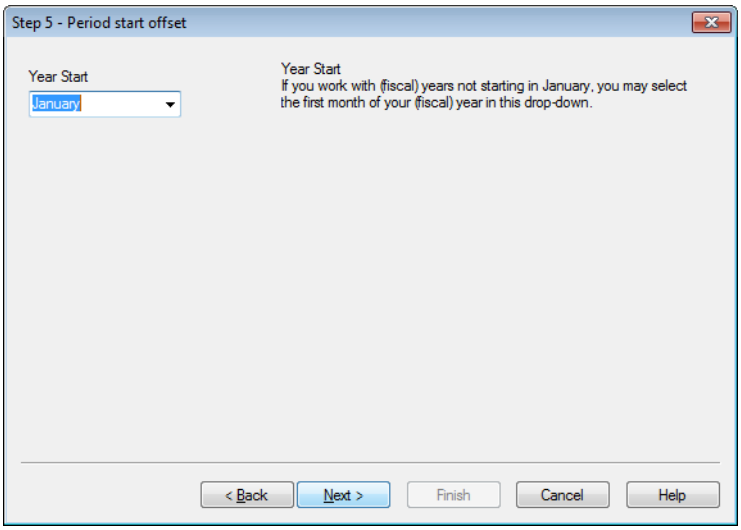
> *If you need more space to edit any of the expressions, click on the* ***...*** *icon to open the* ***Edit Expression*** *dialog.*

4. Under Timestamp Expression, state an expression (or just a field name) indicating the location of a timestamp (typically a date) associated with each transaction, e.g. OrderDate.
5. Under Basedate Expression, type an expression providing the reference in time towards which all transaction timestamps should be compared, e.g. today().

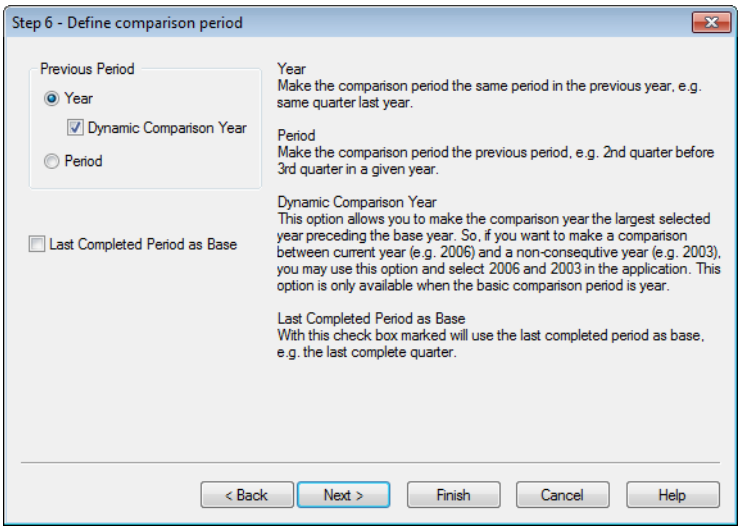


6. Under **Time Period**, select the length of the period by which you want to qualify the chart expression and make comparisons. When using the Month(s) option, time periods of 1, 2, 3, 4 or 6 months can be selected in the **Multiple Months** drop-down. The value 3 can be given, but will correspond exactly to **Quarter**. Lunar weeks are defined as consecutive 7-day periods starting January 1st each year. There are always exactly 52 lunar weeks in a year, meaning that lunar week 52 will contain 8 or 9 days.

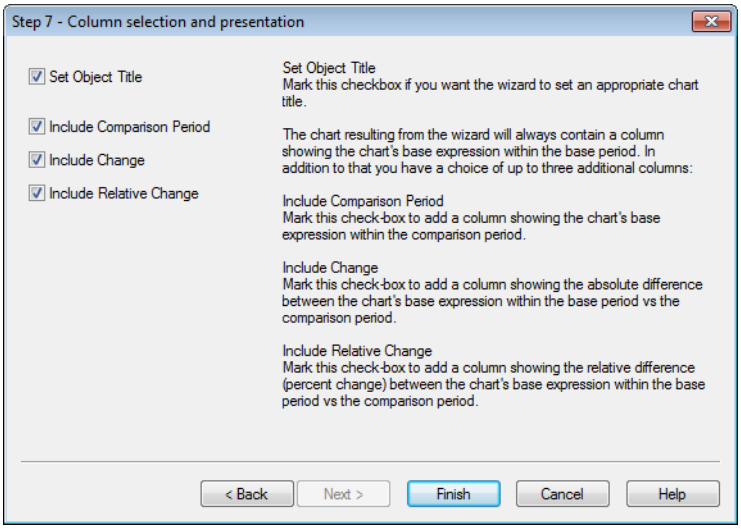
7. Mark the check box **To Date Mode** if you want to use to date mode. For all time periods except Day this means that only transactions with a date value in **Timestamp Expression** up to and including the date in **Basedate Expression** (see definitions on previous page) will be included. For **Day** the exact time in **Basedate Expression** will be used as divider.
8. Mark the check box **Last Completed Period as Base** to use the last completed period as base, e.g. the last complete quarter.



9. Optionally, state an offset to the beginning of the chosen time period. Depending on the **Time Period** chosen in step 6, one of the following two options will be given:
    - To offset the beginning of your (fiscal) year, select the first month of your (fiscal) year in this drop-down. This option is only available if the basic **Time Period** chosen in step 4 above is **Year**, **Quarter** or **Months**.
    - To offset the beginning of the week or day, input a number of days or fractions thereof, e.g. 1 for calendar week starting at Tuesday or 0.125 for day starting at 3am. This option is only available if the basic **Time Period** chosen in step 4 above is **Week**, **Lunar Week** or **Day**.



10. Define the comparison period. If you have chosen **Year** as main **Time Period** in step 4 above, this page is automatically skipped.



11. Choose which expression columns to include in the chart.
    - Mark the check box **Set Object Title** if you want the wizard to set an appropriate chart title.
    - Mark the check box **Include Comparison Period** in order to add a column showing the chart's base expression within the comparison period.
    - Mark the check-box **Include Change**in order to add a column showing the absolute difference between the chart's base expression within the base period vs the comparison period.
    - Mark the check box **Include Relative Change** in order to add a column showing the relative difference (percent change) between the chart's base expression within the base period vs. the comparison period.

7.8 Statistics Chart Wizard

The Statistics chart wizard provides guidance for those who want to apply common statistical tests on data in QlikView.

Starting the Statistics Chart Wizard

Start the statistics chart wizard by choosing **Statistics Chart Wizard** from the **Tools** menu. The first page offers a choice of statistical tests. Select the appropriate type of test and then click **Next** to continue.

Please note that QlikView supports more types of tests than those covered in the wizard. For further information about statistical tests and their uses, please refer to a statistics text book.

Chi2-Test

This option generates a straight table with values returned from a Chi2-test. A Chi2-test is often used to compare two sets of values and determine the probability that the two sets come from the same statistical distribution. To obtain the Chi2-test chart, you must specify the following:

- **Column**: Specify a field or expression returning column headers for the test data sample.
- **Row**: Specify a field or expression returning row headers for the test data sample.
- **Value**: Specify a field or expression returning test value data.
- **Expected Value**: Mark this check box if you want to test against expected value. Enter a field name or an expression returning expected value in the edit box below. If expected values are not specified, the test will be made for variations within the rows/columns.
- **p (Show p-value / Significance)**: Mark this check box to include the **p** value (significance) in the resulting chart.
- **df (Show Degrees of Freedom)**: Mark this check box to include the **df** value (degrees of freedom) in the resulting chart.
- **Chi2 (Show Chi2 Value)**: Mark this check box to include the test value in the resulting chart.

Click **Finish** to finalize the chart and return to the layout. Return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Paired T-Test

This option generates a straight table with values returned from a paired student's t-test.

To obtain the t-test chart, you must specify the following:

- **Value Field / Expression**: Specify a field or expression returning test value data series.
- **Test Value**: Specify a field or expression returning a test value.
- **t (Show t-value)**: Mark this check box to include the t-value in the resulting chart.
- **df (Show Degrees of Freedom)**: Mark this check box to include the df value (degrees of freedom) in the resulting chart.
- **p (Show p-value / Significance (2-tailed))**: Mark this check box to include the p-value (significance, 2-tailed) in the resulting chart.
- **Mean difference**: Mark this check box to include the mean difference value in the resulting chart.
- **Lower (CL %)**: Mark this check box to include the lower limit of the confidence interval (as specified in **Confidence Level** below) in the resulting chart.
- **Upper (CL %)**: Mark this check box to include the upper limit of the confidence interval (as specified in **Confidence Level** below) in the resulting chart.
- **Confidence Level**: Specify a percentage for the level of confidence.

Click **Finish** to finalize the chart and return to the layout. Return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

Independent Samples T-Test

This option generates a straight table with values returned from a two-sample unpaired student's t-test.

To obtain the t-test chart, you must specify the following:

- **Grouping Field/Expression**: Specify a field or expression returning test grouping data series. Exactly two values must be returned.
- **Test Field/Expression**: Specify a field or expression returning the test value data series.

- **t (Show t Value)**: Mark this check box to include the t value in the resulting chart.
- **df (Show Degrees of Freedom)**: Mark this check box to include the df value (degrees of freedom) in the resulting chart.
- **p (Show p-value / Significance (2-tailed))**: Mark this check box to include the p-value (significance, 2-tailed) in the resulting chart.
- **Mean difference**: Mark this check box to include the mean difference value in the resulting chart.
- **Lower (CL %)**: Mark this check box to include the lower limit of the confidence interval (as specified in **Confidence Level** below) in the resulting chart.
- **Upper (CL %)**: Mark this check box to include the upper limit of the confidence interval (as specified in **Confidence Level** below) in the resulting chart.
- **Confidence Level**: Specify a percentage for the level of confidence.

Click **Finish** to finalize the chart and return to the layout. Return to the chart at any time via the regular **Chart Properties** dialog to make further adjustments.

7.9 Boxplot Wizard Start Page

The first time you start the wizard you will be met by a start page outlining the purpose of the wizard and the basic steps involved. If you want to skip the start page when you use the wizard in the future, mark the **Don't show this page again** check box.

Boxplot Wizard Define Data

Select the **dimension** for the x-axis. After finishing this wizard you can add more dimensions or change dimensions at any time via the **Chart Properties** dialog.

Select the **aggregator**. The aggregator is the value that is iterated over when the expression is calculated.

Lastly, define the **expression**. The expression defines the calculated value in the chart . Expressions are typically found on the y-axis in a bar chart. Expressions in QlikView can range from short and simple to long and complex. This field allows you to type your expression from scratch.

After finishing this wizard you can change the expression or add more expressions at any time via the **Chart Properties** dialog.

Boxplot Wizard Presentation

The following properties can be configured:

- **Display Mode**: Choose the **Display Mode** for the distribution, **Average** or **Median**.
- **Include Whiskers**: Include whiskers to have the chart display the upper and lower whiskers, as either **Min/Max** or **5/95 percentiles**.
- **Use Outliers (Min/Max)**: Mark this check box to show so called outliers for extreme values.

7.10 Reports

Printing a report often means printing a single table or graph. In QlikView this is done as easily as selecting a sheet object and then choosing **Print** from a menu or toolbar. Sometimes however, there is a need for producing more complex reports including multiple charts and/or tables. This is where the QlikView **Report Editor** comes into the picture. The QlikView **Report Editor** offers the possibility to group a number of different sheet objects together on one or more pages with full control of page layout, including headers/footers etc.

QlikView reports come in two flavors, document reports and user reports.

Report types

Report Type	Description
Document Reports	Created with the QlikView document and stored as part of the QlikView document file (QVF or QVW). Any user accessing the QlikView document locally or via QlikView Server can access the document reports in the document.
User Reports	Created by a user working with a document from QlikView Server. The report is stored on the local client machine in a manner similar to that of user bookmarks. Only the local user has access to his/her own user reports. User reports can only be created from the Windows based QlikView clients (that is, not from AJAX clients).
My Server Reports	Only available when working with a document on QlikView Server and only to authenticated users. They are stored in a repository on the server and are accessible to the user from any computer where authenticated.
Shared Server Reports	Only available when working with a document on QlikView Server and only to authenticated users. Any user who has created a personal server report may flag this as shared to other users. It will then become available to other users. Just like My Server Reports, shared server reports are stored in a repository on the server.

When using the term "Report Generator" one usually refers to a well defined category of software products. These typically work by combining data from several SQL queries (more or less obscured from the user by means of graphical interfaces), each of which is formatted for printing in different ways. QlikView reports fetch their data from QlikView sheet objects and lack the possibility to draw data from SQL queries. Just as it is absolutely correct to say that QlikView can produce reports, it is incorrect to label the QlikView Report Editor a report generator in the traditional sense.

Report Editor

The **Report Editor** dialog consists of two pages, the **Report List** and the **Page Editor**. When first entering the report editor, the **Report List** will be shown.

Report List

The **Report List** page is used to manage reports. It is possible to create new reports and remove existing reports. This is also where a report is selected for page editing in the **Page Editor**. At the top of the page a drop-down and a list of reports are found. The drop-down is used for:

- **Document Reports**: Opens a list of all document reports in the active document. Clicking one of the report names opens the **Print** dialog for printing of the report.
- **User Reports**: Opens a list of all user reports, stored separately on the user's computer. Clicking one of the report names opens the **Print** dialog for printing of the report.
- **My Server Reports**: Personal server reports are only available when working with a document on QlikView Server and only to authenticated users. They are stored in a repository on the server and are accessible to the user from any computer where authenticated.
- **Shared Server Reports**: Shared server reports are only available when working with a document on QlikView Server and only to authenticated users. Any user who has created a personal server report may flag this as shared to other users. It will then become available to other users. Just like personal server reports shared server reports are stored in a repository on the server.

Reports may be **document reports**, stored with the document, or **user reports**, stored separately on the user's computer. In the drop-down list **Available Reports** at the top of the Report Editor screen you select whether **Document Reports** or **User Reports** should be shown in the list. For server documents you may choose between **My Server Reports**, **Shared Reports** or **User Reports**. The list itself includes several columns:

Document properties

Property	Description
Name	Name of the report.
ID	The unique report ID (see below).
Pages	Number of pages currently defined in the report.
Share	This check box is only available in the My Server Reports list. By marking it for one of the My Server Reports, the report will be available to other authenticated users of the same server document in their Shared Server Reports list. The report will stay in the My Server Reports list and will not appear in the Shared Server Reports list. Deselect the check box at any time to revoke the sharing.
Author	The authenticated name of the creator of the report.
Add...	Push this button to create a new report. If **Document Reports** is selected above the **List of Report**s, the new report will be a document report. If User Reports is selected, the new report will be a user report. The dialog **New Report** is opened so that you can name your report. Check **Copy Pages from Other Report** and pick an existing report in the drop-down menu to copy pages from that report.
Delete	Push this button to delete the report currently selected in the **List of Reports**.

Property	Description
Promote	Push this button to promote the report currently selected in the **List of Reports** one step up in the list.
Demote	Push this button to demote the report currently selected in the **List of Reports** one step down in the list.
Move Local User Reports to Server	This text only appears when you work with a server document and if you have selected **User Reports** in the drop-down at the top of the list. By clicking on the text you can convert all the local user reports to server reports, stored in the server repository. This is a recommended practice as the personal server reports will stay accessible via the server even if the computer is changed or if the server document is renamed. Before the conversion takes place, the system asks for confirmation. The conversion is all-or-nothing (within the active document) and one-way only.
Edit >>	Invokes the **Page Editor** for the selected report. Pushing this button is equivalent to double-clicking on a report in the **List of Reports**.

Page Editor

The **Page Editor** page is used to define the pages of a report selected on the **Report List** page. The page has two panes and a toolbar to assist you in designing report pages. At the bottom you find the following buttons:

Report List buttons

Button	Description
Report List>>	Takes you back to the **List of Reports** page.

Edit Menu

Edit Menu buttons

Button	Description
Copy	Copies the currently selected item and the current page in the report. Also available as right-click command in the page preview pane.
Paste Report	Pastes the report from the Clipboard.
Paste Page	Pastes the page from the Clipboard.
Paste Item	Pastes the item from the Clipboard. Also available as right-click command in the page preview pane.
Snap to Grid	Displays a grid in the report to help align the report items.

Reports Menu

Reports Menu buttons

Button	Description
Add	Adds a report. Only available when viewing the **Report List**.
Delete	Deletes a report. Only available when viewing the **Report List**.
Promote	Moves the selected report up one step in the list of reports. Only available when viewing the **Report List**.
Demote	Moves the selected report down one step in the list of reports. Only available when viewing the **Report List**.
Export	Saves the report file as an XML document. Only available when viewing the **Report List**.
Import	Imports a report that has been saved as XML. Only available when viewing the **Report List**.
Print Preview...	Opens the **Print Preview** dialog and where you can see how the current report will look when printed with the current selections in the QlikView document.
Print...	Opens the **Print** dialog and prints the current report.
Report Settings	Opens the **Report Settings** dialog where you can set various properties for the report. This includes margins, header/footer setting etc.

Page Menu

Page Menu buttons

Button	Description
Promote	Promotes the currently selected page. This may also be achieved by means of dragging and dropping the page in the page list pane.
Demote	Demotes the currently selected page. This may also be achieved by means of dragging and dropping the page in the page list pane.
Add Multi Page	Adds a multi-paper page after the currently selected page.
Add Single Page	Adds a single-paper page after the currently selected page.
Delete	Deletes the currently selected page.
Page Settings	Opens the **Page Settings** dialog where you can set various properties for the selected page.

Item Menu

Item Menu buttons

Button	Description
Left Align	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the left. Also available as right-click command in the page preview pane.
Center Horizontally	Only available when two or more print objects are selected. Centers the selected objects horizontally. Also available as right-click command in the page preview pane.
Right Align	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the right. Also available as right-click command in the page preview pane.
Bottom Align	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the bottom. Also available as right-click command in the page preview pane.
Center Vertically	Only available when two or more print objects are selected. Aligns the selected objects along their center on the vertical axis. Also available as right-click command in the page preview pane.
Top Align	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the top. Also available as right-click command in the page preview pane.
Space Horizontally	Only available when two or more print objects are selected. Distributes the selected objects on the horizontal axis with equal spaces between them. Also available as right-click command in the page preview pane.
Space Vertically	Only available when two or more print objects are selected. Distributes the selected objects on the vertical axis with equal spaces between them. Also available as right-click command in the page preview pane.
Adjust Left	Only available when two or more print objects are selected. Arranges the active sheet objects from the vertical edge of the left-most object and to the right with minimal spaces between them. Also available as right-click command in the page preview pane.
Adjust Top	Only available when two or more print objects are selected. Arranges the active sheet objects from the horizontal top edge of the topmost object and downwards with minimal spaces between them. Also available as right-click command in the page preview pane.
Same Width	Only available when two or more print objects are selected (with the help of Shift-click). Gives the currently selected items the same width. Also available as right-click command in the page preview pane.
Same Height	Only available when two or more print objects are selected (with the help of Shift-click). Gives the currently selected items the same height. Also available as right-click command in the page preview pane.

Button	Description
New Image...	Creates a new text object (in a hidden location in the document) and then opens the Text Object Properties dialog for selection of an image. The image will appear as a regular print item in the page preview pane, where it can be moved and sized just like any other print item.
New Text...	Creates a new text object (in a hidden location in the document) and then opens the Text Object Properties dialog where the properties for the new text object can be edited. The text object will appear as a regular print item in the page preview pane, where it can be moved and sized just like any other print item.
New Current Selections...	Creates a selection stamp object for the report. The selection stamp will appear as a regular print item in the page preview pane, where it can be moved and sized just like any other print item.
Delete	Deletes the currently selected item(s). Also available as right-click command in the page preview pane.
Item Settings...	Opens the **Item Settings** dialog where you can set various properties for the selected print item. Also available as right-click command in the page preview pane.

At the bottom of the two panes there are icons for some of the functions in the different menus:

Menu icons

Icon	Function
Page Settings	Opens the **Page Settings** dialog where you can set various properties for the selected print item. Also available as right-click command in the page preview pane.
Delete	Deletes the highlighted page.
Add	Adds a single-paper page or a multi-paper page after the currently selected page.
Item Settings	Opens the **Item Settings** dialog where you can set various properties for the selected print item. Also available as right-click command in the page preview pane.
Delete	Deletes the highlighted item.
Add	Adds a new image, new text or a new current selections stamp.

Page List Pane

To the left you will find a list of all pages in the report. QlikView reports can contain two different types of pages, single paper pages and multi paper pages. Any number of pages can be added and the two types may be mixed in any combination within a report.

Single paper pages

A single paper page can contain any number of sheet objects. The page will always be printed on exactly one paper page (or PDF page) and the sheet objects will have to be zoomed or truncated to fit the page. Sheet objects may overlap on the page. Extra text can be added.

Multi paper pages

A multi paper page can contain one sheet object which may spread over a number of paper pages (or PDF pages), depending on the amount of data to be printed. A multi paper page is the typical choice when printing large tables. In addition to the dynamic size objects it is possible to add fixed size objects in introduction and/or appendix zones on the page. These zones work just like single paper pages.

Manipulating the page list

Select a page for editing by clicking on it in the list. There are a number of toolbar commands directly associated with the page list pane:

Page List toolbar commands

Command	Function
Add Single Paper Page	Adds a single paper page after the currently selected page.
Add Multi Paper Page	Adds a multi paper page after the currently selected page.
Delete Page	Deletes the currently selected page.
Promote Page	Promotes the selected page one step up the list. It is also possible to drag and drop the page in the page list pane.
Demote Page	Demotes the selected page one step down the list. It is also possible to drag and drop the page in the page list pane.

Page Preview Pane

To the right of the page list pane a preview of the page currently selected is found in the page list pane.

Adding sheet objects to the report

Simply drag or double-click on any sheet object in the layout to put it in the report page preview. The print objects will appear in the preview as they currently look in the QlikView layout. The exact appearance of the object in the report will of course dynamically reflect how the sheet object looks in the layout at the time of printing, with respect to property changes as well as to changes in selected data. It is possible to select multiple sheet objects in the layout and drag them as a group into the report. Note that only one print object can be added to the central dynamic area of a multi paper page!

Sizing and positioning of print objects on page

Once added the sheet object will appear in the page preview pane. There will be a border around the object and placeholders in each corner to mark that the object is selected. Point at it with the mouse and move it to the desired position. Use the corner placeholders to adjust the size. A dashed line shows the current margins. No print object can be placed outside these margins.

Navigating and selecting print objects on page

Select a print object by clicking on it. Once one print object has been selected, it is possible to move the selection to the next object using the Tab key (Shift+Tab to move backwards). Use Shift-click to select multiple objects. In multi paper pages, drag print objects between the different areas.

When one or two items are highlighted in the preview pane, the commands in the align toolbar become available.

Align toolbar commands

Command	Function
Align Top	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the top.
Center Vertically	Only available when two or more print objects are selected. Aligns the selected objects along their center on the vertical axis. Also available as right-click command in the page preview pane.
Align Bottom	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the bottom.
Align Left	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the left.
Center Horizontally	Only available when two or more print objects are selected. Centers the selected objects horizontally. Also available as right-click command in the page preview pane.
Align Right	Only available when two or more print objects are selected (with the help of Shift-click). Aligns the selected objects to the right.
Space Horizontally	Only available when two or more print objects are selected. Distributes the selected objects on the horizontal axis with equal spaces between them. Also available as right-click command in the page preview pane.
Space Vertically	Only available when two or more print objects are selected. Distributes the selected objects on the vertical axis with equal spaces between them. Also available as right-click command in the page preview pane.
Adjust Left	Only available when two or more print objects are selected. Arranges the active sheet objects from the vertical edge of the left-most object and to the right with minimal spaces between them. Also available as right-click command in the page preview pane.
Adjust Top	Only available when two or more print objects are selected. Arranges the active sheet objects from the horizontal top edge of the topmost object and downwards with minimal spaces between them. Also available as right-click command in the page preview pane.

Toolbar commands

There are two toolbar commands directly associated with the page preview pane:

Page preview commands

Command	Function
Design Grid	Toggles the design grid on and off. This also activates the snap to grid functionality. With design grid and snap-to-grid activated it is easier to align the sheet objects on the page, but you have less exact control.
Zoom	In this drop-down, specify a zoom factor for the entire preview pane. With a larger zoom factor it becomes much easier to do exact placement of objects.

Then, there are some toolbar buttons for printing the report from inside the **Report Editor** dialog.

Print commands

Command	Function
Print Preview	Push this button to open the **Print Preview** dialog and see how the current report will look when printed with current selections in the QlikView document. This button is also available from the **Page Editor** page of the **Report Editor** dialog.
Print	Push this button to open the Print dialog and print the current report. This button is also available from the **Page Editor** page of the **Report Editor** dialog.
Copy	Copies the highlighted report, page or item.

Finally, there is a toolbar button for pasting copied reports, pages and items.

Report Editor: Report settings dialog

In this dialog you will find global (non page related) settings for the report. The dialog has four pages.

The Settings Tab

This **Settings** contains basic properties of the report:

Report properties

Property	Description
Name	Name of the report. This may be any text string. The name may be given as a calculated formula for dynamic update.
Report Id	The unique ID of the report. Upon creation, every QlikView layout entity, including reports, is assigned a unique ID for control via Automation. The ID by default consists of a combination of letters defining the type of entity, as well as of a number. The first report of a document will be assigned the ID RP01. An ID may be changed to any other string that is currently not used for any other report, sheet object, sheet, bookmark or alert in the document..
Comment	This is a commentary field where the creator of a report can describe the purpose of the report or any details with regard to the report. It is not used outside of this dialog
Preferred Paper Size	In this drop-down you can specify the size of paper intended for the report. The proportions of the selected paper size will be reflected in the page preview pane. If the report is ultimately printed on another paper size than the one the report was designed for, QlikView will attempt to adjust the report contents by means of zooming the print objects to fit the new paper size.
Conditional Show	If this check box is marked, the report may be dynamically shown or hidden depending on the value of a condition expression entered in the edit box to the right. The condition expression will be evaluated each time the list of available reports is generated. The report will only be available when the condition returns true. Users with ADMIN privileges for the document can override all show conditions with the **Show All Sheets and Sheet Objects** in the **Document Properties: Security** dialog. This command can also be invoked by the following keyboard shortcut: Ctrl+Shift+S.

The Margins Tab

The **Margins** tab contains margin settings for the report. The controls are the same as for the **Layout** page of the **Print** dialog.

The Header/Footer Tab

The **Header/Footer** tab contains header/footer settings for the report. The controls are the same as for the **Header/Footer** page of the **Print** dialog.

The Selections Tab

This **Selections** contains settings for the selections to be used when printing the report:

Selection settings

Setting	Description
Initial Selections	These radio buttons allow you to state the initial selections for the report print. Regardless of which setting you use, the selections prevailing before the report print will be re-established after the print.
Current Selections	Use current selections as the basis of the report print (default).
Clear All	All current selections in the document will be cleared before printing the report. After completed printing, the original selections will be re-applied.
Current Selections	A bookmark, which can be selected in the drop-down box will be applied before printing the report. After completed printing, the original selections will be re-applied.
Loop Report Over Possible Values in Field	When this check box is marked, the entire report will be printed repeatedly while selecting each possible value in the field specified in the drop-down box below. If there are no possible values in the specified field, nothing will be printed. After completed printing, the original selections will be re-applied. If page numbers are used, these will be continuous over all pages printed.

Report Editor: Page settings dialog

In this dialog the settings for the currently selected page are found. The dialog has three pages.

General

The **General** tab contains basic properties of the page:

Page properties

Property	Description
Orientation	Each page can have its separate setting for orientation. Choose between **Portrait** and **Landscape**. The choice will be reflected in the page list pane above.
Page Type	Set if the report should be printed as a **Single Page** or as a **Multi Page** (for long tables).

Property	Description
Adjust Print for Paper	This setting is only available for multi paper pages. **Use Paper as Needed** No scaling of the sheet object printout. As many pages as needed in each direction will be used. **Scale to x %** The sheet object printout will be scaled to a fixed percentage of its original size. As many pages as needed in each direction will be used. **Fit to x by y** The sheet object printout will be scaled to fit on a fixed number of pages.

Settings

The **Settings** tab contains settings for introduction and appendix areas in multi-paper pages. It is not available for single-paper pages.

Introduction and appendix settings

Setting	Description
Use Introduction and Appendix	Enable this option to enable the use of fixed size print items in addition to the dynamic size content on a multi-paper page.
Introduction Placement	By marking one, two or three of the check boxes you can choose to print the introduction area on the **First Page**, on all **Intermediate Pages** and/or on the **Last Page**.
Introduction Height	Defines the height assigned on each page for the introduction area. The number is given in % of available print area (paper height minus header/footer areas). This setting may also be changed by dragging the border directly in the page preview pane.
Introduction Offset	Defines the spacing between the introduction area and the main area. the value is given in % of available print area (paper height minus header/footer areas).
Appendix Placement	By marking one, two or three of the check boxes you can choose to print the appendix area on the **First Page**, on all **Intermediate Pages** and/or on the **Last Page**.
Appendix Height	Defines the height assigned on each page for the appendix area. The number is given in % of available print area (paper height minus header/footer areas). This setting may also be changed by dragging the border directly in the page preview pane.
Appendix Offset	Defines the spacing between the introduction area and the main area. the value is given in % of available print area (paper height minus header/footer areas).

Banding

The **Banding** tab contains properties for banded output of the page. This means that the page is printed repeatedly for each possible value in a specified field.

When the check box **Loop Page Over Possible Values in Field** is marked, the page will be printed repeatedly while selecting each possible value in the field specified in the drop-down box below. If there are no possible values in the specified field, nothing will be printed. Note that if a selection loop has been specified also on

the report level you may face a situation where the report selection excludes all values in the page level loop variable. The page will then be skipped for that report loop value. After completed printing, the original selections will be re-applied. If page numbers are used, these will be continuous over all pages printed.

Report Editor: Item settings dialog

In this dialog you will find settings for the print item (object) currently selected in the page preview pane. The dialog has two pages.

General

The **General** tab contains settings for the print item currently selected in the page preview pane.

General settings

Setting	Description
Object ID	The sheet object ID of the sheet object to be printed.
Properties...	Opens the Properties dialog for the sheet object associated with the print item. Changes made in this dialog will be applied on the actual sheet object and reflected in the report print result.
Stretch	This control is only available for objects on single paper pages. Here you may select how the print object should be sized to fit inside the rectangle assigned to it.
Clip	Do not size the print object. If it is too large for the placeholder rectangle it will be truncated. If it is too small there will be blank space around it.
Fill	Size the print object so that it fills the placeholder rectangle.
Fill with Aspect	Size the print object so that it fits in the placeholder rectangle while keeping the original sheet object aspect ratio.
Use Border	The print object is normally printed on the page without any frame or border. By selecting this check box, you may have a border around the object.
Frame Color	Press this button to select the border color.
Frame Width	Here you can specify the thickness of the border.

Position

The **Position** tab contains settings for positioning and sizing the objects in the available print area.

Position settings

Setting	Description
Left	Sets the position of the currently selected item(s) relative to the left margin. 0 is to the far left of the available print area.
Top	Sets the position of the currently selected item(s) relative to the top. 0 is at the top of the available print are.
Width	Sets the size of the currently selected item(s) in 1/1000 parts of the width of the available print area.

Setting	Description
Height	Sets the size of the currently selected item(s) in 1/1000 parts of the height of the available print area.
Z Level	Sets the layer of the currently selected item(s). If items overlap the item at the lowest level (1) will be printed first, then the next layer will be printed and so on.

7.11 Alerts

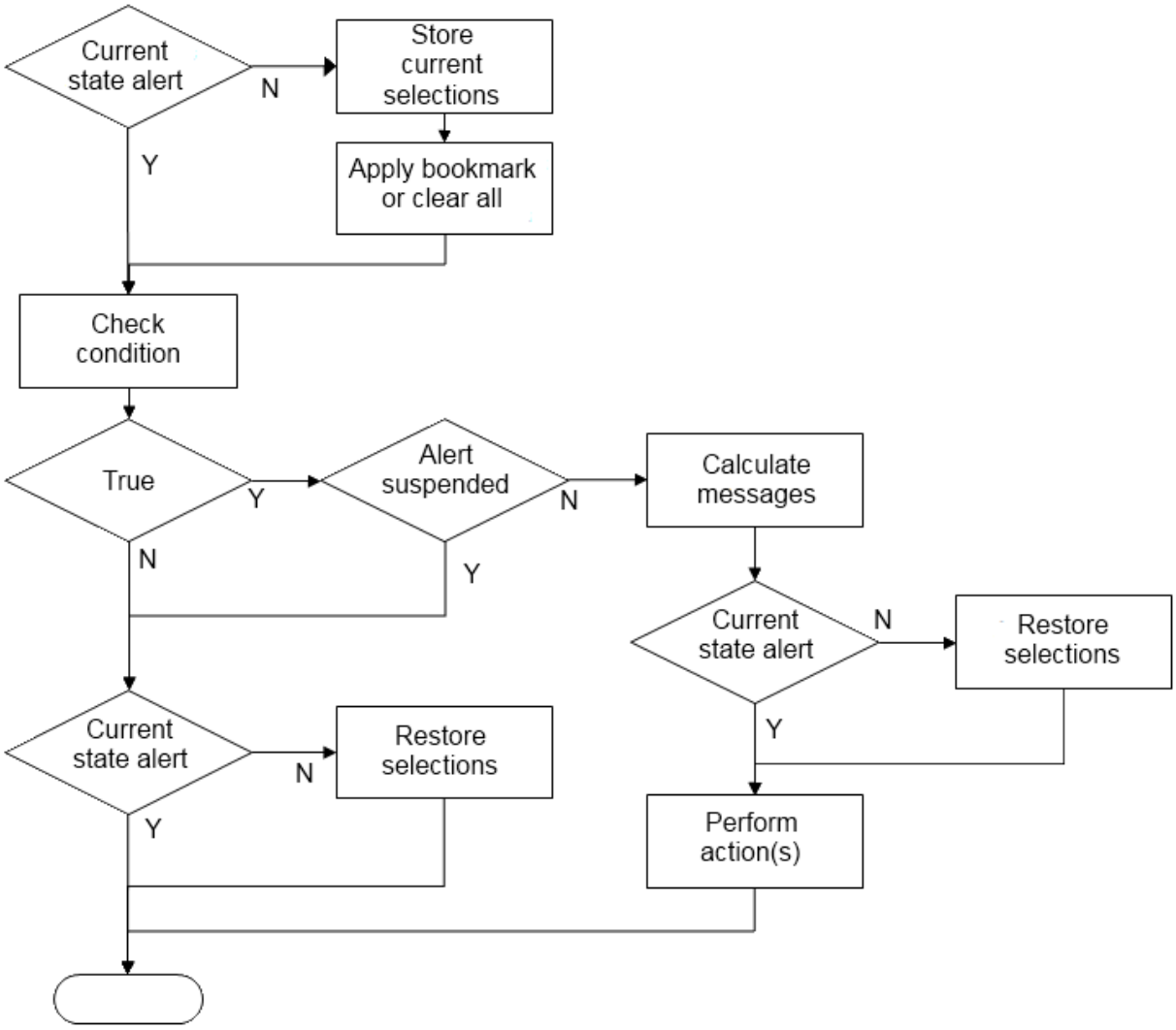
The easiest way to define an alert is by using the **Alert Wizard**, which can be invoked from the **Tools** menu. Alerts may also be created and maintained in the **Alerts** dialog, which can be opened from the **Tools** menu. Alerts are stored as part of the QlikView document. Alerts can only be created and triggered from Windows versions of QlikView (that is, not from AJAX clients).

Using Alerts

QlikView alert checks can be triggered in three different ways:

1. Automatically in the QlikView layout when there is a probability that the document's data has changed, i.e. when the document is opened, when the script has been executed or when a Reduce Data operation has been performed.
2. Manually from a macro via special Automation APIs. Refer to the QlikView API guide for details.
3. External programs running QlikView in batch mode have a special Automation API to retrieve a list of fired alerts from a given context.

The chain of events following the triggering of an alert check can be shown as follows:



Each triggering of an alert initiates a chain of logical operations in the QlikView document. Typically QlikView has to perform the following major steps:

1. Store the current selections, and display the bookmark relevant to the alert.
2. Recheck the alert condition to verify the alert is relevant. If not, restore the original selection state.
3. Check if the alert is suspended, and if so, restore the original selection state.
4. If the alert is not suspended, display the alert-related messages and calculations.
5. Perform any alert-related actions, and then restore the original selection state.

Alerts can optionally be suspended after being fired. For example, an alert that indicates that a monthly budget goal has been fulfilled, can be set to fire only once and then suspend until the next month, to avoid repeated alerts of the same information.

The processing time required to perform most of these alert operations is equal to the processing time for a user manually performing an equivalent action in the interface. The processing time required to calculate the condition expression value in step 4 is approximately the same time as if the expression had resided in a loaded sheet object. Combined, the time required to check alert conditions can become substantial in large documents. Therefore, using large amounts of macro-triggered alerts may result in a document that is slow to load or respond.

Alerts dialog

The easiest way to define an alert is by using the **Alert Wizard** that can be invoked from the **Tools** menu. The **Alerts** dialog is opened from the **Tools** menu. This dialog is used for managing alerts, which are stored as part of the QlikView document.

An alert is a composite entity typically consisting of three basic parts:

1. A condition that can be either true or false.
2. A logical state (bookmark, clear all or current selection state) that should be applied before checking the state of the condition expression.
3. One or more actions to be performed when the condition is checked and evaluates to true. Typical actions include showing a message in a pop-up window or sending a message as an e-mail to one or more recipients. Further actions can be programmed via macros.

E-mail alerts can be triggered from any Windows version of QlikView (that is, not from AJAX clients). Pop-up alerts can also be triggered from AJAX clients, but may look different compared to when triggered from the Windows client.

When an alert is checked and the condition is met and the action(s) performed, it can be said that to have "fired". QlikView alert checks can be triggered in three different ways:

a. Automatically in the QlikView layout when there is a probability that the document's data has changed, i.e. when the document is opened, when the script has been executed or when a **Reduce Data** operation has been performed.
b. Manually from a macro via special Automation APIs.

Refer to the QlikView file APIguide.qvw (a very useful QlikView file describing the use of the macro functionality in QlikView, which is normally installed with the program) for details.

c. Externally from programs running QlikView in batch mode which have a special Automation API to retrieve a list of fired alerts from a given context.

Use caution when creating alerts, large amounts of macro-triggered alerts can make the document sluggish!

The Alerts Dialog

The top left part of the dialog contains a list of alerts where all alerts currently defined in the document are displayed. The list includes three columns: **ID**, **Enable** and **Description**.

- **ID**: The unique ID of the alert is displayed in the **ID** edit box as well as in the list of alerts. Upon creation, every QlikView layout entity, including alerts, is assigned a unique ID for control via a macro. The first alert of a document will be assigned the ID AL01. It is possible to edit this ID number later on in the **ID** edit box.
- **Enable**: Select or deselect the check box in order to enable/disable the alert.
- **Description**: Description of an alert as defined under **Description** (see below).
- **Add**: The **Add** button adds a new default alert to the list for further editing.

- **Remove**: Selecting an alert and clicking the **Remove** button deletes it from the list.
- **Condition**: The **Condition** group is used for defining the conditional expression.
    - **(Condition)**: This is a QlikView expression that should evaluate to true (non zero) when the alert is to fire.
    - **All Clear**: If this option is checked the all clear state will be used when evaluating the alert condition.
    - **Bookmark**: If **All Clear** is left unchecked, you may specify a bookmark to be applied before the alert condition is tested. The bookmark should be stated as a bookmark ID. The bookmark must exist for the alert to work properly. If no bookmark is specified and the **All Clear** check box is left unchecked, the current selections (i.e. the logical state of the document) will be used when the alert condition is tested.
- **Events**: The **Events** group is used for defining automatic event checks.
    - **On Open**: The alert is automatically checked when the document is opened.
    - **On Post Reload**: The alert is automatically checked after a script execution (**Reload**) of the document. In addition, the alert is also checked upon opening of the document, provided that the last reload time stamp stored in the document is later than the time stamp noted when the alert was last checked.
    - **On Post Reduce**: The alert is automatically checked after a data reduction (**Reduce Data** command) of the document. In addition, the alert is also checked upon opening of the document, provided that the last reduction time stamp stored in the document is later than the time stamp noted when the alert was last checked.
    - **Delay**: The re-firing of automatically checked alerts may be suspended for a given number of **Days** after an alert has been fired. Decimals may be used for specifying fractions of a day. The value 0 of course indicates that no delay will be applied.
    - **Trigger Level**: The re-firing of automatically checked alerts may also be suspended on the basis of whether the alert status has changed after the firing. In the drop-down list you can choose between three levels of reoccurrence:
        - **Always**: means that the alert is fired every time the trigger event(s) occur and the alert condition is fulfilled.
        - **Message Changes**: means that the firing of the alert is suspended until the alert **Message** changes. This is of course only meaningful with dynamic message text. (Note that the state of the alert condition does not necessarily have to change in order for the evaluated message to change. Any change in the **Mail Subject** line (see below) will be regarded as change of message.)
        - **State Changes**: means that the firing of the alert is suspended until the alert state changes, i.e. the alert condition was unfulfilled during at least one check and then becomes fulfilled again during a later check. This is the strongest type of alert suspension.
- **Show Popup**: Mark the check box **Show Pop-up** to show the alert message as a pop-up balloon when the alert is fired.
- **Use Custom Popup**: The **Use Custom Pop-up** group lets you define a custom pop-up format for the selected alert. By checking this alternative, you can replace the default **Alert Pop-up Settings** as defined in **Document Properties: General** . The **Pop-up Settings** button opens the **Pop-up Window**

Settings dialog.
Pop-up Window Settings (page 203)

- **Mode**: In the **Mode** group you can check the relevant options in order to define an alert as an **Interactive** (automatic triggers in layout) and/or as an alert relevant for external programs running QlikView in **Batch** mode (command line execution), e.g. QlikView Publisher, via the special Automation API for Batch triggers. If none of the check boxes in this group are marked, the alert can still be manually checked via macros.
- **Description**: A commentary field where the creator of an alert can describe the purpose of an alert. It is only used in the list of alerts in this dialog.
- **Message**: The **Message** edit box is where you type the message to be displayed with the alert. For pop-up alerts the text will appear in the pop-up, for e-mail alerts this is the body text of the e-mail. The message text may be defined as a calculated formula for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas.
Expression syntax for calculated formulas (page 1006)
- **Mail Subject**: In the **Mail Subject** edit box a text to be used for the subject line in e-mail alert messages can be entered. The text may be defined as a calculated label expression for dynamic update. Click the **...** button to open the **Edit Expression** dialog for easier editing of long formulas. If left empty, the subject line will display the text 'QlikView Alert'.
- **Mail Recipients**: The **Mail Recipients** pane is a semi-colon separated list of mail addresses. Each addressee will receive an e-mail message whenever the alert fires. The list may be defined as a calculated string expression for dynamic update.

Alert Wizard

The alert wizard helps with the task of defining an alert.

The process has the following basic steps:

Step 1 - Name/Describe the Alert

Step 2 - Define the Alert Condition

Step 3 - Define when to Test the Alert Condition

Step 4 - Define Test Delay

Step 5 - Define the Action(s) to Take when the Alert Fires

Depending on selections, some of the above steps may be skipped.

Starting the alert wizard
Start the alert wizard by choosing **Alert Wizard** from the **Tools** menu.

The first time you start the wizard you will be met by two start pages, the first one describing the concept of alerts and the second one outlining the wizard and the basic steps involved. If you want to skip the start pages when you use the wizard in the future, mark the **Don't show this page again** check box in either or both pages. Click **Next** to continue.

Step 1 - Name/Describe the Alert

Enter a name and/or a short text under **Alert description**, describing the alert you are about to create. This is a commentary field where the creator of an alert can describe the purpose of the alert or any details with regard to the alert. It is only used in the list of alerts in the **Alerts** dialog. Click **Next** to continue.

Step 2 - Define the Alert Condition

In this step you define the alert condition and the selection state that should be used when checking the alert condition. Fill in the following fields:

- **Alert condition**: Enter a QlikView expression that should evaluate to true (non zero) when the alert is to fire.
- **Selection state when testing alert**: Here you decide which selection state should be used when testing the result of the alert condition. There are three choices:
    - **Current Selection**: The alert condition will be tested using whatever selections are made at the time of checking the alert.
    - **All Clear**: All selections will be temporarily cleared before testing the alert condition.
    - **Bookmark**: A specified bookmark will temporarily be applied before testing the alert condition.

Click **Next** to continue.

Step 3 - Define when to Test the Alert Condition

In this step you define when the alert should be checked. The alert can be manually checked by means of Automation calls at any time. Automatic checks at relevant events can be made with the settings in this page. Fill in the following fields:

- **Check alert interactively**: Enable this option if the alert is meant to be checked automatically upon the events below.
    - **On Open**: Enable this option if the alert is to be automatically checked when the document is opened.
    - **On Post Reload**: Enable this option if the alert is to be automatically checked after a Reload of the document (script execution).
    - **On Post Reduce**: Enable this option if the alert is to be automatically checked after a data reduction (Reduce data command) has taken place in the document.
- **Batch alert**: Enable this option if the alert is designed for triggering from external programs via the special Automation API for Batch triggers.

Click **Next** to continue.

Step 4 - Define Test Delay

In this step you may define a suspension period after the alert has been fired, in which the alert should not be checked. This makes it possible e.g. to make an alert fire only the first time you open a document each day. Fill in the following fields:

- **Delay**: The re-firing of automatically checked alerts may be suspended for a given time after that an alert has been fired. Enter a number of days in this box. Decimal numbers may be used to specify part

of a day.

- **Trigger Level**: The firing of automatically checked alerts may also be suspended based on data changes. In this drop-down you can choose between three levels of reoccurrence.
    - **Always**: The alert is fired every time the trigger event(s) occur and the alert condition is fulfilled.
    - **Message changes**: The firing of the alert is suspended until the alert Message changes. This is of course only meaningful with dynamic message text. Note that the state of the alert condition does not necessarily have to change in order for the evaluated message to change.
    - **State changes**: The firing of the alert is suspended until the alert state changes, i.e. the alert condition has been unfulfilled during at least one check and becomes fulfilled again during a later check. This is the strongest type of alert suspension.

Click **Next** to continue.

Step 5 - Define the Action(s) to Take when the Alert Fires

In this final step you decide what actions should be taken when the alert is fired. If your alert is for check by macros only, this step may not be necessary. Fill in the following fields:

- **Message**: Here you type the message to be displayed with the alert. In case of pop-up alerts this is what appears in the pop-up. In case of mail alerts this is the body text of the mail. The text may be defined as a QlikView expression for dynamic update. By clicking on the ... button the full **Edit Expression** dialog is opened for easier editing of long formulas.
- **Show Pop-up**: Enable this option if you want the alert message to be shown as a pop-up balloon when the alert is fired.
- **Send mail**: Enable this option to send mail as a result of the alert being fired. The body of the mail will be the alert message text.
- **Mail Subject**: Enter a text which will be used as mail subject in the sent mail(s). The subject may be defined as a QlikView expression.
- **Mail recipients**: Enter a semi-colon separated list of mail addresses. Each of these addresses will receive an e-mail message whenever the alert fires. The list may be defined as a QlikView expression.

Click **Finish** to complete the creation of the new alert.

7.12 Macros and Automation

The QlikView Automation Interface

QlikView is equipped with an Automation interface (Automation was previously known as OLE Automation). This interface allows an external program or internal macro to access and control the QlikView application.

The complete specification of the QlikView Automation interface can be found in the folder Documentation of your QlikView application.

The Automation interface is an integral part of QlikView and you do not have to perform any special tasks to activate it.

How Automation and Macros Can Control QlikView

External Control of QlikView

QlikView objects are accessible by means of Automation from external programs, e.g. programs written in Visual Basic or C++ supporting Automation.

Such code can be used to control QlikView from other applications or from stand-alone programs.

Stand-alone executable files can be invoked from a QlikView document by means of launch buttons.

Internal Macro Interpreter

QlikView objects are also accessible via Automation from inside QlikView by means of the built-in macro interpreter.

Macros written in VBScript or JScript inside a QlikView document can currently be invoked in several ways:

Document events:

- A macro can be run after opening a QlikView document.
- A macro can be run after script re-execution.
- A macro can be run after the **Reduce Data** command.
- A macro can be run after a selection in any field in the document.

Sheet events:

- A macro can be run after a sheet is activated.
- A macro can be run when a sheet is deactivated.

Sheet object events:

- A macro can be run after a sheet object is activated.
- A macro can be run when a sheet object is deactivated.

Button events:

- A button sheet object can be linked to a macro.

Field events:

- A macro can be run after a selection has been made in a specified field.
- A macro can be run when a selection is made in any field logically associated with a specified field.
- A macro can be run when selections are locked in a specified field.
- A macro can be run when selections are unlocked in a specified field.

Variable events:

- A macro can be run after a value has been entered in a specified variable.
- A macro can be run when the value of a specified variable containing a formula has been changed due to a change in the formula value.

Internal Macro Interpreter

QlikView objects are accessible via automation from inside QlikView by means of the built-in scripting engine.

Invoking Macros

Macros written in VBScript or JScript, inside a QlikView document can be invoked in a number of different ways:

Document Events:

- A macro can be run after opening a QlikView document.
- A macro can be run after script re-execution.
- A macro can be run after the **Reduce Data** command.
- A macro can be run after a selection in any field in a document.
- A macro can be run when the value of any variable changes in a document.

Macros that are invoked from document events are created from the **Document Properties: Triggers** page.

Sheet Events:

- A macro can be run after a sheet is activated.
- A macro can be run when a sheet is deactivated.

Macros that are invoked from sheet events are created from the **Sheet Properties: Triggers** page.

Sheet Object Events:

- A macro can be run after a sheet object is activated.
- A macro can be run when a sheet object is deactivated.

Macros that are invoked from sheet object events are created from the **Sheet Properties: Triggers** page.

Button Events:

- A button can be defined as a macro button.

A macro that is invoked from a macro button event is created from the button's **Actions** page.

Field Events:

- A macro can be run when a selection has been made in a specified field.
- A macro can be run when a selection is made in any field which is logically associated to a specified field.
- A macro can be run when selections are locked in a specific field.
- A macro can be run when selections are unlocked in a specific field.

Macros that are invoked from field events are created from the **Document Properties: Triggers** page.

Variable Events:

- A macro can be run when new values are directly entered into specified script variables.
- A macro can be run when the value of the specified variable changes as a result of changes in other variables or the logical state of the document.

Macros that are invoked from variable events are created from the **Document Properties: Triggers** page.

Macro Editor:

Irrespective of how they are triggered, macros are created and edited in the **Edit Module** dialog.

Examples:

This section gives you an example of a VBScript macro, which can be very useful.

```
Using VBScript Input Boxes for User Interaction
rem ** Clear selections, ask for product, **
rem ** select that product, **
rem ** go to sheet "Market", **
rem ** show pivot table "Sales" **
Sub ChooseValue
Set q = ActiveDocument
q.ClearAll (false)
Set f = q.Fields("Model Name")
x = inputbox ("Enter product")
f.Select(x)
set s = q.Sheets("Market")
s.Activate
s.SheetObjects("Sales").Activate
end sub
```

Special Library Functions for JScript

Whereas the standard VBScript functions InputBox and MsgBox can be used freely in VBScript macros, no direct counterpart is available when using JScript. For this purpose a special library qvlib has been added for these actions. The functions are demonstrated in the example below.

```
// JScript
function Test()
{
personName = qvlib.InputBox("What is you name?")
msg = "Hello " + personName + " !"
qvlib.MsgBox(msg)
}
```

The qvlib functions actually work also in VBScript macros as shown in the example below, but in this case you might as well use the generic VBScript functions InputBox and MsgBox.

```
rem VBScript
sub TestModule
name = qvlib.InputBox("What is your name?")
msg = "Hello "
msg = msg + name + " !"
qvlib.MsgBox(msg)
end sub
```

Edit Module

Macros and custom defined functions can be written in VBScript or JScript using the **Edit Module** dialog. The module is saved with the document.

The following commands are available:

From the **File** menu the **Export to Module File** command lets you save the script as a file. There is also an option to **Print** the script.

The **Edit** menu contains a number of common options: **Undo**, **Redo**, **Copy**, **Cut**, **Paste**, **Clear**, **Select All** and **Find/Replace**. There is also an option: **Insert File** which permits you to import a previously saved Script File. Transform any text row in the script into a comment by means of the **Comment** command and switch it back again by using **Uncomment**.

Edit Module properties

Property	Description
(Macro Edit Box)	The large edit box is where you type your macros. All macros should be written as sub-routines between a matching pair of `sub .. end sub`.
(List of entry points)	As soon as an entry point is recognized by the scripting engine, it will appear in the list in the smaller, left text box. It is also possible to select entry points from this list.
(Message)	The current state of any error messages is displayed in the box above the macro edit box.
Check	Once you have a written sub, check and validate its syntax by pressing this button.
Goto	Highlighting an entry point from the **List of entry points** and clicking **Goto**, takes you directly to its position in the **Macro Edit Box**.
Test	With an entry point selected, you may test a macro by clicking the **Test** button. Any errors will appear in the **Message** box.
Scripting Engine	Select between **VBScript** and **JScript**.
Requested Module Security	By selecting **Safe Mode** the document designer indicates that the macros in this QlikView document contain no code that can access either the system or applications outside QlikView. If such code is encountered during macro execution in a document declared to be in **Safe Mode**, the execution will fail. By selecting **System Access** mode the document designer ensures that the end user will be prompted when opening the document to either approve system access (**Allow System Access**), disable all macros in the document (**Disable Macros**) or allow only macros without system access (**Safe Mode**).
Current Local Security	When opening a document declared to be in safe mode but containing potentially "unsafe" macro code, the user will be prompted (see **Requested Module Security** above). The user's action will be remembered by the system but this setting can be changed at a later time from this menu. Macro security level can be set to **Don't Run at All**, **Only Safe Mode** or **Allow System Access**.

This is just a very brief introduction to the QlikView Scripting Engine. For a deeper understanding of VBScript or JScript you should refer to a handbook on the subject.

Using Macros in QV Documents on the QV-Server

Macros on QlikView Server

QlikView Server can execute macros in QlikView documents. Due to client-server environment some considerations must be taken when using macros.

When using QlikView as a client all macros are executed in the client. In this case more operations can be permitted.

Using macros extensively may lead to potential problems with macros executing in parallel instead of as sequentially, as a designer might have intended/assumed.

Macro functionality limitations

Functionality that will normally work well in macros in the QlikView Server environment with any type of client is:

- Logical operations such as clearing or selecting in fields
- Operations related to variables

The following types of functionality are not to be used in the QlikView Server environment , as they may cause unexpected results:

- Layout operations acting on the properties of sheets and sheet objects via SetProperties
- Operations changing document or user settings
- All operations related to the script, including Reload
- Data reduction operations, e.g. ReduceData
- Operations such as Save and Open document
- Actions in AJAX that require returning values may return an empty results buffer

Layout operations acting on the properties of Server objects are supported.

Macro trigger limitations

The following triggers will work as usual in the QlikView Server environment for all clients, except AJAX mode which doesn't support event triggers:

```
Document.OnAnySelect
Field.OnSelect
Field.OnChange
Field.OnUnlock
Document.OnPressMacroButton
Variable.OnChange
```

```
Variable.OnInput
```

The following triggers are not to be used in the QlikView Server environment, since they lack meaning or may cause unexpected results:

```
OnPostReduceData
OnPostReload
```

VBScript functions

VBScript functions defined in the module of a QlikView document will generally work well on QlikView Server. General functionality limitations as defined in the previous section apply.

Server Side Export

It is possible to export the content of any chart to a text file on the server by using a Macro connected to a Button. This feature has to be added in the QlikView document and then the macro can be executed from the QlikView Server directly in the web browser.

8 Discovering and analyzing

When you have created your document and loaded data into it, you can start using it for data discovery and analysis. You can perform analysis for different reasons and using a variety of tools.

8.1 Selections

Making selections is the main interaction method in QlikView. Selections filter out a subset of the data that has been loaded into QlikView.

You use selections to investigate something you want to know more about, and QlikView responds by color-coding the possible and excluded values associated with your selections.

8.2 Routine analysis

A typical activity in routine analysis is to follow up on key metrics (KPI) regularly, for example:

- Total sales against quota, each morning
- Total sales against total sales the same period last year
- Orders placed but not delivered at the end of the week
- Sales per region on a certain day each month

Let us suppose you have data representing sales over time. You can then limit your data to only show the sales during a certain month. Next, you might want to show only the data during the following month, to see how the sales have developed.

8.3 Exploratory analysis

QlikView lets you explore the data in different ways to find new insights, for example by:

- Filtering the data efficiently by making multiple selections
- Asking and answering what-if questions with comparative analysis
- Clicking or tapping anywhere for new views or more detail
- Remixing and reassembling data any way you want to

8.4 Searching in the data

You can use the QlikView universal search tool, which takes advantage of fuzzy logic to find all potential matches.

8.5 Analytic connections

With analytic connections you are able to integrate external analysis with your business discovery. An analytic connection extends the expressions you can use in load scripts and charts by calling an external calculation engine (when you do this, the calculation engine acts as a server-side extension (SSE)). For example, you could create an analytic connection to R, and use statistical expressions when you load the data.

8.6 Bookmarking selections

You can keep track of selections you have made or frequently make, by saving your selection states as bookmarks.

8.7 Selecting Field Values

In order to select a value from a field, simply click the value. Once selected, the cell turns green to indicate its new state, selected. The selection may affect the states of a large number of values in the other sheet objects, on the current sheet as well as on other sheets.

White cells represent optional field values, and gray cells represent field values excluded by selections. When a selection is made, natural joins are dynamically evaluates between all the associated tables.

Selections can be made in most kinds of sheet objects.

To deselect a previously made selection, click it again. Alternatively, choose **Clear** from the **Object** menu, or choose one of the **Clear** commands in the **Selections** menu. When an excluded value is clicked, selections in conflict with this value are canceled, and the value clicked becomes selected.

Selections can also be made by searching the wanted values.

8.8 Color scheme

The state of a field value is shown by the color of its cell.

The following color scheme is used by default:

- selected green
- optional white
- excluded gray

There are also other color codes that can be used under special circumstances:

- alternative white/yellow
- locked blue
- red as a result of forced exclusion

The default colors of the default (Classic) color scheme can be modified by selecting another color schemes in the **Selection Appearance** group on the **Document Properties: General** page.

When the **Show Alternatives** option is enabled, QlikView displays non-selected cells in the corresponding list box as alternative values (white or light yellow), unless they are excluded by selections in other fields. They are however logically excluded, and not included in calculations made on possible (optional and selected) values. When the **Show Alternatives** option is disabled, QlikView displays non-selected cells as excluded (gray).

The selection style **Windows Checkboxes** does not make use of this color scheme.

8.9 Selection Styles

QlikView supports a number of different ways of presenting field values and making selections in list boxes, charts and other objects. The **QlikView Classic**, **Corner Tag** and **LED** styles all use color coding for indication of selected, possible and excluded values. The **Windows Checkboxes** style mimics the standard Windows interface with a check box at each value. The **LED Checkbox** style uses the color-coding in combination with the **Windows Checkboxes** style.

When using the selection styles based on color, there are a number of different color schemes available. The basic colors (green for selected, blue for locked etc.) cannot be changed, but variations in tone and intensity are possible.

Which style to use can be controlled in a few different ways:

- on the **Document Properties: General** page
- on the **User Preferences: General** page
- on the **List Box Properties: Presentation** page

Representation of Logical State

The logical state of a field value in QlikView is in the color-coded **QlikView Classic** style represented by color coding of background and text in the cells of list boxes and multi boxes. In some other sheet objects and on the sheet tabs so called selection beacons may appear to indicate selections. The & and ! characters may appear to the left of data in list boxes and multi boxes in order to indicate AND-selections and forced exclusion (sometimes referred to as NOT selection).

With the **Windows Checkboxes** style the only color coding remaining is the white and gray background of cells to indicate possible and excluded values in list boxes and multi boxes. However, all cells will also feature an icon to the data, which shows the logical status. These icons also appear in the place of the selection beacons in other parts of the document.

The differences are summarized in the table below:

Logical states

QlikView state	QlikView color-coded styles	Windows check box styles (icons)
Possible	White/black	
Excluded	Gray/light gray	
Selected	Green/black	
Selected excluded	Gray/light gray	
Locked	Blue/yellow	

QlikView state	QlikView color-coded styles	Windows check box styles (icons)
Locked excluded	Gray/light gray	
AND-selected	Green/black with **&**	
Subject to forced exclusion	Red/black with **!**	

Logical Behavior

The logical behavior of the **Windows Check Boxes** and the **LED Checkbox** style differs in two ways from that of the color-coded styles.

1. All clicks under the **Windows** and **LED Check Boxes** style are considered toggle selections, i.e. they work as if the Ctrl key is held down while clicking under the color-coded styles.
2. All list boxes are treated as if the **Show Alternatives** option is selected, regardless of the actual setting of this property.

8.10 Indicators

Indicators (or beacons) are colored dots that sometimes appear in tables, on tabs and in the right-hand corner of the status bar. Indicators are there simply to remind you of selections that have been made in fields that are not available on the sheet that you are currently viewing. Since all sheets of a QlikView document are fully interconnected at all times, such selections will most likely affect what is displayed on the active sheet - even when they are not immediately apparent! This is the main reason for having indicators.

Selection indicators may also appear in the upper right-hand corner of the data fields in the QlikView tables: table boxes, pivot tables and straight tables. This is a useful option as the selections in tables are not themselves color-coded. The option is selected/deselected in the user preferences dialog.

Selection indicators will appear in the current selections box as well as in the free-floating current selections window, in order to distinguish between selected and locked values.

Indicator Color Scheme

The color of the indicators follows the general color scheme:

Colour schemes

Indicator color	Color scheme
Green	Selected values
Blue	Locked values
Red	Values in AND-mode that are included in a forced exclusion

Example:

The picture below shows what the different indicators look like in the current selections box.

8.11 Multiple selections within a field

Multiple selections within a field, i.e. allowing several values from a field, can be made in a number of ways:

- Position the cursor in the list box and then drag it over a number of field values while pressing the mouse button.
- Click the first field value to be selected, then Ctrl-click each additional selection.
- Click the top item to be selected, then Shift-click the bottom item to be selected. This way all the items in between will be selected. However, if the sort mechanism is on, the first selection may cause the order to change, which makes it difficult to make a correct second selection.
- Confirm a text search and the press Enter. This will result in all matching field values being selected. By keeping the Ctrl key depressed while pressing Enter, the selections from the text search will be added to previous selections.

To deselect a previously made additional selection, Ctrl-click it.

If you have made multiple selections in one list box, and make a new selection from the available optional values in another list box, some of the selected values in the first list box may get excluded. However, when the selection in the second list box is canceled, the previous selections will, by default, be recovered.

Multiple selections are normally interpreted as a logical OR, which means that QlikView will find a solution that is associated to either one of the selected field values.

8.12 Moving selections

You can use the keyboard keys to move the current selection in an active list box or in an opened multi box field.

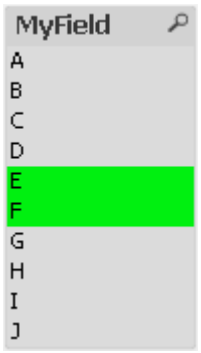
Keyboard movement shortcuts

Key	Movement
Down Arrow	Moves the current selection(s) one step downwards in the list box. When the last value is reached, the selection will wrap back to the first value. When no selection is made, the list box will just scroll down one cell at a time.

Key	Movement
Up Arrow	Moves the current selection(s) one step upwards in the list box. When the first value is reached, the selection will wrap back to the last value. When no selection is made, the list box will just scroll up one cell at a time.
Page Up	Moves the current selection one interval equal to the distance between the outermost selections, upwards in the list box. When the first value is reached, the selections will wrap back to the last set of values. When no selection is made, the list box will just scroll up one page at a time.
Page Down	Moves the current selections one interval equal to the distance between the outermost selections, downwards in the list box. When the last set of values value is reached, the selections will wrap back to the first set of values. When no selection is made, the list box will just scroll down one page at a time.

Example:

In the list box below, with E and F selected, using the different keys produces the following result:



Example results

Key	Movement
Down Arrow	F and G will be selected.
Up Arrow	D and E will be selected.
Page Up	C and D will be selected.
Page Down	G and H will be selected.

8.13 Locking Selected Field Values

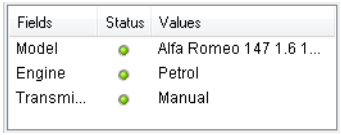
When selecting an excluded field value, previous selections in conflict with the new choice are canceled. To prevent a previous selection from getting canceled this way, it is possible to lock all the selections in a list box by opening its **Object** menu and choosing the **Lock** command.

To unlock a previously set lock, open the list box **Object** menu, and select **Unlock**. General locks and unlocks of all the selections can be made from the **Selections** menu.

When trying to select a value which is incompatible with a locked selection in another field, the selection will fail.

By means of the **Override Locked Field** setting for list boxes, multi boxes and slider objects it is possible to override a locked selection in a field from a specific sheet object. The field will still be locked for logical changes stemming from selections in other fields. This option is on by default for slider objects.

8.14 Current Selections



In the **Current Selections** window, selections are listed by field name and field value. This window remains on top of every sheet and helps keeping track of the selection status in the document. In the **Status** column, indicators are used for distinguishing between selected and locked values. It is opened from the **View** menu or the **Current Selections** button in the toolbar.

When you right-click in the **Current Selections** window without having highlighted a field, the float menu that contains the following commands is displayed:

- **Clear All Selections**: Deselects all the selected values of the document.
- **Lock All Selections**: Locks all the selected values of the document.
- **Unlock All Selections**: Unlocks all the locked values of the document.
- **Data**: Copies the name(s) of all the selected value(s) of the document, as well as the name(s) of the field(s) in which the selections were made, to the clipboard.

The **Current Selections** window resembles a sheet object in the way that it is sizable and can be kept open while working with a document. It will be left open when you close the current QlikView document, and its contents will change if you open another document. Just as the sheet objects, it is dynamically updated as soon as new selections are made, which gives you an overview of the current selections at any time.

The maximum number of distinct selected values to be shown in the **Current Selections** windows is specified in the **User Preferences** dialog. When more values are selected, they will only be displayed as 'x values of y' for the respective field.

Selections made in AND-boxes are preceded by **&** or **!**, depending on whether it is a selection or an exclusion.

If you select in a field by using search, the search string is displayed as the field value.

8.15 Selections in Other Objects

You can make selections directly in fields in most objects. In tables, the color of the cell becomes green to mark its value as selected. Click to select a value or paint with the mouse to select multiple values.

You can also make selections by searching.

The following section describes how you can make selections in the different types of objects. If you find that you cannot make selections in an object as described below, the chart may be in **Detached** mode or **Read Only** mode.

Statistics Boxes

In statistics boxes you can click on some of the statistical quantities such as **Min**, **Max** and **Median**, and the corresponding value will be selected. The selection is not marked in the statistics box but only in other boxes.

Multi Boxes

A row in the Multi Box represents a field. Clicking on the small arrow displays a list of values that belong to the field. You can make selections and searches in this list just as in a list box.

Table Boxes

You can make selections in table boxes by clicking in any cell or by painting over an area covering one or more rows and one or more columns. If the option **Drop-down Select** is active, an arrow is displayed in the column heading. Clicking on the arrow displays a list of the values that belong to this field. You can make selections and searches in this list just as in a list box.

Slider/Calendar Objects

In sliders, where a single field is the basis, you can select a value by adjusting the thumb tack to the desired position. If the slider is accordingly configured, the size of the thumb tack can be changed with a mouse click. This way it is possible to select several values.

Clicking on the small calendar symbol in a calendar object opens the calendar. You can select a date or a period of time with the mouse depending on the configuration of the calendar object, and this selection is transferred to the underlying field. Using Ctrl+Click you can select several periods even if they are in different months or years.

Bar, Line, Combo, Radar, Grid and Scatter Charts

In these objects, you can make selections in different ways:

- By clicking on a single data point or painting over several data points inside the plot area. When painting, the area covered is shown with a green raster. The selection will be made for the dimension values used to calculate the selected data point(s).
- By clicking or painting in the chart legend (except when the legend is indicating chart expressions rather than dimension values).
- By clicking or painting over the dimension axes and its labels (except scatter charts). The corresponding field values will be selected.
- By painting over the expression axes and its labels. The field values which generate data points in the indicated result area will be selected.

When painting selections in line charts and bar charts with more than one dimension the behavior of the QlikView selection logic differs slightly from that of other charts in order to better reflect the expectations of the user. Selections in these types of charts do not affect both dimensions at the same time.

In line charts selections will be primarily done in the second dimension. This means that painting over a line will select the entire line over all x-axis dimension values.

In bar charts the opposite applies. Selections primarily apply to the first dimension. This means e.g. that clicking one bar segment will result in a selection of that segment's x-axis dimension value but leave all stack or cluster segments possible. When selections have narrowed down the primary selection dimension to one single value, the old selection logic will apply again, making selections prevail also in the secondary selection dimension.

In combo charts selections always affect all dimensions.

Pie Charts

You can make selections inside the plot area by clicking on a single pie slice or painting over several slices. When painting, the area covered is shown with a green raster. The selection will be made for the dimension values used to calculate the selected data point(s).

You can also make selections by clicking or painting in the chart legend.

Block Charts

You can select individual blocks in block charts. The drilldown functionality is used to refer to a certain dimension - selecting the first block refers to the first dimension, selecting a second block within the first refers to the second dimension etc.

You can also select several blocks by painting an area. This selected area is marked green until you release the mouse button. Such a selection refers back to the value or values of the first dimension. Based on these values the corresponding blocks are calculated. If a selection crosses the block borders of several values that belong to the first dimension, it will affect all related values belonging to the second and third dimensions as well, not only those in the selected area.

Gauge charts

Selections cannot be made in gauge charts since there is no dimension defined.

Straight Tables

You can make selections in the dimension columns of a straight table by clicking on a cell or painting over several cells. The selected area is marked green until you release the mouse button.

If **Drop-down Select** is activated in a column that represents a dimension, a small arrow will be displayed in the column header. Clicking on the arrow will display a list of all values of the field. You can make selections and searches in this list.

You can also make selections in the expression columns by clicking in a single cell. The selection will be made for the dimension values used to calculate the selected expression cell.

Pivot Tables

You can make selections in a pivot table in the dimension columns/rows by clicking on a single cell. The selected cell is marked green until you release the mouse button.

If **Drop-down Select** is activated in a column that represents a dimension, a small arrow will be displayed in the column header. Clicking on the arrow will display a list of all values of the field. You can make selections and searches in this list.

You can also make selections in the expression columns/rows by clicking in a single cell. The selection will be made for the dimension values used to calculate the selected expression cell.

8.16 Search

As an alternative to making selections by clicking values in QlikView objects, you can make selections through text or numeric search.

Making Selections Using Search

The following section describes how to make selections using text search, and how QlikView responds to different commands. Perform the following steps:

1. Click on the list box caption, and type the search string. The string is not case sensitive.
   The search string appears in the pop-up search box. As a result, QlikView will display all the values of the selected field that fulfill the criteria of the search string.
2. Press Enter or click one of the cells in the result to select that value.

If you press Ctrl + Enter, all values matching the search string are added to your selections, as long as they are not already included in previous selections. Values matching the search string but already included in previous selections are excluded from any selection when pressing Ctrl + Enter. Values included in previous selections and that don't match with the search string are retained in your selection.

The search box is automatically closed when you press Enter, Esc, or when you click in the layout. You can also close the search box by clicking the **x** icon in the search box. The search box is sizable and will retain its size when it is opened again.

Search in Multiple List Boxes

All active list boxes will be included in the search. To search in multiple list boxes, Shift-click on their captions to make them active. It is not possible to select the resulting values by pressing Enter when searching in multiple list boxes.

If a selection has already been made, there are two ways in which a search can be interpreted:

- Search only among the optional values
- Search among all values, i.e. including the excluded values in the search

To set the search mode to work in, it is possible to either select or deselect **Include Excluded Values in Search** in the **User Preferences** dialog. This mode can also be set on certain individual sheet objects.

If the logical AND-option is set for a field, it may not be possible to select multiple values found.

Text Search

The simplest way of searching is text search. QlikView will search for field values matching a text string that you type.

In normal search (no wildcards are used), QlikView will look for words that begin in the same way as the search string. If the search string contains several words separated by blanks, QlikView will interpret it as several search strings and display field values that contain either of the strings.

Wildcards

You can use one or several wildcards in a search string. The following wildcards can be used:

Search wildcards

Wildcard	Representation
*	Zero or more characters, including blank. This wildcard is flexible and matches any character or any block of characters in a specific position.
?	A single character, including blank. This wildcard is useful when you suspect that a string may be misspelled, when you are unsure of the spelling, or when the string contains special characters that may be difficult to reproduce correctly.
^	Beginning of word within field value. This wildcard is used in conjunction with other wildcards.

*If you use wildcards, only those records that match the entire search string are displayed, that is, a blank does not imply a logical OR. The search string '*creamed' does not get a match on "Rocky's creamed corn" since the value does not end with “creamed”. Neither does “creamed*” result in a match on "Rocky's creamed corn", since the value does not start with “creamed”.*

Wildcard examples

Example	Result
a*	Finds all values that begin with the letter “a”, including strings with several words where the first word begins with an “a”.
*b	Finds all values that end with the letter “b”, including strings with several words where the last word ends with a “b”.
c	Finds all values that contain the letter “c”, including strings with several words
^ab	Returns all values that have words that begin with “ab”. Equivalent to a normal search for “ab”, but unlike the normal search it can be made more complex using wildcards. It can also be used in a programmatic search, such as in Set Analysis.

Example	Result
r?ck	Finds all values that have four letters and start with an “r”, followed by any character, and ending with “ck”, for example, “rack”, “rick”, “rock”, and “ruck”.
r?? ????d	Finds all values that consist of a three-letter word beginning with an “r” and a five-letter word ending with a “d”.

*Space in a search string makes a difference. If you search for “*corn” you get matches on strings ending with, for example, “popcorn” as well as “corn”. If you use a space in your search string, “* corn”, you only get matches that end with “corn”.*

Fuzzy Search

Fuzzy search is similar to standard search, with the exception that it compares and sorts all field values according to their degree of resemblance to the search string. Fuzzy search is especially useful in situations where misspelling is an issue. It can also help you find multiple values that are nearly identical to each other.

When a fuzzy search is made, a tilde-character (**~**) is displayed in front of the search string.

If starting a text search with a tilde-character, the text search window will open in fuzzy search mode. The search window will contain the tilde with the cursor placed after it. As you type, all values will be sorted by the degree of resemblance to the search string with the best matches at the top of the list. If you press Enter, the first value in the list will be selected.

Numeric Search

You can make selections using numeric search as well. This is very similar to text search. The only difference is that the search string must begin with one of the following relational operators:

Numeric search operators

Operator	Description
>	greater than
>=	greater than or equal
<	less than
<=	less than or equal

Examples:

Numeric search operator examples

Example	Result
>900	will find all values greater than 900
<=900	will find all values less than or equal to 900

>900<1000	will find all values greater than 900 and less than 1000
<900>1000	will find all values less than 900 or greater than 1000

Initial Search Mode

When starting to type text, the behavior may differ: in some cases, QlikView adds wildcards to the search string, to facilitate a wildcard search.

The preferred search mode can be set in the object properties and in **User Preferences**.

Search String Evaluation

After a search string has been entered or edited, QlikView evaluates which one of the above described search behaviors to select.

If the search string contains wildcard characters, a wildcard search will be made instead of normal search.

It is always possible to change the search mode simply by deleting or adding wild cards, a greater than (>) or smaller than (<) symbol in the search string.

Associative Search

The list box's search box contains a chevron (>>) to the right. If you click it, the search box is expanded to the right and a secondary result set is displayed next to the primary result set. This secondary list contains search matches in other fields. It is now possible to click in the secondary result set and make temporary selections. Such selections will narrow down the result in the primary result set. Once you make a selection in the secondary list, you can enter a new search string before making the selection in the primary list. Finally, when you make a selection in the primary result set, the secondary result list is closed.

Advanced Search

For complex search expressions it is possible to use the **Advanced Search** dialog, which can be invoked by the keyboard shortcut Ctrl+Shift+F. If you start your text search with an equal sign (=),you may enter an advanced search expression involving search criteria for associated fields and full boolean logic. After the equal sign you can type any valid QlikView layout expression (*Edit Expression Dialog (page 111)*). The expression will be evaluated for each field value in the search field. All values for which the search expression returns a non-zero value will be selected.

Example:

=MyField **like** 'A*' or MyField **like** '*Z'

> if e.g. invoked from a list box containing the field MyField, the search would return all field values either starting with the letter A or ending with the letter Z.

Example:

=**sum(**Sales**)**>**sum(**Budget**)**

> if e.g. invoked from a list box containing the field Salesman, the search would return all salesmen with an associated sales value larger than their associated Budget.

Text Search Box

In this text box the search string of a free text search is shown. The string can be edited.

Advanced Search

If you start your text search with an equal sign = , you may enter an advanced search expression involving search criteria for associated fields and full boolean logic. After the equal sign you may type any valid QlikView layout expression. The expression will be evaluated for each filed value in the search field. All values for which the search expression returns a non-zero value will be selected.

Examples:

Advanced Search examples

Example	Description
=MyField like 'A*' or MyField like '*Z'	if e.g. invoked from a list box containing the field **MyField**, the search would return all field values either starting with the letter A or ending with the letter Z.
=sum(Sales)>sum (Budget)	if e.g. invoked from a list box containing the field Salesman, the search would return all salesmen with an associated sales value larger than their associated Budget.

8.17 Advanced Search dialog

The **Advanced Search** dialog provides a convenient way of formulating complex search queries to be applied on QlikView fields. Unlike the standard search box that appears when starting a search by typing when a list box is active, the result of the search is not interactively visible in the layout until submitting the search by pressing the **Go** button. The dialog can be kept open while working in the QlikView layout. The dialog is fully sizeable in order to facilitate editing of large and complex expressions.

Search dialog elements

Element	Description
Search in	The field in which the search will be made. When entering the dialog it will be set to the field of the active list box. It is possible to change search fields by using the drop-down at any time.
Search Expression	This is where the search expression is typed. The same rules apply as when using the normal search box.
Go	Applies the search to the search field
Back	QlikView remembers the last 100 selections. Click this button to go one step back in the list of selections.
Forward	Click this button to go one step forward in the list of selections (equivalent to canceling the last **Back** command). This only possible if the **Back** command has been used immediately before.

Element	Description
Clear Field	Clears selections in the current search field.
Clear All	Clears all selections in the document
Help	Opens the **Help** dialog for advanced search.
Close	Closes the dialog.

The the pane with three tabs at the bottom of the dialog can help you when you build advanced search expressions.

Fields

Select the **Fields** tab to access controls for pasting syntax relating to QlikView field data.

Field tab elements

Element	Details
Aggregation	In this drop-down it is possible to choose from the statistical aggregation functions available in the QlikView layout.
Table	In this drop-down it is possible to select a specific table from which to pick fields in order to make navigation in the **Field** drop-down easier.
Field	This drop-down lists all the fields available. The list may be narrowed down by selecting a specific table in the **Table** drop-down above.
Show System Fields	If this check box is marked, the list containing the fields of the document includes the system fields.
Distinct	The statistical functions are by default calculated on the number of occurrences in the original table. Sometimes, however, duplicates are not to be calculated. If this is the case, mark this check box before pasting the function.
Paste	Pastes the selected function or just the field into the **Search Expression** edit box. A percentage can be given when using the fractile function.

Functions

Select the **Functions** tab to access the controls for pasting syntax relating to QlikView general functions.

Functions tab elements

Element	Details
Function Category	In the drop-down it is possible to select a category of functions in order to make navigation in the **Function Name** drop-down easier.
Function name	In the drop-down it is possible to select a function for pasting into the expression out of all functions available in the QlikView layout. The list can be reduced to show only functions belonging to a certain category by means of a selection in the **Function Category** drop-down above.
Paste	Pastes the selected function name into the **Search Expression** edit box.

At the bottom of the dialog there is a pane showing the argument syntax of the function selected in the **Function Name** drop-down.

Variables

Select the **Variables** tab to access the controls for pasting syntax relating to QlikView variables.

Variable tab element

Element	Details
Variables	In the drop-down all currently defined variables in the document are found. **Paste** Pastes the selected function into the **Search Expression** edit box. **Show System Variables** If this check box is marked, the list in the **Variables** drop-down will include the system variables.

At the bottom of the dialog there is a pane showing the current value of any variable selected in the **Variables** drop-down.

8.18 AND-mode in List Boxes

When multiple selections are made in a list box set to AND-mode, only data associated to all of the selected field values will be shown in the other fields.

Example:

Your data source contains information about which customers have purchased different articles.

When you select a couple of articles in the default mode, QlikView will show you the customers that have purchased any of the selected articles.

When you select a couple of articles in AND-mode, QlikView will show you the customers that have purchased all of the selected articles.

AND-Mode Prerequisites

The mode for the field is set in **List Box Properties: General** tab.

When **And mode** is activated, an ampersand ("**&**") will be displayed in front of selected values.

If clicking and holding a value for a moment, the selection will switch from (**AND**) selected (green) to **NOT** selected (red). The ampersand will also be replaced by an exclamation mark ("**!**"). The **NOT** selection which is a forced exclusion of the value or values so marked, can only be made when a list box is in **And mode**.

AND-Mode criteria

A field cannot always be set to logical AND-mode. The reason for this is that the and alternative is logically meaningful only if the concerned field is linked to only one other field. The following criteria must be fulfilled:

- the field must only exist in one logical table,
- the field must be the second column of no more than two columns,
- the table must not contain any duplicate records, and
- the field must be loaded with the distinct qualifier. If the table is loaded using a select statement, you must use a preceding load distinct *.

Setting a List Box in AND-Mode

The following procedure describes how to set a list box in AND-mode instead of the default mode (logical OR). Perform the following steps:

1. Make sure that the AND-mode criteria are fulfilled.
2. Right-click on the list box and select **Properties**.
3. On the **General** tab, mark the **And mode** check box.

Forced Exclusion

Forced exclusion (sometimes referred to as NOT-selection) is closely related to the AND-selection. The forced exclusion makes it possible to explicitly exclude a field value, which means that the solutions found by QlikView may not be associated with the excluded value.

The forced exclusion is made by clicking a cell and keeping the mouse button pressed until the cell turns red. Ctrl-clicking in this manner is equivalent to an exclusion that is an additional requirement to the previous selections/ exclusions. The forced exclusion can only be made on a field that is in AND-mode.

If you want to force the exclusion of specific field values in objects such as text objects, you have to modify the script syntax. For example, if your script statement is the following:

```
=count({<ANDActor=>}DISTINCT Title)
```

Modify it as follows:

```
=count({<~ANDActor=, ANDActor=>} DISTINCT Title)
```

8.19 Alternate States

Description

You can use **Alternate States** to perform comparative analysis between sets of multiple data items, for example for basket analysis purposes. A state holds a set of selections.

The QlikView developer can create multiple states within a QlikView document and apply these states to specific objects within the document. The end-user can create copies of these objects (server objects) and then put those objects into different states.

The most important difference between **Detach** and **Alternate States** is that ALL objects in a given state will respond to user selections made in that state. Objects in a given state are not affected by user selections in the other states.

Alternate States functionality is not accessible in the load script.

*Alternate States functionality is enabled by a QlikView developer and should be used with caution as it can cause great confusion with end-users as there is no automatic on-screen indication that objects or expressions are in, or reference, alternate states. It is up to the QlikView developer to provide this information to the end-user using the **StateName()** function.*

Visualization of an Alternate State selection might fail if the data is under Section Access or data reduction. An Alternate State selection cannot be visualized if the data is not accessible by the users consuming the QlikView document under section access.

Setting Alternate States

Do the following to enable and set alternate states:

1. Click **Alternate States...** in the **Document Properties: General** tab.
   The **Alternate States** dialog opens.
2. Click **Add...** to create a number of states, and name them. The names will be referred to as state identifiers.
3. Click **OK** to close the dialog.

Now the QlikView developer can create new Alternate States from within screen objects.

End-users who access QlikView documents from a QlikView Server can make use of Alternate States but cannot create Alternate States.

Assigning States to Objects

Do the following to assign a state to an object:

1. Open the **Properties** dialog and select the **General** tab.
2. Set **Alternate State** to the state identifier you want to use for the object.

The object will now be independent from the rest of the document in terms of selection, unless other objects are set to the same state.

There are two states that are always available; **default state** and **inherited**. The **default state** is the state where most QlikView usage occurs and is represented by $. The QlikView document is always in the **default state**. Objects can inherit states from higher level objects, such as sheets and containers. This means that states are inherited as such: Document - Sheet - Sheet Objects. The sheets and sheet objects are always in the **inherited** state unless overridden by the QlikView developer.

Comparing Alternate States

You can compare two states on the same object. For example, you can create a line chart to display both states of the data with the same axis by assigning a state in the expression using set analysis.

Example:

If you have defined the states *Group1* and *Group2*, you can compare the average of field *Adj.Close* for the groups by showing these two expressions in a line chart:

```
Avg({[Group1]} [Adj.Close])
```

```
Avg({[Group2]} [Adj.Close])
```

Logical Behavior when Using Alternate States

Pressing the **Clear** button affects all states.
In the Inter Explorer plugin, a menu item has been added to the **Clear** button drop-down menu that allows a user clear the selections of a specific state. This menu is not available in the Ajax client, but the same function can be achieved by creating an action button connected to the Clear action with a specific state.

Pressing the **Back** and **Forward** buttons affects all states. There is no mechanism to move back and forward through specific states.

Pressing the **Lock** and **Unlock** buttons affects all states. It is not possible to lock and unlock specific states with these buttons. It is possible to lock specific fields in states by using the right-click menu on list boxes in a specific state.

The menu items in the **Selections** menu apply to all states. There is no mechanism to affect specific states in this menu.

Alternate States can be used with linked objects. The state applies to all instances of an object. Changing a state on a linked object will put the other linked objects into the same state.

Triggers fire in all states.

Actions can be set to occur in specific states. One known exception is the **Run Macro** action. It can be set to run in a specific state; however macros fire in all states.

Objects that make use of a missing state (the state was removed by a developer) will revert to the default state though the **Alternate State** drop-down, that will display information such as: `AlternateStateName <unavailable>`.

You can only use field functions with a `State` argument in conjunction with Alternate States.

Variables in Alternate States

You can specify which state to use when expanding a variable. Changes in a specific state do not affect variable values that are expanded in another state. If you do not specify a state, the variable is expanded in the default state.

Example:

If you have a state named `MyState`, and a variable named `vMyVar`:

- `$(vMyVar)` expands the variable in the default state.
- `$({MyState} vMyVar)` expands the variable in the `MyState` state.

8.20 Bookmarks

The current state of selections can be saved as bookmarks for later use. Bookmarks capture selections in all states defined in a QlikView document. When recalling a bookmark, the selections in all states will be applied.

Bookmark types

There are different types of bookmarks:

- **Document bookmarks**: are stored inside the QlikView document. They will always be available to whoever opens the document locally or from a QlikView Server.
- **User bookmarks**: are stored separately on the user's computer. They will only be available to the user who created them on the computer where they were created. If the document is moved or renamed all personal bookmarks related to it will be lost.
- **Personal Server bookmarks**: are only available when working with a document on QlikView Server and only to authenticated users. They are stored in a repository on the server and are accessible to the user from any computer where authenticated.
- **Shared Server bookmarks**: are only available when working with a document on QlikView Server and only to authenticated users. Any user who has created a personal server bookmark may flag this as shared to other users. They will then become available to other users. Just like personal server bookmarks shared server bookmarks are stored in a repository on the server.
- **Temporary bookmarks**: are created by QlikView when some functions are used, such as **Mail with Bookmark as Link** and document chaining. They are only available when working with a document on QlikView Server and only to authenticated users.

*If you make changes to the data model, existing bookmarks may stop working, even if you retain the same field names. For example, enabling the **Always One Selected Value** option in the **List Boxes** properties.*

Add Bookmark dialog

The current state of selections can be saved as a bookmark by choosing **Add Bookmark** from the **Bookmarks** menu or by pressing Ctrl+B. Bookmarks can also be created via bookmark objects in the QlikView layout. Doing this will cause the **Add Bookmarks** dialog to appear.

The dialog looks slightly different depending on whether it is a local document or a document on QlikView Server that the user is working with . We start by describing the dialog for local documents, and then describe the differences for server documents.

Bookmark fields

Field	Details
Bookmark Name	The default name for the created bookmark is that of the current date. In addition, the first bookmark created on a specific day gets number 1, the second number 2, etc. However, it is possible to change the default name to a more explanatory text by entering an optional name.
Make this bookmark a document bookmark	By marking the check box, the bookmark will be saved with the document. This option is available for local documents only. If the check box is not marked, the bookmark will be created as a user bookmark, stored locally on the computer.
Include Selections in Bookmark	By marking the check box the bookmark will include the selections made in the application.
Make bookmark apply on top of current selection	By marking the check box, the bookmark will be applied without first clearing existing selections in the document.
Include Layout State	By marking the check box, the bookmark will store the layout state of all sheet objects on the active sheet at the time of the bookmark's creation. This includes, for example, the cycling position of a chart. When recalling a bookmark with layout information, QlikView will attempt to activate the sheet and restore sheet objects to that state. The layout state in bookmarks includes only show state (minimized/maximized) and expansion state, not the entire property of the object. Layout of all straight tables and pivot tables on the active sheet will be preserved, unless they are located inside container objects. However, straight tables and pivot table column positions will not be preserved. There is no reset option for straight tables and pivot table layout. A workaround would be to create a document bookmark in the document clear state with the original layout of the pivot table.
Include Scroll Positions	Marking this check box will include the current vertical scroll position in table objects in the bookmark.
Include Input Field Values	By marking this check box, the values in input fields will be stored in the bookmark.
Info Text	In the edit box it is possible to enter a text describing the bookmark or a message to be shown when recalling the bookmark.
Popup Message	If the check box is marked, the bookmark info text (if it exists) will be displayed in a pop-up window each time the bookmark is recalled.

Differences for server documents

Field	Details
Create as a server bookmark	When this check box is marked, the bookmark will be created as a personal server bookmark, stored in a repository on the server. This option is available only if the user is an authenticated user and provided that the QlikView Server and the document owner allows the creation of server bookmarks. If the check box is not marked, the bookmark will be created as a user bookmark, stored locally on the computer.
Share Bookmark with Others	Provided that a personal server bookmark is created, marking this check box will immediately share the bookmark for use by other authenticated users of the same server document. It is possible at any time revoke the sharing by deselecting the **Share** check box in the **My Server Bookmarks** page of the **Bookmarks** dialog.

*Sort order is not saved in the bookmark. It will be replaced by the sort order defined in **Properties** when you select a bookmark.*

Remove Bookmark

Opens a cascade menu where the first ten document bookmarks are listed above the first ten personal bookmarks defined for the active document. Selecting a bookmark deletes it.

Bookmarks dialog

The **Bookmarks** dialog can be opened by clicking **More...** in the **Bookmarks** menu. It is divided into two tabs (local documents) or five tabs (server documents), one for document bookmarks, one for user bookmarks, one for the personal server bookmarks (server documents only), one for other users' shared bookmarks (server documents only) and one for temporary bookmarks (server documents only).

At the top of the dialog a list of all bookmarks currently defined for the QlikView document are found. The bookmarks are described and may be sorted by several columns:

Bookmarks dialog columns

Column	Description
Show	Enable this option if the bookmark should appear in bookmark object listings and in the **Bookmarks** menu. If the check box is left unchecked, the bookmark will not appear in those places, but will remain accessible via this dialog.
Name	Name of the bookmarks. To sort the bookmarks in alphabetical order, click the header of the column. If clicked twice, the bookmarks are sorted in reverse alphabetical order.
+	If the check box is marked for a bookmark, that bookmark will be applied without first clearing existing selections in the document. A bookmark can only be applied on top of existing selections if they do not conflict with the selections in the document.

Column	Description
Layout	If the bookmark was created complete with layout information, use the checkbox to toggle the layout setting for the bookmark. When the layout setting is on, the program will attempt to recreate the layout that prevailed when the bookmark was created. This includes switching to the correct sheet and updating the layout of any sheet objects on that sheet. This setting cannot be used to add layout information to a bookmark that was originally created without it.
Created	Timestamp information on when bookmarks were created.
ID	This is used for macro purposes. Every sheet object is assigned a unique ID. We recommend that you use alphanumeric characters only in the ID. For bookmarks, the ID starts with BM01. Linked objects share the same object ID. You may edit this ID number later on. This means it is possible to have a document bookmark and a server bookmark with the same ID. A bookmark ID may be changed via a macro to any other string that is currently not used as ID for any other bookmark, sheet or sheet object in the document. Renaming the bookmark does not change the bookmark ID. Exporting and then importing a bookmark will create a new bookmark ID. The bookmark ID may be preceded by a prefix describing its type (document, user etc.).
Popup	If info text has been added to the bookmark, checking this alternative shows it as a popup text.
Info Text	If info text has been added to the bookmark, it is displayed here.
Share	This check box is only available in the **My Server Bookmarks** page. By marking it for one of the personal server bookmarks, it makes that bookmark available to other authenticated users of the same server document in their **Shared Server Bookmarks** page. The bookmark will stay in the **My Server Bookmarks** page and will not appear in the **Shared Server Bookmarks** page. It is possible to revoke the sharing at any time by deselecting the check box.

At the bottom of the dialog , you find a number of buttons that can be used to perform actions with the bookmark currently selected in the list above.

Bookmarks dialog buttons

Button	Action
Select	Displays the selected bookmark on the screen.
Replace	Replaces the selected bookmark with the current selections. Only bookmarks that you have created can be replaced.
Rename	Opens the **Rename Bookmark** dialog where it is possible to specify a new name for the bookmark. Only bookmarks that you have created can be renamed.
Remove	Removes the selected bookmark. Only bookmarks that you have created can be removed.

Button	Action
Clear All	Removes all bookmarks in the current pane of the dialog. Only bookmarks that you have created can be removed.
Set Clear State	Click this button if you want to use the selection of the highlighted bookmark as clear state.
Edit Info	Here it is possible to edit the info text.
Import	After browsing for and selecting a previously saved bookmark (.qbm) file, the **Import Bookmarks** dialog will open to import bookmarks.
Export	Opens the **Export Bookmarks** dialog where it is possible to export selected bookmarks to a QlikView bookmark (.qbm) file.
Promote	Moves the selected bookmark one step up in the list. It is also possible to do this by clicking and dragging it to any position in the list.  *This is not available in server documents.*
Demote	Moves the selected bookmark one step down in the list.  *This is not available in server documents.*
Move Local User Bookmarks to Server	This text only appears when working with a server document and in the **User Bookmarks** tab. By clicking on the text it is possible to convert all the local user bookmarks to server bookmarks, stored in the server repository. This is a recommended practice as the personal server bookmarks will stay accessible via the server even if changing computer or if the server document is renamed. Before the conversion takes place, the system asks for confirmation. The conversion is all-or-nothing (within the active document) and one-way only.

Export Bookmark(s)

In the **Export Bookmarks** dialog a list of all bookmarks that have been defined in the current document, is found. Only those bookmarks that are ticked will be included in the exported bookmark (.qbm) file.

On clicking **OK** the specification of a file name and location for the bookmark file will be requested.. Once saved, the bookmark file can be kept for later use or distributed to other users of the same QlikView document.

Import Bookmarks

Bookmarks are imported to a bookmark file by choosing **Import...** from the **Bookmarks** menu. It opens a browse dialog where a QlikView bookmark file (.qbm extension) can be selected. The **Import Bookmark** dialog will then open.

In the **Import Bookmarks** dialog, a list of all bookmarks that are included in the selected bookmark file, are found.

Bookmarks should only be imported to a QlikView document containing fields and field values to which the bookmarks refer.

- **Bookmarks Available for Import**: To the left all the bookmarks which were defined in the bookmark file are listed.
- **Current Bookmarks**: To the right a list of existing user bookmarks or document bookmarks in the document is shown. Bookmarks must be imported either as a user bookmark or as a document bookmark. The radio buttons at the top of the dialog governs how the bookmark is imported.
- **Import**: Highlight one or more bookmarks in the **Bookmarks Available for Import** list and press this button to import them.
- **Rename**: Opens the **Rename Bookmark** dialog where a new name for the highlighted bookmark can be specified before import.

Alternate States and Bookmarks

Bookmarks capture selections in all states defined in the QlikView document. When recalling a bookmark, the selections in all states will be applied.

It is possible to make use of specific states contained in a bookmark within an expression. For example, this expression calculates Sales over the set generated by the selections defined in bookmark BM01 for the state 'Group 1'.

Example:

sum({[Group 1]::BM01} Sales)

Bookmarks that reference a state that no longer exists (the state was removed by a developer) will ignore the missing state(s).

9 Script syntax and chart functions

In the script, the name of the data source, the names of the tables and the names of the fields included in the logic are defined. Furthermore, the fields in the access rights definition are defined in the script.

The script consists of a number of statements that are executed consecutively.

The QlikView command line syntax and script syntax are described in a notation called Backus-Naur Formalism, or BNF code.

The first lines of code are already generated when a new QlikView file is created. The default values of these number interpretation variables are derived from the regional settings of the OS.

In the script the name of the data source, the names of the tables and the names of the fields included in the logic are defined. The script consists of a number of script statements and keywords that are executed consecutively.

For a table file with commas, tabs or semicolons as delimiter, the **LOAD**-statement may be used. By default the **LOAD**-statement will load all fields of the file.

A general database must be accessed through Microsoft ODBC. Here standard SQL statements are used. The SQL syntax accepted differs between different ODBC drivers.

All script statements must end with a semicolon, "**;**".

A detailed description of script syntax can be accessed via the topics in this section.

9.1 What is Backus-Naur formalism?

The QlikView command line syntax and script syntax are described in a notation called Backus-Naur formalism, also known as BNF code.

The following table provides a list of symbols used in BNF code, with a description of how they are interpreted:

BNF code symbols

Symbol	Description
|	Logical OR: the symbol on either side can be used.
( )	Parentheses defining precedence: used for structuring the BNF syntax.
[ ]	Square brackets: enclosed items are optional.
{ }	Braces: enclosed items may be repeated zero or more times.
Symbol	A non-terminal syntactic category, that: can be divided further into other symbols. For example, compounds of the above, other non-terminal symbols, text strings, and so on.
::=	Marks the beginning of a block that defines a symbol.
LOAD	A terminal symbol consisting of a text string. Should be written as it is into the script.

All terminal symbols are printed in a **bold face** font. For example, "(" should be interpreted as a parenthesis defining precedence, whereas "**(**" should be interpreted as a character to be printed in the script.

Example:

The description of the alias statement is:

alias fieldname **as** aliasname { , fieldname **as** aliasname}

This should be interpreted as the text string "alias", followed by an arbitrary field name, followed by the text string "as", followed by an arbitrary alias name. Any number of additional combinations of "fieldname as alias" may be given, separated by commas.

The following statements are correct:

```
alias a as first;
alias a as first, b as second;
alias a as first, b as second, c as third;
```

The following statements are not correct:

```
alias a as first b as second;
alias a as first { , b as second };
```

9.2 Functions

A function is a type of procedure or routine that performs a specific task on data in documents. QlikView provides several hundred functions that can be used for various purposes, such as: to perform calculations, interpret data or system information, determine conditions, and so on.

Many functions can be used both in the script editor and in charts. Some functions are specific to charts (chart functions), and others are specific to the script editor (script functions).

Functions are often, but not always, used in expressions.

The following list shows some examples of functions:

- **Max**: an aggregation function that can be used in scripts and charts.
  For example: **Max(Sales)** calculates the highest value in the field Sales.
- **IF**: a conditional function that can be used in scripts and charts.
  For example: **IF(Amount>0, 'OK','Alarm')** determines if the condition 'is the value of Amount greater than zero?' is met. If it is, OK is written, otherwise Alarm is written.
- **Date#**: an interpretation function that can be used in scripts and charts.
  For example **Date#(A)** takes the input value **A** and evaluates it as a date.

9.3 Script statements and keywords

The QlikView script consists of a number of statements. A statement can be either a regular script statement or a script control statement. Certain statements can be preceded by prefixes.

Regular statements are typically used for manipulating data in one way or another. These statements may be written over any number of lines in the script and must always be terminated by a semicolon, ";".

Control statements are typically used for controlling the flow of the script execution. Each clause of a control statement must be kept inside one script line and may be terminated by a semicolon or the end-of-line.

Prefixes may be applied to applicable regular statements but never to control statements. The **when** and **unless** prefixes can, however, be used as suffixes to a few specific control statement clauses.

In the next subchapter, an alphabetical listing of all script statements, control statements and prefixes, are found.

All script keywords can be typed with any combination of lower case and upper case characters. Field and variable names used in the statements are however case sensitive.

Script control statements

The QlikView script consists of a number of statements. A statement can be either a regular script statement or a script control statement.

Control statements are typically used for controlling the flow of the script execution. Each clause of a control statement must be kept inside one script line and may be terminated by semicolon or end-of-line.

Prefixes are never applied to control statements, with the exceptions of the prefixes **when** and **unless** which may be used with a few specific control statements.

All script keywords can be typed with any combination of lower case and upper case characters.

Script control statements overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Call

The **call** control statement calls a subroutine which must be defined by a previous **sub** statement.

```
Call name ( [ paramlist ])
```

Do..loop

The **do..loop** control statement is a script iteration construct which executes one or several statements until or while a logical condition is met.

```
Do..loop [ ( while | until ) condition ] [statements]
[exit do [ ( when | unless ) condition ] [statements]
loop [ ( while | until ) condition ]
```

Exit script

This control statement stops script execution. It may be inserted anywhere in the script.

```
Exit script[ (when | unless) condition ]
```

For each ..next

The **for each..next** control statement is a script iteration construct which executes one or several statements for each value in a comma separated list. The statements inside the loop enclosed by **for** and **next** will be executed for each value of the list.

```
For each..next var in list
[statements]
[exit for [ ( when | unless ) condition ]
[statements]
next [var]
```

For..next

The **for..next** control statement is a script iteration construct with a counter. The statements inside the loop enclosed by **for** and **next** will be executed for each value of the counter variable between (and including) specified low and high limits.

```
For..next counter = expr1 to expr2 [ stepexpr3 ]
[statements]
[exit for [ ( when | unless ) condition ]
[statements]
Next [counter]
```

If..then

The **if..then** control statement is a script selection construct forcing the script execution to follow different paths depending on one or several logical conditions.

*Since the **if..then** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its four possible clauses (**if..then**, **elseif..then**, **else** and **end if**) must not cross a line boundary.*

```
If..then..elseif..else..end if condition then
  [ statements ]
{ elseif condition then
  [ statements ] }
[ else
  [ statements ] ]
end if
```

Sub

The **sub..end sub** control statement defines a subroutine which can be called upon from a **call** statement.

```
Sub..end sub name [ ( paramlist )] statements end sub
```

Switch

The **switch** control statement is a script selection construct forcing the script execution to follow different paths, depending on the value of an expression.

```
Switch..case..default..end switch expression {case valuelist [ statements ]}
[default statements] end switch
```

Call

The **call** control statement calls a subroutine which must be defined by a previous **sub** statement.

Syntax:

```
Call name ( [ paramlist ])
```

Arguments:

Call arguments

Argument	Description
name	The name of the subroutine.
paramlist	A comma separated list of the actual parameters to be sent to the subroutine. Each item in the list may be a field name, a variable or an arbitrary expression.

The subroutine called by a **call** statement must be defined by a **sub** encountered earlier during script execution.

Parameters are copied into the subroutine and, if the parameter in the **call** statement is a variable and not an expression, copied back out again upon exiting the subroutine.

Limitations:

Since the **call** statement is a control statement and as such is ended with either a semicolon or end-of-line, it must not cross a line boundary.

Example 1:

```
// Example 1
Sub INCR (I,J)

      I = I + 1
      Exit Sub when I < 10
      J = J + 1

End Sub
Call INCR (X,Y)
```

Example 2:

```
// Example 2 - List all QV related files on disk
sub DoDir (Root)

      For Each Ext in 'qvw', 'qvo', 'qvs', 'qvt', 'qvd', 'qvc'

            For Each File in filelist (Root&'\*.' &Ext)

                  LOAD
```

```
                        '$(File)' as Name, FileSize( '$(File)' ) as
                        Size, FileTime( '$(File)' ) as FileTime
                        autogenerate 1;

            Next File

      Next Ext
      For Each Dir in dirlist (Root&'\*' )

            Call DoDir (Dir)

      Next Dir

End Sub
Call DoDir ('C:')
```

Do..loop

The **do..loop** control statement is a script iteration construct which executes one or several statements until or while a logical condition is met.

Syntax:

```
Do [ ( while | until ) condition ] [statements]
[exit do [ ( when | unless ) condition ] [statements]
loop[ ( while | until ) condition ]
```

*Since the **do..loop** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its three possible clauses (**do**, **exit do** and **loop**) must not cross a line boundary.*

Arguments:

Do arguments

Argument	Description
condition	A logical expression evaluating to True or False.
statements	Any group of one or more QlikView script statements.
while / until	The **while** or **until** conditional clause must only appear once in any **do..loop** statement, i.e. either after **do** or after **loop**. Each condition is interpreted only the first time it is encountered but is evaluated for every time it encountered in the loop.
exit do	If an **exit do** clause is encountered inside the loop, the execution of the script will be transferred to the first statement after the **loop** clause denoting the end of the loop. An **exit do** clause can be made conditional by the optional use of a **when** or **unless** suffix.

Example:

```
// LOAD files file1.csv..file9.csv
Set a=1;
Do while a<10
LOAD * from file$(a).csv;
Let a=a+1;
```

Loop

Exit script

This control statement stops script execution. It may be inserted anywhere in the script.

Syntax:

```
Exit Script [ (when | unless) condition ]
```

Since the **exit script** statement is a control statement and as such is ended with either a semicolon or end-of-line, it must not cross a line boundary.

Arguments:

Exit script arguments

Argument	Description
condition	A logical expression evaluating to True or False.
when / unless	An **exit script** statement can be made conditional by the optional use of **when** or **unless** clause.

Examples:

```
//Exit script
Exit Script;

//Exit script when a condition is fulfilled
Exit Script when a=1
```

For..next

The **for..next** control statement is a script iteration construct with a counter. The statements inside the loop enclosed by **for** and **next** will be executed for each value of the counter variable between (and including) specified low and high limits.

Syntax:

```
For counter = expr1 to expr2 [ step expr3 ]
[statements]
[exit for [ ( when | unless ) condition ]
[statements]
Next [counter]
```

The expressions *expr1*, *expr2* and *expr3* are only evaluated the first time the loop is entered. The value of the counter variable may be changed by statements inside the loop, but this is not good programming practice.

If an **exit for** clause is encountered inside the loop, the execution of the script will be transferred to the first statement after the **next** clause denoting the end of the loop. An **exit for** clause can be made conditional by the optional use of a **when** or **unless** suffix.

*Since the **for..next** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its three possible clauses (**for..to..step**, **exit for** and **next**) must not cross a line boundary.*

Arguments:

For arguments

Argument	Description
counter	A variable name. If *counter* is specified after **next** it must be the same variable name as the one found after the corresponding **for**.
expr1	An expression which determines the first value of the *counter* variable for which the loop should be executed.
expr2	An expression which determines the maximum value of the *counter* variable for which the loop should be executed.
expr3	An expression which determines the value indicating the increment of the *counter* variable each time the loop has been executed.
condition	a logical expression evaluating to True or False.
statements	Any group of one or more QlikView script statements.

Example 1: Loading a sequence of files

```
// LOAD files file1.csv..file9.csv
for a=1 to 9

      LOAD * from file$(a).csv;

next
```

Example 2: Loading a random number of files

In this example, we assume there are data files *x1.csv, x3.csv, x5.csv, x7.csv* and *x9.csv*. Loading is stopped at a random point using the `if rand( )<0.5 then` condition.

```
for counter=1 to 9 step 2

      set filename=x$(counter).csv;
      if rand( )<0.5 then

            exit for unless counter=1

      end if
      LOAD a,b from $(filename);

next
```

For each..next

The **for each..next** control statement is a script iteration construct which executes one or several statements for each value in a comma separated list. The statements inside the loop enclosed by **for** and **next** will be executed for each value of the list.

Syntax:
Special syntax makes it possible to generate lists with file and directory names in the current directory.

```
for each var in list
[statements]
[exit for [ ( when | unless ) condition ]
[statements]
next [var]
```

Arguments:

For each arguments

Argument	Description
var	A script variable name which will acquire a new value from list for each loop execution. If **var** is specified after **next** it must be the same variable name as the one found after the corresponding **for each**.

The value of the **var** variable may be changed by statements inside the loop, but this is not good programming practice.

If an **exit for** clause is encountered inside the loop, the execution of the script will be transferred to the first statement after the **next** clause denoting the end of the loop. An **exit for** clause can be made conditional by the optional use of a **when** or **unless** suffix.

*Since the **for each..next** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its three possible clauses (**for each**, **exit for** and **next**) must not cross a line boundary.*

Syntax:

```
list := item { , item }
item := constant | (expression) | filelist (mask) | dirlist (mask) |
fieldvaluelist (fieldname)
```

List arguments

Argument	Description
constant	Any number or string. Note that a string written directly in the script must be enclosed by single quotes. A string without single quotes will be interpreted as a variable, and the value of the variable will be used. Numbers do not need to be enclosed by single quotes.
expression	An arbitrary expression.
mask	A filename or folder name mask which may include any valid filename characters as well as the standard wildcard characters, ***** and **?**.
condition	A logical expression evaluating to True or False.
statements	Any group of one or more QlikView script statements.
filelist mask	This syntax produces a comma separated list of all files in the current directory matching the filename mask.
dirlist mask	This syntax produces a comma separated list of all folders in the current folder matching the folder name mask.
fieldvaluelist mask	This syntax iterates through the values of a field already loaded into QlikView.

*The Qlik Web Storage Provider Connectors and other DataFiles connections do not support filter masks that use wildcard (***** and **?**) characters.*

Example 1: Loading a list of files

```
// LOAD the files 1.csv, 3.csv, 7.csv and xyz.csv
for each a in 1,3,7,'xyz'
   LOAD * from file$(a).csv;
next
```

Example 2: Creating a list of files on disk

This example loads a list of all QlikView related files in a folder.

```
sub DoDir (Root)
   for each Ext in 'qvw', 'qva', 'qvo', 'qvs', 'qvc', 'qvd'

      for each File in filelist (Root&'\*.' &Ext)

         LOAD
            '$(File)' as Name,
            FileSize( '$(File)' ) as Size,
            FileTime( '$(File)' ) as FileTime
         autogenerate 1;

      next File

   next Ext
```

```
   for each Dir in dirlist (Root&'\*' )

      call DoDir (Dir)

   next Dir

end sub

call DoDir ('C:')
```

Example 3: Iterating through a the values of a field

This example iterates through the list of loaded values of FIELD and generates a new field, NEWFIELD. For each value of FIELD, two NEWFIELD records will be created.

```
load * inline [
FIELD
one
two
three
];

FOR Each a in FieldValueList('FIELD')
LOAD '$(a)' &'-'&RecNo() as NEWFIELD AutoGenerate 2;
NEXT a
```

The resulting table looks like this:

Example 3

NEWFIELD
one-1
one-2
two-1
two-2
three-1
three-2

If..then..elseif..else..end if

The **if..then** control statement is a script selection construct forcing the script execution to follow different paths depending on one or several logical conditions.

Control statements are typically used to control the flow of the script execution. In a chart expression, use the **if** conditional function instead.

Syntax:

```
If  condition then
  [ statements ]
{ elseif condition then
  [ statements ] }
```

```
[ else
  [ statements ] ]
end if
```

Since the **if..then** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its four possible clauses (**if..then**, **elseif..then**, **else** and **end if**) must not cross a line boundary.

Arguments:

If arguments

Argument	Description
condition	A logical expression which can be evaluated as True or False.
statements	Any group of one or more QlikView script statements.

Example 1:

```
if a=1 then

      LOAD * from abc.csv;
      SQL SELECT e, f, g from tab1;

end if
```

Example 2:

```
if a=1 then; drop table xyz; end if;
```

Example 3:

```
if x>0 then

      LOAD * from pos.csv;

elseif x<0 then

      LOAD * from neg.csv;

else

      LOAD * from zero.txt;

end if
```

Sub..end sub

The **sub..end sub** control statement defines a subroutine which can be called upon from a **call** statement.

Syntax:

```
Sub name [ ( paramlist )] statements end sub
```

Arguments are copied into the subroutine and, if the corresponding actual parameter in the **call** statement is a variable name, copied back out again upon exiting the subroutine.

If a subroutine has more formal parameters than actual parameters passed by a **call** statement, the extra parameters will be initialized to NULL and can be used as local variables within the subroutine.

Since the **sub** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its two clauses (**sub** and **end sub**) must not cross a line boundary.

Arguments:

Sub arguments

Argument	Description
name	The name of the subroutine.
paramlist	A comma separated list of variable names for the formal parameters of the subroutine. These can be used as any variable inside the subroutine.
statements	Any group of one or more QlikView script statements.

Example 1:

```
Sub INCR (I,J)
I = I + 1
Exit Sub when I < 10
J = J + 1
End Sub
Call INCR (X,Y)
```

Example 2: - parameter transfer

```
Sub ParTrans (A,B,C)
A=A+1
B=B+1
C=C+1
End Sub
A=1
X=1
C=1
Call ParTrans (A, (X+1)*2)
```

The result of the above will be that locally, inside the subroutine, A will be initialized to 1, B will be initialized to 4 and C will be initialized to NULL.

When exiting the subroutine, the global variable A will get 2 as value (copied back from subroutine). The second actual parameter “(X+1)*2” will not be copied back since it is not a variable. Finally, the global variable C will not be affected by the subroutine call.

Switch..case..default..end switch

The **switch** control statement is a script selection construct forcing the script execution to follow different paths, depending on the value of an expression.

Syntax:

```
Switch expression {case valuelist [ statements ]} [default statements] end switch
```

*Since the **switch** statement is a control statement and as such is ended with either a semicolon or end-of-line, each of its four possible clauses (**switch**, **case**, **default** and **end switch**) must not cross a line boundary.*

Arguments:

Switch arguments

Argument	Description
expression	An arbitrary expression.
valuelist	A comma separated list of values with which the value of expression will be compared. Execution of the script will continue with the statements in the first group encountered with a value in valuelist equal to the value in expression. Each value in valuelist may be an arbitrary expression. If no match is found in any **case** clause, the statements under the **default** clause, if specified, will be executed.
statements	Any group of one or more QlikView script statements.

Example:

```
Switch I
Case 1
LOAD '$(I): CASE 1' as case autogenerate 1;
Case 2
LOAD '$(I): CASE 2' as case autogenerate 1;
Default
LOAD '$(I): DEFAULT' as case autogenerate 1;
End Switch
```

Script prefixes

Prefixes may be applied to applicable regular statements but never to control statements. The **when** and **unless** prefixes can, however, be used as suffixes to a few specific control statement clauses.

All script keywords can be typed with any combination of lower case and upper case characters. Field and variable names used in the statements are however case sensitive.

Script prefixes overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Add

The **add** prefix can be added to any **LOAD**, **SELECT** or **map...using** statement in the script. It is only relevant during partial reloads.

```
Add [only] (loadstatement | selectstatement | mapstatement)
```

Buffer

QVD files can be created and maintained automatically via the **buffer** prefix. This prefix can be used on most **LOAD** and **SELECT** statements in script. It indicates that QVD files are used to cache/buffer the result of the statement.

```
Buffer[(option [ , option])] ( loadstatement | selectstatement )
option::= incremental | stale [after] amount [(days | hours)]
```

Bundle

The **Bundle** prefix is used to include external files, such as image or sound files, or objects connected to a field value, to be stored in the QlikView file.

```
Bundle [Info] ( loadstatement | selectstatement)
```

Concatenate

If two tables that are to be concatenated have different sets of fields, concatenation of two tables can still be forced with the **Concatenate** prefix.

```
Concatenate[ (tablename ) ] ( loadstatement | selectstatement )
```

Crosstable

The **crosstable** prefix is used to turn a cross table into a straight table, that is, a wide table with many columns is turned into a tall table, with the column headings being placed into a single attribute column.

```
Crosstable (attribute field name, data field name [ , n ] ) ( loadstatement |
selectstatement )
```

First

The **First** prefix to a **LOAD** or **SELECT (SQL)** statement is used for loading a set maximum number of records from a data source table.

```
First n( loadstatement | selectstatement )
```

Generic

The **generic** prefix unpacks a tall table, creating one field per attribute value. This is similar to pivoting a table, except that it results in a separate table per field created.

```
Generic ( loadstatement | selectstatement )
```

Hierarchy

The **hierarchy** prefix is used to transform a parent-child hierarchy table to a table that is useful in a QlikView data model. It can be put in front of a **LOAD** or a **SELECT** statement and will use the result of the loading statement as input for a table transformation.

```
Hierarchy (NodeID, ParentID, NodeName, [ParentName], [PathSource],
[PathName], [PathDelimiter], [Depth])(loadstatement | selectstatement)
```

HierarchyBelongsTo

This prefix is used to transform a parent-child hierarchy table to a table that is useful in a QlikView data model. It can be put in front of a **LOAD** or a **SELECT** statement and will use the result of the loading statement as input for a table transformation.

```
HierarchyBelongsTo (NodeID, ParentID, NodeName, AncestorID, AncestorName,
[DepthDiff])(loadstatement | selectstatement)
```

Image_Size

This clause is used with the **Info** prefix or the **Bundle** prefix to resize images from a database management system to fit in the fields.

```
Info [Image_Size(width,height )] ( loadstatement | selectstatement )
```

Info

The **info** prefix is used to link external information, such as a text file, a picture or a video to a field value.

```
Info( loadstatement | selectstatement )
```

Inner

The **join** and **keep** prefixes can be preceded by the prefix **inner**.If used before **join** it specifies that an inner join should be used. The resulting table will thus only contain combinations of field values from the raw data tables where the linking field values are represented in both tables. If used before **keep**, it specifies that both raw data tables should be reduced to their common intersection before being stored in QlikView. .

```
Inner ( Join | Keep) [ (tablename) ](loadstatement |selectstatement )
```

Inputfield

A field may be flagged as an input field by listing it in an **inputfield** statement before it is referenced in any **load** or **select** statements.

```
Inputfield (page 887) fieldlist
```

IntervalMatch

The **IntervalMatch** prefix is used to create a table matching discrete numeric values to one or more numeric intervals, and optionally matching the values of one or several additional keys.

```
IntervalMatch (matchfield)(loadstatement | selectstatement )
IntervalMatch (matchfield,keyfield1 [ , keyfield2, ... keyfield5 ] )
(loadstatement | selectstatement )
```

Join

The **join** prefix joins the loaded table with an existing named table or the last previously created data table.

```
[Inner | Outer | Left | Right ] Join [ (tablename ) ]( loadstatement |
selectstatement )
```

Keep

The **keep** prefix is similar to the **join** prefix. Just as the **join** prefix, it compares the loaded table with an existing named table or the last previously created data table, but instead of joining the loaded table with an existing table, it has the effect of reducing one or both of the two tables before they are stored in QlikView,

based on the intersection of table data. The comparison made is equivalent to a natural join made over all the common fields, i.e. the same way as in a corresponding join. However, the two tables are not joined and will be kept in QlikView as two separately named tables.

```
(Inner | Left | Right) Keep [(tablename ) ]( loadstatement | selectstatement
)
```

Left
The **Join** and **Keep** prefixes can be preceded by the prefix **left**.

If used before **join** it specifies that a left join should be used. The resulting table will only contain combinations of field values from the raw data tables where the linking field values are represented in the first table. If used before **keep**, it specifies that the second raw data table should be reduced to its common intersection with the first table, before being stored in QlikView.

```
Left ( Join | Keep) [ (tablename) ](loadstatement |selectstatement )
```

Mapping
The **mapping** prefix is used to create a mapping table that can be used to, for example, replacing field values and field names during script execution.

```
Mapping  ( loadstatement | selectstatement )
```

NoConcatenate
The **NoConcatenate** prefix forces two loaded tables with identical field sets to be treated as two separate internal tables, when they would otherwise be automatically concatenated.

```
NoConcatenate( loadstatement | selectstatement )
```

Outer
The explicit **Join** prefix can be preceded by the prefix **outer** in order to specify an outer join. In an outer join all combinations between the two tables are generated. The resulting table will thus contain combinations of field values from the raw data tables where the linking field values are represented in one or both tables. The **outer** keyword is optional.

```
Outer Join [ (tablename) ](loadstatement |selectstatement )
```

Replace
The **replace** prefix is used to drop the entire QlikView table and replace it with a new table that is loaded or selected.

```
Replace[only](loadstatement |selectstatement |map...usingstatement)
```

Right
The **Join** and **Keep** prefixes can be preceded by the prefix **right**.

If used before **join** it specifies that a right join should be used. The resulting table will only contain combinations of field values from the raw data tables where the linking field values are represented in the second table. If used before **keep**, it specifies that the first raw data table should be reduced to its common intersection with the second table, before being stored in QlikView.

```
Right (Join | Keep) [(tablename)](loadstatement |selectstatement )
```

Sample

The **sample** prefix to a **LOAD** or **SELECT** statement is used for loading a random sample of records from the data source.

```
Sample p ( loadstatement | selectstatement )
```

Semantic

Tables containing relations between records can be loaded through a **semantic** prefix. This can for example be self-references within a table, where one record points to another, such as parent, belongs to, or predecessor.

```
Semantic ( loadstatement | selectstatement)
```

Unless

The **unless** prefix and suffix is used for creating a conditional clause which determines whether a statement or exit clause should be evaluated or not. It may be seen as a compact alternative to the full **if..end if** statement.

```
(Unless condition statement | exitstatement Unless condition )
```

When

The **when** prefix and suffix is used for creating a conditional clause which determines whether a statement or exit clause should be executed or not. It may be seen as a compact alternative to the full **if..end if** statement.

```
( When condition statement | exitstatement when condition )
```

Add

The **Add** prefix can be added to any **LOAD** or **SELECT** statement in the script to specify that it should add records to another table. It also specifies that this statement should be run in a partial reload. The **Add** prefix can also be used in a **Map** statement.

Syntax:

```
Add[only][Concatenate[(tablename)]] (loadstatement | selectstatement)
```

```
Add[only]mapstatement
```

During a normal (non-partial) reload, the **AddLOAD** construction will work as a normal **LOAD** statement. Records will be generated and stored in a table.

If the **Concatenate** prefix is used, or if there exists a table with the same set of fields, the records will be appended to the relevant existing table. Otherwise, the **AddLOAD** construction will create a new table.

A partial reload will do the same. The only difference is that the **AddLOAD** construction will never create a new table. There always exists a relevant table from the previous script execution to which the records should be appended.

No check for duplicates is performed. Therefore, a statement using the **Add** prefix will often include either a distinct qualifier or a where clause guarding duplicates.

The **Add Map...Using** statement causes mapping to take place also during partial script execution.

Arguments:

Add arguments

Argument	Description
only	An optional qualifier denoting that the statement should be disregarded during normal (non-partial) reloads.

Examples and results:

Examples and results

Example	Result

`Tab1:`
`LOAD Name, Number FROM Persons.csv;`
`Add LOAD Name, Number FROM newPersons.csv;`
	During normal reload, data is loaded from *Persons.csv* and stored in the QlikView table Tab1. Data from *NewPersons.csv* is then concatenated to the same QlikView table.
	
	During partial reload, data is loaded from *NewPersons.csv* and appended to the QlikView table Tab1. No check for duplicates is made.

`Tab1:`
`SQL SELECT Name, Number FROM Persons.csv;`
`Add LOAD Name, Number FROM NewPersons.csv (txt) where not exists(Name);`
	A check for duplicates is made by means of looking if Name exists in the previously loaded table data (see the function exists under inter-record functions).
	
	During normal reload, data is loaded from *Persons.csv* and stored in the QlikView table Tab1. Data from *NewPersons.csv* is then concatenated to the same QlikView table.
	
	During partial reload, data is loaded from *NewPersons.csv* which is appended to the QlikView table Tab1. A check for duplicates is made by means of seeing if Name exists in the previously loaded table data.

`Tab1:`
`LOAD Name, Number FROM Persons.csv;`
`Add Only LOAD Name, Number FROM NewPersons.csv (txt) where not exists(Name);`
	During normal reload, data is loaded from *Persons.csv* and stored in the QlikView table Tab1. The statement loading *NewPersons.csv* is disregarded.
	
	During partial reload, data is loaded from *NewPersons.csv* which is appended to the QlikView table Tab1. A check for duplicates is made by means of seeing if Name exists in the previously loaded table data.

Buffer

QVD files can be created and maintained automatically via the **buffer** prefix. This prefix can be used on most **LOAD** and **SELECT** statements in script. It indicates that QVD files are used to cache/buffer the result of the statement.

Syntax:

```
Buffer [(option [ , option])] ( loadstatement | selectstatement )
option::= incremental | stale [after] amount [(days | hours)]
```

If no option is used, the QVD buffer created by the first execution of the script will be used indefinitely.

QVD buffers are stored in *C:\ProgramData\QlikTech\QlikView\Buffers* by default.

QVD buffers will normally be removed when no longer referenced anywhere throughout a complete script execution in the document that created it or when the document that created it no longer exists.

Arguments:

Buffer arguments

Argument	Description
incremental	The incremental option enables the ability to read only part of an underlying file. Previous size of the file is stored in the XML header in the QVD file. This is particularly useful with log files. All records loaded at a previous occasion are read from the QVD file whereas the following new records are read from the original source and finally an updated QVD-file is created. Note that the incremental option can only be used with **LOAD** statements and text files and that incremental load cannot be used where old data is changed or deleted!
stale [after] amount [(days | hours)]	amount is a number specifying the time period. Decimals may be used. The unit is assumed to be days if omitted. The stale after option is typically used with DB sources where there is no simple timestamp on the original data. Instead you specify how old the QVD snapshot can be to be used. A stale after clause simply states a time period from the creation time of the QVD buffer after which it will no longer be considered valid. Before that time the QVD buffer will be used as source for data and after that the original data source will be used. The QVD buffer file will then automatically be updated and a new period starts.

Limitations:

Numerous limitations exist, most notable is that there must be either a file **LOAD** or a **SELECT** statement at the core of any complex statement.

Example 1:

```
Buffer SELECT * from MyTable;
```

Example 2:

```
Buffer (stale after 7 days) SELECT * from MyTable;
```

Example 3:

```
Buffer (incremental) LOAD * from MyLog.log;
```

Bundle

The **Bundle** prefix is used to include external files, such as image or sound files, or objects connected to a field value, to be stored in the QlikView file.

Syntax:

```
Bundle [Info] ( loadstatement | selectstatement)
```

In order to maintain portability, it is possible to include the external files into the QlikView file itself. To this end use the **Bundle** prefix. The bundled info files are compressed in the process, but will nevertheless take up additional space both in the file and in RAM. Therefore consider both the size and the number of bundled files before going for this solution.

The info may be referenced from the layout as normal info, via the chart info function or as an internal file via the special syntax **qmem:**// *fieldname / fieldvalue* alternatively **qmem:**// fieldname / < index > where index is the internal index of a field value.

Arguments:

Bundle arguments

Argument	Description
loadstatement | selectstatement	If a piece of external information, such as an image or a sound file is to be connected to a field value, this is done in a table that is loaded with the **Info** prefix. The **Info** prefix may be omitted when **Bundle** is used.

Example:

```
Bundle Info LOAD * From flagoecd.csv;
Bundle SQL SELECT * from infotable;
```

Concatenate

If two tables that are to be concatenated have different sets of fields, concatenation of two tables can still be forced with the **Concatenate** prefix. This statement forces concatenation with an existing named table or the latest previously created logical table. An automatic concatenation occurs if two tables have the same field names.

Syntax:

```
Concatenate[ (tablename ) ] ( loadstatement | selectstatement )
```

A concatenation is in principle the same as the **SQL UNION** statement, but with two differences:

- The **Concatenate** prefix can be used no matter if the tables have identical field names or not.
- Identical records are not removed with the **Concatenate** prefix.

Arguments:

Concatenate arguments

Argument	Description
tablename	The name of the existing table.

Example 1:

```
LOAD * From file2.csv;
Concatenate SELECT * From table3;
```

Example 2:

```
tab1:
LOAD * From file1.csv;
tab2:
LOAD * From file2.csv;
.. .. ..
Concatenate (tab1) LOAD * From file3.csv;
```

Crosstable

The **crosstable** prefix is used to turn a cross table into a straight table, that is, a wide table with many columns is turned into a tall table, with the column headings being placed into a single attribute column.

Syntax:

```
crosstable (attribute field name, data field name [ , n ] ) ( loadstatement | selectstatement )
```

Arguments:

Crosstable arguments

Argument	Description
attribute field name	The field that contains the attribute values.
data field name	The field that contains the data values.
n	The number of qualifier fields preceding the table to be transformed to generic form. Default is 1.

A crosstable is a common type of table featuring a matrix of values between two or more orthogonal lists of header data, of which one is used as column headers. A typical example could be to have one column per month. The result of the **crosstable** prefix is that the column headers (for example month names) will be stored in one field, the attribute field, and the column data (month numbers) will be stored in a second field: the data field.

Example:

```
Crosstable (Month, Sales, 2) LOAD * INLINE[
Person, Location, Jan, Feb, Mar
Bob, London, 100, 200, 300
Kate, New York, 400, 500, 600
];
```

Result:

Example 1

Person,	Location,	Month,	Sales
Bob,	London,	Jan,	100
Bob,	London,	Feb,	200
Bob,	London,	Mar,	300
Kate,	New York,	Jan,	400
Kate,	New York,	Feb,	500
Kate,	New York,	Mar,	600

Crosstable wizard

The crosstable wizard is dialog driven method of creating the crosstable statement. This dialog is opened by clicking the **Crosstable** button in the **Options** page of the **File Wizard**. The crosstable wizard contains the following options:

Crosstable Wizard fields

Field type	Description
Qualifier Fields	The number of qualifier fields that precede the fields to be transformed.
Attribute Field	The name of the new field that will contain all the fields (attribute values) to be transformed.
Data Field	The name of the new field that will contain the data of the attribute values.

First

The **First** prefix to a **LOAD** or **SELECT (SQL)** statement is used for loading a set maximum number of records from a data source table.

Syntax:

```
First n ( loadstatement | selectstatement )
```

Arguments:

First arguments

Argument	Description
n	An arbitrary expression that evaluates to an integer indicating the maximum number of records to be read. *n* can be enclosed in parentheses, like *(n)*, but this is not required.

Examples:

```
First 10 LOAD * from abc.csv;
First (1) SQL SELECT * from Orders;
```

Generic

The **generic** prefix unpacks a tall table, creating one field per attribute value. This is similar to pivoting a table, except that it results in a separate table per field created.

Syntax:

```
Generic( loadstatement | selectstatement )
```

Tables loaded through a **generic** statement are not auto-concatenated.

Example:

```
Table1:
Generic LOAD * INLINE;
[
Key, Attribute, Value
Bob, Jan, 100
Bob, Feb, 200
Bob, Mar, 300
Kate, Jan, 400
Kate, Feb, 500
Kate, Mar, 600
];
```

Result:

This will result in 3 tables:

Table1.Jan:

Example 1

Key,	**Jan**
Bob,	100
Kate,	400

Table1.Feb:

Example 2

Key,	**Feb**
Bob,	200
Kate,	500

Table1.Mar:

Example 3

Key,	**Mar**

Bob,	300
Kate,	600

Hierarchy

The **hierarchy** prefix is used to transform a parent-child hierarchy table to a table that is useful in a QlikView data model. It can be put in front of a **LOAD** or a **SELECT** statement and will use the result of the loading statement as input for a table transformation.

The prefix creates an expanded nodes table, which normally has the same number of records as the input table, but in addition each level in the hierarchy is stored in a separate field. The path field can be used in a tree structure.

Syntax:

```
Hierarchy (NodeID, ParentID, NodeName, [ParentName, [ParentSource, [PathName, [PathDelimiter, Depth]]]])(loadstatement | selectstatement)
```

The input table must be an adjacent nodes table. Adjacent nodes tables are tables where each record corresponds to a node and has a field that contains a reference to the parent node. In such a table the node is stored on one record only but the node can still have any number of children. The table may of course contain additional fields describing attributes for the nodes.

Usually the input table has exactly one record per node and in such a case the output table will contain the same number of records. However, sometimes there are nodes with multiple parents, i.e. one node is represented by several records in the input table. If so, the output table may have more records than the input table.

All nodes with a parent id not found in the node id column (including nodes with missing parent id) will be considered as roots. Also, only nodes with a connection to a root node - direct or indirect - will be loaded, thus avoiding circular references.

Additional fields containing the name of the parent node, the path of the node and the depth of the node can be created.

Arguments:

Hierarchy arguments

Argument	Description
NodeID	The name of the field that contains the node id. This field must exist in the input table.
ParentID	The name of the field that contains the node id of the parent node. This field must exist in the input table.
NodeName	The name of the field that contains the name of the node. This field must exist in the input table.
ParentName	A string used to name the new **ParentName** field. If omitted, this field will not be created.

Argument	Description
ParentSource	The name of the field that contains the name of the node used to build the node path. Optional parameter. If omitted, **NodeName** will be used.
PathName	A string used to name the new **Path** field, which contains the path from the root to the node. Optional parameter. If omitted, this field will not be created.
PathDelimiter	A string used as delimiter in the new **Path** field. Optional parameter. If omitted, '/' will be used.
Depth	A string used to name the new **Depth** field, which contains the depth of the node in the hierarchy. Optional parameter. If omitted, this field will not be created.

Example:

```
Hierarchy(NodeID, ParentID, NodeName, ParentName, NodeName, PathName, '\', Depth) LOAD *
inline [
NodeID, ParentID, NodeName
1, 4, London
2, 3, Munich
3, 5, Germany
4, 5, UK
5, , Europe
];
```

Result:

Example 1

NodeID	NodeName	ParentID	ParentName	NodeName1	NodeName2	NodeName3	PathName	Depth
5	Europe		-	Europe	-	-	Europe	1
3	Germany	5	Europe	Europe	Germany	-	Europe\Germany	2
2	Munich	3	Germany	Europe	Germany	Munich	Europe\Germany\Munich	3
4	UK	5	Europe	Europe	UK	-	Europe\UK	2
1	London	4	UK	Europe	UK	London	Europe\UK\London	3

HierarchyBelongsTo

This prefix is used to transform a parent-child hierarchy table to a table that is useful in a QlikView data model. It can be put in front of a **LOAD** or a **SELECT** statement and will use the result of the loading statement as input for a table transformation.

The prefix creates a table containing all ancestor-child relations of the hierarchy. The ancestor fields can then be used to select entire trees in the hierarchy. The output table in most cases contains several records per node.

Syntax:

```
HierarchyBelongsTo (NodeID, ParentID, NodeName, AncestorID, AncestorName,
[DepthDiff])(loadstatement | selectstatement)
```

The input table must be an adjacent nodes table. Adjacent nodes tables are tables where each record corresponds to a node and has a field that contains a reference to the parent node. In such a table the node is stored on one record only but the node can still have any number of children. The table may of course contain additional fields describing attributes for the nodes.

An additional field containing the depth difference of the nodes can be created.

Arguments:

HierarchyBelongsTo arguments

Argument	Description
NodeID	The name of the field that contains the node id. This field must exist in the input table.
ParentID	The name of the field that contains the node id of the parent node. This field must exist in the input table.
NodeName	The name of the field that contains the name of the node. This field must exist in the input table.
AncestorID	A string used to name the new ancestor id field, which contains the id of the ancestor node.
AncestorName	A string used to name the new ancestor field, which contains the name of the ancestor node.
DepthDiff	A string used to name the new **DepthDiff** field, which contains the depth of the node in the hierarchy relative the ancestor node. Optional parameter. If omitted, this field will not be created.

Example:

```
HierarchyBelongsTo (NodeID, AncestorID, NodeName, AncestorID, AncestorName, DepthDiff) LOAD *
inline [
NodeID, AncestorID, NodeName
1, 4, London
2, 3, Munich
3, 5, Germany
4, 5, UK
5, , Europe
];
```

Result:

Example 1

NodeID	AncestorID	NodeName	AncestorName	DepthDiff

1	1	London	London	0
1	4	London	UK	1
1	5	London	Europe	2
2	2	Munich	Munich	0
2	3	Munich	Germany	1
2	5	Munich	Europe	2
3	3	Germany	Germany	0
3	5	Germany	Europe	1
4	4	UK	UK	0
4	5	UK	Europe	1
5	5	Europe	Europe	0

Image_Size

This clause is used with the **Info** prefix or the **Bundle** prefix to resize images from a database management system to fit in the fields.

Syntax:

```
Bundle [Image_Size(width,height )] ( loadstatement | selectstatement )
```

Arguments:

Image_Size arguments

Argument	Description
width	The width of the image specified in pixels.
height	The height of the image specified in pixels.

Example:

A thumbnail for each image in the folder *MyPictures* will be stored in the QlikView document. The images keep their width and height ratio.

```
for each vBundleExt in 'jpg', 'jpeg', 'jpe', 'png', 'jif', 'jfi'
for each vBundleFoundFile in filelist( GetFolderPath('MyPictures') & '\*.'& vBundleExt )
BundleFileList:
BUNDLE IMAGE_SIZE(20, 20) Info Load FileLongName, FileLongName;
Load @1:n as FileLongName Inline "$(vBundleFoundFile)" (fix, no labels);
Next vBundleFoundFile
Next vBundleExt
```

Info

The **info** prefix is used to link external information, such as a text file, a picture or a video to a field value.

Syntax:

```
Info( loadstatement | selectstatement )
```

If a piece of external information, such as a text file, a picture or a video is to be linked to a field value, this is done in a table that is loaded using an **info** prefix.(In some cases it will be preferable to store the information inside the QlikView file, by using the **bundle** prefix. The table must contain two columns only, the first one with the field values that will form the keys to the information, the second one containing the information elements, that is, the file names of the pictures etcetera.

The same applies to, for example, a picture from a database management system. On a binary field, a blob, the info select statement makes an implicit **bundle**, i.e. the binary data will be fetched immediately and stored in the QlikView file. The binary data must be the second field in a **SELECT** statement.

Example:

```
Info LOAD * inline[
LinkedField, ImageFileName
QlikView, QlikViewLogo.png
];
```

Result:

Only **LinkedField** will be visible as a field name.

If you add at text object to the sheet with representation set to **Image**, and enter the text =Info(LinkedField), the text object will show the image file name.

Inner

The **join** and **keep** prefixes can be preceded by the prefix **inner**.If used before **join** it specifies that an inner join should be used. The resulting table will thus only contain combinations of field values from the raw data tables where the linking field values are represented in both tables. If used before **keep**, it specifies that both raw data tables should be reduced to their common intersection before being stored in QlikView.

Syntax:

```
Inner ( Join | Keep) [ (tablename) ](loadstatement |selectstatement )
```

Arguments:

Table load arguments

Argument	Description
tablename	The named table to be compared to the loaded table.
loadstatement or selectstatement	The **LOAD** or **SELECT** statement for the loaded table.

Example 1:

Table1	**-**

A	B
1	aa
2	cc
3	ee

Table2	**-**
A	C
1	xx
4	yy

```
QVTable:
SQL SELECT * From table1;
inner join SQL SELECT * From table2;
```

QVTable	**-**	**-**
A	B	C
1	aa	xx

Example 2:

```
QVTab1:
SQL SELECT * From Table1;
QVTab2:
inner keep SQL SELECT * From Table2;
```

QVTab1	**-**
A	B
1	aa

QVTab2	**-**
A	C
1	xx

The two tables in the **keep** example are, of course, associated via A.

Inputfield

A field may be flagged as an input field by listing it in an **inputfield** statement before it is referenced in any **LOAD** or **SELECT** statements.

Key fields cannot be flagged as input fields.

```
inputfield fieldlist
```

fieldlist is a comma separated list of the fields that should be flagged as input fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.
Input fields behave somewhat differently from regular fields. The most important difference is their ability to accept changes in field values, interactively or programmatically, without running the script. Field values must be loaded into the field via **LOAD** or **SELECT** statements. Each field value loaded in the script will create a placeholder for a field value replacement value. Only existing field values can thus be changed interactively or programmatically. The replacement value is user dependent, i.e. when an input field is used on a server, different users will see different sets of input field values. In input fields all field values will be treated as distinct, regardless if several have the same value. Input fields normally retain their previously set value after a reload.

Example 1:

```
Inputfield B;
Inputfield A,B;
Inputfield B??x*;
```

Example 2:

```
Inputfield I;Load RecNo() as I, RecNo() as K autogenerate 10;
```

The values in K need to be unique to allow I to be an input field.

IntervalMatch

The **IntervalMatch** prefix is used to create a table matching discrete numeric values to one or more numeric intervals, and optionally matching the values of one or several additional keys.

Syntax:

```
IntervalMatch (matchfield)(loadstatement | selectstatement )
IntervalMatch (matchfield,keyfield1 [ , keyfield2, ... keyfield5 ] )
(loadstatement | selectstatement )
```

The **IntervalMatch** prefix must be placed before a **LOAD** or a **SELECT** statement that loads the intervals. The field containing the discrete data points (Time in the example below) and additional keys must already have been loaded into QlikView before the statement with the **IntervalMatch** prefix. The prefix does not by itself read this field from the database table. The prefix transforms the loaded table of intervals and keys to a table that contains an additional column: the discrete numeric data points. It also expands the number of records so that the new table has one record per possible combination of discrete data point, interval and value of the key field(s).

The intervals may be overlapping and the discrete values will be linked to all matching intervals.

The extended **IntervalMatch** prefix is used to create a table matching discrete numeric values to one or more numeric intervals, while at the same time matching the values of one or several additional keys. This is a very powerful and flexible feature that can be used for linking transactions with dimensions that are changing over time: Slowly changing dimensions.

In order to avoid undefined interval limits being disregarded, it may be necessary to allow NULL values to map to other fields that constitute the lower or upper limits to the interval. This can be handled by the **NullAsValue** statement or by an explicit test that replaces NULL values with a numeric value well before or after any of the discrete numeric data points.

Arguments:

IntervalMatch arguments

Argument	Description
matchfield	The field containing the discrete numeric values to be linked to intervals.
keyfield	Fields that contain the additional attributes that are to be matched in the transformation.
loadstatement orselectstatement	Must result in a table, where the first field contains the lower limit of each interval, the second field contains the upper limit of each interval, and in the case of using key matching, the third and any subsequent fields contain the keyfield(s) present in the **IntervalMatch** statement. The intervals are always closed, i.e. the end points are included in the interval. Non-numeric limits render the interval to be disregarded (undefined).

Example 1:

In the two tables below, the first one defines the start and end times for the production of different orders. The second one lists a number of discrete events. By means of the **IntervalMatch** prefix it is possible to logically connect the two tables in order to find out e.g. which orders were affected by disturbances and which orders were processed by which shifts.

```
EventLog:

LOAD * Inline [

Time, Event, Comment
00:00, 0, Start of shift 1
01:18, 1, Line stop
02:23, 2, Line restart 50%
04:15, 3, Line speed 100%
08:00, 4, Start of shift 2
11:43, 5, End of production
];


OrderLog:
LOAD * INLINE [
Start, End, Order
01:00, 03:35, A
02:30, 07:58, B
03:04, 10:27, C
07:23, 11:43, D
];

//Link the field Time to the time intervals defined by the fields Start and End.
```

```
Inner Join IntervalMatch ( Time )

LOAD Start, End
Resident OrderLog;
```

Result:

The table **OrderLog** contains now an additional column: *Time*. The number of records is also expanded.

Example 1

Time	Start	End	Order
00:00	-	-	-
01:18	01:00	03:35	A
02:23	01:00	03:35	A
04:15	02:30	07:58	B
04:15	03:04	10:27	C
08:00	03:04	10:27	C
08:00	07:23	11:43	D
11:43	07:23	11:43	D

Example 2: (using keyfield)

Same example than above, adding *ProductionLine* as a key field.

```
EventLog:
LOAD * Inline [
Time, Event, Comment, ProductionLine
00:00, 0, Start of shift 1, P1
01:00, 0, Start of shift 1, P2
01:18, 1, Line stop, P1
02:23, 2, Line restart 50%, P1
04:15, 3, Line speed 100%, P1
08:00, 4, Start of shift 2, P1
09:00, 4, Start of shift 2, P2
11:43, 5, End of production, P1
11:43, 5, End of production, P2
];

OrderLog:
LOAD * INLINE [
Start, End, Order, ProductionLine
01:00, 03:35, A, P1
02:30, 07:58, B, P1
03:04, 10:27, C, P1
07:23, 11:43, D, P2
];

//Link the field Time to the time intervals defined by the fields Start and End and match the
values
// to the key ProductionLine.
Inner Join
IntervalMatch ( Time, ProductionLine )
```

```
LOAD Start, End, ProductionLine
Resident OrderLog;
```

Result:

A table box could now be created as below:

Example 2

ProductionLine	Time	Event	Comment	Order	Start	End
P1	00:00	0	Start of shift 1	-	-	-
P2	01:00	0	Start of shift 1	-	-	-
P1	01:18	1	Line stop	A	01:00	03:35
P1	02:23	2	Line restart 50%	A	01:00	03:35
P1	04:15	3	Line speed 100%	B	02:30	07:58
P1	04:15	3	Line speed 100%	C	03:04	10:27
P1	08:00	4	Start of shift 2	C	03:04	10:27
P2	09:00	4	Start of shift 2	D	07:23	11:43
P1	11:43	5	End of production	-	-	-
P2	11:43	5	End of production	D	07:23	11:43

IntervalMatch (Extended Syntax)

The extended **IntervalMatch** prefix is used to create a table matching discrete numeric values to one or more numeric intervals, while at the same time matching the values of one or several additional keys.

This is a very powerful and flexible feature that can be used for linking transactions with dimensions that are changing over time: Slowly changing dimensions.

The **IntervalMatch** prefix must be placed before a **Load** or **Select** statement that loads the intervals. The table containing the discrete data points and the additional keys must already have been loaded into QlikView before the statement with the **IntervalMatch** prefix. The prefix transforms the loaded table of intervals and keys to a table that contains an additional column: the discrete numeric data points. It also expands the number of records so that the new table has one record per possible combination of discrete data point, interval and value of the key field(s).

The syntax is:

```
intervalmatch (matchfield,keyfield1 [ , keyfield2, ... keyfield5 ] )
(loadstatement | selectstatement )
```

`matchfield` is the field containing the discrete numeric values to be linked to intervals.

`keyfield(s)` are fields that contain the additional attributes that are to be matched in the transformation.

`loadstatement` or `selectstatement` must result in a table where the first two fields contain the lower and upper limits of each interval and the third and any subsequent fields contain the `keyfield(s)` present in the **IntervalMatch** statement. The intervals are always closed, i.e. the end points are included in the interval. Non-numeric limits render the interval to be disregarded (undefined).

In order to avoid undefined interval limits being disregarded, it may be necessary to allow NULL values to map to other fields that constitute the lower or upper limits to the interval. This can be handled by the **NullAsValue** statement or by an explicit test that replaces NULLs with a numeric value well before or after any of the discrete numeric data points.

Example:

```
Inner Join IntervalMatch (Date,Key) LOAD FirstDate, LastDate, Key resident Key;
```

Join

The **join** prefix joins the loaded table with an existing named table or the last previously created data table.

Syntax:

```
[inner | outer | left | right ]Join [ (tablename ) ]( loadstatement |
selectstatement )
```

The join is a natural join made over all the common fields. The join statement may be preceded by one of the prefixes **inner**, **outer**, **left** or **right**.

Arguments:

Table load arguments

Argument	Description
tablename	The named table to be compared to the loaded table.
loadstatement or selectstatement	The **LOAD** or **SELECT** statement for the loaded table.

Example:

```
Join LOAD * from abc.csv;

Join SELECT * from table1;

tab1:
LOAD * from file1.csv;
tab2:
LOAD * from file2.csv;
.. .. ..
join (tab1) LOAD * from file3.csv;
```

Keep

The **keep** prefix is similar to the **join** prefix. Just as the **join** prefix, it compares the loaded table with an existing named table or the last previously created data table, but instead of joining the loaded table with an existing table, it has the effect of reducing one or both of the two tables before they are stored in QlikView, based on the intersection of table data. The comparison made is equivalent to a natural join made over all the common fields, i.e. the same way as in a corresponding join. However, the two tables are not joined and will be kept in QlikView as two separately named tables.

Syntax:

```
(inner | left | right) keep [(tablename ) ]( loadstatement | selectstatement
)
```

The **keep** prefix must be preceded by one of the prefixes **inner**, **left** or **right**.

The explicit **join** prefix in QlikView script language performs a full join of the two tables. The result is one table. In many cases such joins will result in very large tables. One of the main features of QlikView is its ability to make associations between multiple tables instead of joining them, which greatly reduces memory usage, increases processing speed and offers enormous flexibility. Explicit joins should therefore generally be avoided in QlikView scripts. The keep functionality was designed to reduce the number of cases where explicit joins needs to be used.

Arguments:

Table load arguments

Argument	Description
tablename	The named table to be compared to the loaded table.
loadstatement or selectstatement	The **LOAD** or **SELECT** statement for the loaded table.

Example:

```
Inner Keep LOAD * from abc.csv;
Left Keep SELECT * from table1;
tab1:
LOAD * from file1.csv;
tab2:
LOAD * from file2.csv;
.. .. ..
Left Keep (tab1) LOAD * from file3.csv;
```

Left

The **Join** and **Keep** prefixes can be preceded by the prefix **left**.

If used before **join** it specifies that a left join should be used. The resulting table will only contain combinations of field values from the raw data tables where the linking field values are represented in the first table. If used before **keep**, it specifies that the second raw data table should be reduced to its common intersection with the first table, before being stored in QlikView.

Were you looking for the string function by the same name? See: Left (page 1513)

Syntax:

```
Left ( Join | Keep) [ (tablename) ](loadstatement | selectstatement)
```

Arguments:

Table load arguments

Argument	Description
tablename	The named table to be compared to the loaded table.
loadstatement or selectstatement	The **LOAD** or **SELECT** statement for the loaded table.

Example:

Example 1A

Table1	-
A	B
1	aa
2	cc
3	ee

Example 1B

Table2	-
A	C
1	xx
4	yy

```
QVTable:
SELECT * From table1;
Left Join Select * From table2;
```

Example 1C

QVTable	-	-
A	B	C
1	aa	xx
2	cc	
3	ee	

```
QVTab1:
SELECT * From Table1;
QVTab2:
Left Keep SELECT * From Table2;
```

Example 1D

QVTab1	-

A	B
1	aa
2	cc
3	ee

Example 1E

QVTab2	**-**
A	C
1	xx

The two tables in the **keep** example are, of course, associated via A.

```
tab1:
LOAD * From file1.csv;
tab2:
LOAD * From file2.csv;
.. .. ..
Left Keep (tab1) LOAD * From file3.csv;
```

Mapping

The **mapping** prefix is used to create a mapping table that can be used to, for example, replacing field values and field names during script execution.

Syntax:

```
Mapping( loadstatement | selectstatement )
```

The **mapping** prefix can be put in front of a **LOAD** or a **SELECT** statement and will store the result of the loading statement as a mapping table. Mapping provides an efficient way to substituting field values during script execution, e.g. replacing US, U.S. or America with USA. A mapping table consists of two columns, the first containing comparison values and the second containing the desired mapping values. Mapping tables are stored temporarily in memory and dropped automatically after script execution.

The content of the mapping table can be accessed using e.g. the **Map ... Using** statement, the **Rename Field** statement, the **Applymap()** function or the **Mapsubstring()** function.

Example:

In this example we load a list of salespersons with a country code representing their country of residence. We use a table mapping a country code to a country to replace the country code with the country name. Only three countries are defined in the mapping table, other country codes are mapped to 'Rest of the world'.

```
// Load mapping table of country codes:
map1:
mapping LOAD *
Inline [
CCode, Country
Sw, Sweden
Dk, Denmark
```

```
No, Norway
] ;

// Load list of salesmen, mapping country code to country
// If the country code is not in the mapping table, put Rest of the world
Salespersons:
LOAD *,
ApplyMap('map1', CCode,'Rest of the world') As Country
Inline [
CCode, Salesperson
Sw, John
Sw, Mary
Sw, Per
Dk, Preben
Dk, Olle
No, Ole
Sf, Risttu] ;
// We don't need the CCode anymore
Drop Field 'CCode';
```

The resulting table looks like this:

Example 1

Salesperson	Country
John	Sweden
Mary	Sweden
Per	Sweden
Preben	Denmark
Olle	Denmark
Ole	Norway
Risttu	Rest of the world

Merge

The **Merge** prefix can be added to any **LOAD** or **SELECT** statement in the script to specify that the loaded table should be merged into another table. It also specifies that this statement should be run in a partial reload.

The typical use case is when you load a change log and want to use this to apply inserts, updates, and deletes to an existing table.

Syntax:

```
Merge [only] [(SequenceNoField [, SequenceNoVar])] On ListOfKeys [Concatenate
[(TableName)]] (loadstatement | selectstatement)
```

During a normal (non-partial) reload, the **Merge LOAD** construction will work as a normal **Load** statement but with the additional functionality of removing older obsolete records and records marked for deletion. The first field of the load statement must hold information about the operation: Insert, Update, or Delete.

For each loaded record, the record identifier will be compared with previously loaded records, and only the latest record (according to the sequence number) will be kept. If the latest record is marked with Delete, none will be kept.

If the **Concatenate** prefix is used, or if there already exists a table with the same set of fields, this will be the relevant table to modify. Otherwise, the result of the **Merge LOAD** construction will be stored in a new table.

If the **Concatenate** prefix is used, the resulting table may have more fields than the change log that is used as input to the **Merge**.

A partial reload will do the same as a full reload. The only difference is that the **Merge LOAD** construction will never create a new table. There always exists a relevant table from the previous script execution to modify.

If the loaded change log is an accumulated log, that is it contains changes that already have been loaded, the parameter SequenceNoVar can be used in a **Where** clause to limit the amount of input data. The **Merge LOAD** could then be made to only load records where the field SequenceNoField is greater than SequenceNoVar. Upon completion, the **Merge LOAD** will assign a new value to the SequenceNoVar with the maximum value seen in the SequenceNoField field.

Arguments:

Arguments

Argument	Description
only	An optional qualifier denoting that the statement should be executed only during partial reloads. It should be disregarded during normal (non-partial) reloads.
SequenceNoField	The name of the field containing a timestamp or a sequence number that defines the order of the operations.
SequenceNoVar	The name of the variable that gets assigned the maximum value for SequenceNoField of the table being merged.
ListOfKeys	A comma separated list of field names specifying the primary key.
operation	The first field of the load statement must contain the operation: Insert, Update, or Delete. ‘i’, ‘u’ and ‘d’ are also accepted.

NoConcatenate

The **NoConcatenate** prefix forces two loaded tables with identical field sets to be treated as two separate internal tables, when they would otherwise be automatically concatenated.

Syntax:

```
NoConcatenate( loadstatement | selectstatement )
```

Example:

```
LOAD A,B from file1.csv;
NoConcatenate LOAD A,B from file2.csv;
```

Outer

The explicit **Join** prefix can be preceded by the prefix **outer** in order to specify an outer join. In an outer join all combinations between the two tables are generated. The resulting table will thus contain combinations of field values from the raw data tables where the linking field values are represented in one or both tables.

The **outer** keyword is optional and is the default join type used when a join prefix is not specified.

Syntax:

```
Outer Join [ (tablename) ](loadstatement |selectstatement )
```

Arguments:

Table load arguments

Argument	Description
tablename	The named table to be compared to the loaded table.
loadstatement or selectstatement	The **LOAD** or **SELECT** statement for the loaded table.

Example:

Example 1A

Table1	-
A	B
1	aa
2	cc
3	ee

Example 1B

Table2	-
A	C
1	xx
4	yy

```
SQL SELECT * from table1;
join SQL SELECT * from table2;
```

OR

```
SQL SELECT * from table1;
outer join SQL SELECT * from table2;
```

Example 1C

Joined table	-	-

A	B	C
1	aa	xx
2	cc	-
3	ee	-
4	-	yy

Partial reload

A normal (non-partial) reload always starts by deleting all tables in the existing data model, and then runs the load script.

A partial reload will not do this. Instead it keeps all tables in the data model and then executes only **Load** and **Select** statements preceded by an **Add**, **Merge**, or **Replace** prefix. Other data tables are not affected by the command. The **only** argument denotes that the statement should be executed only during partial reloads, and should be disregarded during normal (non-partial) reloads.

Replace

The **Replace** prefix can be added to any **LOAD** or **SELECT** statement in the script to specify that the loaded table should replace another table. It also specifies that this statement should be run in a partial reload. The **Replace** prefix can also be used in a **Map** statement.

Syntax:

```
Replace[only][Concatenate[(tablename)]] (loadstatement | selectstatement)
```

```
Replace[only]mapstatement
```

During a normal (non-partial) reload, the **ReplaceLOAD** construction will work as a normal **LOAD** statement but be preceded by a **DropTable**. First the old table will be dropped, then records will be generated and stored as a new table.

If the **Concatenate** prefix is used, or if there exists a table with the same set of fields, this will be the relevant table to drop. Otherwise, there is no table to drop and the **ReplaceLOAD** construction will be identical to a normal **LOAD**.

A partial reload will do the same. The only difference is that there is always a table from the previous script execution to drop. The **ReplaceLOAD** construction will always first drop the old table, then create a new one.

The **Replace Map...Using** statement causes mapping to take place also during partial script execution.

Arguments:

Replace arguments

Argument	Description
only	An optional qualifier denoting that the statement should be disregarded during normal (non-partial) reloads.

Examples and results:

Examples and results

Example	Result

`Tab1:`
`Replace LOAD *`
`from File1.csv;`
	During both normal and partial reload, the QlikView table Tab1 is initially dropped. Thereafter new data is loaded from File1.csv and stored in Tab1.

`Tab1:`
`Replace only`
`LOAD * from`
`File1.csv;`
	During normal reload, this statement is disregarded.
	
	During partial reload, any QlikView table previously named Tab1 is initially dropped. Thereafter new data is loaded from File1.csv and stored in Tab1.

`Tab1:`
`LOAD a,b,c from`
`File1.csv;`
`Replace LOAD`
`a,b,c from`
`File2.csv;`
	During normal reload, the file File1.csv is first read into the QlikView table Tab1, but then immediately dropped and replaced by new data loaded from File2.csv. All data from File1.csv is lost.
	
	During partial reload, the entire QlikView table Tab1 is initially dropped. Thereafter it is replaced by new data loaded from File2.csv.

`Tab1:`
`LOAD a,b,c from`
`File1.csv;`
`Replace only`
`LOAD a,b,c from`
`File2.csv;`
	During normal reload, data is loaded from File1.csv and stored in the QlikView table Tab1. File2.csv is disregarded.
	
	During partial reload, the entire QlikView table Tab1 is initially dropped. Thereafter it is replaced by new data loaded from File2.csv. All data from File1.csv is lost.

Right

The **Join** and **Keep** prefixes can be preceded by the prefix **right**.

If used before **join** it specifies that a right join should be used. The resulting table will only contain combinations of field values from the raw data tables where the linking field values are represented in the second table. If used before **keep**, it specifies that the first raw data table should be reduced to its common intersection with the second table, before being stored in QlikView.

Were you looking for the string function by the same name? See: Right (page 1518)

Syntax:

```
Right (Join | Keep) [(tablename)](loadstatement |selectstatement )
```

Arguments:

Table load arguments

Argument	Description
tablename	The named table to be compared to the loaded table.
loadstatement or selectstatement	The **LOAD** or **SELECT** statement for the loaded table.

Example:

Example 1A

Table1	-
A	B
1	aa
2	cc
3	ee

Example 1B

Table2	-
A	C
1	xx
4	yy

```
QVTable:
SQL SELECT * from table1;
right join SQL SELECT * from table2;
```

Example 1C

QVTable	-	-
A	B	C
1	aa	xx
4	-	yy

```
QVTab1:
SQL SELECT * from Table1;
QVTab2:
right keep SQL SELECT * from Table2;
```

Example 1D

QVTab1	-
A	B
1	aa

Example 1E

QVTab2	-
A	C
1	xx
4	yy

The two tables in the **keep** example are, of course, associated via A.

```
tab1:
LOAD * from file1.csv;
tab2:
LOAD * from file2.csv;
.. .. ..
right keep (tab1) LOAD * from file3.csv;
```

Sample

The **sample** prefix to a **LOAD** or **SELECT** statement is used for loading a random sample of records from the data source.

Syntax:

```
Sample  p ( loadstatement | selectstatement )
```

Arguments:

Sample arguments

Argument	Description
p	An arbitrary expression which valuates to a number larger than 0 and lower or equal to 1. The number indicates the probability for a given record to be read. All records will be read but only some of them will be loaded into QlikView.

Example:

```
Sample 0.15 SQL SELECT * from Longtable;
Sample(0.15) LOAD * from Longtab.csv;
```

The parentheses are allowed but not required.

Semantic

Tables containing relations between records can be loaded through a **semantic** prefix. This can for example be self-references within a table, where one record points to another, such as parent, belongs to, or predecessor.

Syntax:

```
Semantic( loadstatement | selectstatement)
```

The semantic load will create semantic fields that can be displayed in list boxes to be used for navigation in the data.

Tables loaded through a **semantic** statement cannot be concatenated.

Example:

```
Semantic LOAD * from abc.csv;
Semantic SELECT Object1, Relation, Object2, InverseRelation from table1;
```

Unless

The **unless** prefix and suffix is used for creating a conditional clause which determines whether a statement or exit clause should be evaluated or not. It may be seen as a compact alternative to the full **if..end if** statement.

Syntax:

```
(Unless condition statement | exitstatement Unless condition )
```

The **statement** or the **exitstatement** will only be executed if **condition** is evaluated to False.

The **unless** prefix may be used on statements which already have one or several other statements, including additional **when** or **unless** prefixes.

Arguments:

Unless arguments

Argument	Description
condition	A logical expression evaluating to True or False.
statement	Any QlikView script statement except control statements.
exitstatement	An **exit for**, **exit do** or **exit sub** clause or an **exit script** statement.

Examples:

```
exit script unless A=1;
unless A=1 LOAD * from myfile.csv;
unless A=1 when B=2 drop table Tab1;
```

When

The **when** prefix and suffix is used for creating a conditional clause which determines whether a statement or exit clause should be executed or not. It may be seen as a compact alternative to the full **if..end if** statement.

Syntax:

```
(when condition statement | exitstatement when condition )
```

The **statement** or the **exitstatement** will only be executed if condition is evaluated to True.

The **when** prefix may be used on statements which already have one or several other statements, including additional **when** or **unless** prefixes.

Syntax:

When arguments

Argument	Description
condition	A logical expression evaluating to True or False.

Argument	Description
statement	Any QlikView script statement except control statements.
exitstatement	An **exit for**, **exit do** or **exit sub** clause or an **exit script** statement.

Examples:

```
exit script when A=1;
when A=1 LOAD * from myfile.csv;
when A=1 unless B=2 drop table Tab1;
```

Script regular statements

Regular statements are typically used for manipulating data in one way or another. These statements may be written over any number of lines in the script and must always be terminated by a semicolon, ";".

All script keywords can be typed with any combination of lower case and upper case characters. Field and variable names used in the statements are however case sensitive.

Script regular statements overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Alias
The **alias** statement is used for setting an alias according to which a field will be renamed whenever it occurs in the script that follows.

```
Alias fieldname as aliasname {,fieldname as aliasname}
```

AutoNumber
This statement creates a unique integer value for each distinct evaluated value in a field encountered during the script execution.

```
AutoNumber *fieldlist
 [Using namespace] ]
```

Binary
The **binary** statement is used for loading the data from another QlikView document, including section access data.

```
Binary  [[path] filename]
```

Comment field
Provides a way of displaying the field comments (metadata) from databases and spreadsheets. Field names not present in the document will be ignored. If multiple occurrences of a field name are found, the last value is used.

```
Comment field *fieldlist using mapname
```

```
Comment field fieldname with comment
```

Comment table

Provides a way of displaying the table comments (metadata) from databases or spreadsheets.

```
Comment table tablelist using mapname
Comment table tablename with comment
```

Connect

The **CONNECT** statement is used to define QlikView access to a general database through the OLE DB/ODBC interface. For ODBC, the data source first needs to be specified using the ODBC administrator.

```
ODBC CONNECT TO connect-string
OLEDB CONNECT TO connect-string
CUSTOM CONNECT TO connect-string
LIB CONNECT TO connection
```

Directory

The **Directory** statement defines which directory to look in for data files in subsequent **LOAD** statements, until a new **Directory** statement is made.

```
Directory [path]
```

Disconnect

The **Disconnect** statement terminates the current ODBC/OLE DB/Custom connection. This statement is optional.

```
Disconnect
```

drop field

One or several Qlik Sense fields can be dropped from the data model, and thus from memory, at any time during script execution, by means of a **drop field** statement. The "distinct" property of a table is removed after a **drop field** statement.

*Both **drop field** and **drop fields** are allowed forms with no difference in effect. If no table is specified, the field will be dropped from all tables where it occurs.*

```
Drop field  fieldname [ , fieldname2 ...] [from tablename1 [ , tablename2
...]]
drop fields fieldname [ , fieldname2 ...] [from tablename1 [ , tablename2
...]]
```

drop table

One or several QlikView internal tables can be dropped from the data model, and thus from memory, at any time during script execution, by means of a **drop table** statement.

*The forms **drop table** and **drop tables** are both accepted.*

```
Drop table  tablename [, tablename2 ...]
drop tables[ tablename [, tablename2 ...]
```

Execute

The **Execute** statement is used to run other programs while QlikView is loading data. For example, to make conversions that are necessary.

```
Execute commandline
```

Force

The **force** statement forces QlikView to interpret field values of subsequent **LOAD** and **SELECT** statements as written with only upper case letters, with only lower case letters, as always capitalized or as they appear (mixed). This statement makes it possible to associate field values from tables made according to different conventions.

```
Force ( capitalization | case upper | case lower | case mixed )
```

LOAD

The **LOAD** statement loads fields from a file, from data defined in the script, from a previously loaded table, from a web page, from the result of a subsequent **SELECT** statement or by generating data automatically.

```
 Load [ distinct ] *fieldlist
[( from file [ format-spec ] |
from_field fieldassource [format-spec]
inline data [ format-spec ] |
resident table-label |
autogenerate size )]
[ where criterion | while criterion ]
[ group_by groupbyfieldlist ]
[order_by orderbyfieldlist ]
```

Let

The **let** statement is a complement to the **set** statement, used for defining script variables. The **let** statement, in opposition to the **set** statement, evaluates the expression on the right side of the ' =' before it is assigned to the variable.

```
Let variablename=expression
```

Loosen Table

One or more QlikView internal data tables can be explicitly declared loosely coupled during script execution by using a **Loosen Table** statement. The use of one or more **Loosen Table** statements in the script will make QlikView disregard any setting of tables as loosely coupled made before the script execution.

```
Loosen Table tablename [ , tablename2 ...]
Loosen Tables tablename [ , tablename2 ...]
```

Map ... using

The **map ... using** statement is used for mapping a certain field value or expression to the values of a specific mapping table. The mapping table is created through the **Mapping** statement.

```
Map  *fieldlist Using  mapname
```

NullAsNull

The **NullAsNull** statement turns off the conversion of NULL values to string values previously set by a **NullAsValue** statement.

```
NullAsNull *fieldlist
```

NullAsValue

The **NullAsValue** statement specifies for which fields that NULL should be converted to a value.

```
NullAsValue *fieldlist
```

Qualify

The **Qualify** statement is used for switching on the qualification of field names, i.e. field names will get the table name as a prefix.

```
Qualify *fieldlist
```

Rem

The **rem** statement is used for inserting remarks, or comments, into the script, or to temporarily deactivate script statements without removing them.

```
Rem string
```

Rename Field

This script function renames one or more existing QlikView field(s) after they have been loaded.

```
Rename field (using mapname|oldname to newname{ , oldname to newname })
```

```
Rename Fields (using mapname | oldname to newname{ , oldname to newname })
```

Rename Table

This script function renames one or more existing QlikView internal table(s) after they have been loaded.

```
Rename table  (using mapname | oldname to newname{ , oldname to newname })
Rename Tables (using mapname | oldname to newname{ , oldname to newname })
```

Section

With the **section** statement, it is possible to define whether the subsequent **LOAD** and **SELECT** statements should be considered as data or as a definition of the access rights.

```
Section (access | application)
```

Select

The selection of fields from an ODBC data source or OLE DB provider is made through standard SQL **SELECT** statements. However, whether the **SELECT** statements are accepted depends on the ODBC driver or OLE DB provider used.

```
Select [all | distinct | distinctrow | top n [percent] ] *fieldlist

From tablelist

[Where criterion ]
```

```
[Group by fieldlist [having criterion ] ]

[Order by fieldlist [asc | desc] ]

[ (Inner | Left | Right | Full)Join tablename on fieldref = fieldref ]
```

Set

The **set** statement is used for defining script variables. These can be used for substituting strings, paths, drives, and so on.

```
Set variablename=string
```

Sleep

The **sleep** statement pauses script execution for a specified time.

```
Sleep n
```

SQL

The **SQL** statement allows you to send an arbitrary SQL command through an ODBC or OLE DB connection.

```
SQL sql_command
```

SQLColumns

The **sqlcolumns** statement returns a set of fields describing the columns of an ODBC or OLE DB data source, to which a **connect** has been made.

```
SQLColumns
```

SQLTables

The **sqltables** statement returns a set of fields describing the tables of an ODBC or OLE DB data source, to which a **connect** has been made.

```
SQLTables
```

SQLTypes

The **sqltypes** statement returns a set of fields describing the types of an ODBC or OLE DB data source, to which a **connect** has been made.

```
SQLTypes
```

Star

The string used for representing the set of all the values of a field in the database can be set through the **star** statement. It affects the subsequent **LOAD** and **SELECT** statements.

```
Star is [ string ]
```

Store

This script function creates a QVD or a CSV file.

```
Store [ *fieldlist from] table into filename [ format-spec ];
```

Tag
This script function provides a way of assigning tags to one or more fields. If an attempt to tag a field name not present in the document is made, the tagging will be ignored. If conflicting occurrences of a field or tag name are found, the last value is used.

```
Tag fields fieldlist using mapname
Tag field fieldname with tagname
```

Trace
The **trace** statement writes a string to the **Script Execution Progress** window and to the script log file, when used. It is very useful for debugging purposes. Using $-expansions of variables that are calculated prior to the **trace** statement, you can customize the message.

```
Trace string
```

Unmap
The **Unmap** statement disables field value mapping specified by a previous **Map ... Using** statement for subsequently loaded fields.

```
Unmap *fieldlist
```

Unqualify
The **Unqualify** statement is used for switching off the qualification of field names that has been previously switched on by the **Qualify** statement.

```
Unqualify *fieldlist
```

Untag
Provides a way of removing tags from one or more fields. If an attempt to untag a Field name not present in the document is made, the untagging will be ignored. If conflicting occurrences of a field or tag name is found, the last value is used.

```
Untag fields fieldlist using mapname
Untag field fieldname with tagname
```

Alias

The **alias** statement is used for setting an alias according to which a field will be renamed whenever it occurs in the script that follows.

Syntax:

```
alias fieldname as aliasname {,fieldname as aliasname}
```

Arguments:

Alias arguments

Argument	Description
fieldname	The name of the field in your source data
aliasname	An alias name you want to use instead

Examples and results:

Examples and results

Example	Result
`Alias ID_N as NameID;`	-
`Alias A as Name, B as Number, C as Date;`	The name changes defined through this statement are used on all subsequent **SELECT** and **LOAD** statements. A new alias can be defined for a field name by a new **alias** statement at any subsequent position in the script.

AutoNumber

This statement creates a unique integer value for each distinct evaluated value in a field encountered during the script execution.

You can also use the *autonumber (page 1205)* function inside a **LOAD** statement, but this has some limitations when you want to use an optimized load. You can create an optimized load by loading the data from a **QVD** file first, and then using the **AutoNumber** statement to convert values to symbol keys.

Syntax:

```
AutoNumber fieldlist [Using namespace] ]
```

Arguments:

Arguments

Argument	Description
fieldlist	A comma-separated list of the fields where the values should be replaced by a symbol key. You can use wildcard characters ? and * in the field names to include all fields with matching names. You can also use * to include all fields. You need to quote field names when wildcards are used.
namespace	**Using** `namespace` is optional. You can use this option if you want to create a namespace, where identical values in different fields share the same key. If you do not use this option all fields will have a separate key index.

Limitations:

When you have several **LOAD** statements in the script, you need to place the **AutoNumber** statement after the final **LOAD** statement.

Example:

In this example we replace field values with symbol table keys using the **AutoNumber** statement to conserve memory. The example is brief for demonstration purpose, but would be meaningful with a table containing a large number of rows.

Example data

Region	Year	Month	Sales
North	2014	May	245
North	2014	May	347
North	2014	June	127
South	2014	June	645
South	2013	May	367
South	2013	May	221

The source data is loaded using inline data. Then we add an **AutoNumber** statemenet with the Region, Year and Month fields.

```
RegionSales:
LOAD * INLINE
[ Region, Year, Month, Sales
North, 2014,   May,    245
North, 2014,   May,    347
North, 2014,   June,   127
South, 2014,   June,   645
South, 2013,   May, 367
South, 2013,   May,    221
];

AutoNumber Region, Year, Month;
```

The resulting table would look like this:

Results table

Region	Year	Month	Sales
1	2	1	245
1	2	1	347
1	2	2	127
2	2	2	645
2	1	1	367
2	1	1	221

Binary

The **binary** statement is used for loading the data from another QlikView document, including section access data. It does not load the layout information or variables.

We recommend that you only load data with the **binary** statement from documents with an optimized data model, that is, a data model that does not contain synthetic keys. If you load data from a document containing synthetic keys that only reference other synthetic keys, the entire data set may not be loaded.

Only one **binary** statement is allowed in the script. The **binary** statement must be the first statement of the script, even before the SET statements usually located at the beginning of the script.

Synthetic keys (page 140)

Syntax:

```
binary [[path] filename ]
```

Arguments:

Binary arguments

Argument	Description
path	The path to the file, either absolute, or relative to the .qvw or .qvf file containing this script line. An absolute path is required if the file is not located in the QlikView path. • absolute **Example: *c:\data*** • relative to the document containing this script line. **Example: *data***
filename	The name of the file, including the file extension .qvw or .qvf. If a file name is not supplied, the statement will load from the app itself. In other words, it will load from the app containing the **binary** statement.

Examples and results:

Examples and results

Example	Result
`Binary ;`	This will load data from the app itself.
`Binary customer.qvw;`	In this example, *customer.qvw* must be in located in the QlikView working directory.
`Binary c:\qv\customer.qvw;`	This example uses an absolute file path.

Comment field

Provides a way of displaying the field comments (metadata) from databases and spreadsheets. Field names not present in the document will be ignored. If multiple occurrences of a field name are found, the last value is used.

Syntax:

```
comment [fields] *fieldlist using mapname
comment [field] fieldname with comment
```

The map table used should have two columns, the first containing field names and the second the comments.

Arguments:

Comment field arguments

Argument	Description
**fieldlist*	A comma separated list of the fields to be commented. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.
mapname	The name of a mapping table previously read in a mapping **LOAD** or mapping **SELECT** statement.
fieldname	The name of the field that should be commented.
comment	The comment that should be added to the field.

Example 1:

```
commentmap:
mapping LOAD * inline [
a,b
Alpha,This field contains text values
Num,This field contains numeric values
];
comment fields using commentmap;
```

Example 2:

```
comment field Alpha with AFieldContainingCharacters;
comment field Num with '*A field containing numbers';
comment Gamma with 'Mickey Mouse field';
```

Comment table

Provides a way of displaying the table comments (metadata) from databases or spreadsheets.

Table names not present in the document are ignored. If multiple occurrences of a table name are found, the last value is used. The keyword can be used to read comments from a data source.

Syntax:

```
comment [tables] tablelist using mapname
comment [table] tablename with comment
```

Arguments:

Comment table arguments

Argument	Description
tablelist	(table{,table})
mapname	The name of a mapping table previously read in a mapping **LOAD** or mapping **SELECT** statement.
tablename	The name of the table that should be commented.
comment	The comment that should be added to the table.

Example 1:

```
Commentmap:
mapping LOAD * inline [
a,b
Main,This is the fact table
Currencies, Currency helper table
];
comment tables using Commentmap;
```

Example 2:

```
comment table Main with 'Main fact table';
```

Connect

The **CONNECT** statement is used to define QlikView access to a general database through the OLE DB/ODBC interface. For ODBC, the data source first needs to be specified using the ODBC administrator.

Syntax:

```
ODBC CONNECT TO connect-string
OLEDB CONNECT TO connect-string
CUSTOM CONNECT TO connect-string
LIB CONNECT TO connection
```

Arguments:

Connect arguments

Argument	Description

connect-string	`connect-string ::= datasourcename { ; conn-spec-item }`
	The connection string is the data source name and an optional list of one or more connection specification items. If the data source name contains blanks, or if any connection specification items are listed, the connection string must be enclosed by quotation marks.
	
	datasourcename must be a defined ODBC data source or a string that defines an OLE DB provider.
	
	`conn-spec-item ::=`**`DBQ=`**`database_specifier |`**`DriverID=`**`driver_specifier |`**`UID=`**`userid |`**`PWD=`**`password`
	
	The possible connection specification items may differ between different databases. For some databases, also other items than the above are possible. For OLE DB, some of the connection specific items are mandatory and not optional.

connection	The name of a data connection stored in the script editor.

If the **ODBC** is placed before **CONNECT**, the ODBC interface will be used; else, OLE DB will be used.

Using **LIB CONNECT TO** connects to a database using a stored data connection that was created in the script editor.

Example 1:

```
ODBC CONNECT TO 'Sales
DBQ=C:\Program Files\Access\Samples\Sales.mdb';
```

The data source defined through this statement is used by subsequent **Select (SQL)** statements, until a new **CONNECT** statement is made.

Example 2:

```
LIB CONNECT TO 'MyDataConnection';
```

Connect32

This statement is used the same way as the **CONNECT** statement, but forces a 64-bit system to use a 32-bit ODBC/OLE DB provider. Not applicable for custom connect.

Connect64

This statement is used the same way as the as the **CONNECT** statement, but forces use of a 64-bit provider. Not applicable for custom connect.

Directory

The **Directory** statement defines which directory to look in for data files in subsequent **LOAD** statements, until a new **Directory** statement is made.

Syntax:

```
Directory[path]
```

If the **Directory** statement is issued without a **path** or left out, QlikView will look in the QlikView working directory.

Arguments:

Argument	Description
path	A text that can be interpreted as the path to the data file. The path is the path to the file, either: • absolute **Example: *c:\data*** • relative to the QlikView document path. **Example: *data*** • URL address (HTTP or FTP), pointing to a location on the Internet or an intranet. **Example: *http://www.qlik.com***

Example:

```
DIRECTORY C:\userfiles\data; // OR -> DIRECTORY data\;

LOAD * FROM
[data1.csv] // ONLY THE FILE NAME CAN BE SPECIFIED HERE (WITHOUT THE FULL PATH)
(ansi, txt, delimiter is ',', embedded labels);

LOAD * FROM
[data2.txt] // ONLY THE FILE NAME CAN BE SPECIFIED HERE UNTIL A NEW DIRECTORY STATEMENT IS
MADE
(ansi, txt, delimiter is '\t', embedded labels);
```

Disconnect

The **Disconnect** statement terminates the current ODBC/OLE DB/Custom connection. This statement is optional.

Syntax:

```
Disconnect
```

The connection will be automatically terminated when a new **connect** statement is executed or when the script execution is finished.

Example:

```
Disconnect;
```

Drop field

One or several Qlik Sense fields can be dropped from the data model, and thus from memory, at any time during script execution, by means of a **drop field** statement. The "distinct" property of a table is removed after a **drop field** statement.

*Both **drop field** and **drop fields** are allowed forms with no difference in effect. If no table is specified, the field will be dropped from all tables where it occurs.*

Syntax:

```
Drop field fieldname [ , fieldname2 ...] [from tablename1 [ , tablename2
...]]
Drop fields fieldname [ , fieldname2 ...] [from tablename1 [ , tablename2
...]]
```

Examples:

```
Drop field A;
Drop fields A,B;
Drop field A from X;
Drop fields A,B from X,Y;
```

Drop table

One or several QlikView internal tables can be dropped from the data model, and thus from memory, at any time during script execution, by means of a **drop table** statement.

Syntax:

```
drop table  tablename [, tablename2 ...]
drop tables [ tablename [, tablename2 ...]
```

*The forms **drop table** and **drop tables** are both accepted.*

The following items will be lost as a result of this:

- The actual table(s).
- All fields which are not part of remaining tables.
- Field values in remaining fields, which came exclusively from the dropped table(s).

Examples and results:

Examples and results

Example	Result
`drop table Orders, Salesmen, T456a;`	This line results in three tables being dropped from memory.

`Tab1:`
`Load * Inline [`
`Customer, Items, UnitPrice`
`Bob, 5, 1.50`
`];`
 	
`Tab2:`
`LOAD Customer, Sum( Items * UnitPrice ) as Sales`
`resident Tab1`
`group by Customer;`
 	
`drop table Tab1;`
	Once the table *Tab2* is created, the table *Tab1* is dropped.

Execute

The **Execute** statement is used to run other programs while QlikView is loading data. For example, to make conversions that are necessary.

Syntax:

```
execute commandline
```

Arguments:

Execute arguments

Argument	Description
commandline	A text that can be interpreted by the operating system as a command line.

Enable Execute in QlikView

By default, execution of **Execute** statements during reload is disabled both in QlikView Server and QlikView Desktop. You can manually enable the **Execute** command in QlikView Server or QlikView Desktop installations.

QlikView Server

You can enable **Execute** statements for QlikView Server by modifying the QlikView Batch *Settings.ini* file.

Do the following:

- Navigate to *C:\Windows\System32\config\systemprofile\AppData\Roaming\QlikTech\QlikViewBatch* and open the *Settings.ini* file.
- Locate the line `AllowExecuteCommand` and set the value to 1 as shown below: `AllowExecuteCommand=1`

Now, when running the reload of the document from the QlikView Management Console, **Execute** statements are enabled.

*The execution of an **Execute** statement is registered in the QlikView Batch (QVB) log file. To generate QlikView Batch log files when you run the script in QlikView Server, open the Settings.ini file located in C:\Windows\System32\config\systemprofile\AppData\Roaming\QlikTech\QlikViewBatch and add the following flag:*
`EnableQVBLog=1`

QlikView Desktop
Do the following:

- On QlikView Desktop Start Page, click the **Settings** drop-down menu and select **Users Preferences...**
- On the **Security** tab, select **Script (Allow Database Write and Execute Statements)** to enable the security override.

*The **Script (Allow Database Write and Execute Statements)** setting must always be enabled if you want to allow Execute statements in the script.*
See: User Preferences: Security

- Open the QlikView document in which you want to perform the **Execute** statement, and open the **Script Editor** by selecting **Edit Script...** from the **File** drop-down menu.
- In the lower part of the Script Editor window, go to the **Settings** tab and select **Can Execute External Programs**.

Now, you can execute a statement in the script during reload.

It is possible to execute a statement during reload also if the setting **Can Execute External Programs** is not enabled in the Script Editor Settings. In this case, a **Security Alert** window appears every time you run a script containing an Execute statement. To allow the script to run the Execute statement, select **Override Security, Execute This Statement** from the options provided in the Security Alert window.

*The execution of an Execute statement is registered in log files. To enable the generation of log files when you run the script in QlikView Desktop, select **Document Properties...** from the **Settings** drop-down menu, and select **Generate Logfile** on the **General** tab.*

Example:

```
Execute "C:\Program Files\Office12\Excel.exe";
Execute "winword macro.doc";
Execute cmd.exe /C "C:\BatFiles\Log.bat";
```

/C needs to be included as it is a parameter to cmd.exe.

Force

The **force** statement forces QlikView to interpret field values of subsequent **LOAD** and **SELECT** statements as written with only upper case letters, with only lower case letters, as always capitalized or as they appear (mixed). This statement makes it possible to associate field values from tables made according to different conventions.

Syntax:

```
Force ( capitalization | case upper | case lower | case mixed )
```

If nothing is specified, force case mixed is assumed. The force statement is valid until a new force statement is made.

The **force** statement has no effect in the access section: all field values loaded are case insensitive.

Examples and results:

Examples and results

Example	Result

This example shows how to force capitalization.
 	
`FORCE Capitalization;`
`Capitalization:`
`LOAD * Inline [`
`ab`
`Cd`
`eF`
`GH`
`];`
	The **Capitalization** table contains the following values:
	
	`Ab`
	`Cd`
	`Ef`
	`Gh`
	All values are capitalized.

This example shows how to force case upper.
 	
`FORCE Case Upper;`
`CaseUpper:`
`LOAD * Inline [`
`ab`
`Cd`
`eF`
`GH`
`];`
	The **CaseUpper** table contains the following values:
	
	`AB`
	`CD`
	`EF`
	`GH`
	All values are upper case.

This example shows how to force case lower.
 	
`FORCE Case Lower;`
`CaseLower:`
`LOAD * Inline [`
`ab`
`Cd`
`eF`
`GH`
`];`
	The **CaseLower** table contains the following values:
	
	`ab`
	`cd`
	`ef`
	`gh`
	All values are lower case.

Example	Result

This example shows how to force case mixed.
 	
`FORCE Case Mixed;`
`CaseMixed:`
`LOAD * Inline [`
`ab`
`Cd`
`eF`
`GH`
`];`
	The **CaseMixed** table contains the following values:
	
	ab
	Cd
	eF
	GH
	All values are as they appear in the script.

Load

The **LOAD** statement loads fields from a file, from data defined in the script, from a previously loaded table, from a web page, from the result of a subsequent **SELECT** statement or by generating data automatically.

Syntax:

```
LOAD [ distinct ] fieldlist
[( from file [ format-spec ] |
from_field fieldassource [format-spec]
inline data [ format-spec ] |
resident table-label |
autogenerate size )]
[ where criterion | while criterion ]
[ group_by groupbyfieldlist ]
[order_by orderbyfieldlist ]
```

Arguments:

Load arguments

Argument	Description
distinct	You can use **distinct** as a predicate if you only want to load unique records. If there are duplicate records, the first instance will be loaded. If you are using preceding loads, you need to place **distinct** in the first load statement, as **distinct** only affects the destination table.

Argument	Description
fieldlist	*fieldlist ::= (* | field {**,** field })* A list of the fields to be loaded. Using * as a field list indicates all fields in the table. *field ::= (fieldref | expression) [**as** aliasname]* The field definition must always contain a literal, a reference to an existing field, or an expression. *fieldref ::= (fieldname |@fieldnumber |@startpos:endpos [**I** | **U** | **R** | **B** | **T**])* *fieldname* is a text that is identical to a field name in the table. Note that the field name must be enclosed by straight double quotation marks or square brackets if it contains e.g. spaces. Sometimes field names are not explicitly available. Then a different notation is used: *@fieldnumber* represents the field number in a delimited table file. It must be a positive integer preceded by "@". The numbering is always made from 1 and up to the number of fields. *@startpos*:*endpos* represents the start and end positions of a field in a file with fixed length records. The positions must both be positive integers. The two numbers must be preceded by "@" and separated by a colon. The numbering is always made from 1 and up to the number of positions. In the last field, **n** is used as end position. • If *@startpos*:*endpos* is immediately followed by the characters **I** or **U**, the bytes read will be interpreted as a binary signed (**I**) or unsigned (**U**) integer (Intel byte order). The number of positions read must be 1, 2 or 4. • If *@startpos*:*endpos* is immediately followed by the character **R**, the bytes read will be interpreted as a binary real number (IEEE 32-bit or 64 bit floating point). The number of positions read must be 4 or 8. • If *@startpos*:*endpos* is immediately followed by the character **B**, the bytes read will be interpreted as a BCD (Binary Coded Decimal) numbers according to the COMP-3 standard. Any number of bytes may be specified. *expression* can be a numeric function or a string function based on one or several other fields in the same table. For further information, see the syntax of expressions. **as** is used for assigning a new name to the field.

Argument	Description
from	**from** is used if data should be loaded from a file. *file ::= [path] filename* • absolute **Example: *c:\data*** • relative to the QlikView document path. **Example: *data*** • URL address (HTTP or FTP), pointing to a location on the Internet or an intranet. The URL must be URL encoded, for example, if it contains space characters. **Example: *http://www.qlik.com*** **Example: *http://www.enterprise.com/project%20files* (*http://www.enterprise.com/project files*)** If the path is omitted, QlikView searches for the file in the directory specified by the **Directory** statement. If there is no **Directory** statement, QlikView searches in the working directory, which is usually the directory in which the QlikView file is located. *In a QlikView server installation, the default working directory is C:\ProgramData\QlikTech\Documents. The default working directory can be modified in the QlikView Management Console.* The *filename* may contain the standard DOS wildcard characters (* and ?). This will cause all the matching files in the specified directory to be loaded. *format-spec ::= (fspec-item { , fspec-item })* The format specification consists of a list of several format specification items, within brackets.
from_field	**from_field** is used if data should be loaded from a previously loaded field. *fieldassource::=**(**tablename, fieldname**)*** The field is the name of the previously loaded *tablename* and *fieldname*. *format-spec ::= (fspec-item {, fspec-item })* The format specification consists of a list of several format specification items, within brackets.

Argument	Description
inline	**inline** is used if data should be typed within the script, and not loaded from a file. *data ::= [text]* Data entered through an **inline** clause must be enclosed by double quotation marks or by square brackets. The text between these is interpreted in the same way as the content of a file. Hence, where you would insert a new line in a text file, you should also do it in the text of an **inline** clause, i.e. by pressing the Enter key when typing the script. The number of columns are defined by the first line. *format-spec ::= (fspec-item {, fspec-item })* The format specification consists of a list of several format specification items, within brackets.
resident	**resident** is used if data should be loaded from a previously loaded table. *table label* is a label preceding the **LOAD** or **SELECT** statement(s) that created the original table. The label should be given with a colon at the end. When using a combination of **distinct** and **resident** load statements in QlikView 12.00 or later, the data load order is different from QlikView 11.20. To define a desired load order, add a **order by** clause.
autogenerate	**autogenerate** is used if data should be automatically generated by QlikView. *size ::= number* *Number* is an integer indicating the number of records to be generated. The field list must not contain expressions which require data from a database. Only constants and parameter-free functions (such as *rand()* or *recno()*), are allowed in the expressions.

Argument	Description
extension	You can load data from analytic connections. You need to use the **extension** clause to call a function defined in the server-side extension (SSE) plugin, or evaluate a script. You can send a single table to the SSE plugin, and a single data table is returned. If the plugin does not specify the names of the fields that are returned, the fields will be named Field1, Field2, and so on. `Extension pluginname.functionname( tabledescription );` • Loading data using a function in an SSE plugin *tabledescription ::= (table { ,tablefield})* If you do not state table fields, the fields will be used in load order. • Loading data by evaluating a script in an SSE plugin *tabledescription ::= (script, table { ,tablefield})* **Data type handling in the table field definition** Data types are automatically detected in analytic connections. If the data has no numeric values and at least one non-NULL text string, the field is considered as text. In any other case it is considered as numeric. You can force the data type by wrapping a field name with **String()** or **Mixed()**. • **String()** forces the field to be text. If the field is numeric, the text part of the dual value is extracted, there is no conversion performed. • **Mixed()** forces the field to be dual. **String()** or **Mixed()** cannot be used outside **extension** table field definitions, and you cannot use other QlikView functions in a table field definition. **More about analytic connections** For creating an analytic connection in QlikView Server or QlikView Desktop, see: Analytic connections
where	**where** is a clause used for stating whether a record should be included in the selection or not. The selection is included if *criterion* is True. *criterion* is a logical expression.
while	**while** is a clause used for stating whether a record should be repeatedly read. The same record is read as long as *criterion* is True. In order to be useful, a **while** clause must typically include the **IterNo( )** function. *criterion* is a logical expression.

Argument	Description
group_by	**group by** is a clause used for defining over which fields the data should be aggregated (grouped). The aggregation fields should be included in some way in the expressions loaded. No other fields than the aggregation fields may be used outside aggregation functions in the loaded expressions. *groupbyfieldlist ::= (fieldname { ,fieldname })*
order_by	**order by** is a clause used for sorting the records of a resident table before they are processed by the **load** statement. The resident table can be sorted by one or more fields in ascending or descending order. The sorting is made primarily by numeric value and secondarily by national collation order. This clause may only be used when the data source is a resident table. The ordering fields specify which field the resident table is sorted by. The field can be specified by its name or by its number in the resident table (the first field is number 1). orderbyfieldlist ::= fieldname [sortorder] { , fieldname [sortorder] } *sortorder* is either *asc* for ascending or *desc* for descending. If no *sortorder* is specified, *asc* is assumed. *fieldname*, *path*, *filename* and *aliasname* are text strings representing what the respective names imply. Any field in the source table can be used as *fieldname*. However, fields created through the as clause (*aliasname*) are out of scope and cannot be used inside the same **load** statement.

If no source of data is given by means of a **from**, **inline**, **resident**, **from_field** or **autogenerate** clause, data will be loaded from the result of the immediately succeeding **SELECT** or **LOAD** statement. The succeeding statement should not have a prefix.

Examples:

Loading different file formats
Load a delimited data file with default options:

```
LOAD * from data1.csv;
```

Load a delimited file, specifying comma as delimiter and with embedded labels:

```
LOAD * from 'c:\userfiles\data1.csv' (ansi, txt, delimiter is ',', embedded labels);
```

Load a delimited file specifying tab as delimiter and with embedded labels:

```
LOAD * from 'c:\userfiles\data2.txt' (ansi, txt, delimiter is '\t', embedded labels);
```

Load a dif file with embedded headers:

```
LOAD * from file2.dif (ansi, dif, embedded labels);
```

Load three fields from a fixed record file without headers:

```
LOAD @1:2 as ID, @3:25 as Name, @57:80 as City from data4.fix (ansi, fix, no labels, header is
0, record is 80);
```

Load a QVX file, specifying an absolute path:

```
LOAD * from C:\qdssamples\xyz.qvx (qvx);
```

Selecting certain fields, renaming and calculating fields
Load only three specific fields from a delimited file:

```
LOAD FirstName, LastName, Number from data1.csv;
```

Rename first field as A and second field as B when loading a file without labels:

```
LOAD @1 as A, @2 as B from data3.txt (ansi, txt, delimiter is '\t', no labels);
```

Load Name as a concatenation of FirstName, a space character, and LastName:

```
LOAD FirstName&' '&LastName as Name from data1.csv;
```

Load Quantity, Price and Value (the product of Quantity and Price):

```
LOAD Quantity, Price, Quantity*Price as Value from data1.csv;
```

Selecting certain records
Load only unique records, duplicate records will be discarded:

```
LOAD distinct FirstName, LastName, Number from data1.csv;
```

Load only records where the field Litres has a value above zero:

```
LOAD * from Consumption.csv where Litres>0;
```

Loading data not on file and auto-generated data
Load a table with inline data, two fields named CatID and Category:

```
LOAD * Inline
[CatID, Category
0,Regular
1,Occasional
2,Permanent];
```

Load a table with inline data, three fields named UserID, Password and Access:

```
LOAD * Inline [UserID, Password, Access
A, ABC456, User
B, VIP789, Admin];
```

Load a table with 10 000 rows. Field A will contain the number of the read record (1,2,3,4,5...) and field B will contain a random number between 0 and 1:

```
LOAD RecNo( ) as A, rand( ) as B autogenerate(10000);
```

The parenthesis after autogenerate is allowed but not required.

Loading data from a previously loaded table

First we load a delimited table file and name it tab1:

```
tab1:
SELECT A,B,C,D from transtable;
```

Load fields from the already loaded tab1 table as tab2:

```
tab2:
LOAD A,B,month(C),A*B+D as E resident tab1;
```

Load fields from already loaded table tab1 but only records where A is larger than B:

```
tab3:
LOAD A,A+B+C resident tab1 where A>B;
```

Load fields from already loaded table tab1 ordered by A:

```
LOAD A,B*C as E resident tab1 order by A;
```

Load fields from already loaded table tab1, ordered by the first field, then the second field:

```
LOAD A,B*C as E resident tab1 order by 1,2;
```

Load fields from already loaded table tab1 ordered by C descending, then B in ascending order, and then the first field in descending order:

```
LOAD A,B*C as E resident tab1 order by C desc, B asc, 1 des;
```

Loading data from previously loaded fields

Load field Types from previously loaded table Characters as A:

```
LOAD A from_field (Characters, Types);
```

Loading data from a succeeding table (preceding load)

Load A, B and calculated fields X and Y from Table1 that is loaded in succeeding **SELECT** statement:

```
LOAD A, B, if(C>0,'positive','negative') as X, weekday(D) as Y;
SELECT A,B,C,D from Table1;
```

Grouping data

Load fields grouped (aggregated) by ArtNo:

```
LOAD ArtNo, round(Sum(TransAmount),0.05) as ArtNoTotal from table.csv group by ArtNo;
```

Load fields grouped (aggregated) by Week and ArtNo:

```
LOAD Week, ArtNo, round(Avg(TransAmount),0.05) as WeekArtNoAverages from table.csv group by
Week, ArtNo;
```

Reading one record repeatedly

In this example we have a input file Grades.csv containing the grades for each student condensed in one field:

```
Student,Grades
```

```
Mike,5234
John,3345
Pete,1234
Paul,3352
```

The grades, in a 1-5 scale, represent subjects Math, English, Science and History. We can separate the grades into separate values by reading each record several times with a **while** clause, using the **IterNo( )** function as a counter. In each read, the grade is extracted with the **Mid** function and stored in Grade, and the subject is selected using the **pick** function and stored in Subject. The final **while** clause contains the test to check if all grades have been read (four per student in this case), which means next student record should be read.

```
MyTab:
LOAD Student,
mid(Grades,IterNo( ),1) as Grade,
pick(IterNo( ), 'Math', 'English', 'Science', 'History') as Subject from Grades.csv
while IsNum(mid(Grades,IterNo(),1));
```

The result is a table containing this data:

Student	Subject	Grade
John	English	3
John	History	5
John	Math	3
John	Science	4
Mike	English	2
Mike	History	4
Mike	Math	5
Mike	Science	3
Paul	English	3
Paul	History	2
Paul	Math	3
Paul	Science	5
Pete	English	2
Pete	History	4
Pete	Math	1
Pete	Science	3

Loading from analytic connections

The following sample data is used.

```
Values:
Load
 Rand() as A,
 Rand() as B,
 Rand() as C
AutoGenerate(50);
```

Loading data using a function

In these examples, we assume that we have an analytic connection plugin named *P* that contains a custom function *Calculate(Parameter1, Parameter2)*. The function returns the table *Results* that contains the fields *Field1* and *Field2*.

```
Load * Extension P.Calculate( Values{A, C} );
```
Load all fields that are returned when sending the fields A and C to the function.

```
Load Field1 Extension P.Calculate( Values{A, C} );
```
Load only the Field1 field when sending the fields A and C to the function.

```
Load * Extension P.Calculate( Values );
```
Load all fields that are returned when sending the fields A and B to the function. As fields are not specified, A and B are used as they are the first in order in the table.

```
Load * Extension P.Calculate( Values {C, C});
```
Load all fields that are returned when sending the field C to both parameters of the function.

```
Load * Extension P.Calculate( Values {String(A), Mixed(B)});
```
Load all fields that are returned when sending the field A forced as a string and B forced as a numeric to the function.

Loading data by evaluating a script

```
Load A as A_echo, B as B_echo Extension R.ScriptEval( 'q;', Values{A, B} );
```
Load the table returned by the script q when sending the values of A and B.

```
Load * Extension R.ScriptEval( '$(My_R_Script)', Values{A, B} );
```
Load the table returned by the script stored in the My_R_Script variable when sending the values of A and B.

```
Load * Extension R.ScriptEval( '$(My_R_Script)', Values{B as D, *} );
```
Load the table returned by the script stored in the My_R_Script variable when sending the values of B renamed to D, A and C. Using * sends the remaining unreferenced fields.

Format specification items

Each format specification item defines a certain property of the table file:

fspec-item ::= [**ansi | oem | mac | UTF-8 | Unicode | txt | fix | dif | biff | ooxml | html | xml | qvd | qvx | delimiter is** `char` | **no eof | embedded labels | explicit labels | no labels | table is [**`tablename`**]** | **header is** `n` | **header is** `line` | **header is** `n` **lines** | **comment is** `string` | **record is** `n` | **record is** `line` | **record is**`n` **lines** | **no quotes |msq**]

Character set

Character set is a file specifier for the **LOAD** statement that defines the character set used in the file.

Syntax:

```
utf8 | unicode | ansi | oem | mac | codepage is
```

Arguments:

Character set arguments

Argument	Description
utf8	UTF-8 character set
unicode	Unicode character set

Argument	Description
ansi	Windows, codepage 1252
oem	DOS, OS/2, AS400 and others
mac	Codepage 10000
codepage is	With the **codepage** specifier, it is possible to use any Windows codepage as *N* .

Limitations:

Conversion from the **oem** character set is not implemented for macOS. If nothing is specified, codepage 1252 is assumed under Windows.

Example:

```
LOAD * from a.txt (utf8, txt, delimiter is ',' , embedded labels)
LOAD * from a.txt (unicode, txt, delimiter is ',' , embedded labels)
LOAD * from a.txt (codepage is 10000, txt, delimiter is ',' , no labels)
```

Table format

The table format is a file specifier for the **LOAD** statement that defines the file type. If nothing is specified, a *.txt* file is assumed.

Specified file types

File type	Description
txt	In a delimited text file the columns in the table are separated by a delimiter character.
fix	In a fixed record file, each field is exactly a certain number of characters. Typically, many fixed record length files contains records separated by a linefeed, but there are more advanced options to specify record size in bytes or to span over more than one line with **Record is**. *If the data contains multi-byte characters, field breaks can become misaligned as the format is based on a fixed length in bytes.*
dif	In a *.dif* file, (Data Interchange Format) a special format for defining the table is used.
biff	QlikView can also interpret data in standard Excel files by means of the *biff* format (Binary Interchange File Format).
ooxml	Excel 2007 and later versions use the ooxml *.xslx* format.
html	If the table is part of an html page or file, html should be used.
xml	xml (Extensible Markup Language) is a common markup language that is used to represent data structures in a textual format.

File type	Description
qvd	The format *qvd* is the proprietary QVD files format, exported from a QlikView document.
qvx	*qvx* is a file/stream format for high performance output to QlikView.

Delimiter

For delimited table files, an arbitrary delimiter can be specified through the **delimiter is** specifier. This specifier is relevant only for delimited .txt files.

Syntax:

```
delimiter is char
```

Arguments:

Delimiter is arguments

Argument	Description
char	Specifies a single character from the 127 ASCII characters.
'\t'	representing a tab sign, with or without quotation marks.
'\\'	representing a backslash (\ ) character.
'spaces'	representing all combinations of one or more spaces. Non-printable characters with an ASCII-value below 32, with the exception of CR and LF, will be interpreted as spaces.

If nothing is specified, **delimiter is ','** is assumed.

Example:

```
LOAD * from a.txt (utf8, txt, delimiter is ',' , embedded labels);
```

No eof

The **no eof** specifier is used to disregard end-of-file character when loading delimited **.txt** files.

Syntax:

```
no eof
```

If the **no eof** specifier is used, characters with code point 26, which otherwise denotes end-of-file, are disregarded and can be part of a field value.

It is relevant only for delimited text files.

Example:

```
LOAD * from a.txt (txt, utf8, embedded labels, delimiter is ' ', no eof);
```

Labels

Labels is a file specifier for the **LOAD** statement that defines where in a file the field names can be found.

Syntax:

```
embedded labels|explicit labels|no labels
```

The field names can be found in different places of the file. If the first record contains the field names, **embedded labels** should be used. If there are no field names to be found, **no labels** should be used. In *dif* files, a separate header section with explicit field names is sometimes used. In such a case, **explicit labels** should be used. If nothing is specified, **embedded labels** is assumed, also for *dif* files.

Example 1:

```
LOAD * from a.txt (unicode, txt, delimiter is ',' , embedded labels
```

Example 2:

```
LOAD * from a.txt (codePage is 1252, txt, delimiter is ',' , no labels)
```

Header is

Specifies the header size in table files. An arbitrary header length can be specified through the **header is** specifier. A header is a text section not used by QlikView.

Syntax:

```
header is n
header is line
header is n lines
```

The header length can be given in bytes (**header is n**), or in lines (**header is line** or **header is n lines**). **n** must be a positive integer, representing the header length. If not specified, **header is 0** is assumed. The **header is** specifier is only relevant for table files.

Example:

This is an example of a data source table containing a header text line that should not be interpreted as data by QlikView.

```
*Header line
Col1,Col2
a,B
c,D
```

Using the **header is 1 lines** specifier, the first line will not be loaded as data. In the example, the **embedded labels** specifier tells QlikView to interpret the first non-excluded line as containing field labels.

```
LOAD Col1, Col2
FROM header.txt
(txt, embedded labels, delimiter is ',', msq, header is 1 lines);
```

The result is a table with two fields, Col1 and Col2.

Record is

For fixed record length files, the record length must be specified through the **record is** specifier.

Syntax:

```
Record is n
Record is line
Record is n lines
```

Arguments:

Record is arguments

Argument	Description
n	Specifies the record length in bytes.
line	Specifies the record length as one line.
n lines	Specifies the record length in lines where n is a positive integer representing the record length.

Limitations:

The **record is** specifier is only relevant for **fix** files.

Quotes

Quotes is a file specifier for the **LOAD** statement that defines whether quotes can be used and the precedence between quotes and separators. For text files only.

Syntax:

```
no quotes
msq
```

If the specifier is omitted, standard quoting is used, that is, the quotes " " or ' ' can be used, but only if they are the first and last non blank character of a field value.

Arguments:

Quotes arguments

Argument	Description
no quotes	Used if quotation marks are not to be accepted in a text file.
msq	Used to specify modern style quoting, allowing multi-line content in fields. Fields containing end-of-line characters must be enclosed within double quotes. One limitation of the msq option is that single double-quote (") characters appearing as first or last character in field content will be interpreted as start or end of multi-line content, which may lead to unpredicted results in the data set loaded. In this case you should use standard quoting instead, omitting the specifier.

XML

This script specifier is used when loading xml files. Valid options for the **XML** specifier are listed in syntax.

You cannot load DTD files in QlikView.

Syntax:

```
xmlsimple
```

Let

The **let** statement is a complement to the **set** statement, used for defining script variables. The **let** statement, in opposition to the **set** statement, evaluates the expression on the right side of the ' =' before it is assigned to the variable.

Syntax:

```
Let variablename=expression
```

The word **let** may be omitted, but the statement then becomes a control statement. Such a statement without the keyword **let** must be contained within a single script row and may be terminated either with a semicolon or end-of-line.

Examples and results:

Examples and results

Example	Result

`Set x=3+4;`
`Let y=3+4;`
`z=$(y)+1;`
	`$(x)` will be evaluated as ' 3+4 '
	
	`$(y)` will be evaluated as ' 7 '
	
	`$(z)` will be evaluated as ' 8 '

Let T=now( );	`$(T)` will be given the value of the current time.

Loosen Table

One or more QlikView internal data tables can be explicitly declared loosely coupled during script execution by using a **Loosen Table** statement. When a table is loosely coupled, all associations between field values in the table are removed. A similar effect could be achieved by loading each field of the loosely coupled table as independent, unconnected tables. Loosely coupled tables can be useful during testing to temporarily isolate different parts of the data structure. A loosely coupled table can be identified in the table viewer by the dotted line and arrow. The use of one or more **Loosen Table** statements in the script will make QlikView disregard any setting of tables as loosely coupled made before the script execution.

Syntax:

```
Loosen Tabletablename [ , tablename2 ...]
Loosen Tablestablename [ , tablename2 ...]
```

Either syntax: **Loosen Table** or **Loosen Tables** can be used.

*Should QlikView find circular references in the data structure which cannot be broken by tables declared loosely coupled interactively or explicitly in the script, one or more additional tables will be forced loosely coupled until no circular references remain. When this happens, the **Loop Warning** dialog, gives a warning.*

Example:

```
Tab1:
SELECT * from Trans;
Loosen Table Tab1;
```

Map

The **map ... using** statement is used for mapping a certain field value or expression to the values of a specific mapping table. The mapping table is created through the **Mapping** statement.

Syntax:

```
Map *fieldlist Using  mapname
```

The automatic mapping is done for fields loaded after the **Map ... Using** statement until the end of the script or until an **Unmap** statement is encountered.

The mapping is done last in the chain of events leading up to the field being stored in the internal table in QlikView. This means that mapping is not done every time a field name is encountered as part of an expression, but rather when the value is stored under the field name in the internal table. If mapping on the expression level is required, the **Applymap()** function has to be used instead.

Arguments:

Map arguments

Argument	Description
**fieldlist*	A comma separated list of the fields that should be mapped from this point in the script. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.
mapname	The name of a mapping table previously read in a **mapping load** or **mapping select** statement.

Examples and results:

Examples and results

Example	Result
Map Country Using Cmap;	Enables mapping of the field Country using the map Cmap.
Map A, B, C Using X;	Enables mapping of the fields A, B and C using the map X.
Map * Using GenMap;	Enables mapping of all fields using GenMap.

NullAsNull

The **NullAsNull** statement turns off the conversion of NULL values to string values previously set by a **NullAsValue** statement.

Syntax:

```
NullAsNull *fieldlist
```

The **NullAsValue** statement operates as a switch and can be turned on or off several times in the script, using either a **NullAsValue** or a **NullAsNull** statement.

Arguments:

NullAsNull arguments

Argument	Description
*fieldlist	A comma separated list of the fields for which **NullAsNull** should be turned on. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.

Example:

```
NullAsNull A,B;
LOAD A,B from x.csv;
```

NullAsValue

The **NullAsValue** statement specifies for which fields that NULL should be converted to a value.

Syntax:

```
NullAsValue *fieldlist
```

By default, QlikView considers NULL values to be missing or undefined entities. However, certain database contexts imply that NULL values are to be considered as special values rather than simply missing values. The fact that NULL values are normally not allowed to link to other NULL values can be suspended by means of the **NullAsValue** statement.

The **NullAsValue** statement operates as a switch and will operate on subsequent loading statements. It can be switched off again by means of the **NullAsNull** statement.

Arguments:

NullAsValue arguments

Argument	Description
*fieldlist	A comma separated list of the fields for which **NullAsValue** should be turned on. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.

Example:

```
NullAsValue A,B;
Set NullValue = 'NULL';
LOAD A,B from x.csv;
```

Only

The **Only** script keyword is used as an aggregation function, or as part of the syntax in partial reload prefixes **Add**, **Replace**, and **Merge**.

Qualify

The **Qualify** statement is used for switching on the qualification of field names, i.e. field names will get the table name as a prefix.

Syntax:

```
Qualify *fieldlist
```

The automatic join between fields with the same name in different tables can be suspended by means of the **qualify** statement, which qualifies the field name with its table name. If qualified, the field name(s) will be renamed when found in a table. The new name will be in the form of *tablename.fieldname*. *Tablename* is equivalent to the label of the current table, or, if no label exists, to the name appearing after **from** in **LOAD** and **SELECT** statements.

The qualification will be made for all fields loaded after the **qualify** statement.

Qualification is always turned off by default at the beginning of script execution. Qualification of a field name can be activated at any time using a **qualify** statement. Qualification can be turned off at any time using an **Unqualify** statement.

*The **qualify** statement should not be used in conjunction with partial reload.*

Arguments:

Qualify arguments

Argument	Description
*fieldlist	A comma separated list of the fields for which qualification should be turned on. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.

Example 1:

```
Qualify B;
LOAD A,B from x.csv;
LOAD A,B from y.csv;
```

The two tables **x.csv** and **y.csv** are associated only through **A**. Three fields will result: A, x.B, y.B.

Example 2:

In an unfamiliar database, it is often useful to start out by making sure that only one or a few fields are associated, as illustrated in this example:

```
qualify *;
unqualify TransID;
SQL SELECT * from tab1;
SQL SELECT * from tab2;
SQL SELECT * from tab3;
```

Only **TransID** will be used for associations between the tables *tab1*, *tab2* and *tab3*.

Rem

The **rem** statement is used for inserting remarks, or comments, into the script, or to temporarily deactivate script statements without removing them.

Syntax:

```
Rem string
```

Everything between the **rem** and the next semicolon **;** is considered to be a comment.

There are two alternative methods available for making comments in the script:

1. It is possible to create a comment anywhere in the script - except between two quotes - by placing the section in question between **/*** and ***/**.
2. When typing **//** in the script, all text that follows to the right on the same row becomes a comment. (Note the exception //: that may be used as part of an Internet address.)

Arguments:

Rem arguments

Argument	Description
string	An arbitrary text.

Example:

```
Rem ** This is a comment **;
/* This is also a comment */
// This is a comment as well
```

Rename field

This script function renames one or more existing QlikView field(s) after they have been loaded.

It is not recommended to use the same name for a field and a variable in QlikView.

Either syntax: **rename field** or **rename fields** can be used.

Syntax:

```
Rename Field (using mapname | oldname to newname{ , oldname to newname })
Rename Fields (using mapname | oldname to newname{ , oldname to newname })
```

Arguments:

Rename field arguments

Argument	Description
mapname	The name of a previously loaded mapping table containing one or more pairs of old and new field names.
oldname	The old field name.
newname	The new field name.

Limitations:

Two differently named fields cannot be renamed to having the same name. The script will run without errors, but the second field will not be renamed.

Example 1:

```
Rename Field XAZ0007 to Sales;
```

Example 2:

```
FieldMap:
Mapping SQL SELECT oldnames, newnames from datadictionary;
Rename Fields using FieldMap;
```

Rename table

This script function renames one or more existing QlikView internal table(s) after they have been loaded.

Either syntax: **rename table** or **rename tables** can be used.

Syntax:

```
Rename Table (using mapname | oldname to newname{ , oldname to newname })
Rename Tables (using mapname | oldname to newname{ , oldname to newname })
```

Arguments:

Rename table arguments

Argument	Description
mapname	The name of a previously loaded mapping table containing one or more pairs of old and new table names.
oldname	The old table name.
newname	The new table name.

Limitations:

Two differently named tables cannot be renamed to having the same name. The script will run without errors, but the second table will not be renamed.

Example 1:

```
Tab1:
SELECT * from Trans;
Rename Table Tab1 to Xyz;
```

Example 2:

```
TabMap:
Mapping LOAD oldnames, newnames from tabnames.csv;
Rename Tables using TabMap;
```

Section

With the **section** statement, it is possible to define whether the subsequent **LOAD** and **SELECT** statements should be considered as data or as a definition of the access rights.

Syntax:

```
Section (access | application)
```

If nothing is specified, **section application** is assumed. The **section** definition is valid until a new **section** statement is made.

Example:

```
Section access;
Section application;
```

Select

The selection of fields from an ODBC data source or OLE DB provider is made through standard SQL **SELECT** statements. However, whether the **SELECT** statements are accepted depends on the ODBC driver or OLE DB provider used.

Syntax:

```
Select [all | distinct | distinctrow | top n [percent] ] fieldlist

From tablelist

[where criterion ]

[group by fieldlist [having criterion ] ]

[order by fieldlist [asc | desc] ]

[ (Inner | Left | Right | Full) join tablename on fieldref = fieldref ]
```

Furthermore, several **SELECT** statements can sometimes be concatenated into one through the use of a **union** operator:

```
selectstatement Union selectstatement
```

The **SELECT** statement is interpreted by the ODBC driver or OLE DB provider, so deviations from the general SQL syntax might occur depending on the capabilities of the ODBC drivers or OLE DB provider, for example:.

- **as** is sometimes not allowed, i.e. *aliasname* must follow immediately after *fieldname*.
- **as** is sometimes compulsory if an *aliasname* is used.
- **distinct**, **as**, **where**, **group by**, **order by**, or **union** is sometimes not supported.
- The ODBC driver sometimes does not accept all the different quotation marks listed above.

*This is not a complete description of the SQL **SELECT** statement! E.g. **SELECT** statements can be nested, several joins can be made in one **SELECT** statement, the number of functions allowed in expressions is sometimes very large, etc.*

Arguments:

Select arguments

Argument	Description
distinct	**distinct** is a predicate used if duplicate combinations of values in the selected fields only should be loaded once.
distinctrow	**distinctrow** is a predicate used if duplicate records in the source table only should be loaded once.
fieldlist	**fieldlist ::= (*| field) {, field }** A list of the fields to be selected. Using * as field list indicates all fields in the table. **fieldlist ::= field {, field }** A list of one or more fields, separated by commas. **field ::= (fieldref| expression) [as aliasname]** The expression can e.g. be a numeric or string function based on one or several other fields. Some of the operators and functions usually accepted are: +, -, *, /, & (string concatenation), sum(fieldname), count(fieldname), avg(fieldname)(average), month (fieldname), etc. See the documentation of the ODBC driver for more information. **fieldref ::= [tablename.] fieldname** The **tablename** and the **fieldname** are text strings identical to what they imply. They must be enclosed by straight double quotation marks if they contain e.g. spaces. The **as** clause is used for assigning a new name to the field.

Argument	Description
from	**tablelist ::= table {, table }** The list of tables that the fields are to be selected from. **table ::= tablename [[as] aliasname]** The **tablename** may or may not be put within quotes.
where	**where** is a clause used for stating whether a record should be included in the selection or not. **criterion** is a logical expression that can sometimes be very complex. Some of the operators accepted are: numeric operators and functions, **=**, **<>** or **#(**not equal), **>**, **>=**, **<**, **<=**, **and**, **or**, **not**, **exists**, **some**, **all**, **in** and also new **SELECT** statements. See the documentation of the ODBC driver or OLE DB providerfor more information.
group by	**group by** is a clause used for aggregating (group) several records into one. Within one group, for a certain field, all the records must either have the same value, or the field can only be used from within an expression, e.g. as a sum or an average. The expression based on one or several fields is defined in the expression of the field symbol.
having	**having** is a clause used for qualifying groups in a similar manner to how the **where** clause is used for qualifying records.
order by	**order by** is a clause used for stating the sort order of the resulting table of the **SELECT** statement.
join	**join** is a qualifier stating if several tables are to be joined together into one. Field names and table names must be put within quotes if they contain blank spaces or letters from the national character sets. When the script is automatically generated by QlikView, the quotation mark used is the one preferred by the ODBC driver or OLE DB provider specified in the data source definition of the data source in the **Connect** statement.

Example 1:

```
SELECT * FROM `Categories`;
```

Example 2:

```
SELECT `Category ID`, `Category Name` FROM `Categories`;
```

Example 3:

```
SELECT `Order ID`, `Product ID`,
`Unit Price` * Quantity * (1-Discount) as NetSales
FROM `Order Details`;
```

Example 4:

```
SELECT `Order Details`.`Order ID`,
Sum(`Order Details`.`Unit Price` * `Order Details`.Quantity) as `Result`
FROM `Order Details`, Orders
where Orders.`Order ID` = `Order Details`.`Order ID`
```

```
group by `Order Details`.`Order ID`;
```

Set

The **set** statement is used for defining script variables. These can be used for substituting strings, paths, drives, and so on.

Syntax:

```
Set variablename=string
```

Example 1:

```
Set FileToUse=Data1.csv;
```

Example 2:

```
Set Constant="My string";
```

Example 3:

```
Set BudgetYear=2012;
```

Sleep

The **sleep** statement pauses script execution for a specified time.

Syntax:

```
Sleep n
```

Arguments:

Sleep arguments

Argument	Description
n	Stated in milliseconds, where *n* is a positive integer no larger than 3600000 (i.e. 1 hour). The value may be an expression.

Example 1:

```
Sleep 10000;
```

Example 2:

```
Sleep t*1000;
```

SQL

The **SQL** statement allows you to send an arbitrary SQL command through an ODBC or OLE DB connection.

Syntax:

```
SQL sql_command
```

Sending SQL statements which update the database will return an error if QlikView has opened the ODBC connection in read-only mode.

The syntax:

```
SQL SELECT * from tab1;
```
is allowed, and is the preferred syntax for **SELECT**, for reasons of consistency. The SQL prefix will, however, remain optional for **SELECT** statements.

Arguments:

SQL arguments

Argument	Description
sql_command	A valid SQL command.

Example 1:

```
SQL leave;
```

Example 2:

```
SQL Execute <storedProc>;
```

SQLColumns

The **sqlcolumns** statement returns a set of fields describing the columns of an ODBC or OLE DB data source, to which a **connect** has been made.

Syntax:

```
SQLcolumns
```

The fields can be combined with the fields generated by the **sqltables** and **sqltypes** commands in order to give a good overview of a given database. The twelve standard fields are:

TABLE_QUALIFIER

TABLE_OWNER

TABLE_NAME

COLUMN_NAME

DATA_TYPE

TYPE_NAME

PRECISION

LENGTH

SCALE

RADIX

NULLABLE

REMARKS

For a detailed description of these fields, see an ODBC reference handbook.

Example:

```
Connect to 'MS Access 7.0 Database; DBQ=C:\Course3\DataSrc\QWT.mbd';
SQLcolumns;
```

Some ODBC drivers may not support this command. Some ODBC drivers may produce additional fields.

SQLTables

The **sqltables** statement returns a set of fields describing the tables of an ODBC or OLE DB data source, to which a **connect** has been made.

Syntax:

```
SQLTables
```

The fields can be combined with the fields generated by the **sqlcolumns** and **sqltypes** commands in order to give a good overview of a given database. The five standard fields are:

TABLE_QUALIFIER

TABLE_OWNER

TABLE_NAME

TABLE_TYPE

REMARKS

For a detailed description of these fields, see an ODBC reference handbook.

Example:

```
Connect to 'MS Access 7.0 Database; DBQ=C:\Course3\DataSrc\QWT.mbd';
SQLTables;
```

Some ODBC drivers may not support this command. Some ODBC drivers may produce additional fields.

SQLTypes

The **sqltypes** statement returns a set of fields describing the types of an ODBC or OLE DB data source, to which a **connect** has been made.

Syntax:

```
SQLTypes
```

The fields can be combined with the fields generated by the **sqlcolumns** and **sqltables** commands in order to give a good overview of a given database. The fifteen standard fields are:

TYPE_NAME

DATA_TYPE

PRECISION

LITERAL_PREFIX

LITERAL_SUFFIX

CREATE_PARAMS

NULLABLE

CASE_SENSITIVE

SEARCHABLE

UNSIGNED_ATTRIBUTE

MONEY

AUTO_INCREMENT

LOCAL_TYPE_NAME

MINIMUM_SCALE

MAXIMUM_SCALE

For a detailed description of these fields, see an ODBC reference handbook.

Example:

```
Connect to 'MS Access 7.0 Database; DBQ=C:\Course3\DataSrc\QWT.mbd';
SQLTypes;
```

Some ODBC drivers may not support this command. Some ODBC drivers may produce additional fields.

Star

The string used for representing the set of all the values of a field in the database can be set through the **star** statement. It affects the subsequent **LOAD** and **SELECT** statements.

Syntax:

```
Star is[ string ]
```

Arguments:

Star is arguments

Argument	Description
string	An arbitrary text. Note that the string must be enclosed by quotation marks if it contains blanks. If nothing is specified, **star is;** is assumed, i.e. there is no star symbol available unless explicitly specified. This definition is valid until a new **star** statement is made.

The **Star is** statement is not recommended for use in the data part of the script (under **Section Application**) if section access is used. The star character is however fully supported for the protected fields in the **Section Access** part of the script. In this case you do not need to use the explicit **Star is** statement since this is always implicit in section access.

Limitations

- You cannot use the star character with key fields; that is, fields that link tables.
- You cannot use the star character with any fields affected by the **Unqualify** statement as this can affect fields that link tables.
- You cannot use the star character with non-logical tables, for example, info-load tables or mapping-load tables.
- When the star character is used in a reducing field (a field that links to the data) in section access , it represents the values listed in this field in section access. It does not represent other values that may exist in the data but are not listed in section access.
- You cannot use the star character with fields affected by any form of data reduction outside the **Section Access** area.

Example:

The example below is an extract of a data load script featuring section access.

```
Star is *;

Section Access;
LOAD * INLINE [
ACCESS, USERID, PASSWORD, OMIT
ADMIN, ADMIN, ADMIN,
USER, USER1, U1, SALES
USER, USER2, U2, WAREHOUSE
USER, USER3, U3, EMPLOYEES
USER, USER4, U4, SALES
```

```
USER, USER4, U4, WAREHOUSE
USER, USER5, U5, *
];

Section Application;
LOAD * INLINE [
SALES, WAREHOUSE, EMPLOYEES, ORDERS
1, 2, 3, 4
];
```

The following applies:

- The *Star* sign is *.
- The user *USER1* is not able to see the field *SALES*.
- The user *USER2* is not able to see the field *WAREHOUSE* .
- The user *USER3* cannot see the field *EMPLOYEES*.
- The user *USER4* is added twice to the solution to OMIT two fields for this user, *SALES* and *WAREHOUSE*.
- The *USER5* has a "*" added which means that all listed fields in OMIT are unavailable. The star sign * means all listed values, not all values of the field.
- The user *USER5* cannot see the fields *SALES*, *WAREHOUSE* and *EMPLOYEES* but this user can see the field *ORDERS*.

Store

This script function creates a QVD or a CSV file.

Syntax:

```
Store[ *fieldlist from] table into filename [ format-spec ];
```

The statement will create an explicitly named QVD or CSV file. The statement can only export fields from one data table. If fields from several tables are to be exported, an explicit join must be made previously in the script to create the data table that should be exported.

The text values are exported to the CSV file in UTF-8 format. A delimiter can be specified, see **LOAD**. The **store** statement to a CSV file does not support BIFF export.

Arguments:

Store arguments

Argument	Description
**fieldlist::= (* | field) { , field })*	A list of the fields to be selected. Using * as field list indicates all fields. *field::= fieldname [***as***aliasname]* *fieldname* is a text that is identical to a field name in *table*. (Note that the field name must be enclosed b straight double quotation marks or square brackets if it contains spaces or other non-standard characters.) *aliasname* is an alternate name for the field to be used in the resulting QVD or CSV file.
table	A script label representing an already loaded table to be used as source for data.
filename	The name of the target file including a valid path. • absolute **Example: *c:\data\sales.qvd*** • relative to the QlikView document path. **Example: *data\sales.qvd*** If the path is omitted, QlikView stores the file in the directory specified by the **Directory** statement. If there is no **Directory** statement, QlikView stores the file in the working directory.
*format-spec ::=***(** (**txt** | **qvd**) **)**	The format specification consists of the text **txt** for text files, or the text **qvd** for qvd files. If the format specification is omitted, **qvd** is assumed.

Examples:

```
Store mytable into xyz.qvd (qvd);
Store * from mytable into xyz.qvd;
Store Name, RegNo from mytable into xyz.qvd;
Store Name as a, RegNo as b from mytable into xyz.qvd;
store mytable into myfile.txt (txt);
store * from mytable into myfile.txt (txt);
```

Tag

This script statement provides a way to assign tags to one or more fields or tables. If an attempt to tag a field or table not present in the app is made, the tagging will be ignored. If conflicting occurrences of a field or tag name are found, the last value is used.

Syntax:

```
Tag[field|fields]fieldlistwithtagname
```

```
Tag[field|fields]fieldlistusingmapname
```

```
Tagtabletablelistwithtagname
```

Arguments:

Tag arguments

Argument	Description
fieldlist	One or several fields that should be tagged, in a comma separated list.
mapname	The name of a mapping table previously loaded in a **mapping Load** or **mapping Select** statement.
tablelist	A comma separated list of the tables that should be tagged.
tagname	The name of the tag that should be applied to the field.

Example 1:

```
tagmap:
mapping LOAD * inline [
a,b
Alpha,MyTag
Num,MyTag
];
tag fields using tagmap;
```

Example 2:

```
tag field Alpha with 'MyTag2';
```

Trace

The **trace** statement writes a string to the **Script Execution Progress** window and to the script log file, when used. It is very useful for debugging purposes. Using $-expansions of variables that are calculated prior to the **trace** statement, you can customize the message.

Syntax:

```
Trace string
```

Example 1:

```
Trace Main table loaded;
```

Example 2:

```
Let MyMessage = NoOfRows('MainTable') & ' rows in Main Table';
Trace $(MyMessage);
```

Unmap

The **Unmap** statement disables field value mapping specified by a previous **Map ... Using** statement for subsequently loaded fields.

Syntax:

```
Unmap *fieldlist
```

Arguments:

Unmap arguments

Argument	Description
*fieldlist	a comma separated list of the fields that should no longer be mapped from this point in the script. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used.

Examples and results:

Examples and results

Example	Result
Unmap Country;	Disables mapping of field Country.
Unmap A, B, C;	Disables mapping of fields A, B and C.
Unmap * ;	Disables mapping of all fields.

Unqualify

The **Unqualify** statement is used for switching off the qualification of field names that has been previously switched on by the **Qualify** statement.

Syntax:

```
Unqualify *fieldlist
```

Arguments:

Unqualify arguments

Argument	Description
*fieldlist	A comma separated list of the fields for which qualification should be turned on. Using * as field list indicates all fields. The wildcard characters * and ? are allowed in field names. Quoting of field names may be necessary when wildcards are used. Refer to the documentation for the **Qualify** statement for further information.

Example 1:

In an unfamiliar database, it is often useful to start out by making sure that only one or a few fields are associated, as illustrated in this example:

```
qualify *;
unqualify TransID;
SQL SELECT * from tab1;
SQL SELECT * from tab2;
SQL SELECT * from tab3;
```

First, qualification is turned on for all fields.
Then qualification is turned off for **TransID**.
Only **TransID** will be used for associations between the tables *tab1*, *tab2* and *tab3*. All other fields will be qualified with the table name.

Untag

This script statement provides a way to remove tags from fields or tables. If an attempt to untag a field or table not present in the app is made, the untagging will be ignored.

Syntax:

```
Untag[field|fields]fieldlistwithtagname
```

```
Untag[field|fields]fieldlistusingmapname
```

```
Untagtabletablelistwithtagname
```

Arguments:

Untag arguments

Argument	Description
fieldlist	One or several fields which tags should be removed, in a comma separated list.
mapname	The name of a mapping table previously loaded in a mapping **LOAD** or mapping **SELECT** statement.
tablelist	A comma separated list of the tables that should be untagged.
tagname	The name of the tag that should be removed from the field.

Example 1:

```
tagmap:
mapping LOAD * inline [
a,b
Alpha,MyTag
Num,MyTag
];
Untag fields using tagmap;
```

Example 2:

```
Untag field Alpha with MyTag2;
```

Script variables

A variable in QlikView is a container storing a static value or a calculation, for example a numeric or alphanumeric value. When you use the variable in the document, any change made to the variable is applied everywhere the variable is used. Variables are defined in the script using the script editor, where the variable acquires its value from a **Let**, **Set** or other control statements in the load script.

If the first character of a variable value is an equals sign ' = ' QlikView will try to evaluate the value as a formula (QlikView expression) and then display or return the result rather than the actual formula text.

When used, the variable is substituted by its value. Variables can be used in the script for dollar sign expansion and in various control statements. This is very useful if the same string is repeated many times in the script, for example, a path.

Some special system variables will be set by QlikView at the start of the script execution regardless of their previous values.

When defining a variable, the syntax:

```
set variablename = string
```

or

```
let variable = expression
```

is used. The **Set** command assigns the text to the right of the equal sign to the variable, whereas the **Let** command evaluates the expression.

Variables are case sensitive.

Examples:

`set HidePrefix = $ ; //` the variable will get the character '$' as value.

`let vToday = Num(Today()); //` returns the date serial number of today.

Variable calculation

There are several ways to use variables with calculated values in QlikView, and the result depends on how you define it and how you call it in an expression.

In this example we load some inline data:

```
LOAD * INLINE [
    Dim, Sales
    A, 150
    A, 200
    B, 240
    B, 230
    C, 410
```

```
    C, 330
];
```

Let's define two variables:

```
Let vSales  = 'Sum(Sales)' ;
Let vSales2  = '=Sum(Sales)' ;
```

In the second variable, we add an equal sign before the expression. This will cause the variable to be calculated before it is expanded and the expression is evaluated.

If you use the vSales variable as it is, for example in a measure, the result will be the string Sum(Sales), that is, no calculation is performed.

If you add a dollar-sign expansion and call $(vSales) in the expression, the variable is expanded, and the sum of Sales is displayed.

Finally, if you call $(vSales2), the variable will be calculated before it is expanded. This means that the result displayed is the total sum of Sales. The difference between using =$(vSales) and =$(vSales2) as measure expressions is seen in this chart showing the results:

Example results

Dim	$(vSales)	$(vSales2)
A	350	1560
B	470	1560
C	740	1560

As you can see, $(vSales) results in the partial sum for a dimension value, while $(vSales2) results in the total sum.

Error variables

The values of all error variables will exist after the script execution. The first variable, ErrorMode, is input from the user, and the last three are output from QlikView with information on errors in the script.

Error variables overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

ErrorMode

This error variable determines what action is to be taken by QlikView when an error is encountered during script execution.

```
ErrorMode
```

ScriptError

This error variable returns the error code of the last executed script statement.

```
ScriptError
```

ScriptErrorCount
This error variable returns the total number of statements that have caused errors during the current script execution. This variable is always reset to 0 at the start of script execution.

```
ScriptErrorCount
```

ScriptErrorList
This error variable will contain a concatenated list of all script errors that have occurred during the last script execution. Each error is separated by a line feed.

```
ScriptErrorList
```

ErrorMode

This error variable determines what action is to be taken by QlikView when an error is encountered during script execution.

Syntax:

```
ErrorMode
```

Arguments:

ErrorMode arguments

Argument	Description
ErrorMode=1	The default setting. The script execution will halt and the user will be prompted for action (non-batch mode).
ErrorMode =0	QlikView will simply ignore the failure and continue script execution at the next script statement.
ErrorMode =2	QlikView will trigger an "Execution of script failed..." error message immediately on failure, without prompting the user for action beforehand.

Example:

```
set ErrorMode=0;
```

ScriptError

This error variable returns the error code of the last executed script statement.

Syntax:

```
ScriptError
```

This variable will be reset to 0 after each successfully executed script statement. If an error occurs it will be set to an internal QlikView error code. Error codes are dual values with a numeric and a text component. The following error codes exist:

ScriptError codes

Error code	Description
0	No error
1	General error
2	Syntax error
3	General ODBC error
4	General OLE DB error
5	General custom database error
6	General XML error
7	General HTML error
8	File not found
9	Database not found
10	Table not found
11	Field not found
12	File has wrong format
13	BIFF error
14	BIFF error encrypted
15	BIFF error unsupported version
16	Semantic error

Example:

```
set ErrorMode=0;
LOAD * from abc.qvw;
if ScriptError=8 then
exit script;
//no file;
end if
```

ScriptErrorCount

This error variable returns the total number of statements that have caused errors during the current script execution. This variable is always reset to 0 at the start of script execution.

Syntax:

```
ScriptErrorCount
```

ScriptErrorList

This error variable will contain a concatenated list of all script errors that have occurred during the last script execution. Each error is separated by a line feed.

Syntax:

```
ScriptErrorList
```

Number interpretation variables

Number interpretation variables are system defined, that is, they are automatically generated according to the current regional settings of the operating system when a new document is created. In QlikView Desktop, this is according to the settings of the computer operating system, and in QlikView, it is according to the operating system of the server where QlikView is installed.

The variables are included at the top of the script of the new QlikView document and substitute operating system defaults for certain number formatting settings at the time of the script execution. They can be deleted, edited or duplicated freely.

Number interpretation variables overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Currency formatting

MoneyDecimalSep

The decimal separator defined replaces the decimal symbol for currency of the operating system (regional settings).

```
MoneyDecimalSep
```

MoneyFormat

The symbol defined replaces the currency symbol of the operating system (regional settings).

```
MoneyFormat
```

MoneyThousandSep

The thousands separator defined replaces the digit grouping symbol for currency of the operating system (regional settings).

```
MoneyThousandSep
```

Number formatting

DecimalSep

The decimal separator defined replaces the decimal symbol of the operating system (regional settings).

```
DecimalSep
```

ThousandSep

The thousands separator defined replaces the digit grouping symbol of the operating system (regional settings).

```
ThousandSep
```

Time formatting

DateFormat

The format defined replaces the date format of the operating system (regional settings).

```
DateFormat
```

TimeFormat

The format defined replaces the time format of the operating system (regional settings).

```
TimeFormat
```

TimestampFormat

The format defined replaces the date and time formats of the operating system (regional settings).

```
TimestampFormat
```

MonthNames

The format defined replaces the month names convention of the operating system (regional settings).

```
MonthNames
```

LongMonthNames

The format defined replaces the long month names convention of the operating system (regional settings).

```
LongMonthNames
```

DayNames

The format defined replaces the weekday names convention of the operating system (regional settings).

```
DayNames
```

LongDayNames

The format defined replaces the long weekday names convention of the operating system (regional settings).

```
LongDayNames
```

FirstWeekDay

This integer defines which day to use as the first day of the week.

```
FirstWeekDay
```

BrokenWeeks

The setting defines if weeks are broken or not.

```
BrokenWeeks
```

ReferenceDay

The setting defines which day in January to set as reference day to define week 1.

```
ReferenceDay
```

FirstMonthOfYear

The setting defines which month to use as first month of the year, which can be used to define financial years that use a monthly offset, for example starting April 1.

```
FirstMonthOfYear
```

BrokenWeeks

The setting defines if weeks are broken or not.

Syntax:

```
BrokenWeeks
```

By default, QlikView functions use unbroken weeks. This means that:

- In some years, week 1 starts in December, and in other years, week 52 or 53 continues into January.
- Week 1 always has at least 4 days in January.

The alternative is to use broken weeks. This means that:

- Week 52 or 53 do not continue into January.
- Week 1 starts on January 1 and is, in most cases, not a full week.

The following values can be used:

- 0 (=use unbroken weeks)
- 1 (= use broken weeks)

Examples:

```
Set BrokenWeeks=0; //(use unbroken weeks)
Set BrokenWeeks=1; //(use broken weeks)
```

DateFormat

The format defined replaces the date format of the operating system (regional settings).

Syntax:

```
DateFormat
```

Examples:

```
Set DateFormat='M/D/YY'; //(US format)
Set DateFormat='DD/MM/YY'; //(UK date format)
Set DateFormat='YYYY-MM-DD'; //(ISO date format)
```

DayNames

The format defined replaces the weekday names convention of the operating system (regional settings).

Syntax:

```
DayNames
```

Example:

```
Set DayNames='Mon;Tue;Wed;Thu;Fri;Sat;Sun';
```

DecimalSep

The decimal separator defined replaces the decimal symbol of the operating system (regional settings).

Syntax:

```
DecimalSep
```

Examples:

```
Set DecimalSep='.';
Set DecimalSep=',';
```

FirstWeekDay

This integer defines which day to use as the first day of the week.

Syntax:

```
FirstWeekDay
```

By default, QlikView functions use Monday as the first day of the week. The following values can be used:

- 0 (= Monday)
- 1 (= Tuesday)
- 2 (= Wednesday)
- 3 (= Thursday)
- 4 (= Friday)
- 5 (= Saturday)
- 6 (= Sunday)

Examples:

```
Set FirstWeekDay=6; //(set Sunday as the first day of the week)
```

LongDayNames

The format defined replaces the long weekday names convention of the operating system (regional settings).

Syntax:

```
LongDayNames
```

Example:

```
Set LongDayNames='Monday;Tuesday;Wednesday;Thursday;Friday;Saturday;Sunday';
```

LongMonthNames

The format defined replaces the long month names convention of the operating system (regional settings).

Syntax:

```
LongMonthNames
```

Example:

```
Set
LongMonthNames='January;February;March;April;May;June;July;August;September;October;November;D
ecember';
```

MoneyDecimalSep

The decimal separator defined replaces the decimal symbol for currency of the operating system (regional settings).

Syntax:

```
MoneyDecimalSep
```

Example:

```
Set MoneyDecimalSep='.';
```

MoneyFormat

The symbol defined replaces the currency symbol of the operating system (regional settings).

Syntax:

```
MoneyFormat
```

Example:

```
Set MoneyFormat='$ #,##0.00; ($ #,##0.00)';
```

MoneyThousandSep

The thousands separator defined replaces the digit grouping symbol for currency of the operating system (regional settings).

Syntax:

```
MoneyThousandSep
```

Example:

```
Set MoneyThousandSep=',';
```

MonthNames

The format defined replaces the month names convention of the operating system (regional settings).

Syntax:

```
MonthNames
```

Example:

```
Set MonthNames='Jan;Feb;Mar;Apr;May;Jun;Jul;Aug;Sep;Oct;Nov;Dec';
```

ReferenceDay

Syntax:

```
ReferenceDay
```

The setting defines which day in January to set as reference day to define week 1. By default, QlikView functions use 4 as the reference day. This means that week 1 must contain January 4, or put differently, that week 1 must always have at least 4 days in January.

The following values can be used to set a different reference day:

- 1 (= January 1)
- 2 (= January 2)
- 3 (= January 3)
- 4 (= January 4)
- 5 (= January 5)
- 6 (= January 6)
- 7 (= January 7)

Examples:

```
Set ReferenceDay=3; //(set January 3 as the reference day)
```

FirstMonthOfYear

The setting defines which month to use as first month of the year, which can be used to define financial years that use a monthly offset, for example starting April 1.

Valid settings are 1 (January) to 12 (December). Default setting is 1.

Syntax:

```
FirstMonthOfYear
```

Example:

```
Set FirstMonthOfYear=4; //Sets the year to start in April
```

ThousandSep

The thousands separator defined replaces the digit grouping symbol of the operating system (regional settings).

Syntax:

```
ThousandSep
```

Examples:

```
Set ThousandSep=','; //(for example, seven billion must be specified as: 7,000,000,000)
Set ThousandSep=' ';
```

TimeFormat

The format defined replaces the time format of the operating system (regional settings).

Syntax:

```
TimeFormat
```

Example:

```
Set TimeFormat='hh:mm:ss';
```

TimestampFormat

The format defined replaces the date and time formats of the operating system (regional settings).

Syntax:

```
TimestampFormat
```

Example:

```
Set TimestampFormat='M/D/YY hh:mm:ss[.fff]';
```

System variables

System variables, some of which are system-defined, provide information about the system and the QlikView document.

System variables overview

Some of the functions are described further after the overview. For those functions, you can click the function name in the syntax to immediately access the details for that specific function.

Include

The **Include/Must_Include** variable specifies a file that contains text that should be included in the script and evaluated as script code. You can store parts of your script code in a separate text file and reuse it in several documents. This is a user-defined variable.

```
$(Include =filename)
$(Must_Include=filename)
```

HidePrefix

All field names beginning with this text string will be hidden in the same manner as the system fields. This is a user-defined variable.

```
HidePrefix
```

HideSuffix

All field names ending with this text string will be hidden in the same manner as the system fields. This is a user-defined variable.

```
HideSuffix
```

StripComments
If this variable is set to 0, stripping of /*..*/ and // comments in the script will be inhibited. If this variable is not defined, stripping of comments will always be performed.

```
StripComments
```

Verbatim
Normally all field values are automatically stripped of leading and trailing blanks (ASCII 32) and tabs (ASCII 9) before being loaded into the QlikView database. Setting this variable to 1 suspends the stripping of blanks and tabs. Hard space (ANSI 160) is never stripped.

```
Verbatim
```

OpenUrlTimeout
This variable defines the timeout in seconds that QlikView should respect when getting data from URL sources (e.g. HTML pages). If omitted, the timeout is about 20 minutes.

```
OpenUrlTimeout
```

CollationLocale
Specifies which locale to use for sort order and search matching. The value is the culture name of a locale, for example 'en-US'.This is a system-defined variable.

```
CollationLocale
```

HidePrefix

All field names beginning with this text string will be hidden in the same manner as the system fields. This is a user-defined variable.

Syntax:

```
HidePrefix
```

Example:

```
set HidePrefix='_' ;
```

If this statement is used, the field names beginning with an underscore will not be shown in the field name lists when the system fields are hidden.

HideSuffix

All field names ending with this text string will be hidden in the same manner as the system fields. This is a user-defined variable.

Syntax:

```
HideSuffix
```

Example:

```
set HideSuffix='%';
```

If this statement is used, the field names ending with a percentage sign will not be shown in the field name lists when the system fields are hidden.

Include

The **Include/Must_Include** variable specifies a file that contains text that should be included in the script and evaluated as script code. You can store parts of your script code in a separate text file and reuse it in several documents. This is a user-defined variable.

Syntax:

```
$(Include=filename)
$(Must_Include=filename)
```

There are two versions of the variable:

- **Include** does not generate an error if the file cannot be found, it will fail silently.
- **Must_Include** generates an error if the file cannot be found.

If you don't specify a path, the filename will be relative to the QlikView document working directory. You can also specify an absolute file path.

*The construction **set Include =**filename is not applicable.*

Examples:

```
$(Include=abc.txt);
$(Must_Include=abc.txt);
```

OpenUrlTimeout

This variable defines the timeout in seconds that QlikView should respect when getting data from URL sources (e.g. HTML pages). If omitted, the timeout is about 20 minutes.

Syntax:

```
OpenUrlTimeout
```

Example:

```
set OpenUrlTimeout=10;
```

StripComments

If this variable is set to 0, stripping of /*..*/ and // comments in the script will be inhibited. If this variable is not defined, stripping of comments will always be performed.

Syntax:

```
StripComments
```

Certain database drivers use /*..*/ as optimization hints in **SELECT** statements. If this is the case, the comments should not be stripped before sending the **SELECT** statement to the database driver.

It is recommended that this variable be reset to 1 immediately after the statement(s) where it is needed.

Example:

```
set StripComments=0;
SQL SELECT * /* <optimization directive> */ FROM Table ;
set StripComments=1;
```

Verbatim

Normally all field values are automatically stripped of leading and trailing blanks (ASCII 32) and tabs (ASCII 9) before being loaded into the QlikView database. Setting this variable to 1 suspends the stripping of blanks and tabs. Hard space (ANSI 160) is never stripped.

Syntax:

```
Verbatim
```

Example:

```
set Verbatim = 1;
```

Value handling variables

This section describes variables that are used for handling NULL and other values.

Value handling variables overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

NullDisplay

The defined symbol will substitute all NULL values from ODBC, and connectors, on the lowest level of data. This is a user-defined variable.

```
NullDisplay
```

NullInterpret

The defined symbol will be interpreted as NULL when it occurs in a text file, Excel file or an inline statement. This is a user-defined variable.

```
NullInterpret
```

NullValue

If the **NullAsValue** statement is used, the defined symbol will substitute all NULL values in the **NullAsValue** specified fields with the specified string.

```
NullValue
```

OtherSymbol

Defines a symbol to be treated as 'all other values' before a **LOAD**/**SELECT** statement. This is a user-defined variable.

```
OtherSymbol
```

NullDisplay

The defined symbol will substitute all NULL values from ODBC, and connectors, on the lowest level of data. This is a user-defined variable.

Syntax:

```
NullDisplay
```

Example:

```
set NullDisplay='<NULL>';
```

NullInterpret

The defined symbol will be interpreted as NULL when it occurs in a text file, Excel file or an inline statement. This is a user-defined variable.

Syntax:

```
NullInterpret
```

Examples:

```
set NullInterpret=' ';
set NullInterpret =;
```

will not return NULL values for empty cells in Excel, but it will for a CSV text file.

```
set NullInterpret ='';
```

will return NULL values for empty cells in Excel.

NullValue

If the **NullAsValue** statement is used, the defined symbol will substitute all NULL values in the **NullAsValue** specified fields with the specified string.

Syntax:

```
NullValue
```

Example:

```
NullAsValue Field1, Field2;
set NullValue='<NULL>';
```

OtherSymbol

Defines a symbol to be treated as 'all other values' before a **LOAD**/**SELECT** statement. This is a user-defined variable.

Syntax:

```
OtherSymbol
```

Example:

```
set OtherSymbol='+';
LOAD * inline
[X, Y
a, a
b, b];
LOAD * inline
[X, Z
a, a
+, c];
```

The field value Y='b' will now link to Z='c' through the other symbol.

9.4 Script expressions

Expressions can be used in both the **LOAD** statement and the **SELECT** statement. The syntax and functions described here apply to the **LOAD** statement, and not to the **SELECT** statement, since the latter is interpreted by the ODBC driver and not by QlikView. However, most ODBC drivers are often capable of interpreting a number of the functions described below.

Expressions consist of functions, fields and operators, combined in a syntax.

All expressions in a QlikView script return a number and/or a string, whichever is appropriate. Logical functions and operators return 0 for False and -1 for True. Number to string conversions and vice versa are implicit. Logical operators and functions interpret 0 as False and all else as True.

The general syntax for an expression is:

```
expression ::= ( constant | fieldref | operator1 expression | expression operator2 expression
| function | (expression ) )
```

where:

constant is a string (a text, a date or a time) enclosed by single straight quotation marks, or a number. Constants are written with no thousands separator and with a decimal point as decimal separator.

fieldref is a field name of the loaded table.

operator1 is a unary operator (working on one expression, the one to the right).

operator2 is a binary operator (working on two expressions, one on each side).

function ::= functionname(parameters)

parameters ::= expression { , expression }

The number and types of parameters is not arbitrary. It depends on the function used.

Expressions and functions can thus be nested freely, and as long as the expression returns an interpretable value, QlikView will not give any error messages.

9.5 Chart expressions

An expression is a combination of functions, fields, and mathematical operators (+ * / =). Expressions are used to process data in the document in order to produce a result that can be seen in a chart. They are not limited to use in measures. You can build charts that are more dynamic and powerful, with expressions for titles, subtitles, footnotes, and even dimensions.

This means, for example, that instead of the title of a chart being static text, it can be made from an expression whose result changes depending on the selections made.

Defining the aggregation scope

There are usually two factors that together determine which records are used to define the value of aggregation in an expression. When working in charts, these factors are:

- Dimensional value (of the aggregation in a chart expression)
- Selections

Together, these factors define the scope of the aggregation.

Methods of aggregation

You may come across situations where you want your calculation to disregard the selection, the dimension or both. In chart functions, you can achieve this by using the TOTAL qualifier, set analysis, or a combination of the two.

TOTAL qualifier

Using the total qualifier inside your aggregation function disregards the dimensional value. The aggregation will be performed on all possible field values.

The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets. These field names should be a subset of the chart dimension variables. In this case, the calculation is made disregarding all chart dimension variables except those listed, that is, one value is returned for each combination of field values in the listed dimension fields. Also, fields that are not currently a dimension in a chart may be included in the list. This may be useful in the case of group dimensions, where the dimension fields are not fixed. Listing all of the variables in the group causes the function to work when the drill-down level changes.

Set analysis

Using set analysis inside your aggregation overrides the selection. The aggregation will be performed on all values split across the dimensions.

TOTAL qualifier and set analysis

Using the **TOTAL** qualifier and set analysis inside your aggregation overrides the selection and disregards the dimensions.

ALL qualifier

Using the **ALL** qualifier inside your aggregation disregards the selection and the dimensions. The equivalent can be achieved with the {1} set analysis statement and the **TOTAL** qualifier:

```
=sum(All Sales)

 =sum({1} Total Sales)
```

Examples

Example: TOTAL qualifier

The following example shows how TOTAL can be used to calculate a relative share. Assuming that Q2 has been selected, using TOTAL calculates the sum of all values disregarding the dimensions.

Example results

Year	Quarter	Sum(Amount)	Sum(TOTAL Amount)	Sum(Amount)/Sum(TOTAL Amount)
-	-	3000	3000	100%
2012	Q2	1700	3000	56,7%
2013	Q2	1300	3000	43,3%

Example: Set analysis

The following example shows how set analysis can be used to make a comparison between data sets before any selection was made. Assuming that Q2 has been selected, using set analysis with the set definition {1} calculates the sum of all values disregarding any selections but split by the dimensions.

Example results

Year	Quarter	Sum(Amount)	Sum({1} Amount)	Sum(Amount)/Sum({1} Amount)
-	-	3000	10800	27,8%
2012	Q1	0	1100	0%
2012	Q3	0	1400	0%
2012	Q4	0	1800	0%
2012	Q2	1700	1700	100%
2013	Q1	0	1000	0%
2013	Q3	0	1100	0%
2013	Q4	0	1400	0%
2013	Q2	1300	1300	100%

Example: TOTAL qualifier and set analysis

The following example shows how set analysis and the TOTAL qualifier can be combined to make a comparison between data sets before any selection was made and across all dimensions. Assuming that Q2 has been selected, using set analysis with the set definition {1] and the TOTAL qualifier calculates the sum of all values disregarding any selections and disregarding the dimensions.

Example results

Year	Quarter	Sum (Amount)	Sum({1} TOTAL Amount)	Sum(Amount)/Sum({1} TOTAL Amount)
-	-	3000	10800	27,8%
2012	Q2	1700	10800	15,7%
2013	Q2	1300	10800	12%

Data used in examples:

```
AggregationScope:
LOAD * inline [
Year Quarter Amount
2012 Q1 1100
2012 Q2 1700
2012 Q3 1400
2012 Q4 1800
2013 Q1 1000
2013 Q2 1300
2013 Q3 1100
2013 Q4 1400] (delimiter is ' ');
```

Special input field aggregation functions

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

The following special aggregation functions can be used for input fields.

inputavg
inputavg() returns the aggregated average of **inputfield** iterated over the chart dimension(s). **inputfield** must be a field name of a field properly declared as an input field in the script.

inputavg (page 972) **([inputfield [, distribution_mode][set_expression])**

inputsum
inputsum() returns the aggregated sum of **inputfield** iterated over the chart dimension(s). **inputfield** must be a field name of a field properly declared as an input field in the script.

inputsum (page 973) **([inputfield [, distribution_mode][set_expression])**

inputavg

inputavg() returns the aggregated average of **inputfield** iterated over the chart dimension(s). **inputfield** must be a field name of a field properly declared as an input field in the script.

Syntax:

```
inputavg(inputfield [, distribution_mode][set_expression])
```

When this aggregation function is used as expression in a table chart, it will be possible to edit the aggregated value interactively. When hovering over the expression cell you will see an input icon. Clicking on the icon sets the cell in input edit mode. It is possible to use up/down arrow keys to move between cells while staying in input edit mode. The change in the aggregated value will be distributed to the underlying field values using the chosen **distribution_mode**. The entire QlikView document will automatically recalculate whenever new values are entered.

The **distribution_mode** parameter can have the following values:

distribution_mode parameter values

Parameter	Description
'+'	Default mode. Equal parts of the change are distributed to all the underlying values.
'*'	The change is distributed proportionally (to existing values) to the underlying values.
'='	The value entered is given to all the underlying values.
'/'	The value is divided equally between underlying values, without regard to previous distribution but keeping previous average.

The **distribution_mode** values in the previous table can be amended with the following modifiers:

distribution_mode parameter value modifiers

Modifier	Description
T	E.g. '+T'. Will cause a compensation of the entered change over the other selected values in the input field (keeping the grand total intact).
A	E.g. '+A'. Will cause a compensation of the entered change over all other values (keeping the grand total intact).

Examples:

```
inputavg (Budget )
inputavg (Budget, '+' )
inputavg (Budget, '*' )
inputavg (Budget, '=' )
inputavg (Budget, '/' )
inputavg (Budget, '+T' )
inputavg (Budget, '+A' )
```

inputsum

inputsum() returns the aggregated sum of **inputfield** iterated over the chart dimension(s). **inputfield** must be a field name of a field properly declared as an input field in the script.

Syntax:

```
inputsum(inputfield [, distribution_mode][set_expression])
```

When this aggregation function is used as expression in a table chart, it will be possible to edit the aggregated sum interactively. When hovering over the expression cell you will see an input icon. Clicking on the icon sets the cell in input edit mode. It is possible to use up/down arrow keys to move between cells while staying in input edit mode. The change in the aggregated sum will be distributed to the underlying field values using the chosen **distribution_mode**. The entire QlikView document will automatically recalculate whenever new values are entered.

The **distribution_mode** parameter can have the following values:

distribution_mode parameter values

Parameter	Description
'+'	Default mode. Equal parts of the change are distributed to all the underlying values.
'*'	The change is distributed proportionally (to existing values) to the underlying values.
'='	The value entered is given to all the underlying values.
'/'	The value is divided equally between underlying values, without regard to previous distribution but keeping previous sum.

The **distribution_mode** values in the previous table can be amended with the following modifiers:

distribution_mode parameter value modifiers

Modifier	Description
T	E.g. '+T'. Will cause a compensation of the entered change over the other selected values in the input field (keeping the grand total intact).
A	E.g. '+A'. Will cause a compensation of the entered change over all other values (keeping the grand total intact).

Examples:

```
inputsum (Budget )
inputsum (Budget, '+' )
inputsum (Budget, '*' )
inputsum (Budget, '=' )
inputsum (Budget, '/' )
inputsum (Budget, '+T' )
inputsum (Budget, '+A' )
```

Set analysis and set expressions

Set analysis offers a way of defining a set (or group) of data values that is different from the normal set defined by the current selections.

Normally, when you make a selection, aggregation functions, such as **Sum**, **Max**, **Min**, **Avg**, and **Count** aggregate over the selections that you have made: the current selections. Your selections automatically define

the data set to aggregate over. With set analysis you can define a group that is independent of the current selections. This can be useful if you want to show a particular value, for example, the market share of a product across all regions, irrespective of the current selections.

Set analysis is also powerful when making different sorts of comparisons, such as what are the best-selling products compared with poorly-selling products, or this year against last year.

Let us imagine an example in which you start working in a document by selecting the year 2010 in a list box. The aggregations are then based on that selection, and the charts only show values for that year. When you make new selections, the charts are updated accordingly. The aggregations are made over the set of possible records defined by the current selections. With set analysis, you can define a set that is of interest to you and does not depend on the selections.

Creating set expressions

Before looking at the different parts of a set analysis example, there is a distinction that should be made between a set expression and set analysis:

Defining a set of field values is referred to as defining a set expression, whereas using set expressions to analyze data is referred to as set analysis. Consequently, the rest of this section focuses on the set expression and its components.

Here is a set analysis example: `sum( {$<Year={2009}>} Sales )`, in which `{$<Year={2009}>}` is a set expression.

Set expressions can be used inside and outside aggregation functions, and are enclosed in curly brackets.

Example: Inner set expression

```
Sum( {$<Year={2021}>} Sales )
```

Example: Outer set expression

```
{<Year={2021}>} Sum(Sales) / Count(distinct Customer)
```

For more information about inner and outer set expressions, see *Inner and outer set expressions*.

A set expression consists of a combination of the following parts:

- **Identifiers**. One or more identifiers define the relationship between the set expression and what is being evaluated in the rest of the expression. A simple set expression consists of a single identifier, such as the dollar sign, `{$}`, which means all records in the current selection.
- **Operators**. If there is more than one identifier, an operator or operators are used to refine the set of data by specifying how the sets of data represented by the identifiers are combined to create a subset or superset, for example.
- **Modifiers**. A modifier or modifiers can be added to the set expression to change the selection. A modifier can be used on its own or to modify an identifier to filter the data set.

Set expressions can only be used in expressions for charts, not in script expressions.

Identifiers, operators and modifiers are described in more detail with in the following subsections.

Identifiers

Identifiers define the relationship between the set expression and the field values or expression being evaluated.

In our example `sum( {$<Year={2009}>} Sales )`, the identifier is the dollar sign, $, and means that the set of records to be evaluated consists of the all the records of the current selection. This set is then further filtered by the modifier part of the set expression. In a more complex set expression, two identifiers can be combined using an operator.

This table shows some common identifiers.

Common identifiers

Identifier	Description
1	Represents the full set of all the records in the application, irrespective of any selections made.
$	Represents the records of the current selection. The set expression **{$}** is thus the equivalent to not stating a set expression.
$1	Represents the previous selection. $2 represents the previous selection-but-one, and so on.
$_1	Represents the next (forward) selection. $_2 represents the next selection-but-one, and so on.
BM01	You can use any bookmark ID or bookmark name.
MyAltState	You can reference the selections made in an alternate state by its state name.

Examples:

Examples and results

Example	Result
`sum ({1} Sales)`	Returns total sales for the document, disregarding selections but not the dimension.
`sum ({$} Sales)`	Returns the sales for the current selection, that is, the same as sum(Sales).
`sum ({$1} Sales)`	Returns the sales for the previous selection.
`sum ({BM01} Sales)`	Returns the sales for the bookmark named *BM01*.

Operators

Operators are used to include, exclude, or intersect parts of or whole data sets. All operators use sets as operands and return a set as result.

This table shows operators that can be used in set expressions.

Set operators

Operator	Description
+	Union. This binary operation returns a set consisting of the records that belong to any of the two set operands.
-	Exclusion. This binary operation returns a set of the records that belong to the first but not the other of the two set operands. Also, when used as a unary operator, it returns the complement set.
*	Intersection. This binary operation returns a set consisting of the records that belong to both of the two set operands.
/	Symmetric difference (XOR). This binary operation returns a set consisting of the records that belong to either, but not both of the two set operands.

Examples:

Examples and results

Example	Result
`sum( {1-$} Sales )`	Returns sales for everything excluded by the selection.
`sum( {$*BM01} Sales )`	Returns sales for the intersection between the selection and bookmark BM01.
`sum( {-($+BM01)} Sales )`	Returns sales excluded by the selection and bookmark BM01.
`Sum({$<Year={2009}>+1<Country={'Sweden'}>} Sales)`	Returns sales for the year 2009 associated with the current selections and add the full set of data associated with the country *Sweden* across all years.

Modifiers

Modifiers are used to make additions or changes to a selection. Such modifications can be written in the set expression. A modifier consists of one or several field names, each followed by one or several selections that can be made in the field. Modifiers begin and end with angle brackets, <>.

A set modifier modifies the selection of the preceding set identifier. If no set identifier is referenced, the current selection state is implicit.

Examples:

Examples and results

MyField	Result
`sum({$<OrderDate = DeliveryDate>} Sales)`	Returns the sales for the current selection where OrderDate = DeliveryDate.
`sum({1<Region = {US}>} Sales)`	Returns the sales for region US, disregarding the current selection.

MyField	Result
sum({$<Region = >} Sales)	Returns the sales for the selection, but with the selection in *Region* removed.
sum({<Region = >} Sales)	Returns the same as the example above. When the set identifier to modify is omitted, the inherited state is assumed.
sum({$<Year={2000}, Region={"U*"}>} Sales)	Returns the sales for the current selection, but with new selections both in *Year* and in *Region*.

Syntax for sets

The full syntax (not including the optional use of standard brackets to define precedence) is described using Backus-Naur Formalism:

```
set_expression ::= { set_entity { set_operator set_entity } }
set_entity ::= set_identifier [ set_modifier ]
set_identifier ::= 1 | $ | $N | $_N | bookmark_id | bookmark_name
set_operator ::= + | - | * | /
set_modifier ::= < field_selection {, field_selection } >
field_selection ::= field_name [ = | += | -= | *= | /= ] element_set_
expression
element_set_expression ::= element_set { set_operator element_set }
element_set ::= [ field_name ] | { element_list } | element_function
element_list ::= element { , element }
element_function ::= ( P | E ) ( [ set_expression ] [ field_name ] )
element ::= field_value | " search_mask "
```

Set modifiers

A set can be modified by an additional or a changed selection. Such a modification can be written in the set expression.

The modifier consists of one or several field names, each followed by a selection that should be made on the field, all enclosed by < and >. For example: <Year={2007,+2008},Region={US}>. Field names and field values can be quoted as usual, e.g. <[Sales Region]={'West coast', 'South America'}>.

A set modifier modifies the selection of the preceding set identifier. If no set identifier is referenced, the current selection state is implicit.

There are several ways to define the selection as described in the following.

Based on another field

A simple case is a selection based on the selected values of another field, for example <OrderDate = DeliveryDate>. This modifier will take the selected values from **DeliveryDate** and apply those as a selection on **OrderDate**. If there are many distinct values – more than a couple of hundred – then this operation is CPU intense and should be avoided.

Based on element sets

The most common example of a set expression is one that is based on a list of field values enclosed in curly brackets. The values are separated by commas, for example `<Year = {2007, 2008}>`. The curly brackets define an element set, where the elements can be either explicit field values or searches of field values.

Unless the listed values contain blanks or special characters, quotes are not needed. The listed values will simply be matched with the field values. This comparison is case insensitive.

If the listed values contain blanks or special characters, or if you want to use wild cards, then you need to enclose the values in quotation marks. Single quotes should be used if the listed values are explicit field values. Then case sensitive matches between the listed values and the individual field values will be made.

Double quotes should be used for searches, i.e. strings that contain wild cards or start with a relational operator or an equals sign. For example, `<Ingredient = {"*Garlic*"}>` will select all ingredients that contain the string 'Garlic'. Double quotes can be substituted with brackets, for example, `<Ingredient = {[*Garlic*]}>`. Double quotes can also be substituted with grave accents, for example `<Ingredient = {`*Garlic*`}>`. Searches are case-insensitive.

In previous versions of QlikView, there was no distinction between single quotes and double quotes and all quoted strings were treated as searches. To maintain backward compatibility, documents created with older versions of QlikView will continue to work as they did in previous versions. Documents created with QlikView November 2017 or later will respect the difference between the two types of quotes.

Forced exclusion

Finally, for fields in and-mode, there is also the possibility of forced exclusion. If you want to force exclusion of specific field values, you will need to use "~" in front of the field name.

Examples and results:

Example results

Examples	Results
`sum( {1<Region={USA} >} Sales )`	Returns the sales for the region USA disregarding the current selection
`sum( {$<Region =>} Sales )`	Returns the sales for the current selection, but with the selection in 'Region' removed

Examples	Results
sum({<Region = >} Sales)	Returns the same as the example immediately above. When the set to modify is omitted, **$** is assumed. *The syntax in the two previous examples is interpreted as "no selections" in 'Region', that is to say all regions given other selections will be possible. It is not equivalent to the syntax <Region = {}> (or any other text on the right side of the equal sign implicitly resulting in an empty element set) which is interpreted as no region.*
sum({$<Year = {2000}, Region = {US, SE, DE, UK, FR}>} Sales)	Returns the sales for current selection, but with new selections both in '**Year**' and in '**Region**'.
sum({$<~Ingredient = {"*garlic*"}>} Sales)	The field *Ingredient* is in AND mode. Returns the sales for current selection, but with a forced exclusion of all ingredients containing the string '**garlic**'.
sum({$<Year = {"2*"}>} Sales)	Returns the sales for the current selection, but with all years beginning with the digit "2", i.e. most likely year 2000 and onwards, selected in the field '**Year**'.
sum({$<Year = {"2*","198*"}>} Sales)	As above, but now also the 1980:s are included in the selection.
sum({$<Year = {">1978<2004"}>} Sales)	Returns the sales for the current selections, but with a numeric search used to scope the range of years to sum the sales across.

If you want to force the exclusion of specific field values in objects such as text objects, you have to modify the script syntax. For example, if your script statement is the following:

```
=count({<ANDActor=>}DISTINCT Title)
```

Modify it as follows:

```
=count({<~ANDActor=, ANDActor=>} DISTINCT Title)
```

Set modifiers with set operators

The selection within a field can be defined using set operators working on different element sets. For example the modifier **<Year = {"20*", 1997} - {2000}>** will select all years beginning with "20" in addition to "1997", except for "2000".

Examples and results:

Examples and results

Example	Result
sum({$<Product = Product + {OurProduct1} – {OurProduct2} >} Sales)	Returns the sales for the current selection, but with the product “OurProduct1” added to the list of selected products and “OurProduct2” removed from the list of selected products.
sum({$<Year = Year + ({“20*”,1997} – {2000}) >} Sales)	Returns the sales for the current selection but with additional selections in the field “Year”: 1997 and all that begin with “20” – however, not 2000. Note that if 2000 is included in the current selection, it will still be included after the modification.
sum({$<Year = (Year + {“20*”,1997}) – {2000} >} Sales)	Returns almost the same as above, but here 2000 will be excluded, also if it initially is included in the current selection. The example shows the importance of sometimes using brackets to define an order of precedence.
sum({$<Year = {“*”} – {2000}, Product = {“*bearing*”} >} Sales)	Returns the sales for the current selection but with a new selection in “Year”: all years except 2000; and only for products containing the string ‘bearing’.

Set modifiers using assignments with implicit set operators

This notation defines new selections, disregarding the current selection in the field. However, if you want to base your selection on the current selection in the field and add field values, for example you may want a modifier `<Year = Year + {2007, 2008}>`. A short and equivalent way to write this is `<Year += {2007, 2008}>`, i.e. the assignment operator implicitly defines a union. Also implicit intersections, exclusions and symmetric differences can be defined using “*=”, “–=” and “/=”.

Examples:

Examples and results

Example	Result
sum({$<Product += {OurProduct1, OurProduct2} >} Sales)	Returns the sales for the current selection, but using an implicit union to add the products 'OurProduct1' and 'OurProduct2' to the list of selected products.
sum({$<Year += {“20*”,1997} – {2000} >} Sales)	Returns the sales for the current selection but using an implicit union to add a number of years in the selection: 1997 and all that begin with “20” – however, not 2000. Note that if 2000 is included in the current selection, it will still be included after the modification. Same as `<Year=Year + ({“20*”,1997}–{2000})>`.
sum({$<Product *= {OurProduct1} >} Sales)	Returns the sales for the current selection, but only for the intersection of currently selected products and the product OurProduct1.

Set modifiers with advanced searches

Advanced searches using wild cards and aggregations can be used to define sets.

Examples:

Examples and results

Example	Result
sum({$–1<Product = {“*Internal*”, “*Domestic*”}>} Sales)	Returns the sales for current selection, excluding transactions pertaining to products with the string ‘Internal’ or ‘Domestic’ in the product name.
sum({$<Customer = {“=Sum ({1<Year = {2007}>} Sales) > 1000000”}>} Sales)	Returns the sales for current selection, but with a new selection in the 'Customer' field: only customers who during 2007 had a total sales of more than 1000000.

Set modifiers with dollar-sign expansions

Variables and other dollar-sign expansions can be used in set expressions.

Examples:

Examples and results

Example	Result
sum({$<Year = {$(#vLastYear)}>} Sales)	Returns the sales for the previous year in relation to current selection. Here, a variable vLastYear containing the relevant year is used in a dollar-sign expansion.
sum({$<Year = {$(#=Only(Year)-1)}>} Sales)	Returns the sales for the previous year in relation to current selection. Here, a dollar-sign expansion is used to calculate previous year.

Set modifiers with implicit field value definitions

The following describes how to define a set of field values using a nested set definition.

In such cases, the element functions P() and E() must be used, representing the element set of possible values and the excluded values of a field, respectively. Inside the brackets, it is possible to specify one set expression and one field, for example `P({1} Customer)`. These functions cannot be used in other expressions:

Examples:

Examples and results

Example	Result
sum({$<Customer = P ({1<Product= {'Shoe'}>} Customer)>} Sales)	Returns the sales for current selection, but only those customers that ever have bought the product 'Shoe'. The element function P( ) here returns a list of possible customers; those that are implied by the selection 'Shoe' in the field Product.
sum({$<Customer = P ({1<Product= {'Shoe'}>})>} Sales)	Same as above. If the field in the element function is omitted, the function will return the possible values of the field specified in the outer assignment.
sum({$<Customer = P ({1<Product= {'Shoe'}>} Supplier)>} Sales)	Returns the sales for current selection, but only those customers that ever have supplied the product 'Shoe'. The element function P( ) here returns a list of possible suppliers; those that are implied by the selection 'Shoe' in the field Product. The list of suppliers is then used as a selection in the field Customer.
sum({$<Customer = E ({1<Product= {'Shoe'}>})>} Sales)	Returns the sales for current selection, but only those customers that never bought the product 'Shoe'. The element function E( ) here returns the list of excluded customers; those that are excluded by the selection 'Shoe' in the field Product.

Inner and outer set expressions

Set expressions can be used inside and outside aggregation functions, and are enclosed in curly brackets.

When you use a set expression inside an aggregation function, it can look like this:

Example: Inner set expression

```
Sum( {$<Year={2021}>} Sales )
```

Use a set expression outside the aggregation function if you have expressions with multiple aggregations and want to avoid writing the same set expression in every aggregation function.

If you use an outer set expression, it must be placed at the beginning of the scope.

Example: Outer set expression

```
{<Year={2021}>} Sum(Sales) / Count(distinct Customer)
```

If you use a set expression outside the aggregation function, you can also apply it on existing master measures.

Example: Outer set expression applied to master measure

```
{<Year={2021}>} [Master Measure]
```

A set expression used outside aggregation functions affects the entire expression, unless it is enclosed in brackets then the brackets define the scope. In the lexical scoping example below, the set expression is only applied to the aggregation inside the brackets.

Example: Lexical scoping

```
( {<Year={2021}>} Sum(Amount) / Count(distinct Customer) ) – Avg(CustomerSales)
```

Rules

Lexical scope

The set expression affects the entire expression, unless it is enclosed in brackets. If so, the brackets define the lexical scope.

Position

The set expression must be placed in the beginning of the lexical scope.

Context

The context is the selection that is relevant for the expression. Traditionally, the context has always been the default state of current selection. But if an object is set to an alternate state, the context is the alternate state of the current selection.

You can also define a context in the form of an outer set expression.

Inheritance

Inner set expressions have precedence over outer set expressions. If the inner set expression contains a set identifier, it replaces the context. Otherwise, the context and the set expression will be merged.

- `{$<SetExpression>}` - overrides the outer set expression
- `{<SetExpression>}` - is merged with the outer set expression

Element set assignment

The element set assignment determines how the two selections are merged. If a normal equals sign is used, the selection in the inner set expression has precedence. Otherwise, the implicit set operator will be used.

- `{<Field={value}>}` - this inner selection replaces any outer selection in "`Field`".
- `{<Field+={value}>}` - this inner selection is merged with the outer selection in "`Field`", using the union operator.
- `{<Field*={value}>}` - this inner selection is merged with the outer selection in "`Field`", using the intersection operator.

Inheritance in multiple steps

The inheritance can occur in multiple steps. Examples:

- Current Selection → `Sum(Amount)`
  The aggregation function will use the context, which here is the current selection.
- Current Selection → `{<Set1>} Sum(Amount)`
  `Set1` will inherit from current selection, and the result will be the context for the aggregation function.
- Current Selection → `{<Set1>} ({<Set2>} Sum(Amount))`
  `Set2` will inherit from `Set1`, which in turn inherits from current selection, and the result will be the context for the aggregation function.

The Aggr() function

The `Aggr()` function creates a nested aggregation that has two independent aggregations. In the example below, a `Count()` is calculated for each value of `Dim`, and the resulting array is aggregated using the `Sum()` function.

Example:

`Sum(Aggr(Count(X),Dim))`
`Count()` is the inner aggregation and `Sum()` is the outer aggregation.

- The inner aggregation does not inherit any context from the outer aggregation.
- The inner aggregation inherits the context from the `Aggr()` function, which may contain a set expression.
- Both the `Aggr()` function and the outer aggregation function inherit the context from an outer set expression.

Chart expression and aggregation syntax

The syntax used for chart (chart) expressions and aggregations is described in the following sections.

General syntax for chart expressions

The following general syntax structure can be used for chart expressions, with many optional parameters:

```
expression ::= ( constant | expressionname | operator1 expression | expression operator2
expression | function | aggregation function | (expression ) )
```
where:

constant is a string (a text, a date or a time) enclosed by single straight quotation marks, or a number. Constants are written without thousands separator and with a decimal point as decimal separator.

expressionname is the name (label) of another expression in the same chart.

operator1 is a unary operator (working on one expression, the one to the right).

operator2 is a binary operator (working on two expressions, one on each side).

```
function ::= functionname ( parameters )
parameters ::= expression { , expression }
```
The number and types of parameters are not arbitrary. They depend on the function used.

```
aggregationfunction ::= aggregationfunctionname ( parameters2 )
parameters2 ::= aggrexpression { , aggrexpression }
```
The number and types of parameters are not arbitrary. They depend on the function used.

General syntax for aggregations

The following general syntax structure can be used for aggregations, with many optional parameters:

```
aggrexpression ::= ( fieldref | operator1 aggrexpression | aggrexpression operator2
aggrexpression | functioninaggr | ( aggrexpression ) )
```
fieldref is a field name.

```
functionaggr ::= functionname ( parameters2 )
```
Expressions and functions can thus be nested freely, as long as **fieldref** is always enclosed by exactly one aggregation function and provided the expression returns an interpretable value, QlikView does not give any error messages.

Examples of Aggregate Qualifiers

These examples are made with the *Sum - chart function (page 1035)* function, but may be applied on all chart aggregation functions supporting set analysis definitions and the **total** qualifier.

Example 1:

Study the representation of a straight table below, depicting the logical state before any selections have been made:

Aggregation function with total qualifier				
Month	Group	Sum(Value)	sum(total Value)	sum({1} total Value)
		21	21	21
1	A	1	21	21
1	B	2	21	21
2	A	3	21	21
2	B	4	21	21
3	A	5	21	21
3	B	6	21	21

Example table: Aggregation function with total qualifier

Month	Group	Sum(Value)	sum(total Value)	sum({1} total Value)
-	-	21	21	21
1	A	1	21	21
1	B	2	21	21
2	A	3	21	21
2	B	4	21	21
3	A	5	21	21
3	B	6	21	21

The second and third expression column have the same number in all rows. This number equals the calculated total in the first expression column.

Now, let's select months 1 and 2 only. The result is as follows:

Aggregation function with total qualifier				
Month	Group	Sum(Value)	sum(total Value)	sum({1} total Value)
		10	**10**	**21**
1	A	1	10	21
1	B	2	10	21
2	A	3	10	21
2	B	4	10	21

Example table: Aggregation function with total qualifier, filtered by month

Month (Filter: 1-2)	Group	Sum(Value)	sum(total Value)	sum({1} total Value)
-	-	10	10	21
1	A	1	10	21
1	B	2	10	21
2	A	3	10	21
2	B	4	10	21

The result of the third expression (fifth column) remains unchanged because the **set** definition disregards current selections. The second expression (fourth column) with the **total** qualifier, shows the new total 10, which is still equivalent to the first expression total (third column).

Example 2:

Study the representation of a straight table below:

total qualifier with listed fields				
Month	Group	Sum(Value)	sum(total <Month> Value)	sum(total <Group> Value)
		21	**21**	**21**
1	A	1	3	9
1	B	2	3	12
2	A	3	7	9
2	B	4	7	12
3	A	5	11	9
3	B	6	11	12

Example table: Total qualifier with listed fields

Month	Group	Sum(Value)	sum(total <Month> Value)	sum(total <Group> Value)
-	-	21	21	21
1	A	1	3	9
1	B	2	3	12

Month	Group	Sum(Value)	sum(total <Month> Value)	sum(total <Group> Value)
2	A	3	7	9
2	B	4	7	12
3	A	5	11	9
3	B	6	11	12

In the third expression column (`sum(total<Month> Val)`) one total is calculated for each month.

In the fourth expression column (`sum(total<Grp> Val)`) one total is calculated for each group.

See also:

- *Set analysis and set expressions (page 974)*
- *Sum of rows in pivot tables (page 1186)*
- *AggrAggr() returns an array of values for the expression calculated over the stated dimension or dimensions. For example, the maximum value of sales, per customer, per region. The Aggr function is used for nested aggregations, in which its first parameter (the inner aggregation) is calculated once per dimensional value. The dimensions are specified in the second parameter (and subsequent parameters). In addition, the Aggr function should be enclosed in an outer aggregation function, using the array of results from the Aggr function as input to the aggregation in which it is nested Aggr({SetExpression}[DISTINCT] [NODISTINCT] expr, StructuredParameter{, StructuredParameter}) dual expr: An expression consisting of an aggregation function. By default, the aggregation function will aggregate over the set of possible records defined by the selection. StructuredParameter: StructuredParameter consists of a dimension and optionally, sorting criteria in the format: (Dimension(Sort-type, Ordering)). The dimension is a single field and cannot be an expression. The dimension is used to determine the array of values the Aggr expression is calculated for. If sorting criteria are included, the array of values created by the Aggr function, calculated for the dimension, is sorted. This is important when the sort order affects the result of the expression the Aggr function is enclosed in. For details of how to use sorting criteria, see Adding sorting criteria to the dimension in the structured parameter.SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression. DISTINCT: If the expression argument is preceded by the distinct qualifier or if no qualifier is used at all, each distinct combination of dimension values will generate only one return value. This is the normal way aggregations are made – each distinct combination of dimension values will render one line in the chart.NODISTINCT: If the expression argument is preceded by the nodistinct qualifier, each combination of dimension values may generate more than one return value, depending on underlying data structure. If there is only one dimension, the aggr function will return an array with the same number of elements as there are rows in the source data. Basic aggregation functions, such as Sum, Min, and Avg, return a single numerical value whereas the Aggr() function can be compared to creating a temporary staged result set (a virtual table) over which another aggregation can be made. For example, by computing an average sales value by summing the sales by customer in an Aggr() statement and then calculating the average of the summed results: Avg(TOTAL Aggr(Sum(Sales), Customer)). Use the Aggr() function in calculated dimensions if you want to create nested chart aggregation in multiple levels. Each dimension in an Aggr() function must be a single field, and cannot be an expression (calculated dimension). Adding sorting criteria to the dimension in the structured parameterIn its basic form, the argument StructuredParameter in the Aggr function syntax is a single dimension. The expression: Aggr(Sum(Sales, Month)) finds the total value of sales for each month. However, when enclosed*

*in another aggregation function, there can be unexpected results unless sorting criteria are used. This is because some dimensions can be sorted numerically or alphabetically, and so on.In the StructuredParameter argument in the Aggr function, you can specify sorting criteria on the dimension in your expression. This way, you impose a sort order on the virtual table that is produced by the Aggr function.The argument StructuredParameter has the following syntax:(FieldName, (Sort-type, Ordering))Structured parameters can be nested:(FieldName, (FieldName2, (Sort-type, Ordering)))Sort-type can be: NUMERIC, TEXT, FREQUENCY, or LOAD_ORDER.The ordering types associated with each Sort-type are as follows:Sort ordering typesSort typeAvailable ordering typesNUMERICASCENDING, DESCENDING, or REVERSETEXTASCENDING, A2Z, DESCENDING, REVERSE, or Z2AFREQUENCYDESCENDING, REVERSE, or ASCENDINGLOAD_ORDERASCENDING, ORIGINAL, DESCENDING, or REVERSEThe ordering types REVERSE and DESCENDING are equivalent.For Sort-type TEXT, the ordering types ASCENDING and A2Z are equivalent, and DESCENDING, REVERSE, and Z2A are equivalent.For Sort-type LOAD_ ORDER, the ordering types ASCENDING and ORIGINAL are equivalent.Examples Avg(Aggr(Sum (UnitSales*UnitPrice), Customer))The expression Aggr(Sum(UnitSales*UnitPrice), Customer) finds the total value of sales by Customer, and returns an array of values: 295, 715, and 120 for the three Customer values. Effectively, we have built a temporary list of values without having to create an explicit table or column containing those values. These values are used as input to the Avg() function to find the average value of sales, 376.6667. (You must have Totals selected under Presentation in the properties panel. Aggr(NODISTINCT Max(UnitPrice), Customer)An array of values: 16, 16, 16, 25, 25, 25, 19, and 19. The nodistinct qualifier means that the array contains one element for each row in the source data: each is the maximum UnitPrice for each Customer and Product. max(aggr(sum(Customers)-above(Sum(Customers)), (MonthYear,(NUMERIC, ASCENDING))))Using sorting criteria in the StructuredParameter argument in the expression: max(aggr(sum(Customers)-above(Sum (Customers)), (MonthYear,(NUMERIC, ASCENDING)))) Without sorting criteria the result of the expression max(aggr (sum(Customers)-above(Sum(Customers)), (MonthYear))) depends on how the dimension MonthYear is sorted. We might not get the result we want. By adding values for sort type and ordering type to the dimension, we give sorting criteria to the structured parameter: (MonthYear, (NUMERIC, ASCENDING)), where the sort type NUMERIC and ordering ASCENDING determine that MonthYear is sorted in ascending numerical order. Here, we are looking to find the greatest increase in number of customers, month-on-month. This could be used in a KPI visualization, for example. The Aggr part of the expression compares the total number of customers in one month (given by MonthYear) to the total number in the previous month. Because we use sorting criteria with the dimension: (MonthYear,(NUMERIC, ASCENDING)), we are sure that Aggr compares the numbers of customers in consecutive months in the virtual table by sorting the months in ascending numerical order, and not in ascending alphabetical order.Data used in examples:Create a table with Customer, Product, UnitPrice, and UnitSales as dimensions. Add the expression to the table, as a measure.ProductData:LOAD * inline [Customer|Product|UnitSales|UnitPriceAstrida|AA|4|16Astrida|AA|10|15Astrida|BB|9|9Betacab|BB|5|10Betacab|CC|2| 20Betacab|DD|25|25Canutility|AA|8|15Canutility|CC||19] (delimiter is '|'); (page 1)*

Examples of concat functions

The **CONCAT()** function should not be confused with the **CONCATENATE** script keyword.

In its simplest form, **Concat()** is used to string / join together values/words/selections into one string. However, it can be utilized in a number of ways to help you solve different problems. All the examples are based upon the following table:

Table	MyColumn	Date	Value
Data	JKL	01/01/2012	11
Data1	VWX	01/02/2012	13
Data	GHI	01/03/2012	13
Data	ABC	01/04/2012	15
Data1	STU	01/05/2012	18
Data1	PQR	01/06/2012	10
Data1	MNO	01/07/2012	25
Data	DEF	01/08/2012	11

Example string table data

Table	MyColumn	Date	Value
Data	JKL	01/01/2012	11
Data1	WVX	01/02/2012	13
Data	GHI	01/03/2012	13
Data	ABC	01/04/2012	15
Data1	STU	01/05/2012	18
Data1	PQR	01/06/2012	10
Data1	MNO	01/07/2012	25
Data	DEF	01/08/2012	11

Simple String Concatenation

As mentioned earlier, the **concat** function lets you string together a list of values. These values can be hard coded or driven by selections/data.

```
=CONCAT(MyColumn,',')
```

```
=CONCAT(DISTINCT MyColumn,',')
```

This simple **concat** statement would string together all of the possible values from the column **MyColumn**. You may wish to add the DISTINCT keyword. This would ensure that each value is only displayed once in the string:

```
ABC,DEF,GHI,JKL,MNO,PQR,STU,VWX
```

When using a simple **concat**, you have the option to add a sort weight to the function to order the string values by a column of your choice. In the example below, the date column is added to sort the values.

```
=CONCAT(MyColumn, ',', Date)
```

Result: `JKL,VWX,GHI,ABC,STU,PQR,MNO,DEF`

Concat() within an Expression/Set Statement

Example: Passing multiple dynamic values to a set analysis expression

There are occasions when you want to pass a dynamic selection of values to a set statement. To do this you need to add some single quotes to the string so that the **CONCAT()** function returns e.g. 'JKL','VWX'. But you cannot have the single quotes as they are, since they then would be interpreted when the **Concat** is evaluated

instead of when the set expression is evaluated. Instead, use the **Chr()** function:

```
=CONCAT(Chr(39)&MyColumn&Chr(39),',')
```

You can then pass this **concat** statement to the inside of an expression:

```
=Sum({<MyColumn={$(=CONCAT(Chr(39)&MyColumn&Chr(39),','))}>} Value)
```

In most instances, this technique would be used where data islands are present. It lets you pass values to an expression that will not affect any part of the data model as the data island table is not joined to it.

Concat() in the Script

Concat can also be used in the script to convert multiple rows into one single column value, just as any other aggregation.

Remembering the source data used earlier, the result of script side **CONCAT** is as follows:

```
ConcatExample:
Load Table,
Concat(MyColumn,',') as CombinedData
Resident Temp
Group By Table;
```

The following is the result of this script function:

Example output in table form

Table	CombinedData
Data	ABC,DEF,GHI,JKL
Data1	MNO,PQR,STU,WVX

Using Rank() to influence the Concat()

When you start to utilize other function in conjunction with **concat()** you can start to achieve clever results. In this example, **Rank()** has been used to grab the top three performers (based on Value) and string them together.

```
=CONCAT(IF(aggr(Rank(sum(Value)),MyColumn)<=3,MyColumn),',')
```

Result: `ABC,MNO,STU`

Examples of Alternate States in Chart Expressions

These examples are intended to show best practices regarding the use of alternate states by QlikView Developers and/or extreme QlikView Power-Users. These examples can be found in the file: 'Alternate States Functionality.qvw'

Synchronizing Selections between States

The following expressions can be used in a single chart:

- `count({$} DISTINCT [Invoice Number])`
- `count({State1} DISTINCT [Invoice Number])`
- `count({State2} DISTINCT [Invoice Number])`

There is a problem with this method; the QlikView Developer must duplicate the selections (list boxes and multi boxes) for all three states so that the end-user can make appropriate selections for the various states. In many situations the QlikView Developer will want to have a set of 'common' selections available to all states. This will allow the end user to set the context for the various charts and then make use of specific selections to show the differences between states. Set Analysis can be used with states to keep certain selections consistent between states.

- `count({State1<Year = $::Year, Month = $::Month>} DISTINCT [Invoice Number])`
- `count({State2<Year = $::Year, Month = $::Month>} DISTINCT [Invoice Number])`

The QlikView Developer will keep the Year and Month selections in State1 and State2 synchronized with the Year and Month selections in the **default state**. The QlikView Developer can add elements to the set modifiers as necessary in order to keep even more fields consistent between states.

Set Operators

It is possible to use set operators (+, *, -, /) with states. The following expressions are valid and will count the distinct invoice numbers that are in either the **default state** or State1.

Examples:

- `count({$ + State1} DISTINCT [Invoice Number])`
  counts the distinct invoice numbers in the union of the <default> state and State1.

- `count({1 - State1} DISTINCT [Invoice Number])`
  counts the distinct invoice numbers not in State1.

- `count({State1 * State2} DISTINCT [Invoice Number])`
  counts the distinct invoice numbers in that are in both the <default> state and State1.

Caution should be used when using set operators in this manner. In some situations the result will not be what is expected. This is because the selections in a given state generate a set of data that may not be fully compatible with the set(s) it is being combined with. This is especially true as the complexity of the data model increases.

Implicit Field Value Definitions

Another way of using set operators is with the element functions P() and E(). These functions are only available within set expressions.

Examples:

- `count({$<[Invoice Number] = p({State1} [Invoice Number])>} DISTINCT [Invoice Number])`

This expression counts the distinct invoice numbers in the <default> state based on the possible invoice numbers available in State1.

It is almost, but not quite equivalent to the following expression:

- `count({$<[Invoice Number] = State1::[Invoice Number]>} DISTINCT [Invoice Number])`

The difference between the expressions is that in the first one, the possible values on invoice number from State1 are passed into the **default state**. In the second expression, the selected values from State1 are passed into the **default state**. If the user has not made any invoice number selections in State1, no invoice number values will be passed into the **default state**.

Set operators are best used within set modifiers. The following expression finds the intersection of the possible invoice numbers from State1 and State2 and passes those values into the invoice numbers in the **default state**.

Examples:

- `count({$<[Invoice Number] = p({State1} [Invoice Number]) * p({State2} [Invoice Number])>} DISTINCT [Invoice Number])`

The expression to find the intersection of invoice numbers in the <default> state and State1 is:

- `count({$<[Invoice Number] = p({$} [Invoice Number]) * p({State1} [Invoice Number])>} DISTINCT [Invoice Number])`

This expression may seem confusing because it uses a state (<default> in this instance) in both the element function and a set identifier. Keep in mind that the element function p($) is returning the possible values in the **default state**. The set/state identifier {$} is being modified by the result of the element functions. Any invoice selections currently existing in the **default state** are being overridden by the values from the intersection of the element functions.

It should be noted that the above expression is still not completely correct as it fails to synchronize the common selections between the **default state** and State1. Below is an expression that will do so:

Examples:

- `count({$<[Invoice Number] = p({$} [Invoice Number]) * p({State1<Year = $::Year, Month = $::Month>} [Invoice Number])>} DISTINCT [Invoice Number])`

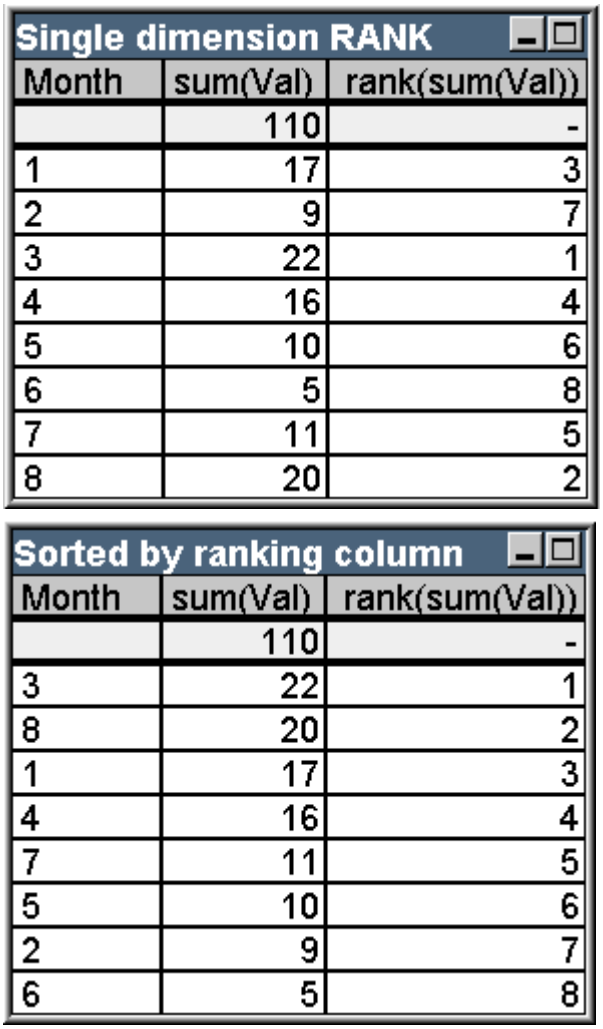
As before, the QlikView Developer can add fields into the modifier to keep selections consistent between various states.

Examples of Chart Ranking functions

These examples are made with the **rank** (**VRank**) function, but may be applied in a similar manner to the **HRank** function. However, note that the **HRank** function is relevant only to pivot tables.

Example 1:

Study the two one-dimensional straight tables below:



Single dimension RANK

Month	sum(Val)	rank(sum(Val))
	110	-
1	17	3
2	9	7
3	22	1
4	16	4
5	10	6
6	5	8
7	11	5
8	20	2

Sorted by ranking column

Month	sum(Val)	rank(sum(Val))
	110	-
3	22	1
8	20	2
1	17	3
4	16	4
7	11	5
5	10	6
2	9	7
6	5	8

Example table: Single dimension Rank

Month	sum(Val)	rank(sum(Val))
-	110	-
1	17	3
2	9	7
3	22	1
4	16	4
5	10	6
6	5	8
7	11	5
8	20	2

Example table: Single dimension rank, sorted by ranking column

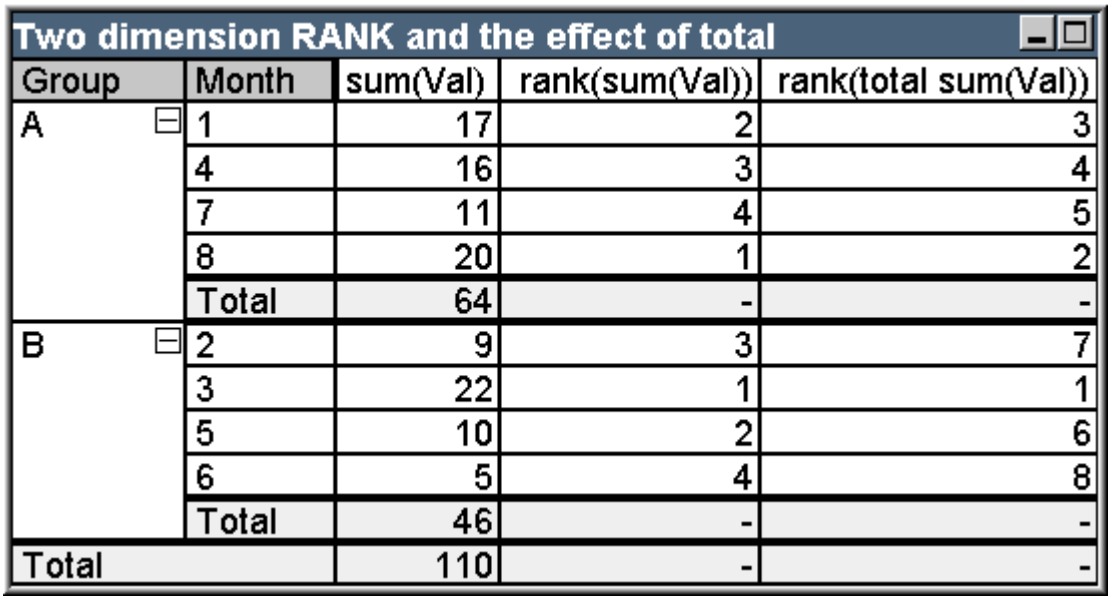
Month	sum(Val)	rank(sum(Val))
-	110	-
3	22	1
8	20	2
1	17	3
4	16	4
7	11	5
5	10	6
2	9	7
6	5	8

The two tables are the same, but the first one is sorted by the first column while the second one is sorted by the last column. This exemplifies the basic functionality of **rank**. The highest value has the highest rank (lowest ranking number).

The **rank** function always returns NULL in total rows.

Example 2:

Study the two-dimensional pivot table below:



Two dimension RANK and the effect of total				
Group	Month	sum(Val)	rank(sum(Val))	rank(total sum(Val))
A	1	17	2	3
	4	16	3	4
	7	11	4	5
	8	20	1	2
	Total	64	-	-
B	2	9	3	7
	3	22	1	1
	5	10	2	6
	6	5	4	8
	Total	46	-	-
Total		110	-	-

Example table: Two dimension Rank and the effect of total

Group	Month	sum(Val)	rank(sum(Val))	rank(total sum(Val))
A	1	17	2	3

Group	Month	sum(Val)	rank(sum(Val))	rank(total sum(Val))
A	4	16	3	4
A	7	11	4	5
A	8	20	1	2
A	Total	64	-	-
B	2	9	3	7
B	3	22	1	1
B	5	10	2	6
B	6	5	4	8
B	Total	46	-	-
Total	-	110	-	-

This table is based on the same data as the two tables in the first example. It is now possible to see how the current column segment is the inner grouping in the multi-dimensional case. The Month field within group A is ranked separately from the Month field in group B. By introducing the **total** qualifier an overall ranking can again be achieved.

Example 3:

This example will demonstrate the effect of the different modes for the numeric representation of the ranking. Study the table below:

The effect of the mode parameter on the result number representatio							
Month	sum(X)	rank(sum(X))	mode=0	mode=1	mode=2	mode=3	mode=4
	86	-	-	-	-	-	-
4	20	1	1	1	1	1	1
2	12	2-3	2	2	2.5	3	2
7	12	2-3	2	2	2.5	3	3
3	10	4-5	4.5	4	4.5	5	5
5	10	4-5	4.5	4	4.5	5	4
8	9	6	6	6	6	6	6
6	7	7	7	7	7	7	7
1	6	8	8	8	8	8	8

Example table: Effects of the mode parameter on result number representation

Month	sum(X)	rank(sum(X))	mode=0	mode=1	mode=2	mode=3	mode=4
-	86	-	-	-	-	-	-
4	20	1	1	1	1	1	1

Month	sum(X)	rank(sum(X))	mode=0	mode=1	mode=2	mode=3	mode=4
2	12	2-3	2	2	2.5	3	2
7	12	2-3	2	2	2.5	3	3
3	10	4-5	4.5	4	4.5	5	5
5	10	4-5	4.5	4	4.5	5	4
8	9	6	6	6	6	6	6
6	7	7	7	7	7	7	7
1	6	8	8	8	8	8	8

The third column shows the ranking in text representations while column 4 - 8 shows the number representation of the same ranking in different modes. The expression in each column is:

```
num( rank( sum( X ), mode ))
```

where `mode` is a value from 0 to 4:

- **Mode 0 (default)** Rows 2 and 3 share ranking but are clearly on the lower half of the total ranking. Their number representation is therefore rounded downwards to 2. Rows 4 and 5 share ranking too, but fall just above the middle of the ranking table. Therefore they get a number representation of the average of the first and the last rank in the column ((1+8)/2=4.5). This mode is especially useful when you want to use **Visual Cues** to mark the data ranking highest and lowest within a group.
- **Mode 1** In both cases the lower ranking figure within the group is used, i.e. 2 for rows 2 and 3, 4 for rows 4 and 5.
- **Mode 2** In both cases the average of the low and high ranking within the group is used, i.e. 2.5 ((2+3)/2) for rows 2 and 3, 4.5 ((4+5)/2) for rows 4 and 5.
- **Mode 3** In both cases the higher ranking figure within the group is used, i.e. 3 for rows 2 and 3, 5 for rows 4 and 5.
- **Mode 4** Each row is assigned its own distinct numeric value. The order within groups sharing a ranking is determined by the sort order of the chart's dimensions.

Example 4:

This example will demonstrate the effect of the different formats for the text representation of the ranking function. Study the table below:

The effect of the format parameter on the result text representation				
Month	sum(X)	rank(sum(X),0,0)	rank(sum(X),0,1)	rank(sum(X),0,2)
	86	-	-	-
4	20	1	1	1
2	12	2-3	2	2
7	12	2-3	2	
3	10	4-5	4	
5	10	4-5	4	4
8	9	6	6	6
6	7	7	7	7
1	6	8	8	8

Example table: Effect of the format parameter on result text representation

Month	sum(X)	rank(sum(X),0,0)	rank(sum(X),0,1)	rank(sum(X),0,2)
-	86	-	-	-
4	20	1	1	1
2	12	2-3	2	2
7	12	2-3	2	-
3	10	4-5	4	-
5	10	4-5	4	4
8	9	6	6	6
6	7	7	7	7
1	6	8	8	8

Columns 3 - 5 show the text representation of the same ranking function with different `format` values, where `format` is a value from 0 to 2:

- **Format 0 (default)** Rows sharing ranking are shown as 'low value - high value', e.g. '2 - 3' and '4 - 5'.
- **Format 1** Rows sharing ranking always get the number of the lowest rank as text representation, in this case e.g. 2 for rows 2 and 3.
- **Format 2** One row in each group sharing the same ranking gets the low rank number as text representation, while the other rows within the group get a blank string. The order within the groups sharing a ranking is determined by the sort order of the chart's dimensions.

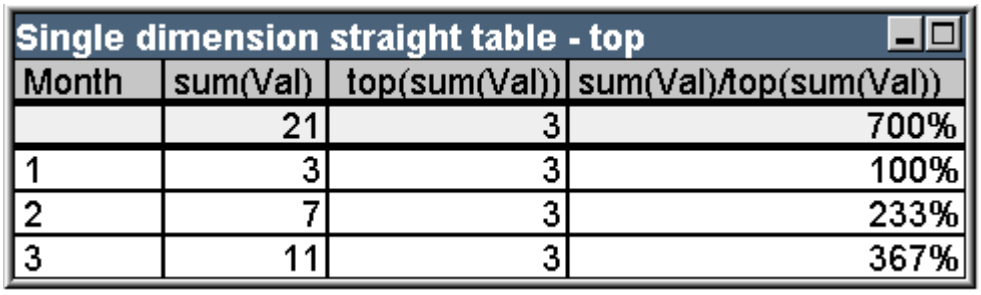
Examples of Chart Inter Record functions

Top Function Examples

These examples are made with the **top** function, but may be applied in a similar manner to the **bottom**, **first** and **last** functions. However, note that the **first** and **last** functions are relevant only to pivot tables.

Example 1:

Study the straight table below, depicting the use of the **top** function in a one-dimensional table:



Single dimension straight table - top

Month	sum(Val)	top(sum(Val))	sum(Val)/top(sum(Val))
	21	3	700%
1	3	3	100%
2	7	3	233%
3	11	3	367%

Example table: One dimensional straight table with top function

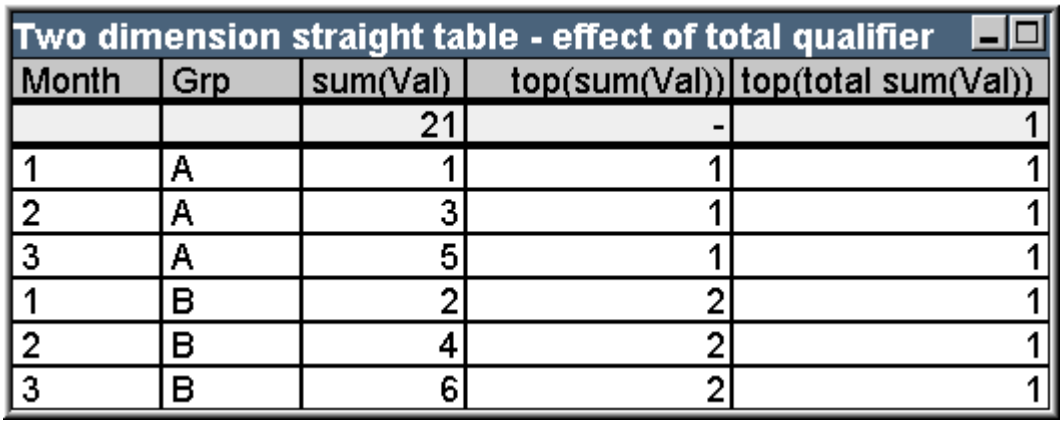
Month	sum(Val)	top(sum(Val))	sum(Val) / top(sum(Val))
-	21	3	700%
1	3	3	100%
2	7	3	233%
3	11	3	367%

In the single dimension case, the **top** function will always refer to the first data row of the table (The total row is not included.)

Note that expressions using the **top** function will be properly evaluated in the total row too since the total has a clear relation to a specific column segment, in this case the entire column.

Example 2:

Below is a two-dimensional straight table sorted primarily on the field Grp.



Two dimension straight table - effect of total qualifier

Month	Grp	sum(Val)	top(sum(Val))	top(total sum(Val))
		21	-	1
1	A	1	1	1
2	A	3	1	1
3	A	5	1	1
1	B	2	2	1
2	B	4	2	1
3	B	6	2	1

Example table: Two dimensional straight table with total qualifier

Month	Grp	sum(Val)	top(sum(Val))	top(total sum(Val))
-	-	21	-	1

Month	Grp	sum(Val)	top(sum(Val))	top(total sum(Val))
1	A	1	1	1
2	A	3	1	1
3	A	5	1	1
1	B	2	2	1
2	B	4	2	1
3	B	6	2	1

The **top** function without the **total** qualifier will now return the expression evaluated on the top row within the innermost sort group (Grp dimension in this case). One value will be returned for Grp = A and one for Grp = B.

By using the **total** qualifier in the multi dimension case, you may again refer to the absolute top row of the table with the same value being returned for all rows. The expression will of course be evaluated for the column segment spanning the entire column.

The expression using the **top** function without he **total** qualifier will evaluate to NULL in the total row, because it cannot be clearly associated with a specific column segment.

We will now convert the above straight table to a pivot table with all totals activated.

Two dimension pivot table - effect of total qualifier

Month	Grp	sum(Val)	top(sum(Val))	top(total sum(Val))
1	A	1	1	1
	B	2	1	1
	Total	3	1	-
2	A	3	3	1
	B	4	3	1
	Total	7	3	-
3	A	5	5	1
	B	6	5	1
	Total	11	5	-
Total		21	-	1

Example table: Two dimensional pivot table with total qualifier

Month	Grp	sum(Val)	top(sum(Val))	top(total sum(Val))
1	A	1	1	1
1	B	2	1	1
1	Total	3	1	-
2	A	3	3	1

Month	Grp	sum(Val)	top(sum(Val))	top(total sum(Val))
2	B	4	3	1
2	Total	7	3	-
3	A	5	5	1
3	B	6	5	1
3	Total	11	5	-
Total	-	21	-	1

The expression using the **top** function without he **total** qualifier will evaluate to NULL in the total row, because it cannot be clearly associated with a specific column segment. However, all the partial sums will be evaluated for each column segment.

The expression using the **total** qualifier will lack values in the partial totals but will return a value in the grand total row.

Example 3:

Study the following straight table sorted on the field Grp:

Two dimension straight table - sort on Grp

Month	Grp	sum(Val)	top(sum(Val))	sum(Val)/top(sum(Val))
		21	-	-
1	A	1	1	100%
2	A	3	1	300%
3	A	5	1	500%
1	B	2	2	100%
2	B	4	2	200%
3	B	6	2	300%

Example table: Two dimensional straight table sorted by Grp

Month	Grp	sum(Val)	top(sum(Val))	sum(Val) / top(sum(Val))
-	-	21	-	-
1	A	1	1	100%
2	A	3	1	300%
3	A	5	1	500%
1	B	2	2	100%
2	B	4	2	200%
3	B	6	2	300%

We may continue by changing the inter field sort order so that the chart is sorted primarily on the field Month. The table will now look like this:

Two dimension straight table - sort on Month

Month	Grp	sum(Val)	top(sum(Val))	sum(Val)/top(sum(Val))
		21	-	-
1	A	1	1	100%
1	B	2	1	200%
2	A	3	3	100%
2	B	4	3	133%
3	A	5	5	100%
3	B	6	5	120%

Example table: Two dimensional straight table sorted by Month

Month	Grp	sum(Val)	top(sum(Val))	sum(Val) / top(sum(Val))
-	-	21	-	-
1	A	1	1	100%
1	B	2	1	200%
2	A	3	3	100%
2	B	4	3	133%
3	A	5	5	100%
3	B	6	5	120%

Above Function Examples

These examples are made with the **above** function, but may be applied in a similar manner to the **below**, **before** and **after** functions. However, note that the **before** and **after** functions are relevant only to pivot tables.

Example 4:

Study the straight table below, depicting the use of the **above** function in a one-dimensional table:

Single dimension straight table - above

Month	sum(Val)	above(sum(Val))	sum(Val)/above(sum(Val))
	21	-	-
1	3	-	-
2	7	3	233%
3	11	7	157%

Example table: One dimensional straight table with Above function

Month	sum(Val)	above(sum(Val))	sum(Val) / above(sum(Val))
-	21	-	-
1	3	-	-
2	7	3	233%
3	11	7	157%

The third column shows the expression **sum(Val)** evaluated one row above the current row, which can be confirmed by comparing with the values for **sum(val)** in the second column. The **above** function returns NULL on the first row, as there is no row above on which to evaluate the expression. The **above** function always returns NULL on all total rows.

The fourth column demonstrates the most typical use of this function, i.e. to calculate the difference between e.g. different time periods.

Example 5:

Study the two-dimensional pivot table below:

Two dimension pivot table - effect of total qualifier

Grp	Month	sum(Val)	above(sum(Val))	above(total sum(Val))
A	1	1	-	-
	2	3	1	1
	3	5	3	3
	Total	9	-	-
B	1	2	-	5
	2	4	2	2
	3	6	4	4
	Total	12	-	-
Total		21	-	-

Example table: Two dimensional pivot table with total qualifier

Grp	Month	sum(Val)	above(sum(Val))	above(total sum(Val))
A	1	1	-	-
A	2	3	1	1
A	3	5	3	3
A	Total	9	-	-
B	1	2	-	5
B	2	4	2	2

Grp	Month	sum(Val)	above(sum(Val))	above(total sum(Val))
B	3	6	4	4
B	Total	12	-	-
Total	-	21	-	-

The **above** function without the **total** qualifier (third column) will only act within each sort group. A NULL value will be returned on the top row of each column segment.

When a **total** qualifier is added (fourth column), the entire column will be regarded as one column segment. Only the top row will return NULL. All total rows are disregarded and return NULL.

RowNo and NoOfRows Function Examples

This example is made with the **RowNo** and **NoOfRows** functions, but may be applied in a similar manner to the **ColumnNo** and **NoOfColumns** functions. However, note that the **ColumnNo** and **NoOfColumns** functions are relevant only to pivot tables.

Example 6:

Study the two-dimensional pivot table below:

rowno() and noofrows()

Month	Grp	rowno()	rowno(total)	noofrows()	noofrows(total)
1	A	1	1	2	6
	B	2	2	2	6
	Total	0	-	2	-
2	A	1	3	2	6
	B	2	4	2	6
	Total	0	-	2	-
3	A	1	5	2	6
	B	2	6	2	6
	Total	0	-	2	-
Total		-	0	-	6

Example table: RowNo and NoOfRows functions

Month	Grp	RowNo()	RowNo(total)	NoOfRows()	NoOfRows(total)
1	A	1	1	2	6
1	B	2	2	2	6
1	Total	0	-	2	-
2	A	1	3	2	6
2	B	2	4	2	6
2	Total	0	-	2	-

Month	Grp	RowNo()	RowNo(total)	NoOfRows()	NoOfRows(total)
3	A	1	5	2	6
3	B	2	6	2	6
3	Total	0	-	2	-
Total	-	-	0	-	6

- **Column 3** The **RowNo** function will return the row number within each sort group column segment. In subtotal rows, the row number 0 will be returned, because these totals clearly belong to a specific column segment. NULL will be returned in the grand total row.
- **Column 4** With the total qualifier, the **RowNo** function will return the row number within the entire column. In subtotal rows a NULL value will be returned. In the grand total row 0 will be returned.
- **Column 5** The **NoOfRows** function will return the number of data rows within each sort group column segment. In subtotal rows, the same number will be returned as in data rows. NULL will be returned in the grand total row.
- **Column 6** With the total qualifier, the **NoOfRows** function will return the number of data rows within the entire column, which is the same as what will be returned in the grand total row. In subtotal rows NULL will be returned.

Calculated Formulas

In the property dialogs of the QlikView sheets and sheet objects, there are a number of properties allowing fixed text labels or fixed numbers. These are typically used as labels, window titles, chart titles and in some cases as fixed numeric limits.

For many of the property entries mentioned above, it is possible to enter a calculated expression rather than a constant text or number. This feature is called calculated formula. Wherever a calculated formula can be used, this is indicated on the relevant place in this documentation.

Entering a Calculated Formula

Calculated formulas are entered according to the following syntax:

```
= expression
```

For the syntax of allowed expressions, see the section below.

The equal sign in the first position of the entry indicates that the remainder should be interpreted as an expression. QlikView will try to evaluate the expression. If this is not possible, e.g. because of incorrect syntax, the entire label including the equal sign will be displayed.

Calculated formulas can also be generated in the **Edit Expression** dialog which opens when clicking on the ... button beside the edit box.

Error Messages

If a calculated formula cannot be correctly evaluated by QlikView, the formula itself will be returned, followed by two slashes and an error message.

Example:

```
= mode(x) //out of object memory
```

Each calculated formula requires a certain amount of memory. In order not to use excessive memory, a limit on the allowed memory allocation for each calculated label has been put in to the program. If you enter a too complex expression, QlikView will return the expression followed by the error message "// out of object memory".

Expression syntax for calculated formulas

The syntax for **expression** in calculated labels is virtually the same as for chart expressions, with a few exceptions:

- With no dimensions to iterate over, the chart aggregation functions will essentially behave as if used in chart expressions with the **total** qualifier in front of all field names. The **total** qualifier is thus optional and has no special meaning in calculated formulas. The **set** definitions work just as in chart expressions, i.e. they cause aggregations over a selection different than the current one.
- In a calculated formula, field names may optionally be used without an enclosing aggregation function. In this case **only** will be used as an aggregation function.

Example:

```
= Currency
```

is equal to

```
= only(Currency)
```

9.6 Operators

This section describes the operators that can be used in QlikView. There are two types of operators:

- Unary operators (take only one operand)
- Binary operators (take two operands)

Most operators are binary.

The following operators can be defined:

- Bit operators
- Logical operators
- Numeric operators
- Relational operators
- String operators

Bit operators

All bit operators convert (truncate) the operands to signed integers (32 bit) and return the result in the same way. All operations are performed bit by bit. If an operand cannot be interpreted as a number, the operation will return NULL.

Bit operators

Bit operator	Operator name	Operator function
bitnot	Bit inverse	Unary operator. The operation returns the logical inverse of the operand performed bit by bit. **Example:** `bitnot 17` returns -18
bitand	Bit and	The operation returns the logical AND of the operands performed bit by bit. **Example:** `17 bitand 7` returns 1
bitor	Bit or	The operation returns the logical OR of the operands performed bit by bit. **Example:** `17 bitor 7` returns 23
bitxor	Bit exclusive or	The operation returns the logical exclusive or of the operands performed bit by bit. **Example:** `17 bitxor 7` returns 22
>>	Bit right shift	The operation returns the first operand shifted to the right. The number of steps is defined in the second operand. **Example:** `8 >> 2` returns 2
<<	Bit left shift	The operation returns the first operand shifted to the left. The number of steps is defined in the second operand. **Example:** `8 << 2` returns 32

Logical operators

All logical operators interpret the operands logically and return True (-1) or False (0) as result.

Logical operators

Logical operator	Operator function
not	Logical inverse. One of the few unary operators. The operation returns the logical inverse of the operand.
and	Logical and. The operation returns the logical and of the operands.
or	Logical or. The operation returns the logical or of the operands.
Xor	Logical exclusive or. The operation returns the logical exclusive or of the operands. I.e. like logical or, but with the difference that the result is False if both operands are True.

Numeric operators

All numeric operators use the numeric values of the operands and return a numeric value as result.

Numeric operators

Numeric operator	Operator function
+	Sign for positive number (unary operator) or arithmetic addition. The binary operation returns the sum of the two operands.
-	Sign for negative number (unary operator) or arithmetic subtraction. The unary operation returns the operand multiplied by -1, and the binary the difference between the two operands.
*	Arithmetic multiplication. The operation returns the product of the two operands.
/	Arithmetic division. The operation returns the ratio between the two operands.

Relational operators

All relational operators compare the values of the operands and return True (-1) or False (0) as the result. All relational operators are binary.

Relational operators

Relational operator	Operator name	Operator function
<	Less than	A numeric comparison is made if both operands can be interpreted numerically. The operation returns the logical value of the evaluation of the comparison.

Relational operator	Operator name	Operator function
<=	Less than or equal	A numeric comparison is made if both operands can be interpreted numerically. The operation returns the logical value of the evaluation of the comparison.
>	Greater than	A numeric comparison is made if both operands can be interpreted numerically. The operation returns the logical value of the evaluation of the comparison.
>=	Greater than or equal	A numeric comparison is made if both operands can be interpreted numerically. The operation returns the logical value of the evaluation of the comparison.
=	Equals	A numeric comparison is made if both operands can be interpreted numerically. The operation returns the logical value of the evaluation of the comparison.
<>	Not equivalent to	A numeric comparison is made if both operands can be interpreted numerically. The operation returns the logical value of the evaluation of the comparison.
precedes		Unlike the **<** operator no attempt is made to make a numeric interpretation of the argument values before the comparison. The operation returns true if the value to the left of the operator has a text representation which, in string comparison, comes before the text representation of the value on the right. **Example:** `'1 ' precedes ' 2'` returns FALSE whilst `' 1' precedes ' 2'` returns TRUE as the ASCII value of a space (' ') is of less value than the ASCII value of a number. Compare this to: `'1 ' < ' 2'` returns TRUE and `' 1' < ' 2'` returns TRUE

Relational operator	Operator name	Operator function
follows		Unlike the **>** operator no attempt is made to make a numeric interpretation of the argument values before the comparison. The operation returns true if the value to the left of the operator has a text representation which, in string comparison, comes after the text representation of the value on the right. **Example:** `' 2' follows '1'` returns FALSE whilst ' 2' follows ' 1' returns TRUE as the ASCII value of a space (' ') is of less value than the ASCII value of a number. Compare this to: `' 2' > ' 1'` returns TRUE and `' 2' > '1 '` returns TRUE

String operators

There are two string operators. One uses the string values of the operands and return a string as result. The other one compares the operands and returns a boolean value to indicate match.

String operators

String operator	Operator description
&	String concatenation. The operation returns a text string, that consists of the two operand strings, one after another. **Example:** `'abc' & 'xyz'` returns 'abcxyz'

String operator	Operator description
like	String comparison with wildcard characters. The operation returns a boolean True (-1) if the string before the operator is matched by the string after the operator. The second string may contain the wildcard characters * (any number of arbitrary characters) or ? (one arbitrary character). **Example:** `'abc' like 'a*'` returns True (-1) `'abcd' like 'a?c*'` returns True (-1) `'abc' like 'a??bc'` returns False (0)

9.7 Functions in scripts and chart expressions

This section describes functions that can be used in QlikView load scripts and chart expressions to transform and aggregate data.

Many functions can be used in the same way in both load scripts and chart expressions, but there are a number of exceptions:

- Some functions can only be used in load scripts, denoted by - script function.
- Some functions can only be used in chart expressions, denoted by - chart function.
- Some functions can be used in both load scripts and chart expressions, but with differences in parameters and application. These are described in separate topics denoted by - script function or - chart function.

Analytic connections

For both QlikView Desktop and QlikView Server, analytic connections are configured by editing the *settings.ini* file. Functions enabled by analytic connections will only be visible if you have configured the analytic connection in the *setting.ini* file and QlikView has started. See how to create an analytic connection in the Analytic connections page.

Aggregation functions

The family of functions known as aggregation functions consists of functions that take multiple field values as their input and return a single result per group, where the grouping is defined by a chart dimension or a **group by** clause in the script statement.

Aggregation functions include **Sum()**, **Count()**, **Min()**, **Max()**, and many more.

Most aggregation functions can be used in both the data load script and chart expressions, but the syntax differs.

Using aggregation functions in a data load script

Aggregation functions can only be used inside **LOAD** and **SELECT** statements.

Using aggregation functions in chart expressions

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

An aggregation function aggregates over the set of possible records defined by the selection. However, an alternative set of records can be defined by using a set expression in set analysis.

How aggregations are calculated

An aggregation loops over the records of a specific table, aggregating the records in it. For example, **Count** (<Field>) will count the number of records in the table where <Field> resides. Should you want to aggregate just the distinct field values, you need to use the **distinct** clause, such as **Count**(**distinct** <Field>).

If the aggregation function contains fields from different tables, the aggregation function will loop over the records of the cross product of the tables of the constituent fields. This has a performance penalty, and for this reason such aggregations should be avoided, particularly when you have large amounts of data.

Aggregation of key fields

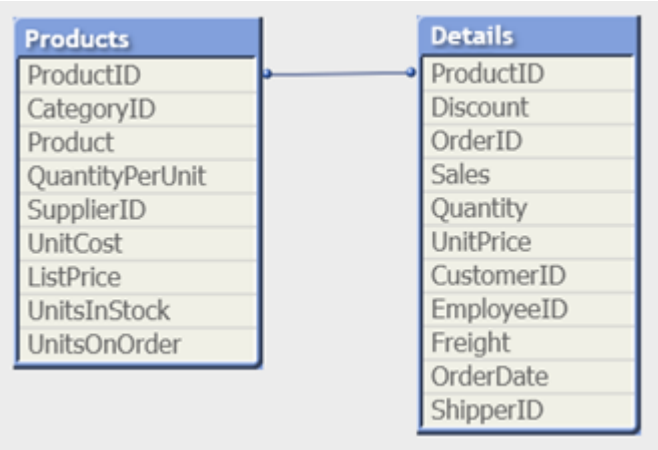
The way aggregations are calculated means that you cannot aggregate key fields because it is not clear which table should be used for the aggregation. For example, if the field <Key> links two tables, it is not clear whether **Count**(<Key>) should return the number of records from the first or the second table.

However, if you use the **distinct** clause, the aggregation is well-defined and can be calculated.

So, if you use a key field inside an aggregation function without the **distinct** clause, QlikView will return a number which may be meaningless. The solution is to either use the **distinct** clause, or use a copy of the key – a copy that resides in one table only.

For example, in the following tables, ProductID is the key between the tables.

ProductID key between Products and Details tables



Count(ProductID) can be counted either in the Products table (which has only one record per product – ProductID is the primary key) or it can be counted in the Details table (which most likely has several records per product). If you want to count the number of distinct products, you should use Count(distinct ProductID). If you want to count the number of rows in a specific table, you should not use the key.

Aggr

Aggr() returns an array of values for the expression calculated over the stated dimension or dimensions. For example, the maximum value of sales, per customer, per region.

The **Aggr** function is used for nested aggregations, in which its first parameter (the inner aggregation) is calculated once per dimensional value. The dimensions are specified in the second parameter (and subsequent parameters).

In addition, the **Aggr** function should be enclosed in an outer aggregation function, using the array of results from the **Aggr** function as input to the aggregation in which it is nested

Syntax:

```
Aggr({SetExpression}[DISTINCT] [NODISTINCT ] expr, StructuredParameter{,
StructuredParameter})
```

Return data type: dual

Arguments:

- `expr`: An expression consisting of an aggregation function. By default, the aggregation function will aggregate over the set of possible records defined by the selection.
- `StructuredParameter`: StructuredParameter consists of a dimension and optionally, sorting criteria in the format: `(Dimension(Sort-type, Ordering))`. The dimension is a single field and cannot be an expression. The dimension is used to determine the array of values the Aggr expression is calculated for.
  If sorting criteria are included, the array of values created by the Aggr function, calculated for the dimension, is sorted. This is important when the sort order affects the result of the expression the Aggr function is enclosed in. For details of how to use sorting criteria, see *Adding sorting criteria to the dimension in the structured parameter (page 1014)*.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the expression argument is preceded by the **distinct** qualifier or if no qualifier is used at all, each distinct combination of dimension values will generate only one return value. This is the normal way aggregations are made – each distinct combination of dimension values will render one line in the chart.
- `NODISTINCT`: If the expression argument is preceded by the **nodistinct** qualifier, each combination of dimension values may generate more than one return value, depending on underlying data structure. If there is only one dimension, the **aggr** function will return an array with the same number of elements as there are rows in the source data.

Basic aggregation functions, such as **Sum**, **Min**, and **Avg**, return a single numerical value whereas the Aggr() function can be compared to creating a temporary staged result set (a virtual table) over which another aggregation can be made. For example, by computing an average sales value by summing the sales by customer in an **Aggr()** statement and then calculating the average of the summed results: **Avg(TOTAL Aggr (Sum(Sales), Customer))**.

Use the Aggr() function in calculated dimensions if you want to create nested chart aggregation in multiple levels.

Limitations:

Each dimension in an Aggr() function must be a single field, and cannot be an expression (calculated dimension).

Adding sorting criteria to the dimension in the structured parameter

In its basic form, the argument StructuredParameter in the Aggr function syntax is a single dimension. The expression: Aggr(Sum(Sales, Month)) finds the total value of sales for each month. However, when enclosed in another aggregation function, there can be unexpected results unless sorting criteria are used. This is because some dimensions can be sorted numerically or alphabetically, and so on.

In the StructuredParameter argument in the Aggr function, you can specify sorting criteria on the dimension in your expression. This way, you impose a sort order on the virtual table that is produced by the Aggr function.

The argument StructuredParameter has the following syntax:

```
(FieldName, (Sort-type, Ordering))
```

Structured parameters can be nested:

```
(FieldName, (FieldName2, (Sort-type, Ordering)))
```

Sort-type can be: NUMERIC, TEXT, FREQUENCY, or LOAD_ORDER.

The ordering types associated with each Sort-type are as follows:

Sort ordering types

Sort type	Available ordering types
NUMERIC	ASCENDING, DESCENDING, or REVERSE
TEXT	ASCENDING, A2Z, DESCENDING, REVERSE, or Z2A
FREQUENCY	DESCENDING, REVERSE, or ASCENDING
LOAD_ORDER	ASCENDING, ORIGINAL, DESCENDING, or REVERSE

The ordering types REVERSE and DESCENDING are equivalent.

For Sort-type TEXT, the ordering types ASCENDING and A2Z are equivalent, and DESCENDING, REVERSE, and Z2A are equivalent.

For Sort-type LOAD_ORDER, the ordering types ASCENDING and ORIGINAL are equivalent.

Examples

Example 1:

```
Avg(Aggr(Sum(UnitSales*UnitPrice), Customer))
```

The expression `Aggr(Sum(UnitSales*UnitPrice), Customer)` finds the total value of sales by **Customer**, and returns an array of values: 295, 715, and 120 for the three **Customer** values.

Effectively, we have built a temporary list of values without having to create an explicit table or column containing those values. These values are used as input to the **Avg()** function to find the average value of sales, 376.6667. (You must have **Totals** selected under **Presentation** in the properties panel.

Example 2:

```
Aggr(NODISTINCT Max(UnitPrice), Customer)
```

An array of values: 16, 16, 16, 25, 25, 25, 19, and 19. The **nodistinct** qualifier means that the array contains one element for each row in the source data: each is the maximum **UnitPrice** for each **Customer** and **Product**.

Example 3:

```
max(aggr(sum(Customers)-above(Sum(Customers)), (MonthYear,(NUMERIC, ASCENDING))))
```

Using sorting criteria in the `StructuredParameter` argument in the expression: `max(aggr(sum(Customers)-above(Sum(Customers)), (MonthYear,(NUMERIC, ASCENDING))))`

Without sorting criteria the result of the expression `max(aggr(sum(Customers)-above(Sum(Customers)), (MonthYear)))` depends on how the dimension MonthYear is sorted. We might not get the result we want. By adding values for sort type and ordering type to the dimension, we give sorting criteria to the structured parameter: `(MonthYear, (NUMERIC, ASCENDING))`, where the sort type NUMERIC and ordering ASCENDING determine that MonthYear is sorted in ascending numerical order.

Here, we are looking to find the greatest increase in number of customers, month-on-month. This could be used in a KPI visualization, for example.

The Aggr part of the expression compares the total number of customers in one month (given by MonthYear) to the total number in the previous month. Because we use sorting criteria with the dimension: (MonthYear, (NUMERIC, ASCENDING)), we are sure that Aggr compares the numbers of customers in consecutive months in the virtual table by sorting the months in ascending numerical order, and not in ascending alphabetical order.

Data used in examples:

Create a table with **Customer**, **Product**, **UnitPrice**, and **UnitSales** as dimensions. Add the expression to the table, as a measure.

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
```

```
Betacab|DD|25|25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Basic aggregation functions

Basic aggregation functions overview

Basic aggregation functions are a group of the most common aggregation functions.

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Basic aggregation functions in the load script

FirstSortedValue

The sorted values are iterated over a number of records, as defined by a **group by** clause, or aggregated across the full data set if no **group by** clause is defined.

```
FirstSortedValue ([ distinct ] expression , sort-weight [, n ])
```

Max

Max() finds the highest numeric value of the aggregated data in the expression, as defined by a **group by** clause. By specifying a **rank** n, the nth highest value can be found.

```
Max ( expression[, rank])
```

Min

Min() returns the lowest numeric value of the aggregated data in the expression, as defined by a **group by** clause. By specifying a **rank** n, the nth lowest value can be found.

```
Min ( expression[, rank])
```

Mode

Mode() returns the most commonly-occurring value, the mode value, of the aggregated data in the expression, as defined by a **group by** clause. The **Mode()** function can return numeric values as well as text values.

```
Mode (expression )
```

Only

Only() returns a value if there is one and only one possible result from the aggregated data. If the records within each grouped result as defined by the group by clause contains only one value, then that value is returned. Otherwise NULL is returned

```
Only (expression )
```

Sum

Sum() calculates the total of the values aggregated in the expression, as defined by a **group by** clause.

```
Sum ([distinct]expression)
```

Basic aggregation functions in chart expressions

Chart aggregation functions can only be used on fields in chart expressions. The argument expression of one aggregation function must not contain another aggregation function.

FirstSortedValue

FirstSortedValue() returns the value from the expression specified in **value** that corresponds to the result of sorting the **sort_weight** argument, taking into account **rank**, if specified. If more than one resulting value shares the same **sort_weight** for the specified **rank**, the function returns **NULL**.

```
FirstSortedValue() returns the value from the expression specified in value
that corresponds to the result of sorting the sort_weight argument, taking
into account rank, if specified. If more than one resulting value shares the
same sort_weight for the specified rank, the function returns NULL.
([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] value, sort_weight
[,rank])
```

Max

Max() finds the highest value of the aggregated data. By specifying a **rank** n, the nth highest value can be found.

```
MaxMax() finds the highest value of the aggregated data. By specifying a rank
n, the nth highest value can be found. You might also want to look at
FirstSortedValue and rangemax, which have similar functionality to the Max
function. Max([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr
[,rank]) numeric expr: The expression or field containing the data to be
measured.rank: The default value of rank is 1, which corresponds to the
highest value. By specifying rank as 2, the second highest value is returned.
If rank is 3, the third highest value is returned, and so on.SetExpression:
By default, the aggregation function will aggregate over the set of possible
records defined by the selection. An alternative set of records can be
defined by a set analysis expression. TOTAL: If the word TOTAL occurs before
the function arguments, the calculation is made over all possible values
given the current selections, and not just those that pertain to the current
dimensional value, that is, it disregards the chart dimensions. The TOTAL
qualifier may be followed by a list of one or more field names within angle
brackets <fld>. These field names should be a subset of the chart dimension
variables. Examples and resultsExampleResultMax(UnitSales)10, because this is
the highest value in UnitSales.The value of an order is calculated from the
number of units sold in (UnitSales) multiplied by the unit price.Max
(UnitSales*UnitPrice)150, because this is the highest value of the result of
calculating all possible values of (UnitSales)*(UnitPrice).Max(UnitSales,
2)9, which is the second highest value.Max(TOTAL UnitSales)10, because the
TOTAL qualifier means the highest possible value is found, disregarding the
chart dimensions. For a chart with Customer as dimension, the TOTAL qualifier
will ensure the maximum value across the full dataset is returned, instead of
the maximum UnitSales for each customer.Make the selection Customer B.Max({1}
TOTAL UnitSales)10, independent of the selection made, because the Set
```

```
Analysis expression {1} defines the set of records to be evaluated as ALL, no matter what selection is made.Data used in examples:ProductData:LOAD * inline [Customer|Product|UnitSales|UnitPriceAstrida|AA|4|16Astrida|AA|10|15Astrida|BB|9|9Betacab|BB|5|10Betacab|CC|2|20Betacab|DD||25Canutility|AA|8|15Canutility|CC||19] (delimiter is '|'); Example data in table formCustomerProductUnitSalesUnitPrice AstridaAA416AstridaAA1015AstridaBB99BetacabBB510BetacabCC220BetacabDD-25CanutilityAA815CanutilityCC-19([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr [,rank])
```

Min

Min() finds the lowest numeric value of the aggregated data. By specifying a **rank** n, the nth lowest value can be found.

```
Min() finds the lowest numeric value of the aggregated data. By specifying a rank n, the nth lowest value can be found. ([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr [,rank])
```

Mode

Mode() finds the most commonly-occurring value, the mode value, in the aggregated data. The **Mode()** function can process text values as well as numeric values.

```
Mode - chart function({[SetExpression] [TOTAL [<fld {,fld}>]]} expr)
```

Only

Only() returns a value if there is one and only one possible result from the aggregated data. For example, searching for the only product where the unit price =9 will return NULL if more than one product has a unit price of 9.

```
Only ([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Sum

Sum() calculates the total of the values given by the expression or field across the aggregated data.

```
Sum - chart function([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr])
```

FirstSortedValue

FirstSortedValue() returns the value from the expression specified in **value** that corresponds to the result of sorting the **sort_weight** argument, taking into account **rank**, if specified. If more than one resulting value shares the same **sort_weight** for the specified **rank**, the function returns **NULL**.

The sorted values are iterated over a number of records, as defined by a **group by** clause, or aggregated across the full data set if no **group by** clause is defined.

Syntax:

```
FirstSortedValue ([ distinct ] value, sort-weight [, rank ])
```

Return data type: dual

Arguments:

FirstSortedValue arguments

Argument	Description
value Expression	The function finds the value of the expression **value** that corresponds to the result of sorting **sort_weight**.
sort-weight Expression	The expression containing the data to be sorted. The first (lowest) value of **sort_weight** is found, from which the corresponding value of the **value** expression is determined. If you place a minus sign in front of **sort_weight**, the function returns the last (highest) sorted value instead.
rank Expression	By stating a **rank** "n" larger than 1, you get the nth sorted value.
distinct	If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Example 1:

```
Temp:

LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD|12|25|2
Canutility|AA|3|8|3
Canutility|CC|13|19|3
Divadip|AA|9|16|4
Divadip|AA|10|16|4
Divadip|DD|11|10|4
] (delimiter is '|');

FirstSortedValue:
LOAD Customer,FirstSortedValue(Product, UnitSales) as MyProductWithSmallestOrderByCustomer
Resident Temp Group By Customer;
```

Example 1 results

Result field (Customer)	Result value (MyProductWithSmallestOrderByCustomer)
Astrida	CC
Betacab	AA
Canutility	AA
Divadip	DD

The function sorts UnitSales from smallest to largest, looking for the value of Customer with the smallest value of UnitSales, the smallest order.

Because CC corresponds to the smallest order (value of UnitSales=2) for customer Astrida. AA corresponds to the smallest order (4) for customer Betacab, AA corresponds to the smallest order (8) for customer Canutility, and DD corresponds to the smallest order (10) for customer Divadip.

Example 2:

Given that the **Temp** table is loaded as in the previous example:

```
LOAD Customer,FirstSortedValue(Product, -UnitSales) as MyProductWithLargestOrderByCustomer
Resident Temp Group By Customer;
```

Example 2 results

Result field (Customer)	Result value (MyProductWithLargestOrderByCustomer)
Astrida	AA
Betacab	DD
Canutility	CC
Divadip	-

A minus sign precedes the sort_weight argument, so the function sorts the largest first.

Because AA corresponds to the largest order (value of UnitSales:18) for customer Astrida, DD corresponds to the largest order (12) for customer Betacab, and CC corresponds to the largest order (13) for customer Canutility. There are two identical values for the largest order (16) for customer Divadip, therefore this produces a null result.

Example 3:

Given that the **Temp** table is loaded as in the previous example:

```
LOAD Customer,FirstSortedValue(distinct Product, -UnitSales) as
MyProductWithSmallestOrderByCustomer Resident Temp Group By Customer;
```

Example 3 results

Result field (Customer)	Result value (MyProductWithLargestOrderByCustomer)
Astrida	AA
Betacab	DD
Canutility	CC
Divadip	AA

This is the same as the previous example, except the distinct qualifier is used. This causes the duplicate result for Divadip to be disregarded, allowing a non-null value to be returned.

FirstSortedValue

FirstSortedValue() returns the value from the expression specified in **value** that corresponds to the result of sorting the **sort_weight** argument, taking into account **rank**, if specified. If more than one resulting value shares the same **sort_weight** for the specified **rank**, the function returns **NULL**.

Syntax:

```
FirstSortedValue([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] value,
sort_weight [,rank])
```

Return data type: dual

Arguments:

- `value`: Output field. The function finds the value of the expression **value** that corresponds to the result of sorting **sort_weight**.
- `sort_weight`: Input field. The expression containing the data to be sorted. The first (lowest) value of **sort_weight** is found, from which the corresponding value of the **value** expression is determined. If you place a minus sign in front of **sort_weight**, the function returns the last (highest) sorted value instead.
- `rank`: By stating a **rank** "n" larger than 1, you get the nth sorted value.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`firstsortedvalue (Product, UnitPrice)`	BB, which is the `Product`with the lowest `UnitPrice`(9).
`firstsortedvalue (Product, UnitPrice, 2)`	BB, which is the `Product`with the second-lowest `UnitPrice`(10).
`firstsortedvalue (Customer, -UnitPrice, 2)`	Betacab, which is the `Customer`with the `Product` that has second-highest `UnitPrice`(20).
`firstsortedvalue (Customer, UnitPrice, 3)`	NULL, because there are two values of `Customer` (Astrida and Canutility) with the samerank (third-lowest) `UnitPrice`(15). Use the distinct qualifier to make sure unexpected null results do not occur.
`firstsortedvalue (Customer, -UnitPrice*UnitSales, 2)`	Canutility, which is the `Customer` with the second-highest sales order value `UnitPrice` multiplied by `UnitSales` (120).

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Example data in table form

Customer	Product	UnitSales	UnitPrice
Astrida	AA	4	16
Astrida	AA	10	15
Astrida	BB	9	9
Betacab	BB	5	10
Betacab	CC	2	20
Betacab	DD	-	25
Canutility	AA	8	15
Canutility	CC	-	19

Max

Max() finds the highest numeric value of the aggregated data in the expression, as defined by a **group by** clause. By specifying a **rank** n, the nth highest value can be found.

Syntax:

```
Max ( expr [, rank])
```

Return data type: numeric

Arguments:

Max arguments

Argument	Description
expr	The expression or field containing the data to be measured.
rank Expression	The default value of **rank** is 1, which corresponds to the highest value. By specifying **rank** as 2, the second highest value is returned. If **rank** is 3, the third highest value is returned, and so on.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Example 1:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD
Canutility|DD|3|8
Canutility|CC
] (delimiter is '|');

Max:
LOAD Customer, Max(UnitSales) as MyMax Resident Temp Group By Customer;
```

Example 1 results

Result field (Customer)	Result value (MyMax)
Astrida	18
Betacab	5
Canutility	8

Example 2:

Given that the **Temp** table is loaded as in the previous example:

```
LOAD Customer, Max(UnitSales,2) as MyMaxRank2 Resident Temp Group By Customer;
```

Example 2 results

Result field (Customer)	Result value (MyMaxRank2)
Astrida	10
Betacab	4
Canutility	-

Max

Max() finds the highest value of the aggregated data. By specifying a **rank** n, the nth highest value can be found.

*You might also want to look at **FirstSortedValue** and **rangemax**, which have similar functionality to the **Max** function.*

Syntax:

```
Max([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr [,rank])
```

Return data type: numeric

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `rank`: The default value of **rank** is 1, which corresponds to the highest value. By specifying **rank** as 2, the second highest value is returned. If **rank** is 3, the third highest value is returned, and so on.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`Max(UnitSales)`	10, because this is the highest value in `UnitSales`.

Example	Result
The value of an order is calculated from the number of units sold in (UnitSales) multiplied by the unit price. `Max (UnitSales*UnitPrice)`	150, because this is the highest value of the result of calculating all possible values of (UnitSales)*(UnitPrice).
`Max(UnitSales, 2)`	9, which is the second highest value.
`Max(TOTAL UnitSales)`	10, because the TOTAL qualifier means the highest possible value is found, disregarding the chart dimensions. For a chart with Customer as dimension, the TOTAL qualifier will ensure the maximum value across the full dataset is returned, instead of the maximum UnitSales for each customer.
Make the selection `Customer B`. `Max({1} TOTAL UnitSales)`	10, independent of the selection made, because the Set Analysis expression {1} defines the set of records to be evaluated as ALL, no matter what selection is made.

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Example data in table form

Customer	Product	UnitSales	UnitPrice
Astrida	AA	4	16
Astrida	AA	10	15
Astrida	BB	9	9
Betacab	BB	5	10
Betacab	CC	2	20
Betacab	DD	-	25

Customer	Product	UnitSales	UnitPrice
Canutility	AA	8	15
Canutility	CC	-	19

Min

Min() returns the lowest numeric value of the aggregated data in the expression, as defined by a **group by** clause. By specifying a **rank** n, the nth lowest value can be found.

Syntax:

```
Min ( expr [, rank])
```

Return data type: numeric

Arguments:

Argument	Description
expr	The expression or field containing the data to be measured.
rank Expression	The default value of **rank** is 1, which corresponds to the lowest value. By specifying **rank** as 2, the second lowest value is returned. If **rank** is 3, the third lowest value is returned, and so on.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Example 1:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD
Canutility|DD|3|8
Canutility|CC
] (delimiter is '|');

Min:
LOAD Customer, Min(UnitSales) as MyMin Resident Temp Group By Customer;
```

Example 1 results

Result field (Customer)	Result value (MyMin)
Astrida	2
Betacab	4
Canutility	8

Example 2:

Given that the **Temp** table is loaded as in the previous example:

```
LOAD Customer, Min(UnitSales,2) as MyMinRank2 Resident Temp Group By Customer;
```

Example 2 results

Result field (Customer)	Result value (MyMinRank2)
Astrida	9
Betacab	5
Canutility	-

Min

Min() finds the lowest numeric value of the aggregated data. By specifying a **rank** n, the nth lowest value can be found.

*You might also want to look at **FirstSortedValue** and **rangemin**, which have similar functionality to the **Min** function.*

Syntax:

```
Min([{SetExpression}] [TOTAL [<fld {,fld}>]] expr [,rank])
```

Return data type: numeric

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `rank`: The default value of **rank** is 1, which corresponds to the highest value. By specifying **rank** as 2, the second highest value is returned. If **rank** is 3, the third highest value is returned, and so on.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

The Min() function must return a non-NULL value from the array of values given by the expression, if there is one. So in the examples, because there are NULL values in the data, the function returns the first non-NULL value evaluated from the expression.

Examples and results

Example	Result
`Min(UnitSales)`	2, because this is the lowest non-NULL value in `UnitSales`.
The value of an order is calculated from the number of units sold in (`UnitSales`) multiplied by the unit price. `Min (UnitSales*UnitPrice)`	40, because this is the lowest non-NULL value result of calculating all possible values of (`UnitSales`)*(`UnitPrice`).
`Min(UnitSales, 2)`	4, which is the second lowest value (after the NULL values).
`Min(TOTAL UnitSales)`	2, because the TOTAL qualifier means the lowest possible value is found, disregarding the chart dimensions. For a chart with Customer as dimension, the TOTAL qualifier will ensure the minimum value across the full dataset is returned, instead of the minimum UnitSales for each customer.
Make the selection Customer B. `Min({1} TOTAL UnitSales)`	2, independent of the selection made, because the Set Analysis expression {1} defines the set of records to be evaluated as ALL, no matter what selection is made.

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Example data in table form

Customer	Product	UnitSales	UnitPrice
Astrida	AA	4	16
Astrida	AA	10	15
Astrida	BB	9	9
Betacab	BB	5	10
Betacab	CC	2	20
Betacab	DD	-	25
Canutility	AA	8	15
Canutility	CC	-	19

Mode

Mode() returns the most commonly-occurring value, the mode value, of the aggregated data in the expression, as defined by a **group by** clause. The **Mode()** function can return numeric values as well as text values.

Syntax:

```
Mode ( expr )
```

Return data type: dual

Mode arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Limitations:

If more than one value is equally commonly occurring, NULL is returned.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD
Canutility|DD|3|8
```

```
Canutility|CC
] (delimiter is '|');

Mode:
LOAD Customer, Mode(Product) as MyMostOftenSoldProduct Resident Temp Group By Customer;
```

Example 1 results

Result field (Customer)	Result value (MyMostOftenSoldProduct)
Astrida	AA
Betacab	-
Canutility	-

Mode - chart function

Mode() finds the most commonly-occurring value, the mode value, in the aggregated data. The **Mode()** function can process text values as well as numeric values.

Syntax:

```
Mode([{SetExpression}] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`Mode(UnitPrice)` Make the selection `Customer A`.	15, because this is the most commonly-occurring value in `UnitSales`. Returns NULL (-). No single value occurs more often than another.
`Mode(Product)` Make the selection `Customer A`	AA, because this is the most commonly occurring value in `Product`. Returns NULL (-). No single value occurs more often than another.
`Mode (TOTAL UnitPrice)`	15, because the TOTAL qualifier means the most commonly occurring value is still 15, even disregarding the chart dimensions.

Example	Result

Make the selection `Customer B.`
 	
`Mode)({1}`
`TOTAL UnitPrice)`
	15, independent of the selection made, because the Set Analysis expression {1} defines the set of records to be evaluated as ALL, no matter what selection is made.

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Example data in table form

Customer	Product	UnitSales	UnitPrice
Astrida	AA	4	16
Astrida	AA	10	15
Astrida	BB	9	9
Betacab	BB	5	10
Betacab	CC	2	20
Betacab	DD	-	25
Canutility	AA	8	15
Canutility	CC	-	19

Only

Only() returns a value if there is one and only one possible result from the aggregated data. If the records within each grouped result as defined by the group by clause contains only one value, then that value is returned. Otherwise NULL is returned

Syntax:

```
Only ( expr )
```

Return data type: dual

Only arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD
Canutility|DD|3|8
Canutility|CC
] (delimiter is '|');

Only:
LOAD Customer, Only(CustomerID) as MyUniqIDCheck Resident Temp Group By Customer;
```

Example 1 results

Result field (Customer)	Result value (MyUniqIDCheck)
Astrida	1 (because only customer Astrida has complete records that include CustomerID.)

Only

Only() returns a value if there is one and only one possible result from the aggregated data. For example, searching for the only product where the unit price =9 will return NULL if more than one product has a unit price of 9.

Syntax:

```
Only([{SetExpression}] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Use Only() when you want a NULL result if there are multiple possible values in the sample data.

Examples:

Examples and results

Example	Result
`Only({<UnitPrice={9}>} Product)`	BB, because this is the only `Product`that has a `UnitPrice` of '9'.
`Only({<Product={DD}>} Customer)`	Betacab, because this is the only `Customer` selling a `Product` called 'DD'.
`Only({<UnitPrice={20}>} UnitSales)`	The number of `UnitSales` where `UnitPrice` is 20 is 2, because there is only one value of `UnitSales` where the `UnitPrice` =20.
`Only({<UnitPrice={15}>} UnitSales)`	NULL, because there are two values of `UnitSales` where the `UnitPrice` =15.

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Example data in table form

Customer	Product	UnitSales	UnitPrice
Astrida	AA	4	16
Astrida	AA	10	15
Astrida	BB	9	9
Betacab	BB	5	10
Betacab	CC	2	20
Betacab	DD	-	25
Canutility	AA	8	15
Canutility	CC	-	19

Sum

Sum() calculates the total of the values aggregated in the expression, as defined by a **group by** clause.

Syntax:

```
sum ( [ distinct] expr)
```

Return data type: numeric

Arguments:

Sum arguments

Argument	Description
distinct	If the word **distinct** occurs before the expression, all duplicates will be disregarded.
expr	The expression or field containing the data to be measured.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD
Canutility|DD|3|8
Canutility|CC
] (delimiter is '|');
```

```
Sum:
LOAD Customer, Sum(UnitSales) as MySum Resident Temp Group By Customer;
```

Example 1 results

Result field (Customer)	Result value (MySum)
Astrida	39
Betacab	9
Canutility	8

Sum - chart function

Sum() calculates the total of the values given by the expression or field across the aggregated data.

Syntax:

```
Sum([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: numeric

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.

  Although the DISTINCT qualifier is supported, use it only with extreme caution because it may mislead the reader into thinking a total value is shown when some data has been omitted.

- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`Sum(UnitSales)`	38. The total of the values in `UnitSales`.
`Sum(UnitSales*UnitPrice)`	505. The total of `UnitPrice` multiplied by `UnitSales` aggregated.
`Sum (TOTAL UnitSales*UnitPrice)`	505 for all rows in the table as well as the total, because the TOTAL qualifier means the sum is still 505, disregarding the chart dimensions.

Example	Result

Make the selection `Customer B`.
 	
`Sum({1}`
`TOTAL UnitSales*UnitPrice)`
	505, independent of the selection made, because the Set Analysis expression {1} defines the set of records to be evaluated as ALL, no matter what selection is made.

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Example data in table form

Customer	Product	UnitSales	UnitPrice
Astrida	AA	4	16
Astrida	AA	10	15
Astrida	BB	9	9
Betacab	BB	5	10
Betacab	CC	2	20
Betacab	DD	-	25
Canutility	AA	8	15
Canutility	CC	-	19

Counter aggregation functions

Counter aggregation functions return various types of counts of an expression over a number of records in a load script, or a number of values in a chart dimension.

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Counter aggregation functions in the load script

Count

Count() returns the number of values aggregated in expression, as defined by a **group by** clause.

```
Count ([ distinct ] expression)
```

MissingCount

MissingCount() returns the number of missing values aggregated in the expression, as defined by a **group by** clause.

```
MissingCount ([ distinct ] expression)
```

NullCount

NullCount() returns the number of NULL values aggregated in the expression, as defined by a **group by** clause.

```
NullCount ([ distinct ] expression)
```

NumericCount

NumericCount() returns the number of numeric values found in the expression, as defined by a **group by** clause.

```
NumericCount ([ distinct ] expression)
```

TextCount

TextCount() returns the number of field values that are non-numeric aggregated in the expression, as defined by a **group by** clause.

```
TextCount ([ distinct ] expression)
```

Counter aggregation functions in chart expressions

The following counter aggregation functions can be used in charts:

Count

Count() is used to aggregate the number of values, text and numeric, in each chart dimension.

```
Count() is used to aggregate the number of values, text and numeric, in each
chart dimension. ([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

MissingCount

MissingCount() is used to aggregate the number of missing values in each chart dimension. Missing values are all non-numeric values.

```
MissingCount() is used to aggregate the number of missing values in each
chart dimension. Missing values are all non-numeric values.([{SetExpression}]
[DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

NullCount

NullCount() is used to aggregate the number of NULL values in each chart dimension.

```
NullCount() is used to aggregate the number of NULL values in each chart
dimension. ([{SetExpression}][DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

NumericCount

NumericCount() aggregates the number of numeric values in each chart dimension.

```
NumericCount() aggregates the number of numeric values in each chart
dimension. ([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

TextCount

TextCount() is used to aggregate the number of field values that are non-numeric in each chart dimension.

```
TextCount - chart function([{SetExpression}] [DISTINCT] [TOTAL [<fld
{,fld}>]] expr)
```

Count

Count() returns the number of values aggregated in expression, as defined by a **group by** clause.

Syntax:

```
Count( [ distinct ] expr)
```

Return data type: integer

Arguments:

Count arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Examples and results

Example	Result
Temp: LOAD * inline [Customer|Product|OrderNumber|UnitSales|UnitPrice Astrida|AA|1|4|16 Astrida|AA|7|10|15 Astrida|BB|4|9|9 Betacab|CC|6|5|10 Betacab|AA|5|2|20 Betacab|BB|1|25| 25 Canutility|AA|3|8|15 Canutility|CC|||19 Divadip|CC|2|4|16 Divadip|DD|3|1|25] (delimiter is '|'); Count1: LOAD Customer,Count(OrderNumber) as OrdersByCustomer Resident Temp Group By Customer;	Customer OrdersByCustomer Astrida 3 Betacab 3 Canutility 2 Divadip 2 As long as the dimension Customer is included in the table on the sheet, otherwise the result for OrdersByCustomer is 3, 2.
Given that the **Temp** table is loaded as in the previous example: LOAD Count(OrderNumber) as TotalOrderNumber Resident Temp;	TotalOrderNumber 10
Given that the **Temp** table is loaded as in the first example: LOAD Count(distinct OrderNumber) as TotalOrderNumber Resident Temp;	TotalOrderNumber 8 Because there are two values of OrderNumber with the same value, 1, and one null value.

Count

Count() is used to aggregate the number of values, text and numeric, in each chart dimension.

Syntax:

```
Count([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: integer

Arguments:

- expr: The expression or field containing the data to be measured.
- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional

value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

The following examples assume that all customers are selected, except where stated.

Examples and results

Example	Result
`Count(OrderNumber)`	10, because there are 10 fields that could have a value for OrderNumber, and all records, even empty ones, are counted.  *"0" counts as a value and not an empty cell. However if a measure aggregates to 0 for a dimension that dimension will not be included in charts.*
`Count (Customer)`	10, because Count evaluates the number of occurrences in all fields.
`Count (DISTINCT [Customer])`	4, because using the Distinct qualifier, Count only evaluates unique occurrences.
Given that customer Canutility is selected `Count (OrderNumber)/Count ({1} TOTAL OrderNumber`	0.2, because the expression returns the number of orders from the selected customer as a percentage of orders from all customers. In this case 2 / 10.
Given that customers Astrida and Canutility are selected `Count(TOTAL <Product> OrderNumber)`	5, because that is the number of orders placed on products for the selected customers only and empty cells are counted.

Data used in examples:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
Betacab|BB|1|25| 25
Canutility|AA|3|8|15
Canutility|CC|||19
Divadip|CC|2|4|16
Divadip|DD|3|1|25
] (delimiter is '|');
```

Example data in table form

Customer	Product	OrderNumber	UnitSales	Unit Price
Astrida	AA	1	4	16
Astrida	AA	7	10	15
Astrida	BB	4	9	9
Betacab	BB	6	5	10
Betacab	CC	5	2	20
Betacab	DD	1	25	25
Canutility	AA	3	8	15
Canutility	CC	-	-	19
Divadip	AA	2	4	16
Divadip	DD	3	-	25

MissingCount

MissingCount() returns the number of missing values aggregated in the expression, as defined by a **group by** clause.

Syntax:

```
MissingCount ( [ distinct ] expr)
```

Return data type: integer

Arguments:

MissingCount arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Examples and results

Example	Result
Temp: LOAD * inline [Customer|Product|OrderNumber|UnitSales|UnitPrice Astrida|AA|1|4|16 Astrida|AA|7|10|15 Astrida|BB|4|9|9 Betacab|CC|6|5|10 Betacab|AA|5|2|20 Betacab|BB||| 25 Canutility|AA|||15 Canutility|CC| ||19 Divadip|CC|2|4|16 Divadip|DD|3|1|25] (delimiter is '|'); MissCount1: LOAD Customer,MissingCount(OrderNumber) as MissingOrdersByCustomer Resident Temp Group By Customer; Load MissingCount(OrderNumber) as TotalMissingCount Resident Temp;	Customer MissingOrdersByCustomer Astrida 0 Betacab 1 Canutility 2 Divadip 0 The second statement gives: TotalMissingCount 3 in a table with that dimension.
Given that the **Temp** table is loaded as in the previous example: LOAD MissingCount(distinct OrderNumber) as TotalMissingCountDistinct Resident Temp;	TotalMissingCountDistinct 1 Because there is only oneOrderNumber one missing value.

MissingCount

MissingCount() is used to aggregate the number of missing values in each chart dimension. Missing values are all non-numeric values.

Syntax:

```
MissingCount([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: integer

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`MissingCount([OrderNumber])`	3 because 3 of the 10 OrderNumber fields are empty *"0" counts as a value and not an empty cell. However if a measure aggregates to 0 for a dimension that dimension will not be included in charts.*
`MissingCount ([OrderNumber])/MissingCount ({1} Total [OrderNumber])`	The expression returns the number of incomplete orders from the selected customer as a fraction of incomplete orders from all customers. There is a total of 3 missing values for OrderNumber for all customers. So, for each Customer that has a missing value for Product the result is 1/3.

Data used in example:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
Betacab|BB|1|25| 25
Canutility|AA|3|8|15
Canutility|CC|||19
Divadip|CC|2|4|16
Divadip|DD|3|1|25
] (delimiter is '|');
```

Example data in table form

Customer	Product	OrderNumber	UnitSales	Unit Price
Astrida	AA	1	4	16
Astrida	AA	7	10	15
Astrida	BB	4	9	9
Betacab	BB	6	5	10
Betacab	CC	5	2	20
Betacab	DD	1	25	25
Canutility	AA	3	8	15

Customer	Product	OrderNumber	UnitSales	Unit Price
Canutility	CC	-	-	19
Divadip	AA	2	4	16
Divadip	DD	3	-	25

NullCount

NullCount() returns the number of NULL values aggregated in the expression, as defined by a **group by** clause.

Syntax:

```
NullCount ( [ distinct ] expr)
```

Return data type: integer

Arguments:

NullCount arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Examples and results

Example	Result
Set NULLINTERPRET = NULL; Temp: LOAD * inline [Customer|Product|OrderNumber|UnitSales|CustomerID Astrida|AA|1|10|1 Astrida|AA|7|18|1 Astrida|BB|4|9|1 Astrida|CC|6|2|1 Betacab|AA|5|4|2 Betacab|BB|2|5|2 Betacab|DD||| Canutility|AA|3|8| Canutility|CC|NULL||] (delimiter is '|'); Set NULLINTERPRET=; NullCount1: LOAD Customer,NullCount(OrderNumber) as NullOrdersByCustomer Resident Temp Group By Customer; LOAD NullCount(OrderNumber) as TotalNullCount Resident Temp;	Customer NullOrdersByCustomer Astrida 0 Betacab 0 Canutility 1 The second statement gives: TotalNullCount 1 in a table with that dimension, because only one record contains a null value.

NullCount

NullCount() is used to aggregate the number of NULL values in each chart dimension.

Syntax:

```
NullCount([{SetExpression}][DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: integer

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
NullCount ([OrderNumber])	1 because we have introduced a null value using NullInterpret in the inline **LOAD** statement.

Data used in example:

```
Set NULLINTERPRET = NULL;
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|CustomerID
Astrida|AA|1|10|1
Astrida|AA|7|18|1
Astrida|BB|4|9|1
Astrida|CC|6|2|1
Betacab|AA|5|4|2
Betacab|BB|2|5|2
Betacab|DD|||
Canutility|AA|3|8|
Canutility|CC|NULL||
] (delimiter is '|');
Set NULLINTERPRET=;
```

NumericCount

NumericCount() returns the number of numeric values found in the expression, as defined by a **group by** clause.

Syntax:

```
NumericCount ( [ distinct ] expr)
```

Return data type: integer

Arguments:

NumericCount arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Example 1:

```
Temp:
```

```
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
Betacab|BB||| 25
Canutility|AA|||15
Canutility|CC| ||19
Divadip|CC|2|4|16
Divadip|DD|7|1|25
] (delimiter is '|');
NumCount1:
LOAD Customer,NumericCount(OrderNumber) as NumericCountByCustomer Resident Temp Group By
Customer;
```

Example 1 results

Customer	NumericCountByCustomer
Astrida	3
Betacab	2
Canutility	0
Divadip	2

Example 2:

```
LOAD NumericCount(OrderNumber) as TotalNumericCount Resident Temp;
```

The second statement gives:
TotalNumericCount
7

Example 3:

Given that the **Temp** table is loaded as in the previous example:

```
LOAD NumericCount(distinct OrderNumber) as TotalNumericCountDistinct Resident Temp;
```

TotalNumericCountDistinct
6
Because there is one OrderNumber that duplicates another, so the result is 6 distinct values.

NumericCount

NumericCount() aggregates the number of numeric values in each chart dimension.

Syntax:

```
NumericCount([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: integer

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

The following examples assume that all customers are selected, except where stated.

Examples and results

Example	Result
`NumericCount ([OrderNumber])`	7 because three of the 10 fields in OrderNumber are empty. *"0" counts as a value and not an empty cell. However if a measure aggregates to 0 for a dimension that dimension will not be included in charts.*
`NumericCount ([Product])`	0 because all product names are in text. Typically you could use this to check that no text fields have been given numeric content.
`NumericCount (DISTINCT [OrderNumber])/Count (DISTINCT [OrderNumber])`	Counts all the number of distinct numeric order numbers and divides it by the number of order numbers numeric and non-numeric. This will be 1 if all field values are numeric. Typically you could use this to check that all field values are numeric. In the example, there are 7 distinct numeric values for OrderNumber of 8 distinct numeric and non-numerid, so the expression returns 0.875.

Data used in example:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
```

```
Betacab|BB|1|25| 25
Canutility|AA|3|8|15
Canutility|CC|||19
Divadip|CC|2|4|16
Divadip|DD|3|1|25
] (delimiter is '|');
```

Example data in table form

Customer	Product	OrderNumber	UnitSales	Unit Price
Astrida	AA	1	4	16
Astrida	AA	7	10	15
Astrida	BB	4	9	9
Betacab	BB	6	5	10
Betacab	CC	5	2	20
Betacab	DD	1	25	25
Canutility	AA	3	8	15
Canutility	CC	-	-	19
Divadip	AA	2	4	16
Divadip	DD	3	-	25

TextCount

TextCount() returns the number of field values that are non-numeric aggregated in the expression, as defined by a **group by** clause.

Syntax:

```
TextCount ( [ distinct ] expr)
```

Return data type: integer

Arguments:

TextCount arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Example 1:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
Betacab|BB||| 25
Canutility|AA|||15
Canutility|CC| ||19
Divadip|CC|2|4|16
Divadip|DD|3|1|25
] (delimiter is '|');
TextCount1:
LOAD Customer,TextCount(Product) as ProductTextCount Resident Temp Group By Customer;
```

Example 1 results

Customer	ProductTextCount
Astrida	3
Betacab	3
Canutility	2
Divadip	2

Example 2:

```
LOAD Customer,TextCount(OrderNumber) as OrderNumberTextCount Resident Temp Group By Customer;
```

Example 2 results

Customer	OrderNumberTextCount
Astrida	0
Betacab	1
Canutility	2
Divadip	0

TextCount - chart function

TextCount() is used to aggregate the number of field values that are non-numeric in each chart dimension.

Syntax:

```
TextCount([{SetExpression}] [DISTINCT] [TOTAL [<fld {,fld}>]] expr)
```

Return data type: integer

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`TextCount ([Product])`	10 because all of the 10 fields in Product are text.  *"0" counts as a value and not an empty cell. However if a measure aggregates to 0 for a dimension that dimension will not be included in charts.*
`TextCount ([OrderNumber])`	3, because empty cells are counted. Typically, you would use this to check that no numeric fields have been given text values.

Data used in example:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
Betacab|BB|1|25| 25
Canutility|AA|3|8|15
Canutility|CC|||19
Divadip|CC|2|4|16
Divadip|DD|3|1|25
] (delimiter is '|');
```

Example data in table form

Customer	Product	OrderNumber	UnitSales	Unit Price
Astrida	AA	1	4	16
Astrida	AA	7	10	15
Astrida	BB	4	9	9
Betacab	BB	6	5	10
Betacab	CC	5	2	20
Betacab	DD	1	25	25
Canutility	AA	3	8	15
Canutility	CC	-	-	19
Divadip	AA	2	4	16
Divadip	DD	3	-	25

Financial aggregation functions

This section describes aggregation functions for financial operations regarding payments and cash flow.

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Financial aggregation functions in the load script

IRR

IRR() returns the aggregated internal rate of return for a series of cash flows represented by the numbers in the expression iterated over a number of records as defined by a group by clause.

```
IRR (expression)
```

XIRR

XIRR() returns the aggregated internal rate of return for a schedule of cash flows (that is not necessarily periodic) represented by paired numbers in **pmt** and **date** iterated over a number of records as defined by a group by clause. All payments are discounted based on a 365-day year.

```
XIRR (pmt, date)
```

NPV

NPV() returns the aggregated net present value of an investment based on a constant **discount_rate** per period and a series of future payments (negative values) and incomes (positive values), represented by the numbers in **value**, iterated over a number of records, as defined by a group by clause. The payments and incomes are assumed to occur at the end of each period.

```
NPV (discount_rate, value)
```

XNPV

XNPV() returns the aggregated net present value for a schedule of cashflows (not necessarily periodic) represented by paired numbers in **pmt** and **date**, iterated over a number of records as defined by a group by clause. Rate is the interest rate per period. All payments are discounted based on a 365-day year.

```
XNPV (discount_rate, pmt, date)
```

Financial aggregation functions in chart expressions

These financial aggregation functions can be used in charts.

IRR

IRR() returns the aggregated internal rate of return for a series of cash flows represented by the numbers in the expression given by **value** iterated over the chart dimensions.

```
 IRR - chart function([TOTAL [<fld {,fld}>]] value)
```

NPV

NPV() returns the aggregated net present value of an investment based on a **discount_rate** per period and a series of future payments (negative values) and incomes (positive values,) represented by the numbers in **value**, iterated over the chart dimensions. The payments and incomes are assumed to occur at the end of each period.

```
NPV() returns the aggregated net present value of an investment based on a
discount_rate per period and a series of future payments (negative values)
and incomes (positive values,) represented by the numbers in value, iterated
over the chart dimensions. The payments and incomes are assumed to occur at
the end of each period.([TOTAL [<fld {,fld}>]] discount_rate, value)
```

XIRR

XIRR()returns the aggregated internal rate of return for a schedule of cash flows (that is not necessarily periodic) represented by paired numbers in the expressions given by **pmt** and **date** iterated over the chart dimensions. All payments are discounted based on a 365-day year.

```
XIRR()returns the aggregated internal rate of return for a schedule of cash
flows (that is not necessarily periodic) represented by paired numbers in the
expressions given by pmt and date iterated over the chart dimensions. All
payments are discounted based on a 365-day year. ([TOTAL [<fld {,fld}>]] pmt,
date)
```

XNPV

XNPV() returns the aggregated net present value for a schedule of cash flows (not necessarily periodic) represented by paired numbers in the expressions given by **pmt** and **date** iterated over the chart dimensions. All payments are discounted based on a 365-day year.

```
XNPV() returns the aggregated net present value for a schedule of cash flows
(not necessarily periodic) represented by paired numbers in the expressions
given by pmt and date iterated over the chart dimensions. All payments are
discounted based on a 365-day year. ([TOTAL [<fld{,fld}>]] discount_rate,
pmt, date)
```

IRR

IRR() returns the aggregated internal rate of return for a series of cash flows represented by the numbers in the expression iterated over a number of records as defined by a group by clause.

These cash flows do not have to be even, as they would be for an annuity. However, the cash flows must occur at regular intervals, such as monthly or annually. The internal rate of return is the interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods.The function needs at least one positive and one negative value to calculate.

This function uses a simplified version of the Newton method for calculating the internal rate of return (IRR).

Syntax:

```
IRR(value)
```

Return data type: numeric

Arguments:

- `value`: The expression or field containing the data to be measured.

Limitations:

Text values, NULL values and missing values are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');

Cashflow1:
LOAD Year,IRR(Payments) as IRR2013 Resident Cashflow Group By Year;
```

Example results

Year	IRR2013
2013	0.1634

IRR - chart function

IRR() returns the aggregated internal rate of return for a series of cash flows represented by the numbers in the expression given by **value** iterated over the chart dimensions.

These cash flows do not have to be even, as they would be for an annuity. However, the cash flows must occur at regular intervals, such as monthly or annually. The internal rate of return is the interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods. The function needs at least one positive and one negative value to calculate.

This function uses a simplified version of the Newton method for calculating the internal rate of return (IRR).

Syntax:

```
IRR([TOTAL [<fld {,fld}>]] value)
```

Return data type: numeric

Arguments:

- `value`: The expression or field containing the data to be measured.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values are disregarded.

Examples and results:

`IRR(Payments)`: **`0.1634`**.

The payments are assumed to be periodic in nature, for example monthly.

*For non-periodic payments, please refer to the **XIRR** function.*

Data used in examples:

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');
```

NPV

NPV() returns the aggregated net present value of an investment based on a constant **discount_rate** per period and a series of future payments (negative values) and incomes (positive values), represented by the numbers in **value**, iterated over a number of records, as defined by a group by clause. The payments and incomes are assumed to occur at the end of each period.

Syntax:

```
NPV(discount_rate, value)
```

Return data type: numeric. The result has a default number format of money.

Arguments:

- `discount_rate`: **discount_rate** is the rate of discount over the length of the period. **discount_rate** is a constant.
- `value`: The expression or field containing the data to be measured.

Limitations:

Text values, NULL values and missing values are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');

Cashflow1:
LOAD Year,NPV(0.2, Payments) as NPV1_2013 Resident Cashflow Group By Year;
```

Example results

Year	NPV1_2013
2013	-$540.12

Given that the **Cashflow** table is loaded as in the previous example:

```
LOAD Year,NPV(Discount, Payments) as NPV2_2013 Resident Cashflow Group By Year, Discount;
```

Example results

Year	Discount	NPV2_2013
2013	0.1	-$3456.05
2013	0.2	$5666.67

Example	Result field		Result value

`Cashflow:`
`LOAD 2013 as Year, * inline [`
`Date|Discount|Payments`
`2013-01-01|0.1|-10000`
`2013-03-01|0.1|3000`
`2013-10-30|0.1|4200`
`2014-02-01|0.2|6800`
`] (delimiter is '|');`
 	
`Cashflow1:`
`LOAD Year,NPV(0.2, Payments) as NPV1_2013`
`Resident Cashflow Group By Year;`
	Year
	
	2013
			NPV1_2013
			
			-$540.12

Given that the **Cashflow** table is loaded as in the previous example:
`LOAD Year,NPV(Discount, Payments) as NPV2_2013`
`Resident Cashflow Group By Year, Discount;`
	Year
	
	2013
	2013
		Discount
		
		0.1
		0.2
			NPV2_2013
			
			-$3456.05
			$5666.67

NPV

NPV() returns the aggregated net present value of an investment based on a **discount_rate** per period and a series of future payments (negative values) and incomes (positive values,) represented by the numbers in **value**, iterated over the chart dimensions. The payments and incomes are assumed to occur at the end of each period.

Syntax:

```
NPV([TOTAL [<fld {,fld}>]] discount_rate, value)
```

Return data type: numeric. The result has a default number format of money.

Arguments:

- `discount_rate`: **discount_rate** is the rate of discount over the length of the period.
- `value`: The expression or field containing the data to be measured.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets. These field names should be a subset of the chart dimension variables. In this case, the calculation is made disregarding all chart dimension variables except those listed, that is, one value is returned for each combination of field values in the listed dimension fields. Also, fields that are not currently a dimension in a chart may be included in the list. This may be useful in the case of group dimensions, where the dimension fields are not fixed. Listing all of the variables in the group causes the function to work when the drill-down level changes.

Limitations:

discount_rate and **value** must not contain aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values are disregarded.

Examples and results:

`NPV(Discount, Payments)`: **`-$540.12`**.

Data used in examples:

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');
```

XIRR

XIRR() returns the aggregated internal rate of return for a schedule of cash flows (that is not necessarily periodic) represented by paired numbers in **pmt** and **date** iterated over a number of records as defined by a group by clause. All payments are discounted based on a 365-day year.

Qlik's XIRR functionality (**XIRR()** and **RangeXIRR()** functions) uses the following equation, solving for the `Rate` value, to determine the correct XIRR value:

```
XNPV(Rate, pmt, date) = 0
```

The equation is solved using a simplified version of the Newton method.

Syntax:

```
XIRR(pmt, date )
```

Return data type: numeric

Arguments:

- `pmt`: Payments.The expression or field containing the cash flows corresponding to the payment schedule given in **date**.
- `date`: The expression or field containing the schedule of dates corresponding to the cash flow payments given in **pmt**.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair will result in the entire data-pair to be disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');

Cashflow1:
LOAD Year,XIRR(Payments, Date) as XIRR2013 Resident Cashflow Group By Year;
```

Example results

Year	XIRR2013
2013	0.5385

XIRR

XIRR()returns the aggregated internal rate of return for a schedule of cash flows (that is not necessarily periodic) represented by paired numbers in the expressions given by **pmt** and **date** iterated over the chart dimensions. All payments are discounted based on a 365-day year.

Qlik's XIRR functionality (**XIRR()** and **RangeXIRR()** functions) uses the following equation, solving for the `Rate` value, to determine the correct XIRR value:

```
XNPV(Rate, pmt, date) = 0
```

The equation is solved using a simplified version of the Newton method.

Syntax:

```
XIRR([TOTAL [<fld {,fld}>]] pmt, date)
```

Return data type: numeric

Arguments:

- pmt: Payments.The expression or field containing the cash flows corresponding to the payment schedule given in **date**.
- date: The expression or field containing the schedule of dates corresponding to the cash flow payments given in **pmt**.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

pmt and **date** must not contain aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples and results:

`XIRR(Payments, Date)`: `0.5385`.

Data used in examples:

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');
```

XNPV

XNPV() returns the aggregated net present value for a schedule of cashflows (not necessarily periodic) represented by paired numbers in **pmt** and **date**, iterated over a number of records as defined by a group by clause. Rate is the interest rate per period. All payments are discounted based on a 365-day year.

Syntax:

```
XNPV(discount_rate, pmt, date)
```

Return data type: numeric. The result has a default number format of money. .

Arguments:

- `pmt`: The expression or field containing the data to be measured.
- `date`: The expression or field containing the schedule of dates corresponding to the cash flow payments given in **pmt**.
- `discount_rate`: **discount_rate** is the rate of discount over the length of the period.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair will result in the entire data-pair to be disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');

Cashflow1:
LOAD Year,XNPV(0.2, Payments, Date) as XNPV1_2013 Resident Cashflow Group By Year;
```

Example results

Year	XNPV1_2013
2013	$2104.37

Given that the **Cashflow** table is loaded as in the previous example:

```
LOAD Year,XNPV(Discount, Payments, Date) as XNPV2_2013 Resident Cashflow Group By Year,
Discount;
```

Example results

Year	Discount	XNPV2_2013
2013	0.1	-$3164.35
2013	0.2	$6800.00

XNPV

XNPV() returns the aggregated net present value for a schedule of cash flows (not necessarily periodic) represented by paired numbers in the expressions given by **pmt** and **date** iterated over the chart dimensions. All payments are discounted based on a 365-day year.

Syntax:

```
XNPV([TOTAL [<fld{,fld}>]] discount_rate, pmt, date)
```

Return data type: numeric The result has a default number format of money.

Arguments:

- `pmt`: The expression or field containing the data to be measured.
- `date`: The expression or field containing the schedule of dates corresponding to the cash flow payments given in **pmt**.
- `discount_rate`: **discount_rate** is the rate of discount over the length of the period.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

discount_rate, **pmt** and **date** must not contain aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples and results:

`XNPV(Discount, Payments, Date)`: **`-$3164.35`**.

Data used in examples:

```
Cashflow:
LOAD 2013 as Year, * inline [
Date|Discount|Payments
2013-01-01|0.1|-10000
2013-03-01|0.1|3000
2013-10-30|0.1|4200
2014-02-01|0.2|6800
] (delimiter is '|');
```

Statistical aggregation functions

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Statistical aggregation functions in the load script

The following statistical aggregation functions can be used in scripts.

Avg

Avg() finds the average value of the aggregated data in the expression over a number of records as defined by a **group by** clause.

```
Avg  ([distinct] expression)
```

Correl

Correl() returns the aggregated correlation coefficient for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
Correl (x-expression, y-expression)
```

Fractile

Fractile() finds the value that corresponds to the inclusive fractile (quantile) of the aggregated data in the expression over a number of records as defined by a **group by** clause.

```
Fractile (expression, fractile)
```

FractileExc

FractileExc() finds the value that corresponds to the exclusive fractile (quantile) of the aggregated data in the expression over a number of records as defined by a **group by** clause.

```
FractileExc (expression, fractile)
```

Kurtosis

Kurtosis() returns the kurtosis of the data in the expression over a number of records as defined by a **group by** clause.

```
Kurtosis  ([distinct ] expression )
```

LINEST_B

LINEST_B() returns the aggregated b value (y-intercept) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_B (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_df

LINEST_DF() returns the aggregated degrees of freedom of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_DF  (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_f

This script function returns the aggregated F statistic ($r^2/(1-r^2)$) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_F (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_m

LINEST_M() returns the aggregated m value (slope) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_M  (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_r2

LINEST_R2() returns the aggregated r^2 value (coefficient of determination) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_R2 (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_seb

LINEST_SEB() returns the aggregated standard error of the b value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_SEB  (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_sem

LINEST_SEM() returns the aggregated standard error of the m value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_SEM  (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_sey

LINEST_SEY() returns the aggregated standard error of the y estimate of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_SEY  (y-expression, x-expression [, y0 [, x0 ]])
```

LINEST_ssreg

LINEST_SSREG() returns the aggregated regression sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_SSREG  (y-expression, x-expression [, y0 [, x0 ]])
```

Linest_ssresid

LINEST_SSRESID() returns the aggregated residual sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
LINEST_SSRESID  (y-expression, x-expression [, y0 [, x0 ]])
```

Median

Median() returns the aggregated median of the values in the expression over a number of records as defined by a **group by** clause.

```
Median (expression)
```

Skew

Skew() returns the skewness of expression over a number of records as defined by a **group by** clause.

```
Skew ([ distinct] expression)
```

Stdev

Stdev() returns the standard deviation of the values given by the expression over a number of records as defined by a **group by** clause.

```
Stdev ([distinct] expression)
```

Sterr

Sterr() returns the aggregated standard error (stdev/sqrt(n)) for a series of values represented by the expression iterated over a number of records as defined by a **group by** clause.

```
Sterr  ([distinct] expression)
```

STEYX

STEYX() returns the aggregated standard error of the predicted y-value for each x-value in the regression for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

```
STEYX  (y-expression, x-expression)
```

Statistical aggregation functions in chart expressions

The following statistical aggregation functions can be used in charts.

Avg

Avg() returns the aggregated average of the expression or field iterated over the chart dimensions.

```
Avg - chart function([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]]
expr)
```

Correl

Correl() returns the aggregated correlation coefficient for two data sets. The correlation function is a measure of the relationship between the data sets and is aggregated for (x,y) value pairs iterated over the chart dimensions.

```
Correl - chart function([{SetExpression}] [TOTAL [<fld {, fld}>]] value1,
value2 )
```

Fractile

Fractile() finds the value that corresponds to the inclusive fractile (quantile) of the aggregated data in the range given by the expression iterated over the chart dimensions.

```
Fractile - chart function([{SetExpression}] [TOTAL [<fld {, fld}>]] expr,
fraction)
```

FractileExc

FractileExc() finds the value that corresponds to the exclusive fractile (quantile) of the aggregated data in the range given by the expression iterated over the chart dimensions.

```
FractileExc - chart function([{SetExpression}] [TOTAL [<fld {, fld}>]] expr,
fraction)
```

Kurtosis

Kurtosis() finds the kurtosis of the range of data aggregated in the expression or field iterated over the chart dimensions.

```
Kurtosis - chart function([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]]
expr)
```

LINEST_b

LINEST_B() returns the aggregated b value (y-intercept) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_B - chart function([{SetExpression}] [TOTAL [<fld{ ,fld}>]] y_value,
x_value[, y0_const[, x0_const]])
```

LINEST_df

LINEST_DF() returns the aggregated degrees of freedom of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_DF - chart function([{SetExpression}] [TOTAL [<fld{, fld}>]] y_value,
x_value [, y0_const [, x0_const]])
```

LINEST_f

LINEST_F() returns the aggregated F statistic (r2/(1-r2)) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by **x_value** and the **y_value**, iterated over the chart dimensions.

```
LINEST_F - chart function([{SetExpression}] [TOTAL[<fld{, fld}>]] y_value, x_
value [, y0_const [, x0_const]])
```

LINEST_m

LINEST_M() returns the aggregated m value (slope) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_M - chart function([{SetExpression}] [TOTAL[<fld{, fld}>]] y_value, x_
value [, y0_const [, x0_const]])
```

LINEST_r2

LINEST_R2() returns the aggregated r2 value (coefficient of determination) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_R2 - chart function([{SetExpression}] [TOTAL [<fld{ ,fld}>]] y_value,
x_value[, y0_const[, x0_const]])
```

LINEST_seb

LINEST_SEB() returns the aggregated standard error of the b value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_SEB - chart function([{SetExpression}] [TOTAL [<fld{ ,fld}>]] y_value,
x_value[, y0_const[, x0_const]])
```

LINEST_sem

LINEST_SEM() returns the aggregated standard error of the m value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_SEM - chart function([{set_expression}][ distinct ] [total [<fld
{,fld}>] ] y-expression, x-expression [, y0 [, x0 ]] )
```

LINEST_sey

LINEST_SEY() returns the aggregated standard error of the y estimate of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_SEY - chart function([{SetExpression}] [TOTAL [<fld{ ,fld}>]] y_value,
x_value[, y0_const[, x0_const]])
```

LINEST_ssreg

LINEST_SSREG() returns the aggregated regression sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_SSREG - chart function([{SetExpression}] [TOTAL [<fld{ ,fld}>]] y_
value, x_value[, y0_const[, x0_const]])
```

LINEST_ssresid

LINEST_SSRESID() returns the aggregated residual sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by **x_value** and **y_value**, iterated over the chart dimensions.

```
LINEST_SSRESID - chart function([{SetExpression}] [TOTAL [<fld{ ,fld}>]] y_value, x_value[, y0_const[, x0_const]])
```

Median

Median() returns the median value of the range of values aggregated in the expression iterated over the chart dimensions.

```
Median - chart function([{SetExpression}] [TOTAL [<fld{, fld}>]] expr)
```

MutualInfo

MutualInfo calculates the mutual information (MI) between two fields or between aggregated values in **Aggr()**.

```
MutualInfo - chart function({SetExpression}] [DISTINCT] [TOTAL target, driver [, datatype [, breakdownbyvalue [, samplesize ]]])
```

Skew

Skew() returns the aggregated skewness of the expression or field iterated over the chart dimensions.

```
Skew - chart function([{SetExpression}] [DISTINCT] [TOTAL [<fld{ ,fld}>]] expr)
```

Stdev

Stdev() finds the standard deviation of the range of data aggregated in the expression or field iterated over the chart dimensions.

```
Stdev - chart function([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Sterr

Sterr() finds the value of the standard error of the mean, (stdev/sqrt(n)), for the series of values aggregated in the expression iterated over the chart dimensions.

```
Sterr - chart function([{SetExpression}] [DISTINCT] [TOTAL[<fld{, fld}>]] expr)
```

STEYX

STEYX() returns the aggregated standard error when predicting y-values for each x-value in a linear regression given by a series of coordinates represented by paired numbers in the expressions given by **y_value** and **x_value**.

```
STEYX - chart function([{SetExpression}] [TOTAL [<fld{, fld}>]] y_value, x_value)
```

Avg

Avg() finds the average value of the aggregated data in the expression over a number of records as defined by a **group by** clause.

Syntax:

```
Avg([DISTINCT] expr)
```

Return data type: numeric

Arguments:

Avg arguments

Argument	Description
expr	The expression or field containing the data to be measured.
DISTINCT	If the word **distinct** occurs before the expression, all duplicates will be disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result

`Temp:`
`crosstable (Month, Sales) load * inline [`
`Customer|Jan|Feb|Mar||Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec`
`Astrida|46|60|70|13|78|20|45|65|78|12|78|22`
`Betacab|65|56|22|79|12|56|45|24|32|78|55|15`
`Canutility|77|68|34|91|24|68|57|36|44|90|67|27`
`Divadip|36|44|90|67|27|57|68|47|90|80|94`
`] (delimiter is '|');`
 	
`Avg1:`
`LOAD Customer, Avg(Sales) as MyAverageSalesByCustomer`
`Resident Temp Group By Customer;`
	`Customer`
	`MyAverageSalesByCustomer`
	`Astrida 48.916667`
	`Betacab 44.916667`
	`Canutility 56.916667`
	`Divadip 63.083333`
	This can be checked in the sheet by creating a table including the measure:
	`Sum(Sales)/12`

Given that the **Temp** table is loaded as in the previous example:
 	
`LOAD Customer,Avg(DISTINCT Sales) as MyAvgSalesDistinct`
`Resident Temp Group By Customer;`
	`Customer`
	`MyAverageSalesByCustomer`
	`Astrida 43.1`
	`Betacab 43.909091`
	`Canutility 55.909091`
	`Divadip 61`
	Only the distinct values are counted.

Avg - chart function

Avg() returns the aggregated average of the expression or field iterated over the chart dimensions.

Syntax:

```
Avg([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Return data type: numeric

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Examples and results

Example	Result
`Avg(Sales)`	For a table including the dimension `Customer` and the measure `Avg([Sales])`, if **Totals** are shown, the result is 2566.
`Avg([TOTAL (Sales))`	53.458333 for all values of `Customer`, because the TOTAL qualifier means that dimensions are disregarded.
`Avg(DISTINCT (Sales))`	51.862069 for the total, because using the Distinct qualifier means only unique values in `Sales` for each `Customer` are evaluated.

Example output in table form

Customer	Sum (Sales)	Avg (Sales)	Avg(TOTAL Sales)	Avg(DISTINCT Sales)	Avg({1}DISTINCT Sales)
-	**2566**	**53.46**	**53.458333**	**51.862069**	**53.458333**
Astrida	587	48.92	53.458333	43.1	53.458333
Betacab	539	44.92	53.458333	43.909091	53.458333
Canutility	683	56.92	53.458333	55.909091	53.458333

Customer	Sum (Sales)	Avg (Sales)	Avg(TOTAL Sales)	Avg(DISTINCT Sales)	Avg({1}DISTINCT Sales)
Divadip	757	63.08	53.458333	61	53.458333

Data used in examples:

```
Monthnames:
LOAD * INLINE [
Month, Monthnumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
May, 5
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];
Sales2013:
crosstable (Month, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

To get the months to sort in the correct order, when you create your charts, go to the **Sort** tab of the chart properties, and mark the checkbox **Expression** under **Sort by**. In the expression box write `Monthnumber`.

Example data in table form

Customer	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Astrida	46	60	70	13	78	20	45	65	78	12	78	22
Betacab	65	56	22	79	12	56	45	24	32	78	55	15
Canutility	77	68	34	91	24	68	57	36	44	90	67	27
Divadip	57	36	44	90	67	27	57	68	47	90	80	94

Correl

Correl() returns the aggregated correlation coefficient for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
Correl(value1, value2)
```

Return data type: numeric

Arguments:

Correl arguments

Argument	Description
value1, value2	The expressions or fields containing the two sample sets for which the correlation coefficient is to be measured.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result

`Salary:`
`Load *, 1 as Grp;`
`LOAD * inline [`
`"Employee name"|Gender|Age|Salary`
`Aiden Charles|Male|20|25000`
`Brenda Davies|Male|25|32000`
`Charlotte Edberg|Female|45|56000`
`Daroush Ferrara|Male|31|29000`
`Eunice Goldblum|Female|31|32000`
`Freddy Halvorsen|Male|25|26000`
`Gauri Indu|Female|36|46000`
`Harry Jones|Male|38|40000`
`Ian Underwood|Male|40|45000`
`Jackie Kingsley|Female|23|28000`
`] (delimiter is '|');`
 	
`Correl1:`
`LOAD Grp,`
`Correl(Age,Salary) as Correl_Salary Resident Salary Group By Grp;`
	`Correl_Salary` = 0.9270611

Correl - chart function

Correl() returns the aggregated correlation coefficient for two data sets. The correlation function is a measure of the relationship between the data sets and is aggregated for (x,y) value pairs iterated over the chart dimensions.

Syntax:

```
Correl([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] value1, value2 )
```

Return data type: numeric

Arguments:

- `value1, value2`: The expressions or fields containing the two sample sets for which the correlation coefficient is to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples:

Examples and results

Example	Result
`Correl(Age, Salary)`	For a table including the dimension `Employee name` and the measure `Correl(Age, Salary)`, the result is 0.9270611. The result is only displayed for the totals cell.
`Correl(TOTAL Age, Salary))`	0.927. This and the following results are shown to three decimal places for readability.

Data used in examples:

```
Salary:
LOAD * inline [
"Employee name"|Gender|Age|Salary
Aiden Charles|Male|20|25000
Brenda Davies|Male|25|32000
Charlotte Edberg|Female|45|56000
Daroush Ferrara|Male|31|29000
Eunice Goldblum|Female|31|32000
Freddy Halvorsen|Male|25|26000
Gauri Indu|Female|36|46000
Harry Jones|Male|38|40000
Ian Underwood|Male|40|45000
Jackie Kingsley|Female|23|28000
```

```
] (delimiter is '|');
```

Fractile

Fractile() finds the value that corresponds to the inclusive fractile (quantile) of the aggregated data in the expression over a number of records as defined by a **group by** clause.

You can use FractileExc (page 1077) to calculate the exclusive fractile.

Syntax:

```
Fractile(expr, fraction)
```

Return data type: numeric

The function returns the value corresponding to the rank as defined by `rank = fraction * (N-1) + 1` where `N` is the number of values in `expr`. If `rank` is a non-integer number, an interpolation is made between the two closest values.

Arguments:

Fractile arguments

Argument	Description
expr	The expression or field containing the data to use when calculating the fractile.
fraction	A number between 0 and 1 corresponding to the fractile (quantile expressed as a fraction) to be calculated.

Examples and results:

Add the example script to your app and run it. To see the result, add the fields listed in the results column to a sheet in your app.

Examples and results

Example	Result
Table1: crosstable LOAD recno() as ID, * inline [Observation|Comparison 35|2 40|27 12|38 15|31 21|1 14|19 46|1 10|34 28|3 48|1 16|2 30|3 32|2 48|1 31|2 22|1 12|3 39|29 19|37 25|2] (delimiter is '|'); Fractile1: LOAD Type, Fractile(Value,0.75) as MyFractile Resident Table1 Group By Type;	In a table with the dimensions Type and MyFractile, the results of the Fractile() calculations in the data load script are: Type MyFractile Comparison 27.5 Observation 36

Fractile - chart function

Fractile() finds the value that corresponds to the inclusive fractile (quantile) of the aggregated data in the range given by the expression iterated over the chart dimensions.

You can use FractileExc - chart function (page 1079) to calculate the exclusive fractile.

Syntax:

```
Fractile([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr, fraction)
```

Return data type: numeric

The function returns the value corresponding to the rank as defined by `rank = fraction * (N-1) + 1` where `N` is the number of values in `expr`. If `rank` is a non-integer number, an interpolation is made between the two closest values.

Arguments:

- `expr`: The expression or field containing the data to use when calculating the fractile.
- `fraction`: A number between 0 and 1 corresponding to the fractile (quantile expressed as a fraction) to be calculated.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. By using **TOTAL [<fld {.fld}>]**, where the **TOTAL** qualifier is followed by a list of one or more field names as a subset of the chart dimension variables, you create a subset of the total possible values.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Examples and results

Example	Result
`Fractile (Sales, 0.75)`	For a table including the dimension `Customer` and the measure `Fractile([Sales])`, if **Totals** are shown, the result is 71.75. This is the point in the distribution of values of `Sales` that 75% of the values fall beneath.
`Fractile (TOTAL Sales, 0.75))`	71.75 for all values of `Customer`, because the TOTAL qualifier means that dimensions are disregarded.
`Fractile (DISTINCT Sales, 0.75)`	70 for the total, because using the DISTINCT qualifier means only unique values in `Sales` for each `Customer` are evaluated.

Data used in examples:

```
Monthnames:
LOAD *, Dual(MonthText,MonthNumber) as Month INLINE [
MonthText, MonthNumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
May, 5
```

```
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];

Sales2013:
Crosstable (MonthText, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

Example data in table form

Customer	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Astrida	46	60	70	13	78	20	45	65	78	12	78	22
Betacab	65	56	22	79	12	56	45	24	32	78	55	15
Canutility	77	68	34	91	24	68	57	36	44	90	67	27
Divadip	57	36	44	90	67	27	57	68	47	90	80	94

FractileExc

FractileExc() finds the value that corresponds to the exclusive fractile (quantile) of the aggregated data in the expression over a number of records as defined by a **group by** clause.

You can use Fractile (page 1074) to calculate the inclusive fractile.

Syntax:

```
FractileExc(expr, fraction)
```

Return data type: numeric

The function returns the value corresponding to the rank as defined by `rank = fraction * (N+1)` where `N` is the number of values in `expr`. If `rank` is a non-integer number, an interpolation is made between the two closest values.

Arguments:

FractileExc arguments

Argument	Description
expr	The expression or field containing the data to use when calculating the fractile.
fraction	A number between 0 and 1 corresponding to the fractile (quantile expressed as a fraction) to be calculated.

Examples and results:

Add the example script to your app and run it. To see the result, add the fields listed in the results column to a sheet in your app.

Examples and results

Example	Result

`Table1:`
`crosstable LOAD recno() as ID, *`
`inline [`
`Observation|Comparison`
`35|2`
`40|27`
`12|38`
`15|31`
`21|1`
`14|19`
`46|1`
`10|34`
`28|3`
`48|1`
`16|2`
`30|3`
`32|2`
`48|1`
`31|2`
`22|1`
`12|3`
`39|29`
`19|37`
`25|2 ] (delimiter is '|');`
 	
`Fractile1:`
`LOAD Type,`
`FractileExc(Value,0.75) as`
`MyFractile Resident Table1 Group By`
`Type;`
	In a table with the dimensions `Type` and `MyFractile`, the results of the FractileExc() calculations in the data load script are:
	
	`Type MyFractile`
	`Comparison 28.5`
	`Observation 38`

FractileExc - chart function

FractileExc() finds the value that corresponds to the exclusive fractile (quantile) of the aggregated data in the range given by the expression iterated over the chart dimensions.

You can use Fractile - chart function (page 1075) to calculate the inclusive fractile.

Syntax:

```
FractileExc([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr,
fraction)
```

Return data type: numeric

The function returns the value corresponding to the rank as defined by `rank = fraction * (N+1)` where `N` is the number of values in `expr`. If `rank` is a non-integer number, an interpolation is made between the two closest values.

Arguments:

- `expr`: The expression or field containing the data to use when calculating the fractile.
- `fraction`: A number between 0 and 1 corresponding to the fractile (quantile expressed as a fraction) to be calculated.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. By using **TOTAL [<fld {.fld}>]**, where the **TOTAL** qualifier is followed by a list of one or more field names as a subset of the chart dimension variables, you create a subset of the total possible values.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Examples and results

Example	Result
`FractileExc (Sales, 0.75)`	For a table including the dimension `Customer` and the measure `FractileExc([Sales])`, if **Totals** are shown, the result is 75.25. This is the point in the distribution of values of `Sales` that 75% of the values fall beneath.
`FractileExc (TOTAL Sales, 0.75))`	75.25 for all values of `Customer`, because the TOTAL qualifier means that dimensions are disregarded.
`FractileExc (DISTINCT Sales, 0.75)`	73.50 for the total, because using the DISTINCT qualifier means only unique values in `Sales` for each `Customer` are evaluated.

Data used in examples:

```
Monthnames:
LOAD *, Dual(MonthText,MonthNumber) as Month INLINE [
MonthText, MonthNumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
May, 5
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];

Sales2013:
Crosstable (MonthText, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

Example data in table form

Customer	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Astrida	46	60	70	13	78	20	45	65	78	12	78	22
Betacab	65	56	22	79	12	56	45	24	32	78	55	15

Customer	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Canutility	77	68	34	91	24	68	57	36	44	90	67	27
Divadip	57	36	44	90	67	27	57	68	47	90	80	94

Kurtosis

Kurtosis() returns the kurtosis of the data in the expression over a number of records as defined by a **group by** clause.

Syntax:

```
Kurtosis([distinct ] expr )
```

Return data type: numeric

Arguments:

Kurtosis arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates will be disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result
Table1: crosstable LOAD recno() as ID, * inline [Observation|Comparison 35|2 40|27 12|38 15|31 21|1 14|19 46|1 10|34 28|3 48|1 16|2 30|3 32|2 48|1 31|2 22|1 12|3 39|29 19|37 25|2] (delimiter is '|'); Kurtosis1: LOAD Type, Kurtosis(Value) as MyKurtosis1, Kurtosis(DISTINCT Value) as MyKurtosis2 Resident Table1 Group By Type;	In a table with the dimensions Type, MyKurtosis1,and MyKurtosis2, the results of the Kurtosis() calculations in the load script are: Type MyKurtosis1 MyKurtosis2 Comparison -1.1612957 -1.4982366 Observation -1.1148768 -0.93540144

Kurtosis - chart function

Kurtosis() finds the kurtosis of the range of data aggregated in the expression or field iterated over the chart dimensions.

Syntax:

```
Kurtosis([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Return data type: numeric

Arguments:

- expr: The expression or field containing the data to be measured.
- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.

- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Examples and results

Example	Result
Kurtosis (Value)	For a table including the dimension Type and the measure Kurtosis(Value), if **Totals** are shown for the table, and number formatting is set to 3 significant figures, the result is 1.252. For Comparison it is 1.161 and for Observation it is 1.115.
Kurtosis (TOTAL Value))	1.252 for all values of Type, because the TOTAL qualifier means that dimensions are disregarded.

Data used in examples:

```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
48|1
16|2
30|3
32|2
48|1
31|2
22|1
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

Example data in table form

Comparison	2	27	38	31	1	19	1	34	3	1	2	3	2	1	2	1	3	29	37	2
Observation	35	40	12	15	21	14	46	10	28	48	16	30	32	48	31	22	12	39	19	25

LINEST_B

LINEST_B() returns the aggregated b value (y-intercept) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_B (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_B arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_B - chart function

LINEST_B() returns the aggregated b value (y-intercept) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_B([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value
[, y0_const [ , x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0_const`,`x0_const`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_DF

LINEST_DF() returns the aggregated degrees of freedom of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_DF (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_DF arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_DF - chart function

LINEST_DF() returns the aggregated degrees of freedom of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_DF([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value [, y0_const [, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0`,`x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  > *Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.*

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.

- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_F

This script function returns the aggregated F statistic ($r^2/(1-r^2)$) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_F (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_F arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_F - chart function

LINEST_F() returns the aggregated F statistic (r2/(1-r2)) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by **x_value** and the **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_F([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value
[, y0_const [, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0`,`x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_M

LINEST_M() returns the aggregated m value (slope) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_M (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_M arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_M - chart function

LINEST_M() returns the aggregated m value (slope) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_M([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value
[, y0_const [, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0`,`x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

> *Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.*

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_R2

LINEST_R2() returns the aggregated r^2 value (coefficient of determination) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_R2 (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_R2 arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_R2 - chart function

LINEST_R2() returns the aggregated r2 value (coefficient of determination) of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_R2([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value[, y0_const[, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0`,`x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SEB

LINEST_SEB() returns the aggregated standard error of the b value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_SEB (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_SEB arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SEB - chart function

LINEST_SEB() returns the aggregated standard error of the b value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_SEB([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_
value[, y0_const[, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.

- y0,x0: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SEM

LINEST_SEM() returns the aggregated standard error of the m value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_SEM (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_SEM arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.

Argument	Description
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SEM - chart function

LINEST_SEM() returns the aggregated standard error of the m value of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_SEM([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value[, y0_const[, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0`,`x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  > *Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.*

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SEY

LINEST_SEY() returns the aggregated standard error of the y estimate of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_SEY (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_SEY arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SEY - chart function

LINEST_SEY() returns the aggregated standard error of the y estimate of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_SEY([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_
value[, y0_const[, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0,x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SSREG

LINEST_SSREG() returns the aggregated regression sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_SSREG (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_SSREG arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SSREG - chart function

LINEST_SSREG() returns the aggregated regression sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers given by the expressions **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_SSREG([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value[, y0_const[, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0`,`x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  > *Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.*

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.

- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SSRESID

LINEST_SSRESID() returns the aggregated residual sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
LINEST_SSRESID (y-value, x-value[, y0 [, x0 ]])
```

Return data type: numeric

Arguments:

LINEST_SSRESID arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.
y(0), x(0)	An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate. Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

LINEST_SSRESID - chart function

LINEST_SSRESID() returns the aggregated residual sum of squares of a linear regression defined by the equation y=mx+b for a series of coordinates represented by paired numbers in the expressions given by **x_value** and **y_value**, iterated over the chart dimensions.

Syntax:

```
LINEST_SSRESID([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value,
x_value[, y0_const[, x0_const]])
```

Return data type: numeric

Arguments:

- `y_value`: The expression or field containing the range of y-values to be measured.
- `x_value`: The expression or field containing the range of x-values to be measured.
- `y0,x0`: An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

  Unless both y0 and x0 are stated, the function requires at least two valid data-pairs to calculate. If y0 and x0 are stated, a single data pair will do.

- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

An optional value y0 may be stated forcing the regression line to pass through the y-axis at a given point. By stating both y0 and x0 it is possible to force the regression line to pass through a single fixed coordinate.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Median

Median() returns the aggregated median of the values in the expression over a number of records as defined by a **group by** clause.

Syntax:

```
Median (expr)
```

Return data type: numeric

Arguments:

Median arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Examples and results:

Add the example script to your app and run it. Then build a straight table with `Type` and `MyMedian` as dimensions.

Examples and results

Example	Result

`Table1:`
`crosstable LOAD recno() as ID, * inline [`
`Observation|Comparison`
`35|2`
`40|27`
`12|38`
`15|31`
`21|1`
`14|19`
`46|1`
`10|34`
`28|3`
`48|1`
`16|2`
`30|3`
`32|2`
`48|1`
`31|2`
`22|1`
`12|3`
`39|29`
`19|37`
`25|2 ] (delimiter is '|');`
 	
`Median1:`
`LOAD Type,`
`Median(Value) as MyMedian`
`Resident Table1 Group By Type;`
	The results of the Median() calculation are:
	• `Type` is `MyMedian`
	• `Comparison` is 2.5
	• `Observation` is 26.5

Median - chart function

Median() returns the median value of the range of values aggregated in the expression iterated over the chart dimensions.

Syntax:

```
Median([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Return data type: numeric

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Add the following example script to your app and run it.

```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
48|1
16|2
30|3
32|2
48|1
31|2
22|1
```

```
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

Then build a straight table with `Type` as dimension and `Median(Value)` as measure. `Totals` should be enabled in the properties of the table.

Result:

The median values for:

- Totals is 19
- Comparison is 2.5
- Observation is 26.5

MutualInfo - chart function

MutualInfo calculates the mutual information (MI) between two fields or between aggregated values in **Aggr()**.

MutualInfo enables different kinds of MI analysis:

- Pair-wise MI: Calculate the MI between a driver field and a target field.
- Driver breakdown by value: The MI is calculated between individual field values in the driver and target fields.
- Feature selection: Use **MutualInfo** in a grid chart to create a matrix where all fields are compared to each other based on MI.

MutualInfo returns the aggregated mutual information for two data sets. Mutual information is a measure of the relationship between the datasets and is aggregated for (x,y) pair values iterated over the chart dimensions. Mutual information is measured between 0 and 1. **MutualInfo** is defined by the selection or the set expression.

When calculating mutual information, associations affect the correspondence between and the frequency of values from fields that are from different tables.

Returned values for the same target and driver may vary slightly. This is due to each **MutualInfo** call operates on a randomly selected sample and the inherent randomness of the **MutualInfo** algorithm.

MutualInfo can be applied to the **Aggr()** function.

Syntax:

```
MutualInfo({SetExpression}] [DISTINCT] [TOTAL] target, driver , datatype [,
breakdownbyvalue [, samplesize ]])
```

Return data type: numeric

Arguments:

Arguments

Argument	Description
target, driver	The expressions or fields containing the two sample sets for which the mutual information to be measured.
datatype	The data types contained in the target and driver, 1 or 'dd' for discrete:discrete 2 or 'cc' for continuous:continuous 3 or 'cd' for continuous:discrete 4 or 'dc' for discrete:continuous Data types are not case sensitive.
breakdownbyvalue	A static value corresponding to a value in the driver. If supplied, the calculation will calculate the MI contribution for that value. You can use **ValueList()** or **ValueLoop ()**. If **Null()** is added, the calculation will calculate the overall MI for all values in the driver. Breaking down by value requires the driver contain discrete data.
samplesize	The number of values to sample from the target and driver. Sampling is random. **MutualInfo** requires a minimum sample size of 80. By default, **MutualInfo** only samples up to 10,000 data-pairs as **MutualInfo** can be resource intensive. You can specify greater numbers of data-pairs in the sample size. If **MutualInfo** times out, reduce the sample size.
SetExpression	By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
DISTINCT	If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
TOTAL	If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples and results:

Add the example script to your app and run it. Then add the fields listed in the results column to a sheet in your app to see the result.

Function examples

Example	Result
`mutualinfo(Age, Salary, 1)`	For a table including the dimension `Employee name` and the measure `mutualinfo(Age, Salary, 1)`, the result is 0.99820986. The result is only displayed for the totals cell.
`mutualinfo (TOTAL Age, Salary, 1, null (), 81)`	If you create a filter pane with the dimension Gender, and make selections from it, you see the result 0.99805677 when Female is selected and 0.99847373 if Male is selected. This is because the selection excludes all results that do not belong to the other value of Gender.
`mutualinfo (TOTAL Age, Gender, 1, ValueLoop (25,35))`	0.68196996. Selecting any value from Gender will change this to 0.
`mutualinfo({1} TOTAL Age, Salary, 1, null ())`	0.99820986. This is independent of selections. The set expression {1} disregards all selections and dimensions.

Data used in examples:

```
Salary:
LOAD * inline [
"Employee name"|Age|Gender|Salary
Aiden Charles|20|Male|25000
Ann Lindquist|69|Female|58000
Anna Johansen|37|Female|36000
Anna Karlsson|42|Female|23000
Antonio Garcia|20|Male|61000
Benjamin Smith|42|Male|27000
Bill Yang|49|Male|50000
Binh Protzmann|69|Male|21000
Bob Park|51|Male|54000
Brenda Davies|25|Male|32000
Celine Gagnon|48|Female|38000
Cezar Sandu|50|Male|46000
Charles Ingvar Jönsson|27|Male|58000
Charlotte Edberg|45|Female|56000
Cindy Lynn|69|Female|28000
Clark Wayne|63|Male|31000
Daroush Ferrara|31|Male|29000
David Cooper|37|Male|64000
```

```
David Leg|58|Male|57000
Eunice Goldblum|31|Female|32000
Freddy Halvorsen|25|Male|26000
Gauri Indu|36|Female|46000
George van Zaant|59|Male|47000
Glenn Brown|58|Male|40000
Harry Jones|38|Male|40000
Helen Brolin|52|Female|66000
Hiroshi Ito|24|Male|42000
Ian Underwood|40|Male|45000
Ingrid Hendrix|63|Female|27000
Ira Baumel|39|Female|39000
Jackie Kingsley|23|Female|28000
Jennica Williams|36|Female|48000
Jerry Tessel|31|Male|57000
Jim Bond|50|Male|58000
Joan Callins|60|Female|65000
Joan Cleaves|25|Female|61000
Joe Cheng|61|Male|41000
John Doe|36|Male|59000
John Lemon|43|Male|21000
Karen Helmkey|54|Female|25000
Karl Berger|38|Male|68000
Karl Straubaum|30|Male|40000
Kaya Alpan|32|Female|60000
Kenneth Finley|21|Male|25000
Leif Shine|63|Male|70000
Lennart Skoglund|63|Male|24000
Leona Korhonen|46|Female|50000
Lina André|50|Female|65000
Louis Presley|29|Male|36000
Luke Langston|50|Male|63000
Marcus Salvatori|31|Male|46000
Marie Simon|57|Female|23000
Mario Rossi|39|Male|62000
Markus Danzig|26|Male|48000
Michael Carlen|21|Male|45000
Michelle Tyson|44|Female|69000
Mike Ashkenaz|45|Male|68000
Miro Ito|40|Male|39000
Nina Mihn|62|Female|57000
Olivia Nguyen|35|Female|51000
Olivier Simenon|44|Male|31000
Östen Ärlig|68|Male|57000
Pamala Garcia|69|Female|29000
Paolo Romano|34|Male|45000
Pat Taylor|67|Female|69000
Paul Dupont|34|Male|38000
Peter Smith|56|Male|53000
Pierre Clouseau|21|Male|37000
Preben Jørgensen|35|Male|38000
Rey Jones|65|Female|20000
Ricardo Gucci|55|Male|65000
Richard Ranieri|30|Male|64000
Rob Carsson|46|Male|54000
Rolf Wesenlund|25|Male|51000
Ronaldo Costa|64|Male|39000
Sabrina Richards|57|Female|40000
Sato Hiromu|35|Male|21000
```

```
Sehoon Daw|57|Male|24000
Stefan Lind|67|Male|35000
Steve Cioazzi|58|Male|23000
Sunil Gupta|45|Male|40000
Sven Svensson|45|Male|55000
Tom Lindwall|46|Male|24000
Tomas Nilsson|27|Male|22000
Trinity Rizzo|52|Female|48000
Vanessa Lambert|54|Female|27000
] (delimiter is '|');
```

Skew

Skew() returns the skewness of expression over a number of records as defined by a **group by** clause.

Syntax:

```
Skew([ distinct] expr)
```

Return data type: numeric

Arguments:

Skew arguments

Argument	Description
expr	The expression or field containing the data to be measured.
DISTINCT	If the word **distinct** occurs before the expression, all duplicates will be disregarded.

Examples and results:

Add the example script to your app and run it. Then build a straight table with `Type` and `MySkew` as dimensions.

Examples and results

Example	Result
Table1: crosstable LOAD recno() as ID, * inline [Observation|Comparison 35|2 40|27 12|38 15|31 21|1 14|19 46|1 10|34 28|3 48|1 16|2 30|3 32|2 48|1 31|2 22|1 12|3 39|29 19|37 25|2] (delimiter is '|'); Skew1: LOAD Type, Skew(Value) as MySkew Resident Table1 Group By Type;	The results of the Skew() calculation in the data load script are: • Type is MySkew • Comparison is 0.86414768 • Observation is 0.32625351

Skew - chart function

Skew() returns the aggregated skewness of the expression or field iterated over the chart dimensions.

Syntax:

```
Skew([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Return data type: numeric

Arguments:

- expr: The expression or field containing the data to be measured.
- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one

or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Add the example script to your app and run it.

```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
48|1
16|2
30|3
32|2
48|1
31|2
22|1
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

Then build a straight table with `Type` as dimension and `Skew(Value)` as measure. `Totals` should be enabled in the properties of the table.

Result:

The results of the Skew(Value) calculation are:

- `Total` is 0.23522195
- `Comparison` is 0.86414768
- `Observation` is 0.32625351

Stdev

Stdev() returns the standard deviation of the values given by the expression over a number of records as defined by a **group by** clause.

Syntax:

```
Stdev([distinct] expr)
```

Return data type: numeric

Arguments:

Stdev arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates will be disregarded.

Examples and results:

Add the example script to your app and run it. Then build a straight table with `Type` and `MyStdev` as dimensions.

Examples and results

Example	Result

`Table1:`
`crosstable LOAD recno() as ID, * inline [`
`Observation|Comparison`
`35|2`
`40|27`
`12|38`
`15|31`
`21|1`
`14|19`
`46|1`
`10|34`
`28|3`
`48|1`
`16|2`
`30|3`
`32|2`
`48|1`
`31|2`
`22|1`
`12|3`
`39|29`
`19|37`
`25|2 ] (delimiter is '|');`
 	
`Stdev1:`
`LOAD Type,`
`Stdev(Value) as MyStdev`
`Resident Table1 Group By Type;`
	The results of the Stdev() calculation are:
	• `Type` is `MyStdev`
	• `Comparison` is 14.61245
	• `Observation` is 12.507997

Stdev - chart function

Stdev() finds the standard deviation of the range of data aggregated in the expression or field iterated over the chart dimensions.

Syntax:

```
Stdev([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Return data type: numeric

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Examples:

Add the example script to your app and run it.

```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
48|1
16|2
30|3
32|2
48|1
31|2
22|1
```

```
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

Then build a straight table with `Type` as dimension and `Stdev(Value)` as measure. `Totals` should be enabled in the properties of the table.

Result:

The results of the Stdev(Value) calculation are:

- `Total` is 15.47529
- `Comparison` is 14.61245
- `Observation` is 12.507997

Sterr

Sterr() returns the aggregated standard error (stdev/sqrt(n)) for a series of values represented by the expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
Sterr ([distinct] expr)
```

Return data type: numeric

Arguments:

Sterr arguments

Argument	Description
expr	The expression or field containing the data to be measured.
distinct	If the word **distinct** occurs before the expression, all duplicates will be disregarded.

Limitations:

Text values, NULL values and missing values are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result
Table1: crosstable LOAD recno() as ID, * inline [Observation|Comparison 35|2 40|27 12|38 15|31 21|1 14|19 46|1 10|34 28|3 48|1 16|2 30|3 32|2 48|1 31|2 22|1 12|3 39|29 19|37 25|2] (delimiter is '|'); Sterr1: LOAD Type, Sterr(Value) as MySterr Resident Table1 Group By Type;	In a table with the dimensions Type and MySterr, the results of the Sterr () calculation in the load script are: Type MySterr Comparison 3.2674431 Observation 2.7968733

Sterr - chart function

Sterr() finds the value of the standard error of the mean, (stdev/sqrt(n)), for the series of values aggregated in the expression iterated over the chart dimensions.

Syntax:

```
Sterr([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] expr)
```

Return data type: numeric

Arguments:

- expr: The expression or field containing the data to be measured.
- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional

value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values are disregarded.

Examples:

Add the example script to your app and run it, using `Sterr(Value)`.

```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
48|1
16|2
30|3
32|2
48|1
31|2
22|1
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

Then build a straight table with `Type` as dimension and `Sterr(Value)` as measure. `Totals` should be enabled in the properties of the table.

Result:

The results of the Sterr(Value) calculation are:

- `Total` is 2.4468583
- `Comparison` is 3.2674431
- `Observation` is 2.7968733

STEYX

STEYX() returns the aggregated standard error of the predicted y-value for each x-value in the regression for a series of coordinates represented by paired numbers in x-expression and y-expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
STEYX (y-value, x-value)
```

Return data type: numeric

Arguments:

STEYX arguments

Argument	Description
y_value	The expression or field containing the range of y-values to be measured.
x_value	The expression or field containing the range of x-values to be measured.

Limitations:

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result
Trend: Load *, 1 as Grp; LOAD * inline [Month|KnownY|KnownX Jan|2|6 Feb|3|5 Mar|9|11 Apr|6|7 May|8|5 Jun|7|4 Jul|5|5 Aug|10|8 Sep|9|10 Oct|12|14 Nov|15|17 Dec|14|16] (delimiter is '|'); STEYX1: LOAD Grp, STEYX(KnownY, KnownX) as MySTEYX Resident Trend Group By Grp;	In a table with the dimension MySTEYX, the result of the STEYX() calculation in the load script is 2.0714764.

STEYX - chart function

STEYX() returns the aggregated standard error when predicting y-values for each x-value in a linear regression given by a series of coordinates represented by paired numbers in the expressions given by **y_value** and **x_value**.

Syntax:

```
STEYX([{SetExpression}] [DISTINCT] [TOTAL [<fld{, fld}>]] y_value, x_value)
```

Return data type: numeric

Arguments:

- y_value: The expression or field containing the range of known y-values to be measured.
- x_value: The expression or field containing the range of known x-values to be measured.
- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- DISTINCT: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one

or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

The parameter of the aggregation function must not contain other aggregation functions, unless these inner aggregations contain the **TOTAL** qualifier. For more advanced nested aggregations, use the advanced function **Aggr**, in combination with a specified dimension.

Text values, NULL values and missing values in any or both pieces of a data-pair result in the entire data-pair being disregarded.

Examples:

Add the example script to your app and run it.

```
Trend:
LOAD * inline [
Month|KnownY|KnownX
Jan|2|6
Feb|3|5
Mar|9|11
Apr|6|7
May|8|5
Jun|7|4
Jul|5|5
Aug|10|8
Sep|9|10
Oct|12|14
Nov|15|17
Dec|14|16
] (delimiter is '|');
```

Then build a straight table with `KnownY` and `KnownX` as dimension and `Steyx(KnownY,KnownX)` as measure. `Totals` should be enabled in the properties of the table.

Result:

The result of the STEYX(KnownY,KnownX) calculation is 2.071 (If number formatting is set to 3 decimal places.)

An example of how to use linest functions

The linest functions are used to find values associated with linear regression analysis. This section describes how to build charts using sample data to find the values of the linest functions available in QlikView. The linest functions can be used in the load script and in chart expressions.

Please refer to the individual linest chart function and script function topics for descriptions of syntax and arguments.

Loading the sample data

Do the following:

1. Create a new document.
2. Select **Edit Script** in the toolbar and enter the following to the script:

```
T1:
LOAD *, 1 as Grp;
LOAD * inline [
X |Y
1| 0
2|1
3|3
4| 8
5| 14
6| 20
7| 0
8| 50
9| 25
10| 60
11| 38
12| 19
13| 26
14| 143
15| 98
16| 27
17| 59
18| 78
19| 158
20| 279 ] (delimiter is '|');
R1:
LOAD
Grp,
linest_B(Y,X) as Linest_B,
linest_DF(Y,X) as Linest_DF,
linest_F(Y,X) as Linest_F,
linest_M(Y,X) as Linest_M,
linest_R2(Y,X) as Linest_R2,
linest_SEB(Y,X,1,1) as Linest_SEB,
linest_SEM(Y,X) as Linest_SEM,
linest_SEY(Y,X) as Linest_SEY,
linest_SSREG(Y,X) as Linest_SSREG,
linest_SSRESID(Y,X) as Linest_SSRESID
resident T1 group by Grp;
```

3. Save the script and click **Reload** to load the data.

Displaying the results from the script calculations

Do the following:

1. Add a table box on the sheet and select the following fields to be displayed:
    - Linest_B
    - Linest_DF
    - Linest_F
    - Linest_M
    - Linest_R2
    - Linest_SEB
    - Linest_SEM

- Linest_SEY
- Linest_SSREG
- Linest_SSRESID

The table containing the results of the linest calculations made in the load script should look like this:

Example results (first 5 entries)

Linest_B	Linest_DF	Linest_F	Linest_M	Linest_R2
-35.047	18	20.788	8.605	0.536

Example results (last 5 entries)

Linest_SEB	Linest_SEM	Linest_SEY	Linest_SSREG	Linest_SSRESID
22.607	1.887	48.666	49235.014	42631.186

Creating the linest chart function charts

Do the following:

1. Create a new line chart by going to **Object** > **New Sheet Object** > **Chart...**:
   - In the **Dimensions** window, add X as a dimension.
   - In the **Expression** window, add Sum(Y) as a measure.
   - In the **Presentation** window, deselect **Suppress Zero-Values**.

   A line chart is created that represents the graph of X plotted against Y, from which the linest functions are calculated.
2. For the expression Sum(Y), enable the linear Trend Line feature and check Show Equation.
   This will show QlikView's built-in line of best fit with the linear regression function described.
3. Compute the linear regression function using the linest_b and linest_m functions by adding a second expression, defined as:
   $(=LINEST_M(Y,X))*ONLY(X)+$(=LINEST_B(Y,X))
4. Add a straight table on the sheet and add the following as a calculated dimension:
   `ValueList('Linest_b', 'Linest_df','Linest_f', 'Linest_m','Linest_r2','Linest_SEB','Linest_SEM','Linest_SEY','Linest_SSREG','Linest_SSRESID')`
   This uses the synthetic dimensions function to create labels for the dimensions with the names of the linest functions. You can change the label to **Linest functions** to save space.
5. Add the following expression to the table as a measure:
   ```
   Pick(Match(ValueList('Linest_b', 'Linest_df','Linest_f', 'Linest_m','Linest_r2','Linest_SEB','Linest_SEM','Linest_SEY','Linest_SSREG','Linest_SSRESID'),'Linest_b', 'Linest_df','Linest_f', 'Linest_m','Linest_r2','Linest_SEB','Linest_SEM','Linest_SEY','Linest_SSREG','Linest_SSRESID'),Linest_b(Y,X),Linest_df(Y,X),Linest_f(Y,X),Linest_m(Y,X),Linest_r2(Y,X),Linest_SEB(Y,X,1,1),Linest_SEM(Y,X),Linest_SEY(Y,X),Linest_SSREG(Y,X),Linest_SSRESID(Y,X) )
   ```
   This displays the value of the result of each linest function against the corresponding name in the synthetic dimension. The result of `Linest_b(Y,X)` is displayed next to **linest_b**, and so on.

Example output in table form

Linest functions	Linest function results
Linest_b	-35.047
Linest_df	18
Linest_f	20.788
Linest_m	8.605
Linest_r2	0.536
Linest_SEB	22.607
Linest_SEM	1.887
Linest_SEY	48.666
Linest_SSREG	49235.014
Linest_SSRESID	42631.186

Statistical test functions

This section describes functions for statistical tests, which are divided into three categories. The functions can be used in both the load script and chart expressions, but the syntax differs.

Chi-2 test functions

Generally used in the study of qualitative variables. One can compare observed frequencies in a one-way frequency table with expected frequencies, or study the connection between two variables in a contingency table.

T-test functions

T-test functions are used for statistical examination of two population means. A two-sample t-test examines whether two samples are different and is commonly used when two normal distributions have unknown variances and when an experiment uses a small sample size.

Z-test functions

A statistical examination of two population means. A two sample z-test examines whether two samples are different and is commonly used when two normal distributions have known variances and when an experiment uses a large sample size.

Chi2-test functions

Generally used in the study of qualitative variables. One can compare observed frequencies in a one-way frequency table with expected frequencies, or study the connection between two variables in a contingency table.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Chi2Test_chi2

Chi2Test_chi2() returns the aggregated chi^2-test value for one or two series of values.

```
Chi2Test_chi2() returns the aggregated chi2-test value for one or two series of values.(col, row, actual_value[, expected_value])
```

Chi2Test_df

Chi2Test_df() returns the aggregated chi^2-test df value (degrees of freedom) for one or two series of values.

```
Chi2Test_df() returns the aggregated chi2-test df value (degrees of freedom) for one or two series of values.(col, row, actual_value[, expected_value])
```

Chi2Test_p

Chi2Test_p() returns the aggregated chi^2-test p value (significance) for one or two series of values.

```
Chi2Test_p - chart function(col, row, actual_value[, expected_value])
```

Chi2Test_chi2

Chi2Test_chi2() returns the aggregated chi^2-test value for one or two series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

All QlikView chi^2 -test functions have the same arguments.

Syntax:

```
Chi2Test_chi2(col, row, actual_value[, expected_value])
```

Return data type: numeric

Arguments:

- `col, row`: The specified column and row in the matrix of values being tested.
- `actual_value`: The observed value of the data at the specified **col** and **row**.
- `expected_value`: The expected value for the distribution at the specified **col** and **row**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
Chi2Test_chi2( Grp, Grade, Count )
Chi2Test_chi2( Gender, Description, Observed, Expected )
```

Chi2Test_df

Chi2Test_df() returns the aggregated chi^2-test df value (degrees of freedom) for one or two series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

All QlikView chi^2 -test functions have the same arguments.

Syntax:

```
Chi2Test_df(col, row, actual_value[, expected_value])
```

Return data type: numeric

Arguments:

- `col, row`: The specified column and row in the matrix of values being tested.
- `actual_value`: The observed value of the data at the specified **col** and **row**.
- `expected_value`: The expected value for the distribution at the specified **col** and **row**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
Chi2Test_df( Grp, Grade, Count )
Chi2Test_df( Gender, Description, Observed, Expected )
```

Chi2Test_p - chart function

Chi2Test_p() returns the aggregated chi^2-test p value (significance) for one or two series of values. The test can be done either on the values in **actual_value**, testing for variations within the specified **col** and **row** matrix, or by comparing values in **actual_value** with corresponding values in **expected_value**, if specified.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

All QlikView chi^2 -test functions have the same arguments.

Syntax:

```
Chi2Test_p(col, row, actual_value[, expected_value])
```

Return data type: numeric

Arguments:

- `col, row`: The specified column and row in the matrix of values being tested.
- `actual_value`: The observed value of the data at the specified **col** and **row**.
- `expected_value`: The expected value for the distribution at the specified **col** and **row**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
Chi2Test_p( Grp, Grade, Count )
Chi2Test_p( Gender, Description, Observed, Expected )
```

T-test functions

T-test functions are used for statistical examination of two population means. A two-sample t-test examines whether two samples are different and is commonly used when two normal distributions have unknown variances and when an experiment uses a small sample size.

In the following sections, the t-test statistical test functions are grouped according to the sample student test that applies to each type of function.

Loading the sample data (page 1165)

Two independent samples t-tests

The following functions apply to two independent samples student's t-tests:

ttest_conf

TTest_conf returns the aggregated t-test confidence interval value for two independent samples.

```
TTest_conf returns the aggregated t-test confidence interval value for two independent samples. ( grp, value [, sig[, eq_var]])
```

ttest_df

TTest_df() returns the aggregated student's t-test value (degrees of freedom) for two independent series of values.

```
TTest_df() returns the aggregated student's t-test value (degrees of freedom) for two independent series of values. (grp, value [, eq_var)
```

ttest_dif

TTest_dif() is a numeric function that returns the aggregated student's t-test mean difference for two independent series of values.

```
TTest_dif() is a numeric function that returns the aggregated student's t-test mean difference for two independent series of values. (grp, value)
```

ttest_lower

TTest_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

```
TTest_lower() returns the aggregated value for the lower end of the
confidence interval for two independent series of values. (grp, value [, sig
[, eq_var]])
```

ttest_sig

TTest_sig() returns the aggregated student's t-test 2-tailed level of significance for two independent series of values.

```
TTest_sig() returns the aggregated student's t-test 2-tailed level of
significance for two independent series of values. (grp, value [, eq_var])
```

ttest_sterr

TTest_sterr() returns the aggregated student's t-test standard error of the mean difference for two independent series of values.

```
TTest_sterr() returns the aggregated student's t-test standard error of the
mean difference for two independent series of values. (grp, value [, eq_var])
```

ttest_t

TTest_t() returns the aggregated t value for two independent series of values.

```
TTest_t() returns the aggregated t value for two independent series of
values. (grp, value [, eq_var])
```

ttest_upper

TTest_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

```
TTest_upper() returns the aggregated value for the upper end of the
confidence interval for two independent series of values. (grp, value [, sig
[, eq_var]])
```

Two independent weighted samples t-tests

The following functions to two independent samples student's t-tests where the input data series is given in weighted two-column format:

ttestw_conf

TTestw_conf() returns the aggregated t value for two independent series of values.

```
TTestw_conf() returns the aggregated t value for two independent series of
values. (weight, grp, value [, sig[, eq_var]])
```

ttestw_df

TTestw_df() returns the aggregated student's t-test df value (degrees of freedom) for two independent series of values.

TTestw_df() returns the aggregated student's t-test df value (degrees of freedom) for two independent series of values. (weight, grp, value [, eq_var])

ttestw_dif

TTestw_dif() returns the aggregated student's t-test mean difference for two independent series of values.

TTestw_dif() returns the aggregated student's t-test mean difference for two independent series of values. (weight, grp, value)

ttestw_lower

TTestw_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

TTestw_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values. (weight, grp, value [, sig[, eq_var]])

ttestw_sig

TTestw_sig() returns the aggregated student's t-test 2-tailed level of significance for two independent series of values.

TTestw_sig() returns the aggregated student's t-test 2-tailed level of significance for two independent series of values. (weight, grp, value [, eq_var])

ttestw_sterr

TTestw_sterr() returns the aggregated student's t-test standard error of the mean difference for two independent series of values.

TTestw_sterr() returns the aggregated student's t-test standard error of the mean difference for two independent series of values. (weight, grp, value [, eq_var])

ttestw_t

TTestw_t() returns the aggregated t value for two independent series of values.

TTestw_t() returns the aggregated t value for two independent series of values. (weight, grp, value [, eq_var])

ttestw_upper

TTestw_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

TTestw_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values. (weight, grp, value [, sig [, eq_var]])

One sample t-tests

The following functions apply to one-sample student's t-tests:

ttest1_conf

TTest1_conf() returns the aggregated confidence interval value for a series of values.

```
TTest1_conf() returns the aggregated confidence interval value for a series
of values. (value [, sig])
```

ttest1_df

TTest1_df() returns the aggregated student's t-test df value (degrees of freedom) for a series of values.

```
TTest1_df() returns the aggregated student's t-test df value (degrees of
freedom) for a series of values. (value)
```

ttest1_dif

TTest1_dif() returns the aggregated student's t-test mean difference for a series of values.

```
TTest1_dif() returns the aggregated student's t-test mean difference for a
series of values. (value)
```

ttest1_lower

TTest1_lower() returns the aggregated value for the lower end of the confidence interval for a series of values.

```
TTest1_lower() returns the aggregated value for the lower end of the
confidence interval for a series of values. (value [, sig])
```

ttest1_sig

TTest1_sig() returns the aggregated student's t-test 2-tailed level of significance for a series of values.

```
TTest1_sig() returns the aggregated student's t-test 2-tailed level of
significance for a series of values. (value)
```

ttest1_sterr

TTest1_sterr() returns the aggregated student's t-test standard error of the mean difference for a series of values.

```
TTest1_sterr() returns the aggregated student's t-test standard error of the
mean difference for a series of values. (value)
```

ttest1_t

TTest1_t() returns the aggregated t value for a series of values.

```
TTest1_t() returns the aggregated t value for a series of values. (value)
```

ttest1_upper

TTest1_upper() returns the aggregated value for the upper end of the confidence interval for a series of values.

```
TTest1_upper() returns the aggregated value for the upper end of the
confidence interval for a series of values. (value [, sig])
```

One weighted sample t-tests

The following functions apply to one-sample student's t-tests where the input data series is given in weighted two-column format:

ttest1w_conf

TTest1w_conf() is a **numeric** function that returns the aggregated confidence interval value for a series of values.

```
TTest1w_conf() is a numeric function that returns the aggregated confidence interval value for a series of values. (weight, value [, sig])
```

ttest1w_df

TTest1w_df() returns the aggregated student's t-test df value (degrees of freedom) for a series of values.

```
TTest1w_df() returns the aggregated student's t-test df value (degrees of freedom) for a series of values. (weight, value)
```

ttest1w_dif

TTest1w_dif() returns the aggregated student's t-test mean difference for a series of values.

```
TTest1w_dif() returns the aggregated student's t-test mean difference for a series of values. (weight, value)
```

ttest1w_lower

TTest1w_lower() returns the aggregated value for the lower end of the confidence interval for a series of values.

```
TTest1w_lower() returns the aggregated value for the lower end of the confidence interval for a series of values. (weight, value [, sig])
```

ttest1w_sig

TTest1w_sig() returns the aggregated student's t-test 2-tailed level of significance for a series of values.

```
TTest1w_sig() returns the aggregated student's t-test 2-tailed level of significance for a series of values. (weight, value)
```

ttest1w_sterr

TTest1w_sterr() returns the aggregated student's t-test standard error of the mean difference for a series of values.

```
TTest1w_sterr() returns the aggregated student's t-test standard error of the mean difference for a series of values. (weight, value)
```

ttest1w_t

TTest1w_t() returns the aggregated t value for a series of values.

```
TTest1w_t() returns the aggregated t value for a series of values. ( weight, value)
```

ttest1w_upper

TTest1w_upper() returns the aggregated value for the upper end of the confidence interval for a series of values.

```
TTest1w_upper() returns the aggregated value for the upper end of the
confidence interval for a series of values. (weight, value [, sig])
```

TTest_conf

TTest_conf returns the aggregated t-test confidence interval value for two independent samples.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_conf ( grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_conf( Group, Value )
TTest_conf( Group, Value, Sig, false )
```

TTest_df

TTest_df() returns the aggregated student's t-test value (degrees of freedom) for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_df (grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_df( Group, Value )
TTest_df( Group, Value, false )
```

TTest_dif

TTest_dif() is a numeric function that returns the aggregated student's t-test mean difference for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_dif (grp, value [, eq_var] )
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script,

the field will automatically be named **Value**.

- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_dif( Group, Value )
TTest_dif( Group, Value, false )
```

TTest_lower

TTest_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_lower (grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- value: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- sig: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_lower( Group, Value )
```

```
TTest_lower( Group, Value, Sig, false )
```

TTest_sig

TTest_sig() returns the aggregated student's t-test 2-tailed level of significance for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_sig (grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_sig( Group, Value )
TTest_sig( Group, Value, false )
```

TTest_sterr

TTest_sterr() returns the aggregated student's t-test standard error of the mean difference for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_sterr (grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_sterr( Group, Value )
TTest_sterr( Group, Value, false )
```

TTest_t

TTest_t() returns the aggregated t value for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_t(grp, value[, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest_t( Group, Value, false )
```

TTest_upper

TTest_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest_upper (grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest_upper( Group, Value )
TTest_upper( Group, Value, sig, false )
```

TTestw_conf

TTestw_conf() returns the aggregated t value for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_conf (weight, grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_conf( Weight, Group, Value )
TTestw_conf( Weight, Group, Value, sig, false )
```

TTestw_df

TTestw_df() returns the aggregated student's t-test df value (degrees of freedom) for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_df (weight, grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_df( Weight, Group, Value )
TTestw_df( Weight, Group, Value, false )
```

TTestw_dif

TTestw_dif() returns the aggregated student's t-test mean difference for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_dif (weight, group, value)
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_dif( Weight, Group, Value )
TTestw_dif( Weight, Group, Value, false )
```

TTestw_lower

TTestw_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_lower (weight, grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_lower( Weight, Group, Value )
TTestw_lower( Weight, Group, Value, sig, false )
```

TTestw_sig

TTestw_sig() returns the aggregated student's t-test 2-tailed level of significance for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_sig ( weight, grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_sig( Weight, Group, Value )
TTestw_sig( Weight, Group, Value, false )
```

TTestw_sterr

TTestw_sterr() returns the aggregated student's t-test standard error of the mean difference for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_sterr (weight, grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `eq_var`: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_sterr( Weight, Group, Value )
TTestw_sterr( Weight, Group, Value, false )
```

TTestw_t

TTestw_t() returns the aggregated t value for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ttestw_t (weight, grp, value [, eq_var])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.

- weight: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_t( Weight, Group, Value )
TTestw_t( Weight, Group, Value, false )
```

TTestw_upper

TTestw_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

This function applies to two independent samples student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTestw_upper (weight, grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- value: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- weight: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- sig: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTestw_upper( Weight, Group, Value )
TTestw_upper( Weight, Group, Value, sig, false )
```

TTest1_conf

TTest1_conf() returns the aggregated confidence interval value for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_conf (value [, sig ])
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Argument	Description
value	The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
sig	The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest1_conf( Value )
TTest1_conf( Value, 0.005 )
```

TTest1_df

TTest1_df() returns the aggregated student's t-test df value (degrees of freedom) for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_df (value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1_df( Value )
```

TTest1_dif

TTest1_dif() returns the aggregated student's t-test mean difference for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_dif (value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1_dif( Value )
```

TTest1_lower

TTest1_lower() returns the aggregated value for the lower end of the confidence interval for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_lower (value [, sig])
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest1_lower( value )
TTest1_lower( value, 0.005 )
```

TTest1_sig

TTest1_sig() returns the aggregated student's t-test 2-tailed level of significance for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_sig (value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1_sig( Value )
```

TTest1_sterr

TTest1_sterr() returns the aggregated student's t-test standard error of the mean difference for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_sterr (value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1_sterr( Value )
```

TTest1_t

TTest1_t() returns the aggregated t value for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_t (value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1_t( Value )
```

TTest1_upper

TTest1_upper() returns the aggregated value for the upper end of the confidence interval for a series of values.

This function applies to one-sample student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1_upper (value [, sig])
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest1_upper( value )
TTest1_upper( value, 0.005 )
```

TTest1w_conf

TTest1w_conf() is a **numeric** function that returns the aggregated confidence interval value for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_conf (weight, value [, sig ])
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest1w_conf( Weight, Value )
TTest1w_conf( Weight, Value, 0.005 )
```

TTest1w_df

TTest1w_df() returns the aggregated student's t-test df value (degrees of freedom) for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_df (weight, value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1w_df( Weight, Value )
```

TTest1w_dif

TTest1w_dif() returns the aggregated student's t-test mean difference for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_dif (weight, value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1w_dif( Weight, Value )
```

TTest1w_lower

TTest1w_lower() returns the aggregated value for the lower end of the confidence interval for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_lower (weight, value [, sig ])
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest1w_lower( Weight, Value )
TTest1w_lower( Weight, Value, 0.005 )
```

TTest1w_sig

TTest1w_sig() returns the aggregated student's t-test 2-tailed level of significance for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_sig (weight, value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1w_sig( Weight, Value )
```

TTest1w_sterr

TTest1w_sterr() returns the aggregated student's t-test standard error of the mean difference for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_sterr (weight, value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1w_sterr( Weight, Value )
```

TTest1w_t

TTest1w_t() returns the aggregated t value for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_t ( weight, value)
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
TTest1w_t( Weight, Value )
```

TTest1w_upper

TTest1w_upper() returns the aggregated value for the upper end of the confidence interval for a series of values.

This function applies to one-sample student's t-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
TTest1w_upper (weight, value [, sig])
```

Return data type: numeric

Arguments:

- `value`: The samples to be evaluated. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `weight`: Each value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
TTest1w_upper( Weight, Value )
TTest1w_upper( Weight, Value, 0.005 )
```

Z-test functions

A statistical examination of two population means. A two sample z-test examines whether two samples are different and is commonly used when two normal distributions have known variances and when an experiment uses a large sample size.

The z-test statistical test functions are grouped according the type of input data series that applies to the function.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Loading the sample data (page 1168)

One column format functions

The following functions apply to z-tests with simple input data series:

ztest_conf
ZTest_conf() returns the aggregated z value for a series of values.

```
ZTest_conf() returns the aggregated z value for a series of values. (value [, sigma [, sig ])
```

ztest_dif
ZTest_dif() returns the aggregated z-test mean difference for a series of values.

ZTest_dif() returns the aggregated z-test mean difference for a series of values. (value [, sigma]**)**

ztest_sig

ZTest_sig() returns the aggregated z-test 2-tailed level of significance for a series of values.

ZTest_sig() returns the aggregated z-test 2-tailed level of significance for a series of values. (value [, sigma]**)**

ztest_sterr

ZTest_sterr() returns the aggregated z-test standard error of the mean difference for a series of values.

ZTest_sterr() returns the aggregated z-test standard error of the mean difference for a series of values. (value [, sigma]**)**

ztest_z

ZTest_z() returns the aggregated z value for a series of values.

ZTest_z() returns the aggregated z value for a series of values. (value [, sigma]**)**

ztest_lower

ZTest_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

ZTest_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values. (grp, value [, sig [, eq_var]]**)**

ztest_upper

ZTest_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

ZTest_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values. (grp, value [, sig [, eq_var]]**)**

Weighted two-column format functions

The following functions apply to z-tests where the input data series is given in weighted two-column format.

ztestw_conf

ZTestw_conf() returns the aggregated z confidence interval value for a series of values.

ZTestw_conf() returns the aggregated z confidence interval value for a series of values. (weight, value [, sigma [, sig]]**)**

ztestw_dif

ZTestw_dif() returns the aggregated z-test mean difference for a series of values.

ZTestw_dif() returns the aggregated z-test mean difference for a series of values. (weight, value [, sigma]**)**

ztestw_lower

ZTestw_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

```
ZTestw_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values. (weight, value [, sigma])
```

ztestw_sig

ZTestw_sig() returns the aggregated z-test 2-tailed level of significance for a series of values.

```
ZTestw_sig() returns the aggregated z-test 2-tailed level of significance for a series of values. (weight, value [, sigma])
```

ztestw_sterr

ZTestw_sterr() returns the aggregated z-test standard error of the mean difference for a series of values.

```
ZTestw_sterr() returns the aggregated z-test standard error of the mean difference for a series of values. (weight, value [, sigma])
```

ztestw_upper

ZTestw_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

```
ZTestw_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values. (weight, value [, sigma])
```

ztestw_z

ZTestw_z() returns the aggregated z value for a series of values.

```
ZTestw_z() returns the aggregated z value for a series of values. (weight, value [, sigma])
```

ZTest_z

ZTest_z() returns the aggregated z value for a series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_z(value[, sigma])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. A population mean of 0 is assumed. If you want the test to be performed around another mean, subtract that mean from the sample values.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTest_z( Value-TestValue )
```

ZTest_sig

ZTest_sig() returns the aggregated z-test 2-tailed level of significance for a series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_sig(value[, sigma])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. A population mean of 0 is assumed. If you want the test to be performed around another mean, subtract that mean from the sample values.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTest_sig(Value-TestValue)
```

ZTest_dif

ZTest_dif() returns the aggregated z-test mean difference for a series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_dif(value[, sigma])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. A population mean of 0 is assumed. If you want the test to be performed around another mean, subtract that mean from the sample values.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTest_dif(Value-TestValue)
```

ZTest_sterr

ZTest_sterr() returns the aggregated z-test standard error of the mean difference for a series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_sterr(value[, sigma])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. A population mean of 0 is assumed. If you want the test to be performed around another mean, subtract that mean from the sample values.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTest_sterr(Value-TestValue)
```

ZTest_conf

ZTest_conf() returns the aggregated z value for a series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_conf(value[, sigma[, sig]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. A population mean of 0 is assumed. If you want the test to be performed around another mean, subtract that mean from the sample values.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTest_conf(Value-TestValue)
```

ZTest_lower

ZTest_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_lower (grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- value: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- sig: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
ZTest_lower( Group, Value )
ZTest_lower( Group, Value, sig, false )
```

ZTest_upper

ZTest_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_upper (grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- value: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.

- sig: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
ZTest_upper( Group, Value )
ZTest_upper( Group, Value, sig, false )
```

ZTestw_z

ZTestw_z() returns the aggregated z value for a series of values.

This function applies to z-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTestw_z (weight, value [, sigma])
```

Return data type: numeric

Arguments:

- value: The values should be returned by **value**. A sample mean of 0 is assumed. If you want the test to be performed around another mean, subtract that value from the sample values.
- weight: Each sample value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- sigma: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTestw_z( Weight, Value-TestValue)
```

ZTestw_sig

ZTestw_sig() returns the aggregated z-test 2-tailed level of significance for a series of values.

This function applies to z-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTestw_sig (weight, value [, sigma])
```

Return data type: numeric

Arguments:

- `value`: The values should be returned by **value**. A sample mean of 0 is assumed. If you want the test to be performed around another mean, subtract that value from the sample values.
- `weight`: Each sample value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTestw_sig( Weight, Value-TestValue)
```

ZTestw_dif

ZTestw_dif() returns the aggregated z-test mean difference for a series of values.

This function applies to z-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTestw_dif ( weight, value [, sigma])
```

Return data type: numeric

Arguments:

- `value`: The values should be returned by **value**. A sample mean of 0 is assumed. If you want the test to be performed around another mean, subtract that value from the sample values.
- `weight`: Each sample value in **value** can be counted one or more times according to a corresponding weight value in **weight**.

- sigma: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTestw_dif( Weight, Value-TestValue)
```

ZTestw_sterr

ZTestw_sterr() returns the aggregated z-test standard error of the mean difference for a series of values.

This function applies to z-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTestw_sterr (weight, value [, sigma])
```

Return data type: numeric

Arguments:

- value: The values should be returned by **value**. A sample mean of 0 is assumed. If you want the test to be performed around another mean, subtract that value from the sample values.
- weight: Each sample value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- sigma: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTestw_sterr( Weight, Value-TestValue)
```

ZTestw_conf

ZTestw_conf() returns the aggregated z confidence interval value for a series of values.

This function applies to z-tests where the input data series is given in weighted two-column format.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTest_conf(weight, value[, sigma[, sig]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. A population mean of 0 is assumed. If you want the test to be performed around another mean, subtract that mean from the sample values.
- `weight`: Each sample value in **value** can be counted one or more times according to a corresponding weight value in **weight**.
- `sigma`: If known, the standard deviation can be stated in **sigma**. If **sigma** is omitted the actual sample standard deviation will be used.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Example:

```
ZTestw_conf( Weight, Value-TestValue)
```

ZTestw_lower

ZTestw_lower() returns the aggregated value for the lower end of the confidence interval for two independent series of values.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTestw_lower (grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- `value`: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- `grp`: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- `sig`: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.

- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
ZTestw_lower( Group, Value )
ZTestw_lower( Group, Value, sig, false )
```

ZTestw_upper

ZTestw_upper() returns the aggregated value for the upper end of the confidence interval for two independent series of values.

This function applies to independent samples student's t-tests.

If the function is used in the load script, the values are iterated over a number of records as defined by a group by clause.

If the function is used in a chart expression, the values are iterated over the chart dimensions.

Syntax:

```
ZTestw_upper (grp, value [, sig [, eq_var]])
```

Return data type: numeric

Arguments:

- value: The sample values to be evaluated. The sample values must be logically grouped as specified by exactly two values in **group**. If a field name for the sample values is not provided in the load script, the field will automatically be named **Value**.
- grp: The field containing the names of each of the two sample groups. If a field name for the group is not provided in the load script, the field will automatically be given the name **Type**.
- sig: The two-tailed level of significance can be specified in **sig**. If omitted, **sig** is set to 0.025, resulting in a 95% confidence interval.
- eq_var: If **eq_var** is specified as False (0), separate variances of the two samples will be assumed. If **eq_var** is specified as True (1), equal variances between the samples will be assumed.

Limitations:

Text values, NULL values and missing values in the expression value will result in the function returning NULL.

Examples:

```
ZTestw_upper( Group, Value )
ZTestw_upper( Group, Value, sig, false )
```

Statistical test function examples

This section includes examples of statistical test functions as applied to charts and the load script.

Examples of how to use chi2-test functions in charts

The chi2-test functions are used to find values associated with chi squared statistical analysis. This section describes how to build charts using sample data to find the values of the chi-squared distribution test functions available in QlikView. Please refer to the individual chi2-test chart function topics for descriptions of syntax and arguments.

9.8 Loading the data for the samples

There are three sets of sample data describing three different statistical samples to be loaded into the script.

Do the following:

1. Create a new document.
2. Select **Edit Script** in the toolbar and enter the following to the script:

```
// Sample_1 data is pre-aggregated... Note: make sure you set your DecimalSep='.' at the
top of the script.
Sample_1:
LOAD * inline [
Grp,Grade,Count
I,A,15
I,B,7
I,C,9
I,D,20
I,E,26
I,F,19
II,A,10
II,B,11
II,C,7
II,D,15
II,E,21
II,F,16
];
// Sample_2 data is pre-aggregated: If raw data is used, it must be aggregated using
count()...
Sample_2:
LOAD * inline [
Sex,Opinion,OpCount
1,2,58
1,1,11
1,0,10
2,2,35
2,1,25
2,0,23 ] (delimiter is ',');
// Sample_3a data is transformed using the crosstable statement...
Sample_3a:
crosstable(Gender, Actual) LOAD
Description,
[Men (Actual)] as Men,
[Women (Actual)] as Women;
LOAD * inline [
```

```
Men (Actual),Women (Actual),Description
58,35,Agree
11,25,Neutral
10,23,Disagree ] (delimiter is ',');
// Sample_3b data is transformed using the crosstable statement...
Sample_3b:
crosstable(Gender, Expected) LOAD
Description,
[Men (Expected)] as Men,
[Women (Expected)] as Women;
LOAD * inline [
Men (Expected),Women (Expected),Description
45.35,47.65,Agree
17.56,18.44,Neutral
16.09,16.91,Disagree ] (delimiter is ',');
// Sample_3a and Sample_3b will result in a (fairly harmless) Synthetic Key...
```

3. Save the script and click **Reload** to load the data.

9.9 Creating the chi2-test chart function charts

Example: Sample 1

Do the following:

1. Add a table box to the sheet and add Grp, Grade, and Count as dimensions.
   This table shows the sample data.
2. Add straight table with the following calculated dimension:
   `ValueList('p','df','Chi2')`
   This uses the synthetic dimensions function to create labels for the dimensions with the names of the three chi2-test functions.
3. Add the following expression:
   `IF(ValueList('p','df','Chi2')='p',Chi2Test_p(Grp,Grade,Count),`
   `IF(ValueList('p','df','Chi2')='df',Chi2Test_df(Grp,Grade,Count),`
   `Chi2Test_Chi2(Grp,Grade,Count)))`
   This has the effect of putting the resulting value of each chi2-test function in the table next to its associated synthetic dimension.
4. Set the number format setting of the expression to **Number** and **Precision** to **3**.

In the expression, you could use the following expression instead:
`Pick(Match(ValueList('p','df','Chi2'),'p','df','Chi2'),Chi2Test_p(Grp,Grade,Count),Chi2Test_df(Grp,Grade,Count),Chi2Test_Chi2(Grp,Grade,Count))`

Result:

The resulting table for the chi2-test functions for the Sample 1 data will contain the following values:

Example results

p	df	Chi2
0.820	5	2.21

Example: Sample 2

Do the following:

1. Add another table box to the sheet with Sex, Opinion, and OpCount as dimensions.
2. Make a copy of the results straight table from Sample 1 using the **Copy to Clipboard:**/**Object** and **Paste Sheet Object** commands. Edit the expression and replace the arguments in all three chi2-test functions with the names of the fields used in the Sample 2 data, for example: `Chi2Test_p (Sex,Opinion,OpCount)`.

Result:

The resulting table for the chi2-test functions for the Sample 2 data will contain the following values:

Example results

p	df	Chi2
0.000309	2	16.2

Example: Sample 3

Do the following:

1. Create one more table box and one more straight table in the same way as in the examples for Sample 1 and Sample 2 data. In the table box, use the following fields as dimensions: Gender, Description, Actual, and Expected.
2. In the results straight table, use the names of the fields used in the Sample 3 data, for example: `Chi2Test_p(Gender,Description,Actual,Expected)`.

Result:

The resulting table for the chi2-test functions for the Sample 3 data will contain the following values:

Example results

p	df	Chi2
0.000308	2	16.2

Examples of how to use chi2-test functions in the load script

The chi2-test functions are used to find values associated with chi squared statistical analysis. This section describes how to use the chi-squared distribution test functions available in QlikView in the load script. Please refer to the individual chi2-test script function topics for descriptions of syntax and arguments.

This example uses a table containing the number of students achieving a grade (A-F) for two groups of students (I and II).

chi2-test example

-	A	B	C	D	E	F

I	15	7	9	20	26	19
II	10	11	7	15	21	16

9.10 Loading the sample data

Do the following:

1. Create a new document.
2. Select **Edit Script** in the toolbar and enter the following to the script:
```
// Sample_1 data is pre-aggregated... Note: make sure you set your DecimalSep='.' at the top of the script.
Sample_1:
LOAD * inline [
Grp,Grade,Count
I,A,15
I,B,7
I,C,9
I,D,20
I,E,26
I,F,19
II,A,10
II,B,11
II,C,7
II,D,15
II,E,21
II,F,16
];
```
3. Save the script and click **Reload** to load the data.

You have now loaded the sample data.

9.11 Loading the chi2-test function values

Now we will load the chi2-test values based on the sample data in a new table, grouped by Grp.

Do the following:

1. Select **Edit Script** in the toolbar and add the following to end of the script:
```
// Sample_1 data is pre-aggregated... Note: make sure you set your DecimalSep='.' at the top of the script.
Chi2_table:
LOAD Grp,
Chi2Test_chi2(Grp, Grade, Count) as chi2,
Chi2Test_df(Grp, Grade, Count) as df,
Chi2Test_p(Grp, Grade, Count) as p
resident Sample_1 group by Grp;
```
2. Save the script and click **Reload** to load the data.

You have now loaded the chi2-test values in a table named Chi2_table.

9.12 Results

You can view the resulting chi2-test values in the table viewer, they should look like this:

chi2-test results

Grp	chi2	df	p
I	16.00	5	0.007
II	9.40	5	0.094

Creating a typical t-test report

A typical student t-test report can include tables with **Group Statistics** and **Independent Samples Test** results. In the following sections we will build these tables using QlikViewt-test functions applied to two independent groups of samples, Observation and Comparison. The corresponding tables for these samples would look like this:

Group Statistics

Group Statistics example table output

Type	N	Mean	Standard Deviation	Standard Error Mean
Comparison	20	11.95	14.61245	3.2674431
Observation	20	27.15	12.507997	2.7968933

Independent Sample Test

Independent Sample Test example table output

-	t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference (Lower)	95% Confidence Interval of the Difference (Upper)
Equal Variance not Assumed	3.534	37.116717335823	0.001	15.2	4.30101	6.48625	23.9137
Equal Variance Assumed	3.534	38	0.001	15.2	4.30101	6.49306	23.9069

9.13 Loading the sample data

Do the following:

1. Create a new document.
2. Select **Edit Script** in the toolbar and enter the following to the script:
```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
```

```
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
48|1
16|2
30|3
32|2
48|1
31|2
22|1
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

In this load script, **recno()** is included because **crosstable** requires three arguments. So, **recno()** simply provides an extra argument, in this case an ID for each row. Without it, **Comparison** sample values would not be loaded.

3. Save the script and click **Reload** to load the data.

9.14 Creating the Group Statistics table

Do the following:

1. Add a straight table on the sheet and select Type as a dimension.
2. Add the following expressions:

Expressions to add

Label	Expression
N	Count(Value)
Mean	Avg(Value)
Standard Deviation	Stdev(Value)
Standard Error Mean	Sterr(Value)

3. Make sure that Type is at the top of the sorting list.

Result:

A Group Statistics table for these samples would look like this:

Group Statistics example table output

Type	N	Mean	Standard Deviation	Standard Error Mean
Comparison	20	11.95	14.61245	3.2674431
Observation	20	27.15	12.507997	2.7968933

9.15 Creating the Two Independent Sample Student's T-test table

Do the following:

1. Add a table on the sheet.
2. Add the following calculated dimension as a dimension to the table. `=ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1))`
3. Add the following expressions:

Expressions to add

Label	Expression
conf	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_conf(Type, Value),TTest_conf(Type, Value, 0))
t	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_t(Type, Value),TTest_t(Type, Value, 0))
df	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_df(Type, Value),TTest_df(Type, Value, 0))
Sig. (2-tailed)	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_sig(Type, Value),TTest_sig(Type, Value, 0))
Mean Difference	TTest_dif(Type, Value)
Standard Error Difference	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_sterr(Type, Value),TTest_sterr(Type, Value, 0))
95% Confidence Interval of the Difference (Lower)	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_lower(Type, Value,(1-(95)/100)/2),TTest_lower(Type, Value,(1-(95)/100)/2, 0))
95% Confidence Interval of the Difference (Upper)	if(ValueList (Dual('Equal Variance not Assumed', 0), Dual('Equal Variance Assumed', 1)),TTest_upper(Type, Value,(1-(95)/100)/2),TTest_upper(Type, Value,(1-(95)/100)/2, 0))

Result:

An **Independent Sample Test** table for these samples would look like this:

Independent Sample Test example table output

-	t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference (Lower)	95% Confidence Interval of the Difference (Upper)
Equal Variance not Assumed	3.534	37.116717335823	0.001	15.2	4.30101	6.48625	23.9137
Equal Variance Assumed	3.534	38	0.001	15.2	4.30101	6.49306	23.9069

Examples of how to use z-test functions

The z-test functions are used to find values associated with z-test statistical analysis for large data samples, usually greater than 30, and where the variance is known. This section describes how to build charts using sample data to find the values of the z-test functions available in QlikView. Please refer to the individual z-test chart function topics for descriptions of syntax and arguments.

9.16 Loading the sample data

The sample data used here is the same as that used in the t-test function examples. The sample data size would normally be considered too small for z-test analysis, but is sufficient for the purposes of illustrating the use of the different z-test functions in QlikView.

Do the following:

1. Create a new document.

   If you created a document for the t-test functions, you could use that and create a new sheet for these functions.

2. Select **Edit Script** in the toolbar and enter the following to the script:

```
Table1:
crosstable LOAD recno() as ID, * inline [
Observation|Comparison
35|2
40|27
12|38
15|31
21|1
14|19
46|1
10|34
28|3
```

```
48|1
16|2
30|3
32|2
48|1
31|2
22|1
12|3
39|29
19|37
25|2 ] (delimiter is '|');
```

In this load script, **recno()** is included because **crosstable** requires three arguments. So, **recno()** simply provides an extra argument, in this case an ID for each row. Without it, **Comparison** sample values would not be loaded.

3. Save the script and click **Reload** to load the data.

9.17 Creating z-test chart function charts

Do the following:

1. Add a straight table on the sheet and select Type as a dimension.
2. Add the following expressions:

Expressions to add

Label	Expression
ZTest Conf	ZTest_conf(Value)
ZTest Dif	ZTest_dif(Value)
ZTest Sig	ZTest_sig(Value)
ZTest Sterr	ZTest_sterr(Value)
ZTest Z	ZTest_z(Value)

You might wish to adjust the number formatting of the measures in order to see meaningful values. The table will be easier to read if you set number formatting on most of the expressions to fixed to 2 decimals. But for ZTest Sig, for example, use the number formatting: ***Number****, and then adjust the format pattern to* ***# ##****.*

Result:

The resulting table for the z-test functions for the sample data will contain the following values:

z-test example table output

Type	ZTest Conf	ZTest Dif	ZTest Sig	ZTest Sterr	ZTest Z
Comparison	6.40	11.95	0.000123	3.27	3.66
Value	5.48	27.15	0.001	2.80	9.71

9.18 Creating z-testw chart function charts

The z-testw functions are for use when the input data series occurs in weighted two-column format. The expressions require a value for the argument weight. The examples here use the value 2 throughout, but you could use an expression, which would define a value for weight for each observation.

Examples and results:

Using the same sample data and number formatting as for the z-test functions, the resulting table for the z-testw functions will contain the following values:

z-testw example table output

Type	ZTestw Conf	ZTestw Dif	ZTestw Sig	ZTestw Sterr	ZTestw Z
Comparison	3.53	2.95	5.27e-005	1.80	3.88
Value	2.97	34.25	0	4.52	20.49

String aggregation functions

This section describes string-related aggregation functions.

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

String aggregation functions in the load script

Concat

Concat() is used to combine string values. The script function returns the aggregated string concatenation of all values of the expression iterated over a number of records as defined by a **group by** clause.

```
Concat ([ distinct ] expression [, delimiter [, sort-weight]])
```

FirstValue

FirstValue() returns the value that was loaded first from the records defined by the expression, sorted by a **group by** clause.

This function is only available as a script function.

```
FirstValue  (expression)
```

LastValue

LastValue() returns the value that was loaded last from the records defined by the expression, sorted by a **group by** clause.

This function is only available as a script function.

```
LastValue  (expression)
```

MaxString

MaxString() finds string values in the expression and returns the last text value sorted over a number of records, as defined by a **group by** clause.

```
MaxString (expression )
```

MinString

MinString() finds string values in the expression and returns the first text value sorted over a number of records, as defined by a **group by** clause.

```
MinString (expression )
```

String aggregation functions in charts

The following chart functions are available for aggregating strings in charts.

Concat

Concat() is used to combine string values. The function returns the aggregated string concatenation of all the values of the expression evaluated over each dimension.

```
Concat - chart function({[SetExpression] [DISTINCT] [TOTAL [<fld{, fld}>]]
string[, delimiter[, sort_weight]])
```

MaxString

MaxString() finds string values in the expression or field and returns the last text value in the text sort order.

```
MaxString - chart function({[SetExpression] [TOTAL [<fld{, fld}>]]} expr)
```

MinString

MinString() finds string values in the expression or field and returns the first text value in the text sort order.

```
MinString - chart function({[SetExpression] [TOTAL [<fld {, fld}>]]} expr)
```

Concat

Concat() is used to combine string values. The script function returns the aggregated string concatenation of all values of the expression iterated over a number of records as defined by a **group by** clause.

Syntax:

```
Concat ([ distinct ] string [, delimiter [, sort-weight]])
```

Return data type: string

Arguments:

The expression or field containing the string to be processed.

Concat arguments

Argument	Description
string	The expression or field containing the string to be processed.
delimiter	Each value may be separated by the string found in delimiter.
sort-weight	The order of concatenation may be determined by the value of the dimension **sort-weight**, if present, with the string corresponding to the lowest value appearing first in the concatenation.
distinct	If the word **distinct** occurs before the expression, all duplicates are disregarded.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result field	Result value

`TeamData:`
`LOAD * inline [`
`SalesGroup|Team|Date|Amount`
`East|Gamma|01/05/2013|20000`
`East|Gamma|02/05/2013|20000`
`West|Zeta|01/06/2013|19000`
`East|Alpha|01/07/2013|25000`
`East|Delta|01/08/2013|14000`
`West|Epsilon|01/09/2013|17000`
`West|Eta|01/10/2013|14000`
`East|Beta|01/11/2013|20000`
`West|Theta|01/12/2013|23000`
`] (delimiter is '|');`
 	
`Concat1:`
`LOAD SalesGroup,Concat(Team) as TeamConcat1 Resident TeamData Group By SalesGroup;`
	SalesGroup
	East
	West
		TeamConcat1
		AlphaBetaDeltaGammaGamma
		EpsilonEtaThetaZeta

Given that the **TeamData** table is loaded as in the previous example: `LOAD SalesGroup,Concat(distinct Team,'-') as TeamConcat2 Resident TeamData Group By SalesGroup;`	SalesGroup East West	TeamConcat2 Alpha-Beta-Delta-Gamma Epsilon-Eta-Theta-Zeta
Given that the **TeamData** table is loaded as in the previous example: `LOAD SalesGroup,Concat(distinct Team,'-',Amount) as TeamConcat2 Resident TeamData Group By SalesGroup;`	Because the argument for **sort-weight** is added, the results are ordered by the value of the dimension Amount.	
	SalesGroup East West	TeamConcat2 Delta-Beta-Gamma-Alpha Eta-Epsilon-Zeta-Theta

Concat - chart function

Concat() is used to combine string values. The function returns the aggregated string concatenation of all the values of the expression evaluated over each dimension.

Syntax:

```
Concat({[SetExpression] [DISTINCT] [TOTAL [<fld{, fld}>]] string[, delimiter
[, sort_weight]])
```

Return data type: string

Arguments:

- `string`: The expression or field containing the string to be processed.
- `delimiter`: Each value may be separated by the string found in delimiter.
- `sort-weight`: The order of concatenation may be determined by the value of the dimension **sort-weight**, if present, with the string corresponding to the lowest value appearing first in the concatenation.
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `DISTINCT`: If the word **DISTINCT** occurs before the function arguments, duplicates resulting from the evaluation of the function arguments are disregarded.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`Concat(Team)`	The table is constructed from the dimensions SalesGroup and Amount, and variations on the measure Concat(Team). Ignoring the Totals result, note that even though there is data for eight values of Team spread across two values of SalesGroup, the only result of the measure Concat(Team) that concatenates more than one Team string value in the table is the row containing the dimension Amount 20000, which gives the result BetaGammaGamma. This is because there are three values for the Amount 20000 in the input data. All other results remain unconcatenated when the measure is spanned across the dimensions because there is only one value of Team for each combination of SalesGroup and Amount.
`Concat (DISTINCT Team,', ')`	Beta, Gamma. because the DISTINCT qualifier means the duplicate Gamma result is disregarded. Also, the delimiter argument is defined as a comma followed by a space.

Example	Result
`Concat (TOTAL <SalesGroup> Team)`	All the string values for all values of Team are concatenated if the TOTAL qualifier is used. With the field selection <SalesGroup> specified, this divides the results into the two values of the dimension SalesGroup. For the SalesGroupEast, the results are AlphaBetaDeltaGammaGamma. For the SalesGroupWest, the results are EpsilonEtaThetaZeta.
`Concat (TOTAL <SalesGroup> Team,';', Amount)`	By adding the argument for **sort-weight**: Amount, the results are ordered by the value of the dimension Amount. The results becomes DeltaBetaGammaGammaAlpha and EtaEpsilonZEtaTheta.

Data used in examples:

```
TeamData:
LOAD * inline [
SalesGroup|Team|Date|Amount
East|Gamma|01/05/2013|20000
East|Gamma|02/05/2013|20000
West|Zeta|01/06/2013|19000
East|Alpha|01/07/2013|25000
East|Delta|01/08/2013|14000
West|Epsilon|01/09/2013|17000
West|Eta|01/10/2013|14000
East|Beta|01/11/2013|20000
West|Theta|01/12/2013|23000
] (delimiter is '|');
```

Example data in table form

SalesGroup	Amount	Concat(Team)	Concat(TOTAL <SalesGroup> Team)
East	25000	Alpha	AlphaBetaDeltaGammaGamma
East	20000	BetaGammaGamma	AlphaBetaDeltaGammaGamma
East	14000	Delta	AlphaBetaDeltaGammaGamma
West	17000	Epsilon	EpsilonEtaThetaZeta
West	14000	Eta	EpsilonEtaThetaZeta
West	23000	Theta	EpsilonEtaThetaZeta
West	19000	Zeta	EpsilonEtaThetaZeta

FirstValue

FirstValue() returns the value that was loaded first from the records defined by the expression, sorted by a **group by** clause.

This function is only available as a script function.

Syntax:

```
FirstValue ( expr)
```

Return data type: dual

Arguments:

FirstValue arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Limitations:

If no text value is found, NULL is returned.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result field	Result value

`TeamData:`
`LOAD * inline [`
`SalesGroup|Team|Date|Amount`
`East|Gamma|01/05/2013|20000`
`East|Gamma|02/05/2013|20000`
`West|Zeta|01/06/2013|19000`
`East|Alpha|01/07/2013|25000`
`East|Delta|01/08/2013|14000`
`West|Epsilon|01/09/2013|17000`
`West|Eta|01/10/2013|14000`
`East|Beta|01/11/2013|20000`
`West|Theta|01/12/2013|23000`
`] (delimiter is '|');`
 	
`FirstValue1:`
`LOAD SalesGroup,FirstValue(Team) as FirstTeamLoaded`
`Resident TeamData Group By SalesGroup;`
	SalesGroup
	
	East
	
	West
		FirstTeamLoaded
		
		Gamma
		
		Zeta

LastValue

LastValue() returns the value that was loaded last from the records defined by the expression, sorted by a **group by** clause.

This function is only available as a script function.

Syntax:

```
LastValue ( expr )
```

Return data type: dual

Arguments:

LastValue arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Limitations:

If no text value is found, NULL is returned.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in our document to see the result.

Examples and results

Example	Result field	Result value

`TeamData:`
`LOAD * inline [`
`SalesGroup|Team|Date|Amount`
`East|Gamma|01/05/2013|20000`
`East|Gamma|02/05/2013|20000`
`West|Zeta|01/06/2013|19000`
`East|Alpha|01/07/2013|25000`
`East|Delta|01/08/2013|14000`
`West|Epsilon|01/09/2013|17000`
`West|Eta|01/10/2013|14000`
`East|Beta|01/11/2013|20000`
`West|Theta|01/12/2013|23000`
`] (delimiter is '|');`
 	
`LastValue1:`
`LOAD SalesGroup,LastValue(Team) as LastTeamLoaded Resident TeamData Group By SalesGroup;`
	SalesGroup
	
	East
	
	West
		LastTeamLoaded
		
		Beta
		
		Theta

MaxString

MaxString() finds string values in the expression and returns the last text value sorted over a number of records, as defined by a **group by** clause.

Syntax:

```
MaxString ( expr )
```

Return data type: dual

Arguments:

MaxString arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Limitations:

If no text value is found, NULL is returned.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result field	Result value

`TeamData:`
`LOAD * inline [`
`SalesGroup|Team|Date|Amount`
`East|Gamma|01/05/2013|20000`
`East|Gamma|02/05/2013|20000`
`West|Zeta|01/06/2013|19000`
`East|Alpha|01/07/2013|25000`
`East|Delta|01/08/2013|14000`
`West|Epsilon|01/09/2013|17000`
`West|Eta|01/10/2013|14000`
`East|Beta|01/11/2013|20000`
`West|Theta|01/12/2013|23000`
`] (delimiter is '|');`
 	
`Concat1:`
`LOAD SalesGroup,MaxString(Team) as MaxString1 Resident TeamData Group By SalesGroup;`
	SalesGroup
	
	East
	
	West
		MaxString1
		
		Gamma
		
		Zeta

Given that the **TeamData** table is loaded as in the previous example, and your load script has the SET statement: `SET DateFormat='DD/MM/YYYY';`: `LOAD SalesGroup,MaxString(Date) as MaxString2 Resident TeamData Group By SalesGroup;`	SalesGroup East West	MaxString2 01/11/2013 01/12/2013

MaxString - chart function

MaxString() finds string values in the expression or field and returns the last text value in the text sort order.

Syntax:

```
MaxString({[SetExpression] [TOTAL [<fld{, fld}>]]} expr)
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured..
- `SetExpression`: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Limitations:

If the expression contains no values with a string representation NULL is returned.

Examples:

This table represents all values of the dimension Customer with corresponding Product values. In an actual table chart on a sheet, there will be a row for each value of Customer and Product.

Examples and results

Example	Result
`MaxString (Team)`	There are three values of 20000 for the dimension Amount: two of Gamma (on different dates), and one of Beta. The result of the measure MaxString (Team) is therefore Gamma, because this is the highest value in the sorted strings.
`MaxString (Date)`	2013/11/01 is the greatest Date value of the three associated with the dimension Amount. This assumes your script has the SET statement `SET DateFormat='YYYY-MM-DD';`

Data used in examples:

```
TeamData:
LOAD * inline [
SalesGroup|Team|Date|Amount
East|Gamma|01/05/2013|20000
East|Gamma|02/05/2013|20000
West|Zeta|01/06/2013|19000
East|Alpha|01/07/2013|25000
East|Delta|01/08/2013|14000
West|Epsilon|01/09/2013|17000
West|Eta|01/10/2013|14000
East|Beta|01/11/2013|20000
West|Theta|01/12/2013|23000
] (delimiter is '|');
```

Example data in table form

SalesGroup	Amount	MaxString(Team)	MaxString(Date)
East	14000	Delta	2013/08/01
East	20000	Gamma	2013/11/01
East	25000	Alpha	2013/07/01
West	14000	Eta	2013/10/01
West	17000	Epsilon	2013/09/01
West	19000	Zeta	2013/06/01
West	23000	Theta	2013/12/01

MinString

MinString() finds string values in the expression and returns the first text value sorted over a number of records, as defined by a **group by** clause.

Syntax:

```
MinString ( expr )
```

Return data type: dual

Arguments:

MinString arguments

Argument	Description
expr	The expression or field containing the data to be measured.

Limitations:

If no text value is found, NULL is returned.

Examples and results:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

Examples and results

Example	Result field	Result value
TeamData: LOAD * inline [SalesGroup|Team|Date|Amount East|Gamma|01/05/2013|20000 East|Gamma|02/05/2013|20000 West|Zeta|01/06/2013|19000 East|Alpha|01/07/2013|25000 East|Delta|01/08/2013|14000 West|Epsilon|01/09/2013|17000 West|Eta|01/10/2013|14000 East|Beta|01/11/2013|20000 West|Theta|01/12/2013|23000] (delimiter is '|'); Concat1: LOAD SalesGroup,MinString(Team) as MinString1 Resident TeamData Group By SalesGroup;	SalesGroup East West	MinString1 Alpha Epsilon
Given that the **TeamData** table is loaded as in the previous example, and your load script has the SET statement: SET DateFormat='DD/MM/YYYY';': LOAD SalesGroup,MinString(Date) as MinString2 Resident TeamData Group By SalesGroup;	SalesGroup East West	MinString2 01/05/2013 01062/2013

MinString - chart function

MinString() finds string values in the expression or field and returns the first text value in the text sort order.

Syntax:

```
MinString({[SetExpression] [TOTAL [<fld {, fld}>]]} expr)
```

Return data type: dual

Arguments:

- expr: The expression or field containing the data to be measured..
- SetExpression: By default, the aggregation function will aggregate over the set of possible records defined by the selection. An alternative set of records can be defined by a set analysis expression.
- TOTAL: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
`MinString (Team)`	There are three values of 20000 for the dimension Amount: two of Gamma (on different dates), and one of Beta. The result of the measure MinString (Team) is therefore Beta, because this is the first value in the sorted strings.
`MinString (Date)`	2013/11/01 is the earliest Date value of the three associated with the dimension Amount. This assumes your script has the SET statement `SET DateFormat='YYYY-MM-DD';`

Data used in examples:

```
TeamData:
LOAD * inline [
SalesGroup|Team|Date|Amount
East|Gamma|01/05/2013|20000
East|Gamma|02/05/2013|20000
West|Zeta|01/06/2013|19000
East|Alpha|01/07/2013|25000
East|Delta|01/08/2013|14000
West|Epsilon|01/09/2013|17000
West|Eta|01/10/2013|14000
East|Beta|01/11/2013|20000
West|Theta|01/12/2013|23000
] (delimiter is '|');
```

Example data in table form

SalesGroup	Amount	MaxString(Team)	MaxString(Date)
East	14000	Delta	2013/08/01
East	20000	Gamma	2013/11/01
East	25000	Alpha	2013/07/01
West	14000	Eta	2013/10/01
West	17000	Epsilon	2013/09/01
West	19000	Zeta	2013/06/01
West	23000	Theta	2013/12/01

Synthetic dimension functions

A synthetic dimension is created in the document from values generated from the synthetic dimension functions and not directly from fields in the data model. When values generated by a synthetic dimension function are used in a chart as a calculated dimension, this creates a synthetic dimension. Synthetic dimensions allow you to create, for example, charts with dimensions with values arising from your data, that is, dynamic dimensions.

Synthetic dimensions are not affected by selections.

The following synthetic dimension functions can be used in charts.

ValueList

ValueList() returns a set of listed values, which, when used in a calculated dimension, will form a synthetic dimension.

```
ValueList - chart function (v1 {, Expression})
```

ValueLoop

ValueLoop() returns a set of iterated values which, when used in a calculated dimension, will form a synthetic dimension.

```
ValueLoop - chart function(from [, to [, step ]])
```

ValueList - chart function

ValueList() returns a set of listed values, which, when used in a calculated dimension, will form a synthetic dimension.

*In charts with a synthetic dimension created with the **ValueList** function it is possible to reference the dimension value corresponding to a specific expression cell by restating the **ValueList** function with the same parameters in the chart expression. The function may of course be used anywhere in the layout, but apart from when used for synthetic dimensions it will only be meaningful inside an aggregation function.*

Synthetic dimensions are not affected by selections.

Syntax:

```
ValueList(v1 {,...})
```

Return data type: dual

Arguments:

- `v1`: Static value (usually a string, but can be a number).
- `{,...}`: Optional list of static values.

Examples:

Examples and results

Example	Result
`ValueList('Number of Orders', 'Average Order Size', 'Total Amount')`	When used to create a dimension in a table, for example, this results in the three string values as row labels in the table. These can then be referenced in an expression.

Example	Result
`=IF( ValueList('Number of Orders', 'Average Order Size', 'Total Amount') = 'Number of Orders', count(SaleID), IF( ValueList('Number of Orders', 'Average Order Size', 'Total Amount') = 'Average Order Size', avg(Amount), sum (Amount) ))`	This expression takes the values from the created dimension and references them in a nested IF statement as input to three aggregation functions, as seen in the below example table.

Example output in table form

Created dimension	Year	Added expression
-	-	**522.00**
Number of Orders	2012	5.00
Number of Orders	2013	7.00
Average Order Size	2012	13.20
Average Order Size	2013	15.43
Total Amount	2012	66.00
Total Amount	2013	108.00

Data used in examples:

```
SalesPeople:
LOAD * INLINE [
SaleID|SalesPerson|Amount|Year
1|1|12|2013
2|1|23|2013
3|1|17|2013
4|2|9|2013
5|2|14|2013
6|2|29|2013
7|2|4|2013
8|1|15|2012
9|1|16|2012
10|2|11|2012
11|2|17|2012
12|2|7|2012
] (delimiter is '|');
```

ValueLoop - chart function

ValueLoop() returns a set of iterated values which, when used in a calculated dimension, will form a synthetic dimension.
The values generated will start with the **from** value and end with the **to** value including intermediate values in increments of step.

*In charts with a synthetic dimension created with the **ValueLoop** function it is possible to reference the dimension value corresponding to a specific expression cell by restating the **ValueLoop** function with the same parameters in the chart expression. The function may of course be used anywhere in the layout, but apart from when used for synthetic dimensions it will only be meaningful inside an aggregation function.*

Synthetic dimensions are not affected by selections.

Syntax:

```
ValueLoop(from [, to [, step ]])
```

Return data type: dual

Arguments:

- `from`: Start value in the set of values to be generated.
- `to`: End value in the set of values to be generated.
- `step`: Size of increment between values.

Examples:

Examples and results

Example	Result
`ValueLoop (1, 10)`	This creates a dimension in a table, for example, that can be used for purposes such as numbered labeling. The example here results in values numbered 1 to 10. These values can then be referenced in an expression.
`ValueLoop (2, 10,2)`	This example results in values numbered 2, 4, 6, 8, and 10 because the argument step has a value of 2.

Nested aggregations

You may come across situations where you need to apply an aggregation to the result of another aggregation. This is referred to as nesting aggregations.

As a general rule, it is not allowed to nest aggregations in a QlikView chart expression. Nesting is only allowed if you:

- Use the **TOTAL** qualifier in the inner aggregation function.

No more than 100 levels of nesting is allowed.

Nested aggregations with the TOTAL qualifier

Example:

You want to calculate the sum of the field **Sales**, but only include transactions with an **OrderDate** equal to the last year. The last year can be obtained via the aggregation function **`Max(TOTAL Year(OrderDate))`**.

The following aggregation would return the desired result:

```
Sum(If(Year(OrderDate)=Max(TOTAL Year(OrderDate)), Sales))
```

The inclusion of the **TOTAL** qualifier is absolutely necessary for this kind of nesting to be accepted by QlikView, but then again also necessary for the desired comparison. This type of nesting need is quite common and is a good practice.

Nested aggregations with the aggregation function

Nesting with **TOTAL** is not always enough. For more generic nesting, you will have to use the advanced aggregation function in combination with calculated dimensions.

Example:

The following data has been read from the script:

SalesRep	Customer
Donna Brown	Bechtel Corporation
Karl Anderson	Berkeley Design
Donna Brown	Capitolnet Marketing Group (CMG)
Karl Anderson	Chas T. Main, Inc.
Karl Anderson	Degoyler and MacNaughton
Lisa Taylor	ediSys
John Smith	Fimetrics System
Kathy Johnson	HCS
Lisa Taylor	Homestead Custom
Lisa Taylor	Illuminati
John Smith	Metro-Goldwyn-Mayer, Inc.
Lisa Taylor	Onetouch Interactive
Peggie Hurt	Savetz Publishing
William Fisher	TECC
William Fisher	VA Research
Lisa Taylor	XYZ Operations

An obvious question given this data would be: *"How many customers does each sales representative have?"*.

The question is easily answered using a standard QlikView table:

Some new questions may arise, based on the knowledge just gained: *"How may sales representatives have only a single customer? How many have three or more?"*.

If you disregard the fact that in this simple case, it is easy to count the numbers in the expression columns by hand, these are the types of questions that require a second order of aggregation. The data necessary to make the calculation does not exist in the original fields, nor can it be directly calculated from them.

You need to find a way to use the expression column in the chart above as a dimension in a new chart. This can be obtained by using the advanced aggregation function.

To perform the calculation of the first chart as an inner chart calculation in a new chart, you need to use the following statement for the dimension:

```
=Aggr(Count(Customer),SalesRep)
```
Then, you enter the following expression for the new chart:

```
Count(Distinct SalesRep)
```
The **DISTINCT** qualifier is necessary, since QlikView will count the number of lines in the underlying table.

The resulting table answers the question *"How many sales representatives have 1, 2, 3 etc customers?"*:

Two things are to be noted:

1. The second chart does in no way require the presence of the first chart. It is fully self-contained with the first order aggregation defined within its dimension.
2. The possibilities of nesting do not end here. The dimension arguments of the advanced aggregation function may of course contain calculated dimensions, which in turn make use of the advanced aggregation function. It would however be relatively easy to loose track of what you are doing when passing the third level of aggregation.

Sum of rows in pivot tables

The QlikView straight table has a choice for its totals between a simple sum of rows and a calculated expression total. The QlikView pivot table lacks this choice. Pivot table totals are always calculated as expression total.

This is normally a good thing, since it is a rather rare occasion that a sum of rows total is relevant when the two differ.

Exercise extreme care when using sum of rows on any type of aggregation other than pure sums.

Having issued that warning, the following section will present an example where the sum of rows total is nevertheless the desired result.

Example:

In this example, there is a school contest where teams of three students get points by their grades in three different classes. The team may select the highest score within the group for each individual class and then add the three top scores together for a total. The following data has been read from the script:

Class	Name	Score
English	John	5
English	Karen	1
English	Lisa	4
History	John	3
History	Karen	3
History	Lisa	2
Math	John	3
Math	Karen	3
Math	Lisa	4

A straight table with Class as dimension and **Max(**`Score`) as expression produces the following sum of rows:

Straight table with sum of rows

Class	Max(Score)
English	5
History	3
Math	4
	12

If the straight table was converted to a pivot table that is always calculated as an expression total instead of sum of rows, there would an issue:

Pivot table with expression total

Class	Max(Score)
English	5
History	3
Math	4
Total	5

In this specific case the total of 12 is expected, and 5 is equally wrong for the purpose. In this case, the **Aggr** function can be used in the expression, not the dimension.

The original expression is enclosed in an **Aggr** function, using the surrounding chart's dimension also as dimension in the **Aggr** function. Now this bundle is used as argument to a **Sum** aggregation. The table will now show the expected total:

Pivot table with sum of rows

Class	sum(aggr(max(Score),Class))
English	5
History	3
Math	4
Total	12

The beauty of the advanced aggregation function is that in the individual rows it will evaluate to only a single value. This is because the dimension obviously only has one possible value on each ordinary data row. Since the inner dimension and expression are the same as for the surrounding chart, each value will of course be exactly the same as the result without the enclosing **Sum** and advanced aggregation functions.

For the total row, however, the advanced aggregation function will return three values, one for each value of the dimension field. These will in turn be summed by the **Sum** aggregation. While formally still being an expression total, the result equals that of sum of rows.

Linear regression in table charts

Linear regression trend lines can be shown in QlikView bitmap charts by means of the **Trendlines** option in the **Expressions** page of **Chart Properties**. It is also possible to display the regression equation.

Example:

If you want to display the regression data in e.g. a table chart, the regression must be calculated. The **LINEST_M** and **LINEST_B** aggregation functions will give you the required slope and y-intercept values of the linear regression. The **LINEST_M** and **LINEST_B** aggregation functions always correspond to a continuous x-axis, which means that you have to make this setting on the **Axes** tab of the chart properties.

To calculate correctly, these functions need to have the entire chart aggregation (expression iterated over dimension) as input. This can be achieved by defining an advanced aggregation function containing the same base expression and dimensions as the containing chart. The advanced aggregation function is then used as parameters to the **LINEST** aggregations. The resulting expression could look like follows:

```
linest_M(total aggr(TransVal,TransID),TransID)*TransID + linest_b(total aggr
(TransVal,TransID),TransID)
```

The **Only** function is implied around all occurrences of TransVal and TransID. The **LINEST** aggregations should be made with the **TOTAL** qualifier, else would the regression parameters be calculated per data point rather than for the whole set of data. The result can be seen in the combo chart below where the regression is shown as a regular line expression.

Note that the trend line here is not a traditional QlikView trend line, but a regular expression plotted as line. You can see the difference from the fact that the expression plot, as opposed to a traditional trend line, is not extrapolated outside the first and last data points.

The calculated values for linear regressions correspond to those displayed in a graph using a continuous axis (recommended). The calculated values may differ from those displayed in a graph using a discrete axis (not recommended). A continuous axis represent calculated values; a discrete axis represent displayed values. This means that NULL values are not included in a discrete axis.

This chart can converted to a straight table:

The following expressions are used, in order of appearance:

```
Round(Sum(TransVal),'0.1')
Round(LINEST_M(TransVal,TransID,TransID),'0,1')
Round(LINEST_B(TransVal,TransID,TransID),'0,1')
```

Analytic connections

With analytic connections you are able to integrate external analysis with your business discovery. An analytic connection extends the expressions you can use in load scripts and charts by calling an external calculation engine (when you do this, the calculation engine acts as a server-side extension (SSE)). For example, you could

create an analytic connection to R, and use statistical expressions when you load the data.

Creating an analytic connection

For both QlikView Desktop and QlikView Server (QVS) , analytic connections are configured by editing the *Settings.ini*

QlikView Desktop must be closed before editing the Settings.ini file.
QlikView Server must be stopped before editing the Settings.ini file.
After adding new connections or changing existing connections, a restart is required for the changes to take effect.

Note that the SSE plugin server must be running before you start QlikView otherwise the connection will not be established.

Do the following:

1. Open the file *Settings.ini*.
   For QlikView Desktop it is located in *C:\Users\username\AppData\Roaming\QlikTech\QlikView*.
   For QlikView Server it is located in *C:\ProgramData\QlikTech\QlikViewServer*.
2. Add the following configuration:
   ```
   [Settings 7]
   SSEPlugin=<PluginConfig>[;<PluginConfig>...]
   ```
   Where `<PluginConfig>` is a comma-separated list of configuration elements containing the following:
   `<EngineName>,<Address>[,<PathToCertFile>,<RequestTimeout>,<ReconnectTimeout>]`

Connection properties

Property	Description
<EngineName>	Name of the analytic connection. Must be unique. This is the mapping/alias to the plugin that will be used from within the expressions in the app. `<EngineName>` is required to use the plugin functions. For example, SSEPython for a Python plugin or R for an R plugin.
<Address>	Colon-separated list with two elements: `<Host>`: DNS name (or IP-adress) of the plugin. `<Port>`: Port on which the plugin listens.

Property	Description
<PathToCertFile>	File system path to the folder containing client certificates required for secure communication with the plugin. This path just points to the folder where the certificates are located. You have to make sure that they are actually copied to that folder. The names of the three certificate files must be the following: *root_cert.pem*, *sse_client_cert.pem*, *sse_client_key.pem*. Only mutual authentication (server and client authentication) is allowed.  *It is optional to set the certificate file path, but, if omitted, insecure communication will be invoked.*
<RequestTimeout>	Integer (seconds). Optional. Default value is 0 (infinite). Timeout for message duration.
<ReconnectTimeout>	Integer (seconds). Optional. Default value is 20 (seconds). Time before the client tries to reconnect to the plugin after the connection to the plugin was lost.

3. Open the QlikView Batch *Settings.ini* and add the same configuration as in step 2, to be able to reload the document.
   The default location is *C:\Windows\system32\config\systemprofile\AppData\Roaming\QlikTech\QlikViewBatch*.
4. After saving the changes in the *Settings.ini* files, restart QlikView. Now you can use the analytic connection by adding it through the Edit Expression dialog or the Load Script dialog.

Securing analytic connections

Consider the following best practices to strengthen the security of your QlikView environment when using an analytic connection:

- Install and run the server-side extension (SSE) plugin in a separate, isolated environment without administrator rights. To minimize harm from a malicious script, be aware of which user account is starting the plugin and what access rights this user has in the machine and in the domain.
- For enhanced security, the EvaluateScript functionality can be disabled by setting the configuration parameter `allowScript` to false in the SSE plugin configuration file. This will prevent arbitrary scripts from being executed and allow only predefined functions to be run by the SSE plugin.
- Application developers creating QlikView documents are advised to set any variables used in an SSE expression to a restricted format; for example, you can restrict a variable format to only numeric values.

Restrictions in using Analytic connections

Analytic connection functionality is disabled when creating a new shared server object.

When an existing sheet object containing an analytic connection expression is copied, the chart property editor is automatically disabled. This means that the chart properties for that sheet object are no longer editable.

Examples

The following examples show how to set up a server-side extension (SSE) plugin. Here, a Python plugin is used and one or multiple servers are defined.

- One SSE plugin server: SSEPlugin=SSEPython,localhost:50051
- Two SSE plugin servers: SSEPlugin=SSEPython,localhost:50051;R,localhost:50053
- One SSE plugin server is defined without certificate path but with timeouts set: SSEPlugin=SSEPython,localhost:50051,,0,20

Color functions

These functions can be used in expressions associated with setting and evaluating the color properties of chart objects, as well as in load scripts.

*QlikView supports the color functions **qliktechblue** and **qliktechgray** for backwards compatibility reasons, but use of them is not recommended.*

ARGB

ARGB() is used in expressions to set or evaluate the color properties of a chart object, where the color is defined by a red component **r**, a green component **g**, and a blue component **b**, with an alpha factor (opacity) of **alpha**.

```
ARGB() is used in expressions to set or evaluate the color properties of a
chart object, where the color is defined by a red component r, a green
component g, and a blue component b, with an alpha factor (opacity) of alpha.
(alpha, r, g, b)
```

HSL

HSL() is used in expressions to set or evaluate the color properties of a chart object, where the color is defined by values of **hue**, **saturation**, and **luminosity** between 0 and 1.

```
HSL() is used in expressions to set or evaluate the color properties of a
chart object, where the color is defined by values of hue, saturation, and
luminosity between 0 and 1.  (hue, saturation, luminosity)
```

RGB

RGB() is used in expressions to set or evaluate the color properties of a chart object, where the color is defined by a red component **r**, a green component **g**, and a blue component **b**with values between 0 and 255.

```
RGB() is used in expressions to set or evaluate the color properties of a
chart object, where the color is defined by a red component r, a green
component g, and a blue component bwith values between 0 and 255. (r, g, b)
```

Color

Color() is used in expressions to return the color representation of color number n in the chart palette shown in the chart properties. The color representation is a dual value where the text representation comes in the form of 'RGB(r, g, b)' where r, g and b are numbers between 0 and 255 representing the red, green and blue color value respectively. The number representation is an integer representing the red, green and blue components.

```
Color (n)
```

Black

Returns the RGB color representation for black (RGB 0,0,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Black ([alpha])
```

Darkgray

Returns the RGB color representation for dark gray (RGB 128,128,128). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Darkgray ([alpha])
```

Lightgray

Returns the RGB color representation for light gray (RGB 192,192,192). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Lightgray ([alpha])
```

White

Returns the RGB color representation for white (RGB 255,255,255). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
White ([alpha])
```

Blue

Returns the RGB color representation for blue (RGB 0,0,128). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Blue ([alpha])
```

Lightblue

Returns the RGB color representation for light blue (RGB 0,0,255). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Lightblue ([alpha])
```

Green
Returns the RGB color representation for green (RGB 0,128,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Green ([alpha])
```

Lightgreen
Returns the RGB color representation for light green (RGB 0,255,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Lightgreen ()
```

Cyan
Returns the RGB color representation for cyan (RGB 0,128,128). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Cyan ([alpha])
```

Lightcyan
Returns the RGB color representation for light cyan (RGB 0,255,255). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Lightcyan ()
```

Red
Returns the RGB color representation for red (RGB 128,0,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Red ([alpha])
```

Lightred
Returns the RGB color representation for light red (RGB 255,0,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Lightred ([alpha])
```

Magenta
Returns the RGB color representation for magenta (RGB 128,0,128). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Magenta ([alpha])
```

Lightmagenta
Returns the RGB color representation for light magenta (RGB 255,0,255). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Lightmagenta ([alpha])
```

Brown
Returns the RGB color representation for brown (RGB 128,128,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Brown ([alpha])
```

Yellow
Returns the RGB color representation for yellow (RGB 255,255,0). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
Yellow ([alpha])
```

qliktechblue
Returns the RGB color representation for QT blue (RGB 96,112,169). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
qliktechblue ([alpha])
```

qliktechgray
Returns the RGB color representation for QT gray (RGB 166,166,166). Optionally a parameter for alpha factor can be given. An *alpha* of 0 corresponds to full transparency. An *alpha* of 255 corresponds to full opacity. If a value for alpha is not entered, it is assumed to be 255.

```
qliktechgray ([alpha])
```

Colormix1
Colormix1() is used in expressions to return an ARGB value from a two color gradient, based on a value between 0 and 1.

```
Colormix1 (Value , ColorZero , ColorOne)
```

Value is a real number between 0 and 1.

- If Value = 0 ColorZero is returned.
- If Value = 1 ColorOne is returned.
- If 0 < Value< 1 the appropriate intermediate shading is returned.

ColorZero is a valid RGB color representation for the color to be associated with the low end of the interval.

ColorOne is a valid RGB color representation for the color to be associated with the high end of the interval.

Example:

Colormix1(0.5, red(), blue())

returns ARGB(255,64,0,64) (purple)

Colormix2

Colormix2() is used in expressions to return an ARGB value from a two color gradient, based on a value between -1 and 1, with the possibility to specify an intermediate color for the center (0) position.

```
Colormix2 (Value ,ColorMinusOne , ColorOne[ , ColorZero])
```

Value is a real number between -1 and 1.

- If Value = -1 the first color is returned.
- If Value = 1 the second color is returned.
- If -1 < Value< 1 the appropriate color mix is returned.

ColorMinusOne is a valid RGB color representation for the color to be associated with the low end of the interval.

ColorOne is a valid RGB color representation for the color to be associated with the high end of the interval.

ColorZero is an optional valid RGB color representation for the color to be associated with the center of the interval.

SysColor

SysColor() returns the ARGB value for the Windows system color nr, where nr corresponds to the parameter to the Windows API function **GetSysColor(nr)**.

```
SysColor (nr)
```

ColorMapHue

ColorMapHue() returns an ARGB value of a color from a colormap that varies the hue component of the HSV color model. The colormap starts with red, passes through yellow, green, cyan, blue, magenta, and returns to red. x must be specified as a value between 0 and 1.

```
ColorMapHue (x)
```

ColorMapJet

ColorMapJet() returns an ARGB value of a color from a colormap that starts with blue, passes through cyan, yellow and orange, and returns to red. x must be specified as a value between 0 and 1.

```
ColorMapJet (x)
```

Pre-defined color functions

The following functions can be used in expressions for pre-defined colors. Each function returns an RGB color representation.

Optionally a parameter for alpha factor can be given, in which case an ARGB color representation is returned. An alpha factor of 0 corresponds to full transparency, and an alpha factor of 255 corresponds to full opacity.

Color functions

Color function	RGB value
black ([alpha])	(0,0,0)
blue([alpha])	(0,0,128)
brown([alpha])	(128,128,0)
cyan([alpha])	(0,128,128)
darkgray([alpha])	(128,128,128)
green([alpha])	(0,128,0)
lightblue([alpha])	(0,0,255)
lightcyan([alpha])	(0,255,255)
lightgray([alpha])	(192,192,192)
lightgreen([alpha])	(0,255,0)
lightmagenta([alpha])	(255,0,255)
lightred([alpha])	(255,0,0)
magenta([alpha])	(128,0,128)
red([alpha])	(128,0,0)
white([alpha])	(255,255,255)
yellow([alpha])	(255,255,0)

Examples and results:

- `Blue()` returns RGB(0,0,128).
- `Blue(128)` returns ARGB(128,0,0,128).

ARGB

ARGB() is used in expressions to set or evaluate the color properties of a chart object, where the color is defined by a red component **r**, a green component **g**, and a blue component **b**, with an alpha factor (opacity) of **alpha**.

Syntax:

```
ARGB(alpha, r, g, b)
```

Return data type: dual

Arguments:

- `alpha`: Transparency value in the range 0 - 255. 0 corresponds to full transparency and 255 corresponds to full opacity.

- `r, g, b`: Red, green, and blue component values. A color component of 0 corresponds to no contribution and one of 255 to full contribution.

All arguments must be expressions that resolve to integers in the range 0 to 255.

If interpreting the numeric component and formatting it in hexadecimal notation, the values of the color components are easier to see.For example, light green has the number 4 278 255 360, which in hexadecimal notation is FF00FF00.The first two positions 'FF' (255) denote the **alpha** factor.The next two positions '00' denote the amount of **red**, the next two positions 'FF' denote the amount of **green** and the final two positions '00' denote the amount of **blue**.

RGB

RGB() is used in expressions to set or evaluate the color properties of a chart object, where the color is defined by a red component **r**, a green component **g**, and a blue component **b**with values between 0 and 255.

Syntax:

```
RGB (r, g, b)
```

Return data type: dual

Arguments:

- `r, g, b`: Red, green, and blue component values. A color component of 0 corresponds to no contribution and one of 255 to full contribution.

All arguments must be expressions that resolve to integers in the range 0 to 255.

If interpreting the numeric component and formatting it in hexadecimal notation, the values of the color components are easier to see.For example, light green has the number 4 278 255 360, which in hexadecimal notation is FF00FF00.The first two positions 'FF' (255) denote the **alpha** factor.In the functions **RGB** and **HSL**, this is always 'FF' (opaque).The next two positions '00' denote the amount of **red**, the next two positions 'FF' denote the amount of **green** and the final two positions '00' denote the amount of **blue**.

HSL

HSL() is used in expressions to set or evaluate the color properties of a chart object, where the color is defined by values of **hue**, **saturation**, and **luminosity** between 0 and 1.

Syntax:

```
HSL (hue, saturation, luminosity)
```

Return data type: dual

Arguments:

- `hue, saturation, luminosity`:hue, saturation, and luminosity component values ranging between 0 and 1.

All arguments must be expressions that resolve to integers in the range 0 to 1.

If interpreting the numeric component and formatting it in hexadecimal notation, the RGB values of the color components are easier to see. For example, light green has the number 4 278 255 360, which in hexadecimal notation is FF00FF00 and RGB (0,255,0). This is equivalent to HSL (80/240, 240/240, 120/240) - a HSL value of (0.33, 1, 0.5).

Conditional functions

The conditional functions all evaluate a condition and then return different answers depending on the condition value. The functions can be used in the load script and in chart expressions.

Conditional functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

alt

The **alt** function returns the first of the parameters that has a valid number representation. If no such match is found, the last parameter will be returned. Any number of parameters can be used.

```
alt (case1[ , case2 , case3 , ...] , else)
```

class

The **class** function assigns the first parameter to a class interval. The result is a dual value with a<=x<b as the textual value, where a and b are the upper and lower limits of the bin, and the lower bound as numeric value.

```
class (expression, interval [ , label [ , offset ]])
```

if

The **if** function returns a value depending on whether the condition provided with the function evaluates as True or False.

```
if (condition , then , else)
```

match

The **match** function compares the first parameter with all the following ones and returns the number of the expression that matches. The comparison is case sensitive.

```
match ( str, expr1 [ , expr2,...exprN ])
```

mixmatch

The **mixmatch** function compares the first parameter with all the following ones and returns the number of the expression that matches. The comparison is case insensitive and insensitive to the Japanese Hiragana and Katakana character systems.

```
mixmatch ( str, expr1 [ , expr2,...exprN ])
```

pick

The pick function returns the *n*:th expression in the list.

```
pick (n, expr1[ , expr2,...exprN])
```

wildmatch

The **wildmatch** function compares the first parameter with all the following ones and returns the number of expression that matches. It permits the use of wildcard characters (***** and **?**) in the comparison strings. The comparison is case insensitive and insensitive to the Japanese Hiragana and Katakana character systems.

```
wildmatch ( str, expr1 [ , expr2,...exprN ])
```

alt

The **alt** function returns the first of the parameters that has a valid number representation. If no such match is found, the last parameter will be returned. Any number of parameters can be used.

Syntax:

```
alt(case1[ , case2 , case3 , ...] , else)
```

The alt function is often used with number or date interpretation functions. This way, QlikView can test different date formats in a prioritized order. It can also be used to handle NULL values in numerical expressions.

Examples and results:

Examples and results

Example	Result
`alt( date#( dat , 'YYYY/MM/DD' ), date#( dat , 'MM/DD/YYYY' ), date#( dat , 'MM/DD/YY' ), 'No valid date' )`	This expression will test if the field date contains a date according to any of the three specified date formats. If so, it will return a dual value containing the original string and a valid number representation of a date. If no match is found, the text 'No valid date' will be returned (without any valid number representation).
`alt(Sales,0) + alt(Margin,0)`	This expression adds the fields Sales and Margin, replacing any missing value (NULL) with a 0.

class

The **class** function assigns the first parameter to a class interval. The result is a dual value with a<=x<b as the textual value, where a and b are the upper and lower limits of the bin, and the lower bound as numeric value.

Syntax:

```
class(expression, interval [ , label [ , offset ]])
```

Arguments:

Class arguments

Argument	Description
interval	A number that specifies the bin width.
label	An arbitrary string that can replace the 'x' in the result text.
offset	A number that can be used as offset from the default starting point of the classification. The default starting point is normally 0.

Examples and results:

Examples 1-3 and results

Example	Result
`class( 23,10 )`	returns '20<=x<30'
`class( 23,5,'value' )`	returns '20<= value <25'
`class( 23,10,'x',5 )`	returns '15<=x<25'

In this example, we load a table containing name and age of people. We want to add a field that classifies each person according to an age group with a ten year interval. The source table looks like this:

Source table

Name	Age
John	25
Karen	42
Yoshi	53

To add the age group classification field, you can add a preceding load statement using the **class** function. In this example, we load the source table using inline data.

```
LOAD *,
class(Age, 10, 'age') As Agegroup;

LOAD * INLINE
[ Age, Name
25, John
42, Karen
53, Yoshi];
```

The resulting data that is loaded looks like this:

Results table

Name	Age	Agegroup
John	25	20 <= age < 30
Karen	42	40 <= age < 50
Yoshi	53	50 <= age < 60

if

The **if** function returns a value depending on whether the condition provided with the function evaluates as True or False.

Syntax:

```
if(condition , then [, else])
```

The if function has three parameters, *condition*, *then* and *else*, which are all expressions. The two other ones, *then* and *else*, can be of any type.

Arguments:

If arguments

Argument	Description
condition	Expression that is interpreted logically.
then	Expression that can be of any type. If the *condition* is True, then the if function returns the value of the *then* expression.
else	Expression that can be of any type. If the *condition* is False, then the if function returns the value of the *else* expression. This parameter is optional. If the *condition* is False, NULL is returned if you have not specified else.

Examples and results:

Examples and results

Example	Result
`if( Amount>= 0, 'OK', 'Alarm' )`	This expression will test if the amount is a positive number (0 or larger) and return 'OK' if it is. If the amount is less than 0, 'Alarm' is returned.

match

The **match** function compares the first parameter with all the following ones and returns the number of the expression that matches. The comparison is case sensitive.

Syntax:

```
match( str, expr1 [ , expr2,...exprN ])
```

*If you want to use case insensitive comparison, use the **mixmatch** function. If you want to use case insensitive comparison and wildcards, use the **wildmatch** function.*

Examples and results:

Examples and results

Example	Result
`match( M, 'Jan','Feb','Mar')`	returns 2 if M = Feb. returns 0 if M = Aprorjan.

mixmatch

The **mixmatch** function compares the first parameter with all the following ones and returns the number of the expression that matches. The comparison is case insensitive and insensitive to the Japanese Hiragana and Katakana character systems.

Syntax:

```
mixmatch( str, expr1 [ , expr2,...exprN ])
```

*If you want to use case sensitive comparison, use the **match** function. If you want to use case insensitive comparison and wildcards, use the **wildmatch** function.*

Examples and results:

Examples and results

Example	Result
`mixmatch( M, 'Jan','Feb','Mar')`	returns 1 if M = jan

pick

The pick function returns the *n*:th expression in the list.

Syntax:

```
pick(n, expr1[ , expr2,...exprN])
```

Arguments:

Pick arguments

Argument	Description
n	*n* is an integer between 1 and N.

Examples and results:

Examples and results

Example	Result
`pick( N, 'A','B',4, 6 )`	returns 'B' if N = 2 returns 4 if N = 3

wildmatch

The **wildmatch** function compares the first parameter with all the following ones and returns the number of expression that matches. It permits the use of wildcard characters (***** and **?**) in the comparison strings. The comparison is case insensitive and insensitive to the Japanese Hiragana and Katakana character systems.

Syntax:

```
wildmatch( str, expr1 [ , expr2,...exprN ])
```

*If you want to use comparison without wildcards, use the **match** or **mixmatch** functions. **match** has the best performance of the 3 functions.*

Examples and results:

Examples and results

Example	Result
`wildmatch( M, 'ja*','fe?','mar')`	returns 1 if M = January returns 2 if M = fex

Counter functions

This section describes functions related to record counters during **LOAD** statement evaluation in the load script. The only function that can be used in chart expressions is **RowNo()**.

Some counter functions do not have any parameters, but the trailing parentheses are however still required.

Counter functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

autonumber

This script function returns a unique integer value for each distinct evaluated value of *expression* encountered during the script execution. This function can be used e.g. for creating a compact memory representation of a complex key.

```
autonumber (expression[ , AutoID])
```

autonumberhash128

This script function calculates a 128-bit hash of the combined input expression values and the returns a unique integer value for each distinct hash value encountered during the script execution. This function can be used for example for creating a compact memory representation of a complex key.

```
autonumberhash128 (expression {, expression})
```

autonumberhash256

This script function calculates a 256-bit hash of the combined input expression values and returns a unique integer value for each distinct hash value encountered during the script execution. This function can be used e.g. for creating a compact memory representation of a complex key.

This function is only available as a script function.

```
autonumberhash256 (expression {, expression})
```

fieldvaluecount

This script function returns the number of distinct values in a field. *fieldname* must be given as a string (for example a quoted literal).

```
fieldvaluecount (fieldname)
```

IterNo

This script function returns an integer indicating the current iteration within a **while** clause. The first iteration has number 1. The **IterNo** function is only meaningful if used together with a **while** clause.

```
IterNo ( )
```

RecNo

This script functions returns an integer for the number of the currently read row of the current table. The first record is number 1.

```
RecNo ( )
```

RowNo - script function

This function returns an integer for the position of the current row in the resulting QlikView internal table. The first row is number 1.

```
RowNo ( )
```

RowNo - chart function

RowNo() returns the number of the current row within the current column segment in a table. For bitmap charts, **RowNo()** returns the number of the current row within the chart's straight table equivalent.

```
RowNo() returns the number of the current row within the current column
segment in a table. For bitmap charts, RowNo() returns the number of the
current row within the chart's straight table equivalent.([TOTAL])
```

autonumber

This script function returns a unique integer value for each distinct evaluated value of *expression* encountered during the script execution. This function can be used e.g. for creating a compact memory representation of a complex key.

*You can only connect **autonumber** keys that have been generated in the same data load, as the integer is generated according to the order the table is read. If you need to use keys that are persistent between data loads, independent of source data sorting, you should use the **hash128**, **hash160** or **hash256** functions.*

Syntax:

```
autonumber(expression[ , AutoID])
```

Arguments:

Autonumber arguments

Argument	Description
AutoID	In order to create multiple counter instances if the **autonumber** function is used on different keys within the script, the optional parameter *AutoID* can be used for naming each counter.

Example: Creating a composite key

In this example we create a composite key using the **autonumber** function to conserve memory. The example is brief for demonstration purpose, but would be meaningful with a table containing a large number of rows.

Composite key example 1

Region	Year	Month	Sales
North	2014	May	245
North	2014	May	347
North	2014	June	127
South	2014	June	645
South	2013	May	367
South	2013	May	221

The source data is loaded using inline data. Then we add a preceding load which creates a composite key from the Region, Year and Month fields.

```
RegionSales:
LOAD *,
AutoNumber(Region&Year&Month) as RYMkey;

LOAD * INLINE
[ Region, Year, Month, Sales
North, 2014,   May,    245
North, 2014,   May,    347
North, 2014,   June,   127
South, 2014,   June,   645
South, 2013,   May, 367
South, 2013,   May,    221
];
```

The resulting table looks like this:

Composite key example 2

Region	Year	Month	Sales	RYMkey
North	2014	May	245	1
North	2014	May	347	1
North	2014	June	127	2
South	2014	June	645	3
South	2013	May	367	4
South	2013	May	221	4

In this example you can refer to the RYMkey, for example 1, instead of the string 'North2014May' if you need to link to another table.

Now we load a source table of costs in a similar way. The Region, Year and Month fields are excluded in the preceding load to avoid creating a synthetic key, we are already creating a composite key with the **autonumber** function, linking the tables.

```
RegionCosts:
LOAD Costs,
AutoNumber(Region&Year&Month) as RYMkey;

LOAD * INLINE
[ Region, Year, Month, Costs
South, 2013,   May,    167
North, 2014,   May,    56
North, 2014,   June,   199
South, 2014,   June,   64
South, 2013,   May, 172
South, 2013,   May,    126
];
```

Now we can add a table chart to a sheet, and add the Region, Year and Month fields, as well as Sum measures for the sales and the costs. the table will look like this:

Composite key example 3

Region	Year	Month	Sum([Sales])	Sum([Costs])
Totals	-	-	1952	784
North	2014	June	127	199
North	2014	May	592	56
South	2014	June	645	64
South	2013	May	588	465

autonumberhash128

This script function calculates a 128-bit hash of the combined input expression values and the returns a unique integer value for each distinct hash value encountered during the script execution. This function can be used for example for creating a compact memory representation of a complex key.

*You can only connect **autonumberhash128** keys that have been generated in the same data load, as the integer is generated according to the order the table is read. If you need to use keys that are persistent between data loads, independent of source data sorting, you should use the **hash128**, **hash160** or **hash256** functions.*

Syntax:

```
autonumberhash128(expression {, expression})
```

Example: Creating a composite key

In this example we create a composite key using the **autonumberhash128** function to conserve memory. The example is brief for demonstration purpose, but would be meaningful with a table containing a large number of rows.

Composite key example 1

Region	Year	Month	Sales
North	2014	May	245
North	2014	May	347
North	2014	June	127
South	2014	June	645
South	2013	May	367
South	2013	May	221

The source data is loaded using inline data. Then we add a preceding load which creates a composite key from the Region, Year and Month fields.

```
RegionSales:
LOAD *,
AutoNumberHash128(Region, Year, Month) as RYMkey;

LOAD * INLINE
[ Region, Year, Month, Sales
North, 2014,   May,    245
North, 2014,   May,    347
North, 2014,   June,   127
South, 2014,   June,   645
South, 2013,   May, 367
South, 2013,   May,    221
];
```

The resulting table looks like this:

Composite key example 2

Region	Year	Month	Sales	RYMkey
North	2014	May	245	1
North	2014	May	347	1
North	2014	June	127	2
South	2014	June	645	3
South	2013	May	367	4
South	2013	May	221	4

In this example you can refer to the RYMkey, for example 1, instead of the string 'North2014May' if you need to link to another table.

Now we load a source table of costs in a similar way. The Region, Year and Month fields are excluded in the preceding load to avoid creating a synthetic key, we are already creating a composite key with the **autonumberhash128** function, linking the tables.

```
RegionCosts:
LOAD Costs,
AutoNumberHash128(Region, Year, Month) as RYMkey;

LOAD * INLINE
[ Region, Year, Month, Costs
South, 2013,   May,    167
North, 2014,   May,    56
North, 2014,   June,   199
South, 2014,   June,   64
South, 2013,   May, 172
South, 2013,   May,    126
];
```

Now we can add a table chart to a sheet, and add the Region, Year and Month fields, as well as Sum measures for the sales and the costs. the table will look like this:

Composite key example 3

Region	Year	Month	Sum([Sales])	Sum([Costs])
Totals	-	-	1952	784
North	2014	June	127	199
North	2014	May	592	56
South	2014	June	645	64
South	2013	May	588	465

autonumberhash256

This script function calculates a 256-bit hash of the combined input expression values and returns a unique integer value for each distinct hash value encountered during the script execution. This function can be used e.g. for creating a compact memory representation of a complex key.

*You can only connect **autonumberhash256** keys that have been generated in the same data load, as the integer is generated according to the order the table is read. If you need to use keys that are persistent between data loads, independent of source data sorting, you should use the **hash128**, **hash160** or **hash256** functions.*

Syntax:

```
autonumberhash256(expression {, expression})
```

Example: Creating a composite key

In this example we create a composite key using the **autonumberhash256** function to conserve memory. The example is brief for demonstration purpose, but would be meaningful with a table containing a large number of rows.

Composite key example 1

Region	Year	Month	Sales
North	2014	May	245
North	2014	May	347
North	2014	June	127
South	2014	June	645
South	2013	May	367
South	2013	May	221

The source data is loaded using inline data. Then we add a preceding load which creates a composite key from the Region, Year and Month fields.

```
RegionSales:
LOAD *,
AutoNumberHash256(Region, Year, Month) as RYMkey;

LOAD * INLINE
[ Region, Year, Month, Sales
North, 2014,   May,    245
North, 2014,   May,    347
North, 2014,   June,   127
South, 2014,   June,   645
South, 2013,   May, 367
South, 2013,   May,    221
];
```

The resulting table looks like this:

Composite key example 2

Region	Year	Month	Sales	RYMkey
North	2014	May	245	1
North	2014	May	347	1
North	2014	June	127	2
South	2014	June	645	3
South	2013	May	367	4
South	2013	May	221	4

In this example you can refer to the RYMkey, for example 1, instead of the string 'North2014May' if you need to link to another table.

Now we load a source table of costs in a similar way. The Region, Year and Month fields are excluded in the preceding load to avoid creating a synthetic key, we are already creating a composite key with the **autonumberhash256** function, linking the tables.

```
RegionCosts:
LOAD Costs,
AutoNumberHash256(Region, Year, Month) as RYMkey;

LOAD * INLINE
[ Region, Year, Month, Costs
South, 2013,   May,    167
North, 2014,   May,    56
North, 2014,   June,   199
South, 2014,   June,   64
South, 2013,   May, 172
South, 2013,   May,    126
];
```

Now we can add a table chart to a sheet, and add the Region, Year and Month fields, as well as Sum measures for the sales and the costs. the table will look like this:

Composite key example 3

Region	Year	Month	Sum([Sales])	Sum([Costs])
Totals	-	-	1952	784
North	2014	June	127	199
North	2014	May	592	56
South	2014	June	645	64
South	2013	May	588	465

fieldvaluecount

This script function returns the number of distinct values in a field. *fieldname* must be given as a string (for example a quoted literal).

Syntax:

```
fieldvaluecount(fieldname)
```

Example:

In this example the number of regions is counted and stored in the RegionCount variable. This value, 2 in this case, can then be used for further transformations where you need to know the number of existing regions.

```
LOAD * INLINE
[ Region, Year, Month, Sales
South, 2014, June, 645
North, 2014, May, 245
North, 2014, May, 347
North, 2014, June, 127
South, 2013, May, 367
South, 2013, July, 221 ];

Let RegionCount = FieldValueCount('Region');
```

IterNo

This script function returns an integer indicating the current iteration within a **while** clause. The first iteration has number 1. The **IterNo** function is only meaningful if used together with a **while** clause.

Syntax:

```
IterNo( )
```

Examples and results:

```
LOAD
   IterNo() as Day,
   Date( StartDate + IterNo() - 1 ) as Date
   While StartDate + IterNo() - 1 <= EndDate;
```

```
LOAD * INLINE
[StartDate, EndDate
2014-01-22, 2014-01-26
];
```

This **LOAD** statement will generate one record per date within the range defined by **StartDate** and **EndDate**.

In this example, the resulting table will look like this:

Results table

Day	Date
1	2014-01-22
2	2014-01-23
3	2014-01-24
4	2014-01-25
5	2014-01-26

RecNo

This script functions returns an integer for the number of the currently read row of the current table. The first record is number 1.

Syntax:

```
RecNo( )
```

In contrast to **RowNo( )**, which counts rows in the resulting QlikView table, **RecNo( )**, counts the records in the raw data table and is reset when a raw data table is concatenated to another.

Example: Load script

Raw data table load:

```
Tab1:
LOAD * INLINE
[A, B
1, aa
2,cc
3,ee];

Tab2:
LOAD * INLINE
[C, D
5, xx
4,yy
6,zz];
```

Loading record and row numbers for selected rows:

```
QTab:
```

```
LOAD *,
RecNo( ),
RowNo( )
resident Tab1 where A<>2;

LOAD
C as A,
D as B,
RecNo( ),
RowNo( )
resident Tab2 where A<>5;

//We don't need the source tables anymore, so we drop them
Drop tables Tab1, Tab2;
```

The resulting QlikView internal table:

Results table

A	B	RecNo( )	RowNo( )
1	aa	1	1
3	ee	3	2
4	yy	2	3
6	zz	3	4

RowNo

This function returns an integer for the position of the current row in the resulting QlikView internal table. The first row is number 1.

Syntax:

```
RowNo( [TOTAL])
```

In contrast to **RecNo( )**, which counts the records in the raw data table, the **RowNo( )** function does not count records that are excluded by **where** clauses and is not reset when a raw data table is concatenated to another.

*If you use preceding load, that is, a number of stacked **LOAD** statements reading from the same table, you can only use **RowNo( )** in the top **LOAD** statement. If you use **RowNo( )** in subsequent **LOAD** statements, 0 is returned.*

Example: Load script

Raw data table load:

```
Tab1:
LOAD * INLINE
[A, B
1, aa
2,cc
```

```
3,ee];

Tab2:
LOAD * INLINE
[C, D
5, xx
4,yy
6,zz];
```

Loading record and row numbers for selected rows:

```
QTab:
LOAD *,
RecNo( ),
RowNo( )
resident Tab1 where A<>2;

LOAD
C as A,
D as B,
RecNo( ),
RowNo( )
resident Tab2 where A<>5;

//We don't need the source tables anymore, so we drop them
Drop tables Tab1, Tab2;
```

The resulting QlikView internal table:

Results table

A	B	RecNo( )	RowNo( )
1	aa	1	1
3	ee	3	2
4	yy	2	3
6	zz	3	4

RowNo

RowNo() returns the number of the current row within the current column segment in a table. For bitmap charts, **RowNo()** returns the number of the current row within the chart's straight table equivalent.

If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns, except for the column showing the last dimension in the inter-field sort order.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Syntax:

```
RowNo([TOTAL])
```

Return data type: integer

Arguments:

- TOTAL: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

Examples:

Examples and results

Example	Result
Create a chart consisting of a table with the dimensions **Customer**, **UnitSales**, and add RowNo( ) and RowNo(TOTAL) as measures labeled **Row in Segment** and **Row Number**.	The **Row in Segment** column shows the results 1,2,3 for the column segment containing the values of UnitSales for customer Astrida. The row numbering then begins at 1 again for the next column segment, which is Betacab. The **Row Number** column disregards the dimensions can be used to count the rows in the table.
Add the exression: `IF( RowNo( )=1, 0, UnitSales / Above( UnitSales ))` as a measure.	This expression returns 0 for the first row in each column segment, so the column will show: 0, 2.25, 1.1111111, 0, 2.5, 5, 0, NULL, 0, and 4.

Data used in examples:

```
Temp:
LOAD * inline [
Customer|Product|OrderNumber|UnitSales|UnitPrice
Astrida|AA|1|4|16
Astrida|AA|7|10|15
Astrida|BB|4|9|9
Betacab|CC|6|5|10
Betacab|AA|5|2|20
Betacab|BB|1|25| 25
Canutility|AA|3|8|15
Canutility|CC|||19
Divadip|CC|2|4|16
Divadip|DD|3|1|25
] (delimiter is '|');
```

Example data in table form

Customer	UnitSales	Row in Segment	Row Number
Astrida	4	1	1
Astrida	10	2	2

Customer	UnitSales	Row in Segment	Row Number
Astrida	9	3	3
Betacab	5	1	4
Betacab	2	2	5
Betacab	25	3	6
Canutility	8	1	7
Canutility	-	2	8
Divadip	4	1	9
Divadip	1	2	10

Date and time functions

QlikView date and time functions are used to transform and convert date and time values. All functions can be used in both the load script and in chart expressions.

Functions are based on a date-time serial number that equals the number of days since December 30, 1899. The integer value represents the day and the fractional value represents the time of the day.

QlikView uses the numerical value of the parameter, so a number is valid as a parameter also when it is not formatted as a date or a time. If the parameter does not correspond to numerical value, for example, because it is a string, then QlikView attempts to interpret the string according to the date and time environment variables.

If the time format used in the parameter does not correspond to the one set in the environment variables, QlikView will not be able to make a correct interpretation. To resolve this, either change the settings or use an interpretation function.

In the examples for each function, the default time and date formats hh:mm:ss and YYYY-MM-DD (ISO 8601) are assumed.

When processing a timestamp with a date or time function, QlikView ignores any daylight savings time parameters unless the date or time function includes a geographical position.

For example, `ConvertToLocalTime( filetime('Time.qvd'), 'Paris')` would use daylight savings time parameters while `ConvertToLocalTime(filetime('Time.qvd'), 'GMT-01:00')` would not use daylight savings time parameters.

Date and time functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Integer expressions of time

second

This function returns an integer representing the second when the fraction of the **expression** is interpreted as a time according to the standard number interpretation.

```
second (expression)
```

minute

This function returns an integer representing the minute when the fraction of the **expression** is interpreted as a time according to the standard number interpretation.

```
minute (expression)
```

hour

This function returns an integer representing the hour when the fraction of the **expression** is interpreted as a time according to the standard number interpretation.

```
hour (expression)
```

day

This function returns an integer representing the day when the fraction of the **expression** is interpreted as a date according to the standard number interpretation.

```
day (expression)
```

week

This function returns an integer representing the week number according to ISO 8601. The week number is calculated from the date interpretation of the expression, according to the standard number interpretation.

```
week (timestamp [, first_week_day [, broken_weeks [, reference_day]]])
```

month

This function returns a dual value with a month name as defined in the environment variable **MonthNames** and an integer between 1-12. The month is calculated from the date interpretation of the expression, according to the standard number interpretation.

```
month (expression)
```

year

This function returns an integer representing the year when the **expression** is interpreted as a date according to the standard number interpretation.

```
year (expression)
```

weekyear

This function returns the year to which the week number belongs according to ISO 8601. The week number ranges between 1 and approximately 52.

```
weekyear (expression)
```

weekday
This function returns a dual value with: A day name as defined in the environment variable **DayNames**. An integer between 0-6 corresponding to the nominal day of the week (0-6).

```
weekday (date)
```

Timestamp functions

now
This function returns a timestamp of the current time from the system clock. The default value is 1.

```
now ([ timer_mode])
```

today
This function returns the current date from the system clock.

```
today ([timer_mode])
```

LocalTime
This function returns a timestamp of the current time from the system clock for a specified time zone.

```
localtime ([timezone [, ignoreDST ]])
```

Make functions

makedate
This function returns a date calculated from the year **YYYY**, the month **MM** and the day **DD**.

```
makedate (YYYY [ , MM [ , DD ] ])
```

makeweekdate
This function returns a date calculated from the year **YYYY**, the week **WW** and the day-of-week **D**.

```
makeweekdate (YYYY [ , WW [ , D ] ])
```

maketime
This function returns a time calculated from the hour **hh**, the minute **mm**, and the second **ss**.

```
maketime (hh [ , mm [ , ss [ .fff ] ] ])
```

Other date functions

AddMonths
This function returns the date occurring **n** months after **startdate** or, if **n** is negative, the date occurring **n** months before **startdate**.

```
addmonths (startdate, n , [ , mode])
```

AddYears
This function returns the date occurring **n** years after **startdate** or, if **n** is negative, the date occurring **n** years before **startdate**.

```
addyears (startdate, n)
```

yeartodate
This function finds if the input date falls within the year of the date the script was last loaded, and returns True if it does, False if it does not.

```
yeartodate (timestamp [ , yearoffset [ , firstmonth [ , todaydate] ] ])
```

Timezone functions

timezone
This function returns the name of the current time zone, as defined in Windows, not taking into account the daylight savings adjustment.

```
timezone ( )
```

GMT
This function returns the date and current Greenwich Mean Time, as derived from the system clock and Windows time settings.

```
GMT ( )
```

UTC
Returns the date and current Coordinated Universal Time.

```
UTC ( )
```

daylightsaving
Returns the current adjustment for daylight saving time, as defined in Windows.

```
daylightsaving ( )
```

converttolocaltime
Converts a UTC or GMT timestamp to local time as a dual value. The place can be any of a number of cities and time zones around the world.

```
converttolocaltime (timestamp [, place [, ignore_dst=false]])
```

Set time functions

setdateyear
This function takes as input a **timestamp** and a **year** and updates the **timestamp** with the **year** specified in input.

```
setdateyear  (timestamp, year)
```

setdateyearmonth
This function takes as input a **timestamp**, a **month** and a **year** and updates the **timestamp** with the **year** and the **month** specified in input.

```
setdateyearmonth  (timestamp, year, month)
```

In... functions

inyear

This function returns True if **timestamp** lies inside the year containing **base_date**.

```
inyear (date, basedate , shift [, first_month_of_year = 1])
```

inyeartodate

This function returns True if **timestamp** lies inside the part of year containing **base_date** up until and including the last millisecond of **base_date**.

```
inyeartodate  (date, basedate , shift [, first_month_of_year = 1])
```

inquarter

This function returns True if **timestamp** lies inside the quarter containing **base_date**.

```
inquarter  (date, basedate , shift [, first_month_of_year = 1])
```

inquartertodate

This function returns True if **timestamp** lies inside the part of the quarter containing **base_date** up until and including the last millisecond of **base_date**.

```
inquartertodate  (date, basedate , shift [, first_month_of_year = 1])
```

inmonth

This function returns True if **timestamp** lies inside the month containing **base_date**.

```
inmonth (date, basedate , shift)
```

inmonthtodate

Returns True if **timestamp** lies inside the part of month containing **base_date** up until and including the last millisecond of **base_date**.

```
inmonthtodate  (date, basedate , shift)
```

inmonths

This function finds if a timestamp falls within the same month, bi-month, quarter, four-month period, or half-year as a base date. It is also possible to find if the timestamp falls within a previous or following time period.

```
inmonths (n, date, basedate , shift [, first_month_of_year = 1])
```

inmonthstodate

This function finds if a timestamp falls within the part of a period of the month, bi-month, quarter, four-month period, or half-year up to and including the last millisecond of **base_date**. It is also possible to find if the timestamp falls within a previous or following time period.

```
inmonthstodate  (n, date, basedate , shift [, first_month_of_year = 1])
```

inweek

This function returns True if **timestamp** lies inside the week containing **base_date**.

```
inweek (date, basedate , shift [, weekstart])
```

inweektodate
This function returns True if **timestamp** lies inside the part of week containing **base_date** up until and including the last millisecond of **base_date**.

```
inweektodate  (date, basedate , shift [, weekstart])
```

inlunarweek
This function returns true if **timestamp** lies inside the lunar week containing **base_date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

```
inlunarweek  (date, basedate , shift [, weekstart])
```

inlunarweektodate
This function returns true if **timestamp** lies inside the part of the lunar week up to and including the last millisecond of **base_date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

```
inlunarweektodate  (date, basedate , shift [, weekstart])
```

inday
This function returns True if **timestamp** lies inside the day containing **base_timestamp**.

```
inday (timestamp, basetimestamp , shift [, daystart])
```

indaytotime
This function returns True if **timestamp** lies inside the part of day containing **base_timestamp** up until and including the exact millisecond of **base_timestamp**.

```
indaytotime (timestamp, basetimestamp , shift [, daystart])
```

Start ... end functions

yearstart
This function returns a timestamp corresponding to the start of the first day of the year containing **date**. The default output format will be the **DateFormat** set in the script.

```
yearstart ( date [, shift = 0 [, first_month_of_year = 1]])
```

yearend
This function returns a value corresponding to a timestamp of the last millisecond of the last day of the year containing **date**. The default output format will be the **DateFormat** set in the script.

```
yearend ( date [, shift = 0 [, first_month_of_year = 1]])
```

yearname
This function returns a four-digit year as display value with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the year containing **date**.

```
yearname (date [, shift = 0 [, first_month_of_year = 1]] )
```

quarterstart
This function returns a value corresponding to a timestamp of the first millisecond of the quarter containing **date**. The default output format will be the **DateFormat** set in the script.

```
quarterstart (date [, shift = 0 [, first_month_of_year = 1]])
```

quarterend
This function returns a value corresponding to a timestamp of the last millisecond of the quarter containing **date**. The default output format will be the **DateFormat** set in the script.

```
quarterend (date [, shift = 0 [, first_month_of_year = 1]])
```

quartername
This function returns a display value showing the months of the quarter (formatted according to the **MonthNames** script variable) and year with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the quarter.

```
quartername (date [, shift = 0 [, first_month_of_year = 1]])
```

monthstart
This function returns a value corresponding to a timestamp of the first millisecond of the first day of the month containing **date**. The default output format will be the **DateFormat** set in the script.

```
monthstart (date [, shift = 0])
```

monthend
This function returns a value corresponding to a timestamp of the last millisecond of the last day of the month containing **date**. The default output format will be the **DateFormat** set in the script.

```
monthend (date [, shift = 0])
```

monthname
This function returns a display value showing the month (formatted according to the **MonthNames** script variable) and year with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the month.

```
monthname (date [, shift = 0])
```

monthsstart
This function returns a value corresponding to the timestamp of the first millisecond of the month, bi-month, quarter, four-month period, or half-year containing a base date. It is also possible to find the timestamp for a previous or following time period.

```
monthsstart (n, date [, shift = 0 [, first_month_of_year = 1]])
```

monthsend
This function returns a value corresponding to a timestamp of the last millisecond of the month, bi-month, quarter, four-month period, or half-year containing a base date. It is also possible to find the timestamp for a previous or following time period.

```
monthsend (n, date [, shift = 0 [, first_month_of_year = 1]])
```

monthsname
This function returns a display value representing the range of the months of the period (formatted according to the **MonthNames** script variable) as well as the year. The underlying numeric value corresponds to a timestamp of the first millisecond of the month, bi-month, quarter, four-month period, or half-year containing a base date.

```
monthsname (n, date [, shift = 0 [, first_month_of_year = 1]])
```

weekstart
This function returns a value corresponding to a timestamp of the first millisecond of the first day (Monday) of the calendar week containing **date**. The default output format is the **DateFormat** set in the script.

```
weekstart (date [, shift = 0 [,weekoffset = 0]])
```

weekend
This function returns a value corresponding to a timestamp of the last millisecond of the last day (Sunday) of the calendar week containing **date**. The default output format will be the **DateFormat** set in the script.

```
weekend (date [, shift = 0 [,weekoffset = 0]])
```

weekname
This function returns a value showing the year and week number with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the week containing **date**.

```
weekname (date [, shift = 0 [,weekoffset = 0]])
```

lunarweekstart
This function returns a value corresponding to a timestamp of the first millisecond of the lunar week containing **date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

```
lunarweekstart (date [, shift = 0 [,weekoffset = 0]])
```

lunarweekend
This function returns a value corresponding to a timestamp of the last millisecond of the lunar week containing **date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

```
lunarweekend (date [, shift = 0 [,weekoffset = 0]])
```

lunarweekname
This function returns a display value showing the year and lunar week number corresponding to a timestamp of the first millisecond of the first day of the lunar week containing **date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

```
lunarweekname (date [, shift = 0 [,weekoffset = 0]])
```

daystart
This function returns a value corresponding to a timestamp with the first millisecond of the day contained in the **time** argument. The default output format will be the **TimestampFormat** set in the script.

```
daystart (timestamp [, shift = 0 [, dayoffset = 0]])
```

dayend

This function returns a value corresponding to a timestamp of the final millisecond of the day contained in **time**. The default output format will be the **TimestampFormat** set in the script.

```
dayend (timestamp [, shift = 0 [, dayoffset = 0]])
```

dayname

This function returns a value showing the date with an underlying numeric value corresponding to a timestamp of the first millisecond of the day containing **time**.

```
dayname (timestamp [, shift = 0 [, dayoffset = 0]])
```

Day numbering functions

age

The **age** function returns the age at the time of **timestamp** (in completed years) of somebody born on **date_of_birth**.

```
age (timestamp, date_of_birth)
```

networkdays

The **networkdays** function returns the number of working days (Monday-Friday) between and including **start_date** and **end_date** taking into account any optionally listed **holiday**.

```
networkdays  (start:date, end_date {, holiday})
```

firstworkdate

The **firstworkdate** function returns the latest starting date to achieve **no_of_workdays** (Monday-Friday) ending no later than **end_date** taking into account any optionally listed holidays. **end_date** and **holiday** should be valid dates or timestamps.

```
firstworkdate (end_date, no_of_workdays {, holiday} )
```

lastworkdate

The **lastworkdate** function returns the earliest ending date to achieve **no_of_workdays** (Monday-Friday) if starting at **start_date** taking into account any optionally listed **holiday**. **start_date** and **holiday** should be valid dates or timestamps.

```
lastworkdate (start_date, no_of_workdays {, holiday})
```

daynumberofyear

This function calculates the day number of the year in which a timestamp falls. The calculation is made from the first millisecond of the first day of the year, but the first month can be offset.

```
daynumberofyear (date[,firstmonth])
```

daynumberofquarter

This function calculates the day number of the quarter in which a timestamp falls.

```
daynumberofquarter (date[,firstmonth])
```

addmonths

This function returns the date occurring **n** months after **startdate** or, if **n** is negative, the date occurring **n** months before **startdate**.

Syntax:

```
AddMonths(startdate, n , [ , mode])
```

Return data type: dual

Arguments:

AddMonths arguments

Argument	Description
startdate	The start date as a time stamp, for example '2012-10-12'.
n	Number of months as a positive or negative integer.
mode	**mode** specifies if the month is added relative to the beginning of the month or relative to the end of the month. If the input date is the 28th or above and **mode** is set to 1, the function will return a date which is the same distance from the end of the month as the input date. Default mode is 0.

Examples and results:

Examples and results

Example	Result
`addmonths ('2003-01-29',3)`	returns '2003-04-29'
`addmonths ('2003-01-29',3,0)`	returns '2003-04-29'
`addmonths ('2003-01-29',3,1)`	returns '2003-04-28'
`addmonths ('2003-01-29',1,0)`	returns '2003-02-28'
`addmonths ('2003-01-29',1,1)`	returns '2003-02-26'
`addmonths ('2003-02-28',1,0)`	returns '2003-03-28'
`addmonths ('2003-02-28',1,1)`	returns '2003-03-31'

addyears

This function returns the date occurring **n** years after **startdate** or, if **n** is negative, the date occurring **n** years before **startdate**.

Syntax:

```
AddYears(startdate, n)
```

Return data type: dual

Arguments:

AddYears arguments

Argument	Description
startdate	The start date as a time stamp, for example '2012-10-12'.
n	Number of years as a positive or negative integer.

Examples and results:

Examples and results

Example	Result
`addyears ('2010-01-29',3)`	returns '2013-01-29'
`addyears ('2010-01-29',-1)`	returns '2009-01-29'

age

The **age** function returns the age at the time of **timestamp** (in completed years) of somebody born on **date_of_birth**.

Syntax:

```
age(timestamp, date_of_birth)
```

Can be an expression.

Return data type: numeric

Arguments:

Age arguments

Argument	Description
timestamp	The timestamp,or expression resolving to a timestamp, up to which to calculate the completed number of years.
date_of_birth	Date of birth of the person whose age is being calculated. Can be an expression.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
age('25/01/2014', '29/10/2012')
```

Returns 1.

Example 2:

```
age('29/10/2014', '29/10/2012')
```

Returns 2.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
Employees:
LOAD * INLINE [
Member|DateOfBirth
John|28/03/1989
Linda|10/12/1990
Steve|5/2/1992
Birg|31/3/1993
Raj|19/5/1994
Prita|15/9/1994
Su|11/12/1994
Goran|2/3/1995
Sunny|14/5/1996
Ajoa|13/6/1996
Daphne|7/7/1998
Biffy|4/8/2000
] (delimiter is |);
AgeTable:
Load *,
age('20/08/2015', DateOfBirth) As Age
Resident Employees;
Drop table Employees;
```

The resulting table shows the returned values of age for each of the records in the table.

Example 3 results

Member	DateOfBirth	Age
John	28/03/1989	26
Linda	10/12/1990	24
Steve	5/2/1992	23
Birg	31/3/1993	22
Raj	19/5/1994	21
Prita	15/9/1994	20
Su	11/12/1994	20
Goran	2/3/1995	20
Sunny	14/5/1996	19

Ajoa	13/6/1996	19
Daphne	7/7/1998	17
Biffy	4/8/2000	15

converttolocaltime

Converts a UTC or GMT timestamp to local time as a dual value.

Syntax:

```
ConvertToLocalTime(timestamp [, place [, ignore_dst=false]])
```

Return data type: dual

ConvertToLocalTime arguments

Argument	Description
timestamp	The date to evaluate as a timestamp or expression resolving to a timestamp, to convert, for example '2012-10-12'.
place	A place or timezone from the table of places and timezones below. Alternatively, you can use GMT or UTC to define the local time. The following values and time offset ranges are valid: • GMT • GMT-12:00 - GMT-01:00 • GMT+01:00 - GMT+14:00 • UTC • UTC-12:00 - UTC-01:00 • UTC+01:00 - UTC+14:00 *If you use a DST offset (that is, you specify an **ignore_dst** argument value evaluating to False), you must specify a place, rather than a GMT offset, in the **place** argument. This is because adjusting for Daylight Saving Time requires latitudinal information in addition to the longitudinal information provided by a GMT offset. For information, see Using GMT offsets in combination with DST (page 1230).* *You can only use standard time offsets. It's not possible to use an arbitrary time offset, for example, GMT-04:27.*

Argument	Description
ignore_dst	If this argument evaluates to True, DST (daylight saving time) is ignored. Valid argument values evaluating to True include -1 and True(). If this argument evaluates to False, the timestamp is adjusted for daylight saving time. Valid argument values evaluating to False include 0 and False(). If the **ignore_dst** argument value is invalid, the function evaluates the expression as if the **ignore_dst** value evaluates to True. If the **ignore_dst** argument value is not specified, the function evaluates the expression as if the **ignore_dst** value evaluates to False.

The resulting time is adjusted for daylight-saving time, unless **ignore_dst** is set to True.

Places and time zones

The ConvertToLocalTime function retrieves information on places and time zones around the world from the Windows registry. This means that for the function to work, the name of the place you want to use must match the corresponding name in the Windows registry.

The exact name with which a place is registered in the Windows registry may also change according to the language settings of your Windows installation. This is because the names of certain cities and countries are spelled differently in different languages.

There is a full list of places and time zones in the windows registry in:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Time Zones

Alternatively, you can find the list of time zones and places in Windows Control Panel. Open *Control Panel*, click on *Date and Time* settings and then *Change time zone*. You can see the full list of cities or countries associated with each time zone from the drop-down menu.

Examples and results

Example	Result
ConvertToLocalTime('2023-08-14 08:39:47','Paris')	Returns '2023-08-14 10:39:47' and the corresponding internal timestamp representation.
ConvertToLocalTime(UTC(), 'Stockholm')	Returns the time for Stockholm, adjusting for daylight saving time.
ConvertToLocalTime(UTC(), 'Stockholm', -1)	Returns the time for Stockholm, without daylight saving time adjustment.
ConvertToLocalTime(UTC(), 'GMT-05:00')	Returns the time for the North American east coast, for example, New York. No adjustment is made for daylight saving time because a GMT offset, rather than a place, is specified.

Example	Result
`ConvertToLocalTime(UTC(), 'New York', -1)`	Returns the time for the North American east coast (New York), without daylight saving time adjustment.
`ConvertToLocalTime(UTC(), 'New York', True())`	Returns the time for the North American east coast (New York), without daylight saving time adjustment.
`ConvertToLocalTime(UTC(), 'New York', 0)`	Returns the time for the North American east coast (New York), adjusting for daylight saving time.
`ConvertToLocalTime(UTC(), 'New York', False())`	Returns the time for the North American east coast (New York), adjusting for daylight saving time.

Using GMT offsets in combination with DST

Following the implementation of International Components for Unicode (ICU) libraries in QlikView November 2018, the use of GMT (Greenwich Mean Time) offsets in combination with DST (Daylight Saving Time) requires additional latitudinal information.

GMT is a longitudinal (east-west) offset, whereas DST is a latitudinal (north-south) offset. For example, Helsinki (Finland) and Johannesburg (South Africa) share the same GMT+02:00 offset, but they do not share the same DST offset. This means that, further to the GMT offset, any DST offset requires information on the latitudinal position of the local time zone (geographical time zone input) in order to have full information about local DST conditions.

day

This function returns an integer representing the day when the fraction of the **expression** is interpreted as a date according to the standard number interpretation.

Syntax:

```
day(expression)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
`day( '1971-10-12' )`	returns 12
`day( '35648' )`	returns 6, because 35648 = 1997-08-06

dayend

This function returns a value corresponding to a timestamp of the final millisecond of the day contained in **time**. The default output format will be the **TimestampFormat** set in the script.

Syntax:

```
DayEnd(time[, [period_no[, day_start]])
```

Return data type: dual

Arguments:

DayEnd arguments

Argument	Description
time	The timestamp to evaluate.
period_no	**period_no** is an integer, or expression that resolves to an integer, where the value 0 indicates the day that contains **time**. Negative values in **period_no** indicate preceding days and positive values indicate succeeding days.
day_start	To specify days not starting at midnight, indicate an offset as a fraction of a day in **day_start**. For example, 0.125 to denote 3 AM.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
dayend('25/01/2013 16:45:00')
```

Returns 25/01/2013 23:59:59.

Example 2:

```
dayend('25/01/2013 16:45:00', -1)
```

Returns '24/01/2013 23:59:59.

Example 3:

```
dayend('25/01/2013 16:45:00', 0, 0.5)
```

Returns 26/01/2013 11:59:59.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the timestamp that marks the end of the day after each invoice date in the table.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
DayEnd(InvDate, 1) AS DEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the dayend() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	DEnd
28/03/2012	29/03/2012 23:59:59
10/12/2012	11/12/2012 23:59:59
5/2/2013	07/02/2013 23:59:59
31/3/2013	01/04/2013 23:59:59
19/5/2013	20/05/2013 23:59:59
15/9/2013	16/09/2013 23:59:59
11/12/2013	12/12/2013 23:59:59
2/3/2014	03/03/2014 23:59:59
14/5/2014	15/05/2014 23:59:59
13/6/2014	14/06/2014 23:59:59
7/7/2014	08/07/2014 23:59:59
4/8/2014	05/08/2014 23:59:59

daylightsaving

Returns the current adjustment for daylight saving time, as defined in Windows.

Syntax:

```
DaylightSaving( )
```

Return data type: dual

Example:

```
daylightsaving( )
```

dayname

This function returns a value showing the date with an underlying numeric value corresponding to a timestamp of the first millisecond of the day containing **time**.

Syntax:

```
DayName(time[, period_no [, day_start]])
```

Return data type: dual

Arguments:

DayName arguments

Argument	Description
time	The timestamp to evaluate.
period_no	**period_no** is an integer, or expression that resolves to an integer, where the value 0 indicates the day that contains **time**. Negative values in **period_no** indicate preceding days and positive values indicate succeeding days.
day_start	To specify days not starting at midnight, indicate an offset as a fraction of a day in **day_start**. For example, 0.125 to denote 3 AM.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
dayname('25/01/2013 16:45:00')
```

Returns 25/01/2013.

Example 2:

```
dayname('25/01/2013 16:45:00', -1)
```

Returns 24/01/2013.

Example 3:

```
dayname('25/01/2013 16:45:00', 0, 0.5 )
```

Returns 25/01/2013.
Displaying the full timestamp shows the underlying numeric value corresponds to '25/01/2013 12:00:00.000.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

In this example, the day name is created from the timestamp that marks the beginning of the day after each invoice date in the table.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
DayName(InvDate, 1) AS DName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the dayname() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	DName
28/03/2012	29/03/2012 00:00:00
10/12/2012	11/12/2012 00:00:00
5/2/2013	07/02/2013 00:00:00
31/3/2013	01/04/2013 00:00:00
19/5/2013	20/05/2013 00:00:00

15/9/2013	16/09/2013 00:00:00
11/12/2013	12/12/2013 00:00:00
2/3/2014	03/03/2014 00:00:00
14/5/2014	15/05/2014 00:00:00
13/6/2014	14/06/2014 00:00:00
7/7/2014	08/07/2014 00:00:00
4/8/2014	05/08/2014 00:00:00

daynumberofquarter

This function calculates the day number of the quarter in which a timestamp falls.

Syntax:

```
DayNumberOfQuarter(timestamp[,start_month])
```

Return data type: integer

The function always uses years based on 366 days.

Arguments:

DayNumberOfQuarter arguments

Argument	Description
timestamp	The date to evaluate.
start_month	By specifying a **start_month** between 2 and 12 (1, if omitted), the beginning of the year may be moved forward to the first day of any month. For example, if you want to work with a fiscal year starting March 1, specify **start_month** = 3.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
DayNumberOfQuarter('12/09/2014')
```

Returns 74, the day number of the current quarter.

Example 2:

```
DayNumberOfQuarter('12/09/2014',3)
```

Returns 12, the day number of the current quarter.
In this case, the first quarter starts with March (because start_month is specified as 3). This means that the current quarter is the third quarter, which started on September 1.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
ProjectTable:
LOAD recno() as InvID, * INLINE [
StartDate
28/03/2014
10/12/2014
5/2/2015
31/3/2015
19/5/2015
15/9/2015
] ;
NrDays:
Load *,
DayNumberOfQuarter(StartDate,4) As DayNrQtr
Resident ProjectTable;
Drop table ProjectTable;
```

The resulting table shows the returned values of DayNumberOfQuarter for each of the records in the table.

Example 3 results

InvID	StartDate	DayNrQtr
1	28/03/2014	88
2	10/12/2014	71
3	5/2/2015	36
4	31/3/2015	91
5	19/5/2015	49
6	15/9/2015	77

daynumberofyear

This function calculates the day number of the year in which a timestamp falls. The calculation is made from the first millisecond of the first day of the year, but the first month can be offset.

Syntax:

```
DayNumberOfYear(timestamp[,start_month])
```

Return data type: integer

The function always uses years based on 366 days.

Arguments:

DayNumberOfYear arguments

Argument	Description
timestamp	The date to evaluate.
start_month	By specifying a **start_month** between 2 and 12 (1, if omitted), the beginning of the year may be moved forward to the first day of any month. For example, if you want to work with a fiscal year starting March 1, specify **start_month** = 3.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
DayNumberOfYear('12/09/2014')
```

Returns 256, the day number counted from the first of the year.

Example 2:

```
DayNumberOfYear('12/09/2014',3)
```

Returns 196, the number of the day, as counted from 1 March.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
ProjectTable:
LOAD recno() as InvID, * INLINE [
StartDate
28/03/2014
10/12/2014
5/2/2015
31/3/2015
19/5/2015
15/9/2015
] ;
NrDays:
Load *,
DayNumberOfYear(StartDate,4) As DayNrYear
Resident ProjectTable;
Drop table ProjectTable;
```

The resulting table shows the returned values of DayNumberOfYear for each of the records in the table.

Example 3 results

InvID	StartDate	DayNrYear
1	28/03/2014	363
2	10/12/2014	254
3	5/2/2015	311
4	31/3/2015	366
5	19/5/2015	49
6	15/9/2015	168

daystart

This function returns a value corresponding to a timestamp with the first millisecond of the day contained in the **time** argument. The default output format will be the **TimestampFormat** set in the script.

Syntax:

```
DayStart(time[, [period_no[, day_start]])
```

Return data type: dual

Arguments:

DayStart arguments

Argument	Description
time	The timestamp to evaluate.
period_no	**period_no** is an integer, or expression that resolves to an integer, where the value 0 indicates the day that contains **time**. Negative values in **period_no** indicate preceding days and positive values indicate succeeding days.
day_start	To specify days not starting at midnight, indicate an offset as a fraction of a day in **day_start**. For example, 0.125 to denote 3 AM.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
daystart('25/01/2013 16:45:00')
```

Returns 25/01/2013 00:00:00.

Example 2:

```
daystart('25/01/2013 16:45:00', -1)
```

Returns 24/01/2013 00:00:00.

Example 3:

```
daystart('25/01/2013 16:45:00', 0, 0.5 )
```

Returns 25/01/2013 12:00:00.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the timestamp that marks the beginning of the day after each invoice date in the table.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
DayStart(InvDate, 1) AS DStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the daystart() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	DStart
28/03/2012	29/03/2012 00:00:00
10/12/2012	11/12/2012 00:00:00
5/2/2013	06/02/2013 00:00:00
31/3/2013	01/04/2013 00:00:00
19/5/2013	20/05/2013 00:00:00
15/9/2013	16/09/2013 00:00:00
11/12/2013	12/12/2013 00:00:00

2/3/2014	03/03/2014 00:00:00
14/5/2014	15/05/2014 00:00:00
13/6/2014	14/06/2014 00:00:00
7/7/2014	08/07/2014 00:00:00
4/8/2014	05/08/2014 00:00:00

firstworkdate

The **firstworkdate** function returns the latest starting date to achieve **no_of_workdays** (Monday-Friday) ending no later than **end_date** taking into account any optionally listed holidays. **end_date** and **holiday** should be valid dates or timestamps.

Syntax:

```
firstworkdate(end_date, no_of_workdays [, holiday] )
```

Return data type: integer

Arguments:

FirstWorkDate arguments

Argument	Description
end_date	The timestamp of end date to evaluate.
no_of_ workdays	The number of working days to achieve.
holiday	Holiday periods to exclude from working days. A holiday period is stated as a start date and an end date, separated by commas. **Example: '25/12/2013', '26/12/2013'** You can exclude more than one holiday period, separated by commas. **Example: '25/12/2013', '26/12/2013', '31/12/2013', '01/01/2014'**

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
firstworkdate ('29/12/2014', 9)
```

Returns '17/12/2014.

Example 2:

```
firstworkdate ('29/12/2014', 9, '25/12/2014', '26/12/2014')
```

Returns 15/12/2014 because a holiday period of two days is taken into account.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
ProjectTable:
LOAD *, recno() as InvID INLINE [
EndDate
28/03/2015
10/12/2015
5/2/2016
31/3/2016
19/5/2016
15/9/2016
] ;
NrDays:
Load *,
FirstWorkDate(EndDate,120) As StartDate
Resident ProjectTable;
Drop table ProjectTable;
```

The resulting table shows the returned values of FirstWorkDate for each of the records in the table.

Example 3 results

InvID	EndDate	StartDate
1	28/03/2015	13/10/2014
2	10/12/2015	26/06/2015
3	5/2/2016	24/08/2015
4	31/3/2016	16/10/2015
5	19/5/2016	04/12/2015
6	15/9/2016	01/04/2016

GMT

This function returns the date and current Greenwich Mean Time, as derived from the system clock and Windows time settings.

Syntax:

```
GMT( )
```

Return data type: dual

hour

This function returns an integer representing the hour when the fraction of the **expression** is interpreted as a time according to the standard number interpretation.

Syntax:

```
hour(expression)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
hour('09:14:36')	returns 9
hour('0.5555')	returns 13 (Because 0.5555 = 13:19:55)

inday

This function returns True if **timestamp** lies inside the day containing **base_timestamp**.

Syntax:

```
InDay (timestamp, base_timestamp, period_no[, day_start])
```

Return data type: Boolean

Arguments:

InDay arguments

Argument	Description
timestamp	The date and time that you want to compare with **base_timestamp**.
base_ timestamp	Date and time that is used to evaluate the timestamp.
period_no	The day can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the day which contains **base_timestamp**. Negative values in **period_no** indicate preceding days and positive values indicate succeeding days.
day_start	If you want to work with days not starting midnight, indicate an offset as a fraction of a day in **day_start**, For example, 0.125 to denote 3 AM.

Example 1:

```
inday ('12/01/2006 12:23:00', '12/01/2006 00:00:00', 0)
```

Returns True

Example 2:

```
inday ('12/01/2006 12:23:00', '13/01/2006 00:00:00', 0)
```

Returns False

Example 3:

```
inday ('12/01/2006 12:23:00', '12/01/2006 00:00:00', -1)
```

Returns False

Example 4:

```
inday ('11/01/2006 12:23:00', '12/01/2006 00:00:00', -1)
```

Returns True

Example 5:

```
inday ('12/01/2006 12:23:00', '12/01/2006 00:00:00', 0, 0.5)
```

Returns False

Example 6:

```
inday ('12/01/2006 11:23:00', '12/01/2006 00:00:00', 0, 0.5)
```

Returns True

Example 7:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls at any time in the day starting with the base_timestamp.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvTime
28/03/2012
10/12/2012
5/2/2013
];

InvoiceData:
LOAD *,
InDay(InvTime, '28/03/2012 00:00:00', 0) AS InDayEx
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inday() function.

Example 7 results

InvTime	InDayEx
28/03/2012	-1 (True)
10/12/2012	0 (False)
5/2/2013	0 (False)

indaytotime

This function returns True if **timestamp** lies inside the part of day containing **base_timestamp** up until and including the exact millisecond of **base_timestamp**.

Syntax:

```
InDayToTime (timestamp, base_timestamp, period_no[, day_start])
```

Return data type: Boolean

Arguments:

InDayToTime arguments

Argument	Description
timestamp	The date and time that you want to compare with **base_timestamp**.
base_ timestamp	Date and time that is used to evaluate the timestamp.
period_no	The day can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the day which contains **base_timestamp**. Negative values in **period_no** indicate preceding days and positive values indicate succeeding days.
day_start	(optional) If you want to work with days not starting midnight, indicate an offset as a fraction of a day in **day_start**, For example, 0.125 to denote 3 AM.

Example 1:

```
indaytotime ('12/01/2006 12:23:00', '12/01/2006 23:59:00', 0)
```

Returns True

Example 2:

```
indaytotime ('12/01/2006 12:23:00', '12/01/2006 00:00:00', 0)
```

Returns False

Example 3:

```
indaytotime ('11/01/2006 12:23:00', '12/01/2006 23:59:00', -1)
```

Returns True

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice timestamp falls before 17:00:00 on the day starting with the base_ timestamp.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvTime
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InDayToTime(InvTime, '28/03/2012 17:00:00', 0) AS InDayExTT
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the indaytotime() function.

Example 4 results

InvTime	InDayExTT
28/03/2012	-1 (True)
10/12/2012	0 (False)
5/2/2013	0 (False)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)

7/7/2014	0 (False)
4/8/2014	0 (False)

inlunarweek

This function returns true if **timestamp** lies inside the lunar week containing **base_date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

Syntax:

```
InLunarWeek (timestamp, base_date, period_no[, first_week_day])
```

Return data type: Boolean

Arguments:

InLunarWeek arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the lunar week.
period_no	The lunar week can be offset by **period_no**. period_no is an integer, where the value 0 indicates the lunar week which contains **base_date**. Negative values in **period_no** indicate preceding lunar weeks and positive values indicate succeeding lunar weeks.
first_week_day	An offset that may be greater than or less than zero. This changes the beginning of the year by the specified number of days and/or fractions of a day.

Example 1:

```
inlunarweek('12/01/2013', '14/01/2013', 0)
```

Returns True. Because the value of timestamp, 12/01/2013 falls in the week 08/01/2013 to 14/01/2013.

Example 2:

```
inlunarweek('12/01/2013', '07/01/2013', 0)
```

Returns False. Because the base_date 07/01/2013 is in the lunar week defined as 01/01/2013 to 07/01/2013.

Example 3:

```
inlunarweek('12/01/2013', '14/01/2013', -1)
```

Returns False. Because specifying a value of period_no as -1 shifts the week to the previous week, 01/01/2013 to 07/01/2013.

Example 4:

```
inlunarweek('07/01/2013', '14/01/2013', -1)
```

Returns True. In comparison with the previous example, the timestamp is in the week after taking into account the shift backwards.

Example 5:

```
inlunarweek('11/01/2006', '08/01/2006', 0, 3)
```

Returns False. Because specifying a value for first_week_day as 3 means the start of the year is calculated from 04/01/2013, and so the value of base_date falls in the first week, and the value of timestamp falls in the week 11/01/2013 to 17/01/2013.

Example 6:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls in the week shifted from the value of base_date by four weeks.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InLunarWeek(InvDate, '11/01/2013', 4) AS InLWeekPlus4
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inlunarweek() function.

The function returns True for the value of InvDate5/2/2013 because the value of base_date, 11/01/2013, is shifted by four weeks, and so falls in the week 5/02/2013 to 11/02/2013.

Example 6 results

InvDate	InLWeekPlus4
28/03/2012	0 (False)
10/12/2012	0 (False)

5/2/2013	-1 (True)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inlunarweektodate

This function returns true if **timestamp** lies inside the part of the lunar week up to and including the last millisecond of **base_date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

Syntax:

```
InLunarWeekToDate (timestamp, base_date, period_no [, first_week_day])
```

Return data type: Boolean

Arguments:

InLunarWeekToDate arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the lunar week.
peroid_no	The lunar week can be offset by **period_no**. period_no is an integer, where the value 0 indicates the lunar week which contains **base_date**. Negative values in **period_no** indicate preceding lunar weeks and positive values indicate succeeding lunar weeks.
week_start	An offset that may be greater than or less than zero. This changes the beginning of the year by the specified number of days and/or fractions of a day.

Example 1:

```
inlunarweektodate('12/01/2013', '13/01/2013', 0)
```

Returns True. Because the value of timestamp, 12/01/2013 falls in the part of the week 08/01/2013 to 13/01/2013.

Example 2:

```
inlunarweektodate('12/01/2013', '11/01/2013', 0)
```

Returns False. Because the value of timestamp is later than the value base_date even though the two dates are in the same lunar week before 12/01/2012.

Example 3:

```
inlunarweektodate('12/01/2006', '05/01/2006', 1)
```

Returns True. Specifying a value of 1 for period_no shifts the base_date forward one week, so the value of timestamp falls in the part of the lunar week.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls in the part of the week shifted from the value of base_date by four weeks.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InLunarWeekToDate(InvDate, '07/01/2013', 4) AS InLWeek2DPlus4
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inlunarweek() function.

The function returns True for the value of InvDate5/2/2013 because the value of base_date, 11/01/2013, is shifted by four weeks, and so falls in the part of the week 5/02/2013 to 07/02/2013.

Example 4 results

InvDate	InLWeek2DPlus4
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	-1 (True)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inmonth

This function returns True if **timestamp** lies inside the month containing **base_date**.

Syntax:

```
InMonth (timestamp, base_date, period_no[, first_month_of_year])
```

Return data type: Boolean

Arguments:

InMonth arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the month.
period_no	The month can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the month which contains **base_date**. Negative values in **period_no** indicate preceding months and positive values indicate succeeding months.
first_month_of_year	The **first_month_of_year** parameter is disabled and reserved for future use.

Example 1:

```
inmonth ('25/01/2013', '01/01/2013', 0 )
```

Returns True

Example 2:

```
inmonth('25/01/2013', '01/04/2013', 0)
```

Returns False

Example 3:

```
inmonth ('25/01/2013', '01/01/2013', -1)
```

Returns False

Example 4:

```
inmonth ('25/12/2012', '01/01/2013', -1)
```

Returns True

Example 5:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls at any time in the fourth month after the month in base_date, by specifying period_no as 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InMonth(InvDate, '31/01/2013', 4) AS InMthPlus4
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inmonth() function.

Example 5 results

InvDate	InMthPlus4

28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	0 (False)
31/3/2013	0 (False)
19/5/2013	-1 (True)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inmonths

This function finds if a timestamp falls within the same month, bi-month, quarter, four-month period, or half-year as a base date. It is also possible to find if the timestamp falls within a previous or following time period.

Syntax:

```
InMonths(n_months, timestamp, base_date, period_no [, first_month_of_year])
```

Return data type: Boolean

Arguments:

InMonths arguments

Argument	Description
n_months	The number of months that defines the period. An integer or expression that resolves to an integer that must be one of: 1 (equivalent to the inmonth() function), 2 (bi-month), 3 (equivalent to the inquarter() function), 4 (four-month period), or 6 (half year).
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the period.
period_no	The period can be offset by **period_no**, an integer, or expression resolving to an integer, where the value 0 indicates the period that contains **base_date**. Negative values in **period_no** indicate preceding periods and positive values indicate succeeding periods.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
inmonths(4, '25/01/2013', '25/04/2013', 0)
```

Returns True. Because the value of timestamp, 25/01/2013, lies within the four-month period 01/01/2013 to 30/04/2013, in which the value of base_date, 25/04/2013 lies.

Example 2:

```
inmonths(4, '25/05/2013', '25/04/2013', 0)
```

Returns False. Because 25/05/2013 is outside the same period as the previous example.

Example 3:

```
inmonths(4, '25/11/2012', '01/02/2013', -1 )
```

Returns True. Because the value of period_no, -1, shifts the search period back one period of four months (the value of n-months), which makes the search period 01/09/2012 to 31/12/2012.

Example 4:

```
inmonths( 4, '25/05/2006', '01/03/2006', 0, 3)
```

Returns True. Because the value of first_month_of_year is set to 3, which makes the search period 01/03/2006 to 30/07/2006 instead of 01/01/2006 to 30/04/2006.

Example 5:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if the invoice date in the table falls in the bi-month period that includes the base_date shifted forwards by one bi-month period (by specifying period_no as 1).

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
```

```
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InMonths(2, InvDate, '11/02/2013', 1) AS InMthsPlus1
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the InMonths() function.

The search period is 01/03/2013 to 30/04/2013, because the value of base_date is shifted forwards two months from the value in the function (11/02/2013).

Example 5 results

InvDate	InMthsPlus1
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	0 (False)
31/3/2013	-1 (True)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inmonthstodate

This function finds if a timestamp falls within the part of a period of the month, bi-month, quarter, four-month period, or half-year up to and including the last millisecond of **base_date**. It is also possible to find if the timestamp falls within a previous or following time period.

Syntax:

```
InMonths (n_months, timestamp, base_date, period_no[, first_month_of_year ])
```

Return data type: Boolean

Arguments:

InMonthsToDate arguments

Argument	Description
n_months	The number of months that defines the period. An integer or expression that resolves to an integer that must be one of: 1 (equivalent to the inmonth() function), 2 (bi-month), 3 (equivalent to the inquarter() function), 4 (four-month period), or 6 (half year).
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the period.
period_no	The period can be offset by **period_no**, an integer, or expression resolving to an integer, where the value 0 indicates the period that contains **base_date**. Negative values in **period_no** indicate preceding periods and positive values indicate succeeding periods.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
inmonthstodate(4, '25/01/2013', '25/04/2013', 0)
```

Returns True. Because the value of timestamp, 25/01/2013, lies within the four-month period 01/01/2013 up to the end of 25/04/2013, in which the value of base_date, 25/04/2013 lies.

Example 2:

```
inmonthstodate(4, '26/04/2013', '25/04/2006', 0)
```

Returns False. Because 26/04/2013 is outside the same period as the previous example.

Example 3:

```
inmonthstodate(4, '25/09/2005', '01/02/2006', -1)
```

Returns True. Because the value of period_no, -1, shifts the search period back one period of four months (the value of n-months), which makes the search period 01/09/2005 to 01/02/2006.

Example 4:

```
inmonthstodate(4, '25/04/2006', '01/06/2006', 0, 3)
```

Returns True. Because the value of first_month_of_year is set to 3, which makes the search period 01/03/2006 to 01/06/2006 instead of 01/05/2006 to 01/06/2006.

Example 5:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if the invoice date in the table falls in the part of the bi-month period up to and including the base_date shifted forwards by four bi-month periods (by specifying period_no as 4).

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InMonthsToDate(2, InvDate, '15/02/2013', 4) AS InMths2DPlus4
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the InMonths() function.

The search period is 01/09/2013 to 15/10/2013, because the value of base_date is shifted forwards eight months from the value in the function (15/02/2013).

Example 5 results

InvDate	InMths2DPlus4
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	0 (False)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	-1 (True)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)

13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inmonthtodate

Returns True if **timestamp** lies inside the part of month containing **base_date** up until and including the last millisecond of **base_date**.

Syntax:

```
InMonthToDate (timestamp, base_date, period_no)
```

Return data type: Boolean

Arguments:

InMonthToDate arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the month.
period_no	The month can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the month which contains **base_date**. Negative values in **period_no** indicate preceding months and positive values indicate succeeding months.

Example 1:

```
inmonthtodate ('25/01/2013', '25/01/2013', 0)
```

Returns True

Example 2:

```
inmonthtodate ('25/01/2013', '24/01/2013', 0)
```

Returns False

Example 3:

```
inmonthtodate ('25/01/2013', '28/02/2013', -1)
```

Returns True

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

By specifying period_no as 4, this example checks if an invoice date falls in the fourth month after the month in base_date but before the end of the day specified in base_date.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InMonthToDate(InvDate, '31/01/2013', 4) AS InMthPlus42D
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inmonthtodate() function.

Example 4 results

InvDate	InMthPlus42D
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	0 (False)
31/3/2013	0 (False)
19/5/2013	-1 (True)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inquarter

This function returns True if **timestamp** lies inside the quarter containing **base_date**.

Syntax:

```
InQuarter (timestamp, base_date, period_no[, first_month_of_year])
```

Return data type: Boolean

Arguments:

InQuarter arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the quarter.
period_no	The quarter can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the quarter which contains **base_date**. Negative values in **period_no** indicate preceding quarters and positive values indicate succeeding quarters.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Example 1:

```
inquarter ('25/01/2013', '01/01/2013', 0)
```

Returns True

Example 2:

```
inquarter ('25/01/2013', '01/04/2013', 0)
```

Returns False

Example 3:

```
inquarter ('25/01/2013', '01/01/2013', -1)
```

Returns False

Example 4:

```
inquarter ('25/12/2012', '01/01/2013', -1)
```

Returns True

Example 5:

```
inquarter ('25/01/2013', '01/03/2013', 0, 3)
```

Returns False

Example 6:

```
inquarter ('25/03/2013', '01/03/2013', 0, 3)
```

Returns True

Example 7:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls in the fourth quarter of the fiscal year specified by setting the value of first_month_of_year to 4, and having the base_date 31/01/2013.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InQuarter(InvDate, '31/01/2013', 0, 4) AS Qtr4FinYr1213
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inquarter() function.

Example 7 results

InvDate	Qtr4Fin1213
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	-1 (True)
31/3/2013	-1 (True)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)

2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inquartertodate

This function returns True if **timestamp** lies inside the part of the quarter containing **base_date** up until and including the last millisecond of **base_date**.

Syntax:

```
InQuarterToDate (timestamp, base_date, period_no [, first_month_of_year])
```

Return data type: Boolean

Arguments:

InQuarterToDate arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the quarter.
period_no	The quarter can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the quarter which contains **base_date**. Negative values in **period_no** indicate preceding quarters and positive values indicate succeeding quarters.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Example 1:

```
inquartertodate ('25/01/2013', '25/01/2013', 0)
```

Returns True

Example 2:

```
inquartertodate ('25/01/2013', '24/01/2013', 0)
```

Returns False

Example 3:

```
inquartertodate ('25/01/2012', '01/02/2013', -1)
```

Returns False

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls in a fiscal year specified by setting the value of first_month_of_ year to 4, and in the fourth quarter, before the end of 28/02/2013.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InQuarterToDate(InvDate, '28/02/2013', 0, 4) AS Qtr42Date
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inquartertodate() function.

Example 4 results

InvDate	Qtr42Date
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	-1 (True)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)

7/7/2014	0 (False)
4/8/2014	0 (False)

inweek

This function returns True if **timestamp** lies inside the week containing **base_date**.

Syntax:

```
InWeek (timestamp, base_date, period_no[, first_week_day])
```

Return data type: Boolean

Arguments:

InWeek arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the week.
period_no	The week can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the week which contains **base_date**. Negative values in **period_no** indicate preceding weeks and positive values indicate succeeding weeks.
first_week_day	By default, the first day of the week is Monday,starting at midnight between Sunday and Monday. To indicate the week starting on another day, specify an offset in **first_week_day**. This may be given as a whole number of days and/or fractions of a day.

Example 1:

```
inweek ('12/01/2006', '14/01/2006', 0)
```

Returns True

Example 2:

```
inweek ('12/01/2006', '20/01/2006', 0 )
```

Returns False

Example 3:

```
inweek ('12/01/2006', '14/01/2006', -1 )
```

Returns False

Example 4:

```
inweek ('07/01/2006', '14/01/2006', -1)
```

Returns True

Example 5:

```
inweek ('12/01/2006', '09/01/2006', 0, 3)
```

Returns False
Because first_week_day is specified as 3 (Thursday), which makes 12/01/2006 the first day of the week following the week containing 09/01/2006.

Example 6:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls at any time in the fourth week after the week in base_date, by specifying period_no as 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InWeek(InvDate, '11/01/2013', 4) AS InWeekPlus4
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inweek() function.

The InvDate5/2/2013 falls within the week that is four weeks after the base_date: 11/1/2013.

Example 6 results

InvDate	InWeekPlus4
28/03/2012	0 (False)
10/12/2012	0 (False)
5/2/2013	-1 (True)
31/3/2013	0 (False)

19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inweektodate

This function returns True if **timestamp** lies inside the part of week containing **base_date** up until and including the last millisecond of **base_date**.

Syntax:

```
InWeekToDate (timestamp, base_date, period_no [, first_week_day])
```

Return data type: Boolean

Arguments:

InWeekToDate arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the week.
period_no	The week can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the week which contains **base_date**. Negative values in **period_no** indicate preceding weeks and positive values indicate succeeding weeks.
first_week_day	By default, the first day of the week is Monday,starting at midnight between Sunday and Monday. To indicate the week starting on another day, specify an offset in **first_week_day**. This may be given as a whole number of days and/or fractions of a day.

Example 1:

```
inweektodate ('12/01/2006', '12/01/2006', 0)
```

Returns True

Example 2:

```
inweektodate ('12/01/2006', '11/01/2006', 0)
```

Returns False

Example 3:

```
inweektodate ('12/01/2006', '18/01/2006', -1)
```

Returns False
Because period_no is specified as -1, the effective data that timestamp is measured against is 11/01/2006.

Example 4:

```
inweektodate ( '11/01/2006', '12/01/2006', 0, 3 )
```

Returns False
Because first_week_day is specified as 3 (Thursday), which makes 12/01/2006 the first day of the week following the week containing 12/01/2006.

Example 5:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls during the fourth week after the week in base_date, by specifying period_no as 4, but before the value of base_date.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InWeekToDate(InvDate, '11/01/2013', 4) AS InWeek2DPlus4
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inweek() function.

Example 5 results

InvDate	InWeek2DPlus4
28/03/2012	0 (False)

10/12/2012	0 (False)
5/2/2013	-1 (True)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inyear

This function returns True if **timestamp** lies inside the year containing **base_date**.

Syntax:

```
InYear (timestamp, base_date, period_no [, first_month_of_year])
```

Return data type: Boolean

Arguments:

InYear arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.
base_date	Date that is used to evaluate the year.
period_no	The year can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the year that contains **base_date**. Negative values in **period_no** indicate preceding years, and positive values indicate succeeding years.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
inyear ('25/01/2013', '01/01/2013', 0 )
```

Returns True

Example 2:

```
inyear ('25/01/2012', '01/01/2013', 0)
```

Returns False

Example 3:

```
inyear ('25/01/2013', '01/01/2013', -1)
```

Returns False

Example 4:

```
inyear ('25/01/2012', '01/01/2013', -1 )
```

Returns True

Example 5:

```
inyear ('25/01/2013', '01/01/2013', 0, 3)
```

Returns True

Example 6:

```
inyear ('25/03/2013', '01/07/2013', 0, 3 )
```

Returns False. The values of base_date and first_month_of_year specify that timestamp must fall within 01/03/2012 and 28/02/2013

Example 7:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls in the fiscal year specified by setting the value of first_month_of_year to 4, and having the base_date between 1/4/2012 and 31/03/2013.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
```

```
4/8/2014
];
```

Test if InvDate is in the financial year 1/04/2012 to 31/03/2013:

```
InvoiceData:
LOAD *,
InYear(InvDate, '31/01/2013', 0, 4) AS FinYr1213
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inyear() function.

Example 7 results

InvDate	FinYr1213
28/03/2012	0 (False)
10/12/2012	-1 (True)
5/2/2013	-1 (True)
31/3/2013	-1 (True)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

inyeartodate

This function returns True if **timestamp** lies inside the part of year containing **base_date** up until and including the last millisecond of **base_date**.

Syntax:

```
InYearToDate (timestamp, base_date, period_no[, first_month_of_year])
```

Return data type: Boolean

Arguments:

InYearToDate arguments

Argument	Description
timestamp	The date that you want to compare with **base_date**.

Argument	Description
base_date	Date that is used to evaluate the year.
period_no	The year can be offset by **period_no**. **period_no** is an integer, where the value 0 indicates the year that contains **base_date**. Negative values in **period_no** indicate preceding years, and positive values indicate succeeding years.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Example 1:

```
inyeartodate ('2013/01/25', '2013/02/01', 0)
```

Returns True

Example 2:

```
inyeartodate ('2012/01/25', '2013/01/01', 0)
```

Returns False

Example 3:

```
inyeartodate ('2012/01/25', '2013/02/01', -1)
```

Returns True

Example 4:

```
inyeartodate ('2012/11/25', '2013/01/31', 0, 4)
```

Returns True
The value of timestamp falls inside the fiscal year beginning in the fourth month and before the value of base_date.

Example 5:

```
inyeartodate ( '2013/3/31', '2013/01/31', 0, 4 )
```

Returns False
Compared with the previous example, the value of timestamp is still inside the fiscal year, but it is after the value of base_date, so it falls outside the part of the year.

Example 6:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example checks if an invoice date falls in a fiscal year specified by setting the value of first_month_of_year to 4, and in the part of the year before the end of 31/01/2013.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
InYearToDate(InvDate, '31/01/2013', 0, 4) AS FinYr2Date
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the inyeartodate() function.

Example 6 results

InvDate	FinYr2Date
28/03/2012	0 (False)
10/12/2012	-1 (True)
5/2/2013	0 (False)
31/3/2013	0 (False)
19/5/2013	0 (False)
15/9/2013	0 (False)
11/12/2013	0 (False)
2/3/2014	0 (False)
14/5/2014	0 (False)
13/6/2014	0 (False)
7/7/2014	0 (False)
4/8/2014	0 (False)

lastworkdate

The **lastworkdate** function returns the earliest ending date to achieve **no_of_workdays** (Monday-Friday) if starting at **start_date** taking into account any optionally listed **holiday**. **start_date** and **holiday** should be valid dates or timestamps.

Syntax:

```
lastworkdate(start_date, no_of_workdays {, holiday})
```

Return data type: dual

Arguments:

Lastworkdate arguments

Argument	Description
start_date	The start date to evaluate.
no_of_ workdays	The number of working days to achieve.
holiday	Holiday periods to exclude from working days. A holiday period is stated as a start date and an end date, separated by commas. **Example: '25/12/2013', '26/12/2013'** You can exclude more than one holiday period, separated by commas. **Example: '25/12/2013', '26/12/2013', '31/12/2013', '01/01/2014'**

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
lastworkdate ('19/12/2014', 9)
```

Returns '31/12/2014'

Example 2:

```
lastworkdate ('19/12/2014', 9, '2014-12-25', '2014-12-26')
```

Returns '02/01/2015 as a holiday period of two days is taken into account.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
ProjectTable:
LOAD *, recno() as InvID INLINE [
StartDate
28/03/2014
10/12/2014
5/2/2015
```

```
31/3/2015
19/5/2015
15/9/2015
] ;
NrDays:
Load *,
LastWorkDate(StartDate,120) As EndDate
Resident ProjectTable;
Drop table ProjectTable;
```

The resulting table shows the returned values of LastWorkDate for each of the records in the table.

Example 3 results

InvID	StartDate	EndDate
1	28/03/2014	11/09/2014
2	10/12/2014	26/05/2015
3	5/2/2015	27/07/2015
4	31/3/2015	14/09/2015
5	19/5/2015	02/11/2015
6	15/9/2015	29/02/2016

localtime

This function returns a timestamp of the current time from the system clock for a specified time zone.

Syntax:

```
LocalTime([timezone [, ignoreDST ]])
```

Return data type: dual

LocalTime arguments

Argument	Description
timezone	The **timezone** is specified as a string containing any of the geographical places listed under **Time Zone** in the **Windows Control Panel** for **Date and Time** or as a string in the form 'GMT+hh:mm'. A list of accepted places and time zones is also presented in the table below. If no time zone is specified, the local time is returned. *If you use a DST offset (that is, you specify an **ignoreDST** argument value evaluating to False), you must specify a place, rather than a GMT offset, in the **place** argument. This is because adjusting for Daylight Saving Time requires latitudinal information in addition to the longitudinal information provided by a GMT offset. For more information, see Using GMT offsets in combination with DST (page 1276).*

Argument	Description
ignoreDST	If this argument evaluates to True, DST (daylight saving time) is ignored. Valid argument values evaluating to True include -1 and True(). If this argument evaluates to False, the timestamp is adjusted for daylight saving time. Valid argument values evaluating to False include 0 and False(). If the **ignoreDST** argument value is invalid, the function evaluates the expression as if the **ignore_dst** value evaluates to True. If the **ignoreDST** argument value is not specified, the function evaluates the expression as if the **ignore_dst** value evaluates to False.

Valid places and time zones

A-C	D-K	L-R	S-Z
Abu Dhabi	Darwin	La Paz	Samoa
Adelaide	Dhaka	Lima	Santiago
Alaska	Eastern Time (US & Canada)	Lisbon	Sapporo
Amsterdam	Edinburgh	Ljubljana	Sarajevo
Arizona	Ekaterinburg	London	Saskatchewan
Astana	Fiji	Madrid	Seoul
Athens	Georgetown	Magadan	Singapore
Atlantic Time (Canada)	Greenland	Mazatlan	Skopje
Auckland	Greenwich Mean Time : Dublin	Melbourne	Sofia
Azores	Guadalajara	Mexico City	Solomon Is.
Baghdad	Guam	Mid-Atlantic	Sri Jayawardenepura
Baku	Hanoi	Minsk	St. Petersburg
Bangkok	Harare	Monrovia	Stockholm
Beijing	Hawaii	Monterrey	Sydney
Belgrade	Helsinki	Moscow	Taipei
Berlin	Hobart	Mountain Time (US & Canada)	Tallinn
Bern	Hong Kong	Mumbai	Tashkent
Bogota	Indiana (East)	Muscat	Tbilisi
Brasilia	International Date Line West	Nairobi	Tehran

A-C	D-K	L-R	S-Z
Bratislava	Irkutsk	New Caledonia	Tokyo
Brisbane	Islamabad	New Delhi	Urumqi
Brussels	Istanbul	Newfoundland	Warsaw
Bucharest	Jakarta	Novosibirsk	Wellington
Budapest	Jerusalem	Nuku'alofa	West Central Africa
Buenos Aires	Kabul	Osaka	Vienna
Cairo	Kamchatka	Pacific Time (US & Canada)	Vilnius
Canberra	Karachi	Paris	Vladivostok
Cape Verde Is.	Kathmandu	Perth	Volgograd
Caracas	Kolkata	Port Moresby	Yakutsk
Casablanca	Krasnoyarsk	Prague	Yerevan
Central America	Kuala Lumpur	Pretoria	Zagreb
Central Time (US & Canada)	Kuwait	Quito	-
Chennai	Kyiv	Riga	-
Chihuahua	-	Riyadh	-
Chongqing	-	Rome	-
Copenhagen	-	-	-

Examples and results:

The examples below are based on the function being called on 2023-08-14 08:39:47 local time, with the local time zone of the server or desktop environment being GMT-05:00, and in a region which has implemented daylight saving time as of this listed date.

Scripting examples

Example	Result
`localtime ()`	Returns the local time 2023-08-14 08:39:47.
`localtime ('London')`	Returns the local time in London, 2023-08-14 13:39:47.
`localtime ('GMT+02:00')`	Returns the local time in the timezone of GMT+02:00, 2023-08-14 14:39:47. No adjustment is made for daylight saving time because a GMT offset, rather than a place, is specified.

Example	Result
`localtime ('Paris',-1)`	Returns the local time in Paris with daylight savings time ignored, 2023-08-14 13:39:47.
`localtime ('Paris',True())`	Returns the local time in Paris with daylight savings time ignored, 2023-08-14 13:39:47.
`localtime ('Paris',0)`	Returns the local time in Paris, taking daylight savings time into account, 2023-08-14 14:39:47.
`localtime ('Paris',False ())`	Returns the local time in Paris, taking daylight savings time into account, 2023-08-14 14:39:47.

Using GMT offsets in combination with DST

Following the implementation of International Components for Unicode (ICU) libraries in QlikView November 2018, the use of GMT (Greenwich Mean Time) offsets in combination with DST (Daylight Saving Time) requires additional latitudinal information.

GMT is a longitudinal (east-west) offset, whereas DST is a latitudinal (north-south) offset. For example, Helsinki (Finland) and Johannesburg (South Africa) share the same GMT+02:00 offset, but they do not share the same DST offset. This means that, further to the GMT offset, any DST offset requires information on the latitudinal position of the local time zone (geographical time zone input) in order to have full information about local DST conditions.

lunarweekend

This function returns a value corresponding to a timestamp of the last millisecond of the lunar week containing **date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

Syntax:

```
LunarweekEnd(date[, period_no[, first_week_day]])
```

Return data type: dual

Arguments:

LunarweekEnd arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer or expression resolving to an integer, where the value 0 indicates the lunar week which contains **date**. Negative values in **period_no** indicate preceding lunar weeks and positive values indicate succeeding lunar weeks.
first_week_day	An offset that may be greater than or less than zero. This changes the beginning of the year by the specified number of days and/or fractions of a day.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
lunarweekend('12/01/2013')
```

Returns 14/01/2013 23:59:59.

Example 2:

```
lunarweekend('12/01/2013', -1)
```

Returns 7/01/2013 23:59:59.

Example 3:

```
lunarweekend('12/01/2013', 0, 1)
```

Returns 15/01/2013 23:59:59.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the final day of the lunar week of each invoice date in the table, where the date is shifted by one week by specifying period_no as 1.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
LunarWeekEnd(InvDate, 1) AS LWkEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the lunarweekend() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	LWkEnd
28/03/2012	07/04/2012
10/12/2012	22/12/2012
5/2/2013	18/02/2013
31/3/2013	08/04/2013
19/5/2013	27/05/2013
15/9/2013	23/09/2013
11/12/2013	23/12/2013
2/3/2014	11/03/2014
14/5/2014	27/05/2014
13/6/2014	24/06/2014
7/7/2014	15/07/2014
4/8/2014	12/08/2014

lunarweekname

This function returns a display value showing the year and lunar week number corresponding to a timestamp of the first millisecond of the first day of the lunar week containing **date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

Syntax:

```
LunarWeekName(date [, period_no[, first_week_day]])
```

Return data type: dual

Arguments:

LunarWeekName arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer or expression resolving to an integer, where the value 0 indicates the lunar week which contains **date**. Negative values in **period_no** indicate preceding lunar weeks and positive values indicate succeeding lunar weeks.
first_week_day	An offset that may be greater than or less than zero. This changes the beginning of the year by the specified number of days and/or fractions of a day.

Example 1:

```
lunarweekname('12/01/2013')
```

Returns 2013/02.

Example 2:

```
lunarweekname('12/01/2013', -1)
```

Returns 2013/01.

Example 3:

```
lunarweekname('12/01/2013', 0, 1)
```

Returns 2013/02.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

In this example, for each invoice date in the table, the lunar week name is created from the year in which the week lies and its associated lunar week number, shifted one week by specifying period_no as 1.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
LunarWeekName(InvDate, 1) AS LWkName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the lunarweekname() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	LWkName
28/03/2012	2012/14
10/12/2012	2012/51
5/2/2013	2013/07
31/3/2013	2013/14
19/5/2013	2013/21
15/9/2013	2013/38
11/12/2013	2013/51
2/3/2014	2014/10
14/5/2014	2014/21
13/6/2014	2014/25
7/7/2014	2014/28
4/8/2014	2014/32

lunarweekstart

This function returns a value corresponding to a timestamp of the first millisecond of the lunar week containing **date**. Lunar weeks in QlikView are defined by counting 1 January as the first day of the week.

Syntax:

```
LunarweekStart(date[, period_no[, first_week_day]])
```

Return data type: dual

Arguments:

LunarweekStart arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer or expression resolving to an integer, where the value 0 indicates the lunar week which contains **date**. Negative values in **period_no** indicate preceding lunar weeks and positive values indicate succeeding lunar weeks.
first_week_day	An offset that may be greater than or less than zero. This changes the beginning of the year by the specified number of days and/or fractions of a day.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
lunarweekstart('12/01/2013')
```

Returns 08/01/2013.

Example 2:

```
lunarweekstart('12/01/2013', -1)
```

Returns 01/01/2013.

Example 3:

```
lunarweekstart('12/01/2013', 0, 1 )
```

Returns 09/01/2013.
Because the offset specified by setting first_week_day to 1 means the beginning of the year is changed to 02/01/2013.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the first day of the lunar week of each invoice date in the table, where the date is shifted by one week by specifying period_no as 1.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
LunarWeekStart(InvDate, 1) AS LWkStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the lunarweekstart() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	LWkStart
28/03/2012	01/04/2012
10/12/2012	16/12/2012
5/2/2013	12/02/2013
31/3/2013	02/04/2013
19/5/2013	21/05/2013
15/9/2013	17/09/2013
11/12/2013	17/12/2013
2/3/2014	05/03/2014
14/5/2014	21/05/2014
13/6/2014	18/06/2014
7/7/2014	09/07/2014
4/8/2014	06/08/2014

makedate

This function returns a date calculated from the year **YYYY**, the month **MM** and the day **DD**.

Syntax:

```
MakeDate(YYYY [ , MM [ , DD ] ])
```

Return data type: dual

Arguments:

MakeDate arguments

Argument	Description
YYYY	The year as an integer.
MM	The month as an integer. If no month is stated, 1 (January) is assumed.
DD	The day as an integer. If no day is stated, 1 (the 1st) is assumed.

Examples and results:

Examples and results

Example	Result
`makedate(2012)`	returns 2012-01-01

Example	Result
makedate(12)	returns 0012-01-01
makedate(2012,12)	returns 2012-12-01
makedate(2012,2,14)	returns 2012-02-14

maketime

This function returns a time calculated from the hour **hh**, the minute **mm**, and the second **ss**.

Syntax:

```
MakeTime(hh [ , mm [ , ss ] ])
```

Return data type: dual

Arguments:

MakeTime arguments

Argument	Description
hh	The hour as an integer.
mm	The minute as an integer. If no minute is stated, 00 is assumed.
ss	The second as an integer. If no second is stated, 00 is assumed.

Examples and results:

Examples and results

Example	Result
maketime(22)	returns 22:00:00
maketime(22, 17)	returns 22:17:00
maketime(22, 17, 52)	returns 22:17:52

makeweekdate

This function returns a date calculated from the year **YYYY**, the week **WW** and the day-of-week **D**.

Syntax:

```
MakeWeekDate(YYYY [ , WW [ , D ] ])
```

Return data type: dual

Arguments:

MakeWeekDate arguments

Argument	Description
YYYY	The year as an integer.
WW	The week as an integer.
D	The day-of-week as an integer. If no day-of-week is stated, 0 (Monday) is assumed.

Examples and results:

Examples and results

Example	Result
`makeweekdate(2014,6,6)`	returns 2014-02-09
`makeweekdate(2014,6,1)`	returns 2014-02-04
`makeweekdate(2014,6)`	returns 2014-02-03 (weekday 0 is assumed)

minute

This function returns an integer representing the minute when the fraction of the **expression** is interpreted as a time according to the standard number interpretation.

Syntax:

```
minute(expression)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
`minute ( '09:14:36' )`	returns 14
`minute ( '0.5555' )`	returns 19 (Because 0.5555 = 13:19:55)

month

This function returns a dual value with a month name as defined in the environment variable **MonthNames** and an integer between 1-12. The month is calculated from the date interpretation of the expression, according to the standard number interpretation.

Syntax:

```
month(expression)
```

Return data type: dual

Examples and results:

Examples and results

Example	Result
`month( '2012-10-12' )`	returns Oct
`month( '35648' )`	returns Aug, because 35648 = 1997-08-06

monthend

This function returns a value corresponding to a timestamp of the last millisecond of the last day of the month containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
MonthEnd(date[, period_no])
```

Return data type: dual

Arguments:

MonthEnd arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, which, if 0 or omitted, indicates the month that contains **date**. Negative values in **period_no** indicate preceding months and positive values indicate succeeding months.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
monthend('19/02/2012')
```

Returns 29/02/2012 23:59:59.

Example 2:

```
monthend('19/02/2001', -1)
```

Returns 31/01/2001 23:59:59.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the last day in the month of each invoice date in the table, where the base_date is shifted by four months by specifying period_no as 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
MonthEnd(InvDate, 4) AS MthEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the monthend() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 3 results

InvDate	MthEnd
28/03/2012	31/07/2012
10/12/2012	30/04/2013
5/2/2013	30/06/2013
31/3/2013	31/07/2013
19/5/2013	30/09/2013
15/9/2013	31/01//2014
11/12/2013	30/04//2014
2/3/2014	31/07//2014
14/5/2014	30/09/2014
13/6/2014	31/10/2014

7/7/2014	30/11/2014
4/8/2014	31/12/2014

monthname

This function returns a display value showing the month (formatted according to the **MonthNames** script variable) and year with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the month.

Syntax:

```
MonthName(date[, period_no])
```

Return data type: dual

Arguments:

MonthName arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, which, if 0 or omitted, indicates the month that contains **date**. Negative values in **period_no** indicate preceding months and positive values indicate succeeding months.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
monthname('19/10/2013')
```

Returns Oct 2013.
Because in this and the other examples, the **SET Monthnames** statement is set to Jan;Feb;Mar, and so on.

Example 2:

```
monthname('19/10/2013', -1)
```

Returns Sep 2013.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

In this example, for each invoice date in the table, the month name is created from the month name shifted four months from base_date, and from the year.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
MonthName(InvDate, 4) AS MthName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the monthname() function.

Example 3 results

InvDate	MthName
28/03/2012	Jul 2012
10/12/2012	Apr 2013
5/2/2013	Jun 2013
31/3/2013	Jul 2013
19/5/2013	Sep 2013
15/9/2013	Jan 2014
11/12/2013	Apr 2014
2/3/2014	Jul 2014
14/5/2014	Sep 2014
13/6/2014	Oct 2014
7/7/2014	Nov 2014
4/8/2014	Dec 2014

monthsend

This function returns a value corresponding to a timestamp of the last millisecond of the month, bi-month, quarter, four-month period, or half-year containing a base date. It is also possible to find the timestamp for a previous or following time period.

Syntax:

```
MonthsEnd(n_months, date[, period_no [, first_month_of_year]])
```

Return data type: dual

Arguments:

MonthsEnd arguments

Argument	Description
n_months	The number of months that defines the period. An integer or expression that resolves to an integer that must be one of: 1 (equivalent to the inmonth() function), 2 (bi-month), 3 (equivalent to the inquarter() function), 4 (four-month period), or 6 (half year).
date	The date to evaluate.
period_no	The period can be offset by **period_no**, an integer, or expression resolving to an integer, where the value 0 indicates the period that contains **base_date**. Negative values in **period_no** indicate preceding periods and positive values indicate succeeding periods.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
monthsend(4, '19/07/2013')
```

Returns 31/08/2013.

Example 2:

```
monthsend(4, '19/10/2013', -1)
```

Returns 31/08/2013.

Example 3:

```
monthsend(4, '19/10/2013', 0, 2)
```

Returns 31/01/2014.
Because the start of the year becomes month 2.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the end of the final day of the bi-month period for each invoice date, shifted forwards by one bi-month period.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
MonthsEnd(2, InvDate, 1) AS BiMthsEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the MonthsEnd() function.

Example 4 results

InvDate	BiMthsEnd
28/03/2012	30/06/2012
10/12/2012	28/02/2013
5/2/2013	30/04/2013
31/3/2013	30/06/2013
19/5/2013	31/08/2013
15/9/2013	31/12/2013
11/12/2013	28/02/2014
2/3/2014	30/06/2014
14/5/2014	31/08/2014
13/6/2014	31/08/2014

7/7/2014	31/10/2014
4/8/2014	31/10/2014

monthsname

This function returns a display value representing the range of the months of the period (formatted according to the **MonthNames** script variable) as well as the year. The underlying numeric value corresponds to a timestamp of the first millisecond of the month, bi-month, quarter, four-month period, or half-year containing a base date.

Syntax:

```
MonthsName(n_months, date[, period_no[, first_month_of_year]])
```

Return data type: dual

Arguments:

MonthsName arguments

Argument	Description
n_months	The number of months that defines the period. An integer or expression that resolves to an integer that must be one of: 1 (equivalent to the inmonth() function), 2 (bi-month), 3 (equivalent to the inquarter() function), 4 (four-month period), or 6 (half year).
date	The date to evaluate.
period_no	The period can be offset by **period_no**, an integer, or expression resolving to an integer, where the value 0 indicates the period that contains **base_date**. Negative values in **period_no** indicate preceding periods and positive values indicate succeeding periods.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
monthsname(4, '19/10/2013')
```

Returns Sep-Dec 2013.
Because in this and the other examples, the **SET Monthnames** statement is set to Jan;Feb;Mar, and so on.

Example 2:

```
monthsname(4, '19/10/2013', -1)
```

Returns May-Aug 2013.

Example 3:

```
monthsname(4, '19/10/2013', 0, 2)
```

Returns Oct-Jan 2014.
Because the year is specified to begin in month 2, therefore the four-month period ends on the first month of the following year.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

In this example, for each invoice date in the table, the months name is created from the range of months in the bi-month period, and from the year. The range is offset by 4x2 months by specifying period_no as 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
MonthsName(2, InvDate, 4) AS MthsName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the monthsname() function.

Example 4 results

InvDate	MthsName
28/03/2012	Nov-Dec 2012
10/12/2012	Jul-Aug 2013
5/2/2013	Sep-Oct 2013
31/3/2013	Nov-Dec2013
19/5/2013	Jan-Feb 2014

15/9/2013	May-Jun 2014
11/12/2013	Jul-Aug 2014
2/3/2014	Nov-Dec 2014
14/5/2014	Jan-Feb 2015
13/6/2014	Jan-Feb 2015
7/7/2014	Mar-Apr 2015
4/8/2014	Mar-Apr 2015

monthsstart

This function returns a value corresponding to the timestamp of the first millisecond of the month, bi-month, quarter, four-month period, or half-year containing a base date. It is also possible to find the timestamp for a previous or following time period.

Syntax:

```
MonthsStart(n_months, date[, period_no [, first_month_of_year]])
```

Return data type: dual

Arguments:

MonthsStart arguments

Argument	Description
n_months	The number of months that defines the period. An integer or expression that resolves to an integer that must be one of: 1 (equivalent to the inmonth() function), 2 (bi-month), 3 (equivalent to the inquarter() function), 4 (four-month period), or 6 (half year).
date	The date to evaluate.
period_no	The period can be offset by **period_no**, an integer, or expression resolving to an integer, where the value 0 indicates the period that contains **base_date**. Negative values in **period_no** indicate preceding periods and positive values indicate succeeding periods.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
monthsstart(4, '19/10/2013')
```

Returns 1/09/2013.

Example 2:

```
monthsstart(4, '19/10/2013', -1)
```

Returns 01/05/2013.

Example 3:

```
monthsstart(4, '19/10/2013', 0, 2 )
```

Returns 01/10/2013.
Because the start of the year becomes month 2.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the first day of the bi-month period for each invoice date, shifted forwards by one bi-month period.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
MonthsStart(2, InvDate, 1) AS BiMthsStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the MonthsStart() function.

Example 4 results

InvDate	BiMthsStart
28/03/2012	01/05/2012
10/12/2012	01/01/2013

5/2/2013	01/03/2013
31/3/2013	01/05/2013
19/5/2013	01/07/2013
15/9/2013	01/11/2013
11/12/2013	01/01/2014
2/3/2014	01/05/2014
14/5/2014	01/07/2014
13/6/2014	01/07/2014
7/7/2014	01/09/2014
4/8/2014	01/09/2014

monthstart

This function returns a value corresponding to a timestamp of the first millisecond of the first day of the month containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
MonthStart(date[, period_no])
```

Return data type: dual

Arguments:

MonthStart arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, which, if 0 or omitted, indicates the month that contains **date**. Negative values in **period_no** indicate preceding months and positive values indicate succeeding months.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
monthstart('19/10/2001')
```

Returns 01/10/2001.

Example 2:

```
monthstart('19/10/2001', -1)
```

Returns 01/09/2001.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the first day in the month of each invoice date in the table, where the base_date is shifted by four months by specifying period_no as 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
MonthStart(InvDate, 4) AS MthStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the monthstart() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 3 results

InvDate	MthStart
28/03/2012	01/07/2012
10/12/2012	01/04/2013
5/2/2013	01/06/2013
31/3/2013	01/07/2013
19/5/2013	01/09/2013
15/9/2013	01/01/2014
11/12/2013	01/04/2014
2/3/2014	01/07/2014
14/5/2014	01/09/2014

13/6/2014	01/10/2014
7/7/2014	01/11/2014
4/8/2014	01/12/2014

networkdays

The **networkdays** function returns the number of working days (Monday-Friday) between and including **start_date** and **end_date** taking into account any optionally listed **holiday**.

Syntax:

```
networkdays (start_date, end_date [, holiday])
```

Return data type: integer

Arguments:

Networkdays arguments

Argument	Description
start_date	The start date to evaluate.
end_date	The end date to evaluate.
holiday	Holiday periods to exclude from working days. A holiday period is stated as a start date and an end date, separated by commas. **Example: '25/12/2013', '26/12/2013'** You can specify more than one holiday period, separated by commas. **Example: '25/12/2013', '26/12/2013', '31/12/2013', '01/01/2014'**

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
networkdays ('19/12/2013', '07/01/2014')
```

Returns 14. This example does not take holidays into account.

Example 2:

```
networkdays ('19/12/2013', '07/01/2014', '25/12/2013', '26/12/2013')
```

Returns 12. This example takes the holiday 25/12/2013 to 26/12/2013 into account.

Example 3:

```
networkdays ('19/12/2013', '07/01/2014', '25/12/2013', '26/12/2013', '31/12/2013',
'01/01/2014')
```

Returns 10. This example takes two holiday periods into account.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
PayTable:
LOAD recno() as InvID, * INLINE [
InvRec|InvPaid
28/03/2012|28/04/2012
10/12/2012|01/01/2013
5/2/2013|5/3/2013
31/3/2013|01/5/2013
19/5/2013|12/6/2013
15/9/2013|6/10/2013
11/12/2013|12/01/2014
2/3/2014|2/4/2014
14/5/2014|14/6/2014
13/6/2014|14/7/2014
7/7/2014|14/8/2014
4/8/2014|4/9/2014
] (delimiter is '|');
NrDays:
Load *,
NetWorkDays(InvRec,InvPaid) As PaidDays
Resident PayTable;
Drop table PayTable;
```

The resulting table shows the returned values of NetworkDays for each of the records in the table.

Example 4 results

InvID	InvRec	InvPaid	PaidDays
1	28/03/2012	28/04/2012	23
2	10/12/2012	01/01/2013	17
3	5/2/2013	5/3/2013	21
4	31/3/2013	01/5/2013	23
5	19/5/2013	12/6/2013	18
6	15/9/2013	6/10/2013	15
7	11/12/2013	12/01/2014	23
8	2/3/2014	2/4/2014	23

9	14/5/2014	14/6/2014	23
10	13/6/2014	14/7/2014	22
11	7/7/2014	14/8/2014	29
12	4/8/2014	4/9/2014	24

now

This function returns a timestamp of the current time from the system clock. The default value is 1.

Syntax:

```
now([ timer_mode])
```

Return data type: dual

Arguments:

Now arguments

Argument	Description
timer_mode	Can have the following values: • 0 (time at last finished data load) • 1 (time at function call) • 2 (time when the document was opened) *If you use the function in a load script, **timer_mode=0** will result in the time of the last finished data load, while **timer_mode=1** will give the time of the function call in the current data load.*

Examples and results:

Examples and results

Example	Result
`now( 0)`	Returns the time when the last data load completed.
`now( 1)`	• When used in a chart expression, this returns the time of the function call. • When used in a load script, this returns the time of the function call in the current data load.
`now( 2)`	Returns the time when the document was opened.

quarterend

This function returns a value corresponding to a timestamp of the last millisecond of the quarter containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
QuarterEnd(date[, period_no[, first_month_of_year]])
```

Return data type: dual

Arguments:

QuarterEnd arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, where the value 0 indicates the quarter which contains **date**. Negative values in **period_no** indicate preceding quarters and positive values indicate succeeding quarters.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
quarterend('29/10/2005')
```

Returns 31/12/2005 23:59:59.

Example 2:

```
quarterend('29/10/2005', -1)
```

Returns 30/09/2005 23:59:59.

Example 3:

```
quarterend('29/10/2005', 0, 3)
```

Returns 30/11/2005 23:59:59.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the last day in the quarter of each invoice date in the table, where the first month in the year is specified as month 3.

```
TempTable:
```

```
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
QuarterEnd(InvDate, 0, 3) AS QtrEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the quarterend() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	QtrEnd
28/03/2012	31/05/2012
10/12/2012	28/02/2013
5/2/2013	28/02/2013
31/3/2013	31/05/2013
19/5/2013	31/05/2013
15/9/2013	30/11/2013
11/12/2013	28/02/2014
2/3/2014	31/05/2014
14/5/2014	31/05/2014
13/6/2014	31/08/2014
7/7/2014	31/08/2014
4/8/2014	31/08/2014

quartername

This function returns a display value showing the months of the quarter (formatted according to the **MonthNames** script variable) and year with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the quarter.

Syntax:

```
QuarterName(date[, period_no[, first_month_of_year]])
```

Return data type: dual

Arguments:

QuarterName arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, where the value 0 indicates the quarter which contains **date**. Negative values in **period_no** indicate preceding quarters and positive values indicate succeeding quarters.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Example 1:

```
quartername('29/10/2013')
```

Returns Oct-Dec 2013.

Example 2:

```
quartername('29/10/2013', -1)
```

Returns Jul-Sep 2013.

Example 3:

```
quartername('29/10/2013', 0, 3)
```

Returns Sep-Nov 2013.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

In this example, for each invoice date in the table, the quarter name is created based on the quarter containing *InvID*. The first month in the year is specified as month 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
```

```
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
QuarterName(InvDate, 0, 4) AS QtrName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the quartername() function.

Example 4 results

InvDate	QtrName
28/03/2012	Jan-Mar 2011
10/12/2012	Oct-Dec 2012
5/2/2013	Jan-Mar 2012
31/3/2013	Jan-Mar 2012
19/5/2013	Apr-Jun 2013
15/9/2013	Jul-Sep 2013
11/12/2013	Oct-Dec 2013
2/3/2014	Jan-Mar 2013
14/5/2014	Apr-Jun 2014
13/6/2014	Apr-Jun 2014
7/7/2014	Jul-Sep 2014
4/8/2014	Jul-Sep 2014

quarterstart

This function returns a value corresponding to a timestamp of the first millisecond of the quarter containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
QuarterStart(date[, period_no[, first_month_of_yea]])
```

Return data type: dual

Arguments:

QuarterStart arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, where the value 0 indicates the quarter which contains **date**. Negative values in **period_no** indicate preceding quarters and positive values indicate succeeding quarters.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
quarterstart('29/10/2005')
```

Returns 01/10/2005.

Example 2:

```
quarterstart('29/10/2005', -1 )
```

Returns 01/07/2005.

Example 3:

```
quarterstart('29/10/2005', 0, 3)
```

Returns 01/09/2005.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the first day in the quarter of each invoice date in the table, where the first month in the year is specified as month 3.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
```

```
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
QuarterStart(InvDate, 0, 3) AS QtrStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the quarterstart() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	QtrStart
28/03/2012	01/03/2012
10/12/2012	01/12/2012
5/2/2013	01/12/2012
31/3/2013	01/03/2013
19/5/2013	01/03/2013
15/9/2013	01/09/2013
11/12/2013	01/12/2013
2/3/2014	01/03/2014
14/5/2014	01/03/2014
13/6/2014	01/06/2014
7/7/2014	01/06/2014
4/8/2014	01/06/2014

second

This function returns an integer representing the second when the fraction of the **expression** is interpreted as a time according to the standard number interpretation.

Syntax:

```
second (expression)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
`second( '09:14:36' )`	returns 36
`second( '0.5555' )`	returns 55 (Because 0.5555 = 13:19:55)

setdateyear

This function takes as input a **timestamp** and a **year** and updates the **timestamp** with the **year** specified in input.

Syntax:

```
setdateyear (timestamp, year)
```

Return data type: dual

Arguments:

SetDateYear arguments

Argument	Description
timestamp	The date to evaluate as a timestamp or expression resolving to a timestamp, to convert, for example '2012-10-12'.
year	A four-digit year.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
setdateyear ('29/10/2005', 2013)
```

Returns '29/10/2013

Example 2:

```
setdateyear ('29/10/2005 04:26:14', 2013)
```

Returns '29/10/2013 04:26:14'

To see the time part of the timestamp in a chart, you must set the number formatting to Date and choose a value for Formatting that displays time values.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
SetYear:
Load *,
SetDateYear(testdates, 2013) as NewYear
Inline [
testdates
1/11/2012
10/12/2012
1/5/2013
2/1/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];
```

The resulting table contains the original dates and a column in which the year has be set to 2013.

Example 3 results

testdates	NewYear
1/11/2012	1/11/2013
10/12/2012	10/12/2013
2/1/2012	2/1/2013
1/5/2013	1/5/2013
19/5/2013	19/5/2013
15/9/2013	15/9/2013
11/12/2013	11/12/2013
2/3/2014	2/3/2013
14/5/2014	14/5/2013
13/6/2014	13/6/2013
7/7/2014	7/7/2013
4/8/2014	4/8/2013

setdateyearmonth

This function takes as input a **timestamp**, a **month** and a **year** and updates the **timestamp** with the **year** and the **month** specified in input..

Syntax:

```
SetDateYearMonth (timestamp, year, month)
```

Return data type: dual

Arguments:

SetDateYearMonth arguments

Argument	Description
timestamp	The date to evaluate as a timestamp or expression resolving to a timestamp, to convert, for example '2012-10-12'.
year	A four-digit year.
month	A one or two-digit month.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
setdateyearmonth ('29/10/2005', 2013, 3)
```

Returns '29/03/2013

Example 2:

```
setdateyearmonth ('29/10/2005 04:26:14', 2013, 3)
```

Returns '29/03/2013 04:26:14'

To see the time part of the timestamp in a chart, you must set the number formatting to Date and choose a value for Formatting that displays time values.

Example 3:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
SetYearMonth:
Load *,
SetDateYearMonth(testdates, 2013,3) as NewYearMonth
Inline [
testdates
1/11/2012
```

```
10/12/2012
2/1/2013
19/5/2013
15/9/2013
11/12/2013
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];
```

The resulting table contains the original dates and a column in which the year has be set to 2013.

Example 3 results

testdates	NewYearMonth
1/11/2012	1/3/2013
10/12/2012	10/3/2013
2/1/2012	2/3/2013
19/5/2013	19/3/2013
15/9/2013	15/3/2013
11/12/2013	11/3/2013
14/5/2014	14/3/2013
13/6/2014	13/3/2013
7/7/2014	7/3/2013
4/8/2014	4/3/2013

timezone

This function returns the name of the current time zone, as defined in Windows, not taking into account the daylight savings adjustment.

Syntax:

```
TimeZone( )
```

Return data type: string

today

This function returns the current date from the system clock.

Syntax:

```
today([ timer_mode])
```

Return data type: dual

Arguments:

Today arguments

Argument	Description
timer_mode	Can have the following values: • 0 (day of last finished data load) • 1 (day of function call) • 2 (day when the document was opened)  *If you use the function in a load script,* ***timer_mode=0*** *will result in the day of the last finished data load, while* ***timer_mode=1*** *will give the day of the current data load.*

Examples and results:

Examples and results

Example	Result
`Today( 0)`	Returns the day of the last finished data load.
`Today( 1)`	When used in a chart expression, this returns the day of the function call. When used in a load script, this returns the day when the current data load started.
`Today( 2)`	Returns the day when the document was opened.

UTC

Returns the date and current Coordinated Universal Time.

Syntax:

```
UTC( )
```

Return data type: dual

week

This function returns an integer representing the week number according to ISO 8601. The week number is calculated from the date interpretation of the expression, according to the standard number interpretation.

Syntax:

```
week(timestamp [, first_week_day [, broken_weeks [, reference_day]]])
```

Return data type: integer

Arguments:

Week arguments

Argument	Description
timestamp	The date to evaluate as a timestamp or expression resolving to a timestamp, to convert, for example '2012-10-12'.
first_week_day	Integer that defines which day to use as the first day of the week. By default, QlikView functions use Monday as the first day of the week. The following values can be used: • 0 (= Monday) • 1 (= Tuesday) • 2 (= Wednesday) • 3 (= Thursday) • 4 (= Friday) • 5 (= Saturday) • 6 (= Sunday)
broken_weeks	The setting defines if weeks are broken or not. By default QlikView functions use unbroken weeks. This means that: • In some years, week 1 starts in December, and in other years, week 52 or 53 continues into January. • Week 1 always has at least 4 days in January. The alternative is to use broken weeks. • Week 52 or 53 do not continue into January. • Week 1 starts on January 1 and is, in most cases, not a full week. The following values can be used: • 0 (=use unbroken weeks) • 1 (= use broken weeks)

Argument	Description
reference_day	The setting defines which day in January to set as reference day to define week 1. By default, QlikView functions use 4 as the reference day. This means that week 1 must contain January 4, or put differently, that week 1 must always have at least 4 days in January. The following values can be used to set a different reference day: • 1 (= January 1) • 2 (= January 2) • 3 (= January 3) • 4 (= January 4) • 5 (= January 5) • 6 (= January 6) • 7 (= January 7)

Example 1:

```
week ('2012-10-12')
```

returns 41

Example 2:

```
week( '35648')
```

returns 32, because 35648 = 1997-08-06

Example 3:

```
week('2012-10-12', 0, 1)
```

returns 42

weekday

This function returns a dual value with:

- A day name as defined in the environment variable **DayNames**.
- An integer between 0-6 corresponding to the nominal day of the week (0-6).

Syntax:

```
weekday(date [,first_week_day=0])
```

Return data type: dual

Arguments:

Weekday arguments

Argument	Description
date	The date to evaluate.
first_week_day	If you don't specify **first_week_day**, the value of variable **FirstWeekDay** will be used as the first day of the week. If you want to use another day as the first day of the week, set **first_week_day** to: • 0 for Monday • 1 for Tuesday • 2 for Wednesday • 3 for Thursday • 4 for Friday • 5 for Saturday • 6 for Sunday The integer returned by the function will now use the first day of the week that you set with **first_week_day** as base (0).

Example 1:

```
weekday( '1971-10-12' )
```

returns 'Tue' and 1

Example 2:

```
weekday( '1971-10-12' , 6)
```

returns 'Tue' and 2.

In this example we use Sunday (6) as the first day of the week.

Example 3:

```
weekday( '1971-10-12')
```

returns 'Tue' and 2.

weekend

This function returns a value corresponding to a timestamp of the last millisecond of the last day (Sunday) of the calendar week containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
WeekEnd(date [, period_no = 0 [, first_week_day=0]])
```

Return data type: dual

Arguments:

WeekEnd arguments

Argument	Description
date	The date to evaluate.
period_no	**shift** is an integer, where the value 0 indicates the week which contains **date**. Negative values in shift indicate preceding weeks and positive values indicate succeeding weeks.
first_week_day	If you don't specify **first_week_day**, the value of variable **FirstWeekDay** will be used as the first day of the week. If you want to use another day as the first day of the week, set **first_week_day** to: • 0 for Monday • 1 for Tuesday • 2 for Wednesday • 3 for Thursday • 4 for Friday • 5 for Saturday • 6 for Sunday The integer returned by the function will now use the first day of the week that you set with **first_week_day** as base (0).

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
weekend('10/01/2013')
```

Returns 12/01/2013 23:59:59.

Example 2:

```
weekend('10/01/2013', -1)
```

Returns 06/01/2013 23:59:59.

Example 3:

```
weekend('10/01/2013', 0, 1)
```

Returns 14/01/2013 23:59:59.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the final day in the week following the week of each invoice date in the table.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
WeekEnd(InvDate, 1) AS WkEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the weekend() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	WkEnd
28/03/2012	08/04/2012
10/12/2012	23/12/2012
5/2/2013	17/02/2013
31/3/2013	07/04/2013
19/5/2013	26/05/2013
15/9/2013	22/09/2013
11/12/2013	22/12/2013
2/3/2014	09/03/2014
14/5/2014	25/05/2014
13/6/2014	22/06/2014
7/7/2014	20/07/2014
4/8/2014	17/08/2014

weekname

This function returns a value showing the year and week number with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the week containing **date**.

Syntax:

```
WeekName(date [, period_no = 0 [, first_week_day=0]])
```

Return data type: dual

Arguments:

WeekName arguments

Argument	Description
date	The date to evaluate.
period_no	**shift** is an integer, where the value 0 indicates the week which contains **date**. Negative values in shift indicate preceding weeks and positive values indicate succeeding weeks.
first_week_day	If you don't specify **first_week_day**, the value of variable **FirstWeekDay** will be used as the first day of the week. If you want to use another day as the first day of the week, set **first_week_day** to: • 0 for Monday • 1 for Tuesday • 2 for Wednesday • 3 for Thursday • 4 for Friday • 5 for Saturday • 6 for Sunday The integer returned by the function will now use the first day of the week that you set with **first_week_day** as base (0).

Example 1:

```
weekname('12/01/2013')
```

Returns 2013/02.

Example 2:

```
weekname('12/01/2013', -1)
```

Returns 2013/01.

Example 3:

```
weekname('12/01/2013', 0, 1)
```

Returns '2013/02.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

In this example, for each invoice date in the table, the week name is created from the year in which the week lies and its associated week number, shifted one week by specifying period_no as 1.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
WeekName(InvDate, 1) AS WkName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the weekname() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	WkName
28/03/2012	2012/14
10/12/2012	2012/51
5/2/2013	2013/07
31/3/2013	2013/14
19/5/2013	2013/21
15/9/2013	2013/38
11/12/2013	2013/51
2/3/2014	2014/10
14/5/2014	2014/21

13/6/2014	2014/25
7/7/2014	2014/29
4/8/2014	2014/33

weekstart

This function returns a value corresponding to a timestamp of the first millisecond of the first day (Monday) of the calendar week containing **date**. The default output format is the **DateFormat** set in the script.

Syntax:

```
WeekStart(date [, period_no = 0 [, first_week_day=0]])
```

Return data type: dual

Arguments:

WeekStart arguments

Argument	Description
date	The date to evaluate.
period_no	**shift** is an integer, where the value 0 indicates the week which contains **date**. Negative values in shift indicate preceding weeks and positive values indicate succeeding weeks.
first_week_day	If you don't specify **first_week_day**, the value of variable **FirstWeekDay** will be used as the first day of the week. If you want to use another day as the first day of the week, set **first_week_day** to: • 0 for Monday • 1 for Tuesday • 2 for Wednesday • 3 for Thursday • 4 for Friday • 5 for Saturday • 6 for Sunday The integer returned by the function will now use the first day of the week that you set with **first_week_day** as base (0).

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
weekstart('12/01/2013')
```

Returns 07/01/2013.

Example 2:

```
weekstart('12/01/2013', -1 )
```

Returns 31/11/2012.

Example 3:

```
weekstart('12/01/2013', 0, 1)
```

Returns 08/01/2013.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the first day of the week following the week of each invoice date in the table.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
WeekStart(InvDate, 1) AS WkStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the weekstart() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	WkStart
28/03/2012	02/04/2012
10/12/2012	17/12/2012
5/2/2013	11/02/2013

31/3/2013	01/04/2013
19/5/2013	20/05/2013
15/9/2013	16/09/2013
11/12/2013	16/12/2013
2/3/2014	03/03/2014
14/5/2014	19/05/2014
13/6/2014	16/06/2014
7/7/2014	14/07/2014
4/8/2014	11/08/2014

weekyear

This function returns the year to which the week number belongs according to ISO 8601. The week number ranges between 1 and approximately 52.

Syntax:

```
weekyear(expression)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
`weekyear( '1996-12-30' )`	returns 1997, because week 1 of 1997 starts on 1996-12-30
`weekyear( '1997-01-02' )`	returns 1997
`weekyear( '1997-12-28' )`	returns 1997
`weekyear( '1997-12-30' )`	returns 1998, because week 1 of 1998 starts on 1997-12-29
`weekyear( '1999-01-02' )`	returns 1998, because week 53 of 1998 ends on 1999-01-03

Limitations:

Some years, week #1 starts in December, e.g. December 1997. Other years start with week #53 of previous year, e.g. January 1999. For those few days when the week number belongs to another year, the functions **year** and **weekyear** will return different values.

year

This function returns an integer representing the year when the **expression** is interpreted as a date according to the standard number interpretation.

Syntax:

```
year(expression)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
year('2012-10-12')	returns 2012
year('35648')	returns 1997, because 35648 = 1997-08-06

yearend

This function returns a value corresponding to a timestamp of the last millisecond of the last day of the year containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
YearEnd( date[, period_no[, first_month_of_year = 1]])
```

Return data type: dual

Arguments:

YearEnd arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, where the value 0 indicates the year which contains **date**. Negative values in **period_no** indicate preceding years and positive values indicate succeeding years.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
yearend ( '19/10/2001' )
```

Returns 31/12/2001 23:59:59.

Example 2:

```
yearend ( '19/10/2001', -1 )
```

Returns 31/12/2000 23:59:59.

Example 3:

```
yearend ( '19/10/2001', 0, 4)
```

Returns 31/03/2002 23:59:59.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the final day in the year of each invoice date in the table, where the first month in the year is specified as month 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
YearEnd(InvDate, 0, 4) AS YrEnd
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the yearend() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	YrEnd
28/03/2012	31/03/2011
10/12/2012	31/03/2012

5/2/2013	31/03/2013
31/3/2013	31/03/2013
19/5/2013	31/03/2014
15/9/2013	31/03/2014
11/12/2013	31/03/2014
2/3/2014	31/03/2014
14/5/2014	31/03/2015
13/6/2014	31/03/2015
7/7/2014	31/03/2015
4/8/2014	31/03/2015

yearname

This function returns a four-digit year as display value with an underlying numeric value corresponding to a timestamp of the first millisecond of the first day of the year containing **date**.

Syntax:

```
YearName(date[, period_no[, first_month_of_year]] )
```

Return data type: dual

Arguments:

YearName arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, where the value 0 indicates the year which contains **date**. Negative values in **period_no** indicate preceding years and positive values indicate succeeding years.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**. The display value will then be a string showing two years.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
yearname ( '19/10/2001')
```

Returns 2001.

Example 2:

```
yearname ( '19/10/2001', -1 )
```

Returns '2000.

Example 3:

```
yearname ( '19/10/2001', 0, 4)
```

Returns '2001-2002.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example creates a four-plus-four digit name for the years in which each invoice date in the table is found. This is because the first month in the year is specified as month 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
YearName(InvDate, 0, 4) AS YrName
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the yearname() function.

Example 4 results

InvDate	YrName
28/03/2012	2011-2012
10/12/2012	2012-2013
5/2/2013	2012-2013

31/3/2013	2012-2013
19/5/2013	2013-2014
15/9/2013	2013-2014
11/12/2013	2013-2014
2/3/2014	2013-2014
14/5/2014	2014-2015
13/6/2014	2014-2015
7/7/2014	2014-2015
4/8/2014	2014-2015

yearstart

This function returns a timestamp corresponding to the start of the first day of the year containing **date**. The default output format will be the **DateFormat** set in the script.

Syntax:

```
YearStart(date[, period_no[, first_month_of_year]])
```

Return data type: dual

Arguments:

YearStart arguments

Argument	Description
date	The date to evaluate.
period_no	**period_no** is an integer, where the value 0 indicates the year which contains **date**. Negative values in **period_no** indicate preceding years and positive values indicate succeeding years.
first_month_of_year	If you want to work with (fiscal) years not starting in January, indicate a value between 2 and 12 in **first_month_of_year**.

Examples and results:

These examples use the date format DD/MM/YYYY. The date format is specified in the **SET DateFormat** statement at the top of your load script. Change the format in the examples to suit your requirements.

Example 1:

```
yearstart ('19/10/2001')
```

Returns 01/01/2001.

Example 2:

```
yearstart ('19/10/2001', -1)
```

Returns 01/01/2000.

Example 3:

```
yearstart ('19/10/2001', 0, 4)
```

Returns 01/04/2001.

Example 4:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

This example finds the first day in the year of each invoice date in the table, where the first month in the year is specified as month 4.

```
TempTable:
LOAD RecNo() as InvID, * Inline [
InvDate
28/03/2012
10/12/2012
5/2/2013
31/3/2013
19/5/2013
15/9/2013
11/12/2013
2/3/2014
14/5/2014
13/6/2014
7/7/2014
4/8/2014
];

InvoiceData:
LOAD *,
YearStart(InvDate, 0, 4) AS YrStart
Resident TempTable;
Drop table TempTable;
```

The resulting table contains the original dates and a column with the return value of the yearstart() function. You can display the full timestamp by specifying the formatting in the chart properties.

Example 4 results

InvDate	YrStart
28/03/2012	01/04/2011
10/12/2012	01/04/2012

5/2/2013	01/04/2012
31/3/2013	01/04/2012
19/5/2013	01/04/2013
15/9/2013	01/04/2013
11/12/2013	01/04/2013
2/3/2014	01/04/2013
14/5/2014	01/04/2014
13/6/2014	01/04/2014
7/7/2014	01/04/2014
4/8/2014	01/04/2014

yeartodate

This function finds if the input date falls within the year of the date the script was last loaded, and returns True if it does, False if it does not.

Syntax:

```
YearToDate(timestamp [ , yearoffset [ , firstmonth [ , todaydate] ] ])
```

Return data type: Boolean

If none of the optional parameters are used, the year to date means any date within one calendar year from January 1 up to and including the date of the last script execution.

Arguments:

YearToDate arguments

Argument	Description
timestamp	The date to evaluate as a timestamp or expression resolving to a timestamp, to convert, for example '2012-10-12'.
yearoffset	By specifying a **yearoffset**, **yeartodate** returns True for the same period in another year. A negative **yearoffset** indicates a previous year, a positive offset a future year. The most recent year-to-date is achieved by specifying yearoffset = -1. If omitted, 0 is assumed.
firstmonth	By specifying a **firstmonth** between 1 and 12 (1 if omitted) the beginning of the year may be moved forward to the first day of any month. For example, if you want to work with a fiscal year beginning on May 1, specify **firstmonth** = 5.
todaydate	By specifying a **todaydate** (timestamp of the last script execution if omitted) it is possible to move the day used as the upper boundary of the period.

Examples and results:

The following examples assume last reload time = 2011-11-18

Examples and results

Example	Result
`yeartodate( '2010-11-18')`	returns False
`yeartodate( '2011-02-01')`	returns True
`yeartodate( '2011-11-18')`	returns True
`yeartodate( '2011-11-19')`	returns False
`yeartodate( '2011-11-19', 0, 1, '2011-12-31')`	returns True
`yeartodate( '2010-11-18', -1)`	returns True
`yeartodate( '2011-11-18', -1)`	returns False
`yeartodate( '2011-04-30', 0, 5)`	returns False
`yeartodate( '2011-05-01', 0, 5)`	returns True

Document functions

These functions can be used in charts and script.

ReportComment(*report_number***)**
Returns the comment of the report with the specified number within the active document.

ReportName(*report_number***)**
Returns the name of the report with the specified number within the active document.

ReportID(*report_number***)**
Returns the id of the report with the specified number within the active document.

ReportNumber(*report_id_or_name***)**
Returns the number of the report with the specified id or name within the active document.

NoOfReports()
Returns the number of reports in the active document.

Exponential and logarithmic functions

This section describes functions related to exponential and logarithmic calculations. All functions can be used in both the load script and in chart expressions.

In the functions below, the parameters are expressions where **x** and **y** should be interpreted as real valued numbers.

exp
The natural exponential function, e^x, using the natural logarithm **e** as base. The result is a positive number.

exp(*x* **)**

Examples and results:

exp(3) returns 20.085.

log
The natural logarithm of **x**. The function is only defined if **x**> 0. The result is a number.

log(*x* **)**

Examples and results:

log(3) returns 1.0986

log10
The common logarithm (base 10) of **x**. The function is only defined if **x**> 0. The result is a number.

log10(*x* **)**

Examples and results:

log10(3) returns 0.4771

pow
Returns **x** to the power of **y**. The result is a number.

pow(*x,y* **)**

Examples and results:

pow(3, 3) returns 27

sqr
x squared (**x** to the power of 2). The result is a number.

sqr (*x* **)**

Examples and results:

sqr(3) returns 9

sqrt
Square root of **x**. The function is only defined if **x** >= 0. The result is a positive number.

sqrt(*x* **)**

Examples and results:

sqrt(3) returns 1.732

Field functions

These functions can only be used in chart expressions.

Field functions either return integers or strings identifying different aspects of field selections.

Count functions

GetSelectedCount

GetSelectedCount() finds the number of selected (green) values in a field.

```
GetSelectedCount() finds the number of selected (green) values in a field.
(field_name [, include_excluded])
```

GetAlternativeCount

GetAlternativeCount() is used to find the number of alternative (light gray) values in the identified field.

```
GetAlternativeCount() is used to find the number of alternative (light gray)
values in the identified field.  (field_name)
```

GetPossibleCount

GetPossibleCount() is used to find the number of possible values in the identified field. If the identified field includes selections, then the selected (green) fields are counted. Otherwise associated (white) values are counted.

```
GetPossibleCount() is used to find the number of possible values in the
identified field. If the identified field includes selections, then the
selected (green) fields are counted. Otherwise associated (white) values are
counted. .(field_name)
```

GetExcludedCount

GetExcludedCount() finds the number of excluded distinct values in the identified field. Excluded values include alternative (white or light yellow), excluded and selected excluded (gray) fields.

```
GetExcludedCount() finds the number of excluded distinct values in the
identified field. Excluded values include alternative (white or light
yellow), excluded and selected excluded (gray) fields. (page 1334)(field_
name)
```

GetNotSelectedCount

This chart function returns the number of not-selected values in the field named **fieldname**. The field must be in and-mode for this function to be relevant.

```
GetNotSelectedCount(fieldname [, includeexcluded=false])
```

Field and selection functions

GetCurrentField

GetCurrentField() is used to find the currently active field in the specified group.

```
GetCurrentField() is used to find the currently active field in the specified
group.  (group_name)
```

GetCurrentSelections

GetCurrentSelections() returns the current selections in the document.

```
GetCurrentSelections() returns the current selections in the document.
([record_sep [,tag_sep [,value_sep [,max_values]]]])
```

GetFieldSelections

GetFieldSelections() returns a **string** with the current selections in a field.

```
GetFieldSelections() returns a string with the current selections in a field.
( field_name [, value_sep [, max_values]])
```

GetObjectField

GetObjectField() returns the name of the dimension. **Index** is an optional integer denoting the dimension that should be returned.

```
GetObjectField (page 1337) ([index])
```

GetObjectMeasure

GetObjectMeasure() returns the name of the measure. **Index** is an optional integer denoting the measure that should be returned.

```
GetObjectMeasureGetObjectMeasure() returns the name of the measure. Index is
an optional integer denoting the measure that should be returned. You cannot
use this function in a chart in the following locations: title, subtitle,
footer, reference line expression. GetObjectMeasure
([index]) GetObjectMeasure(1) Example: Chart expressionQlikView table showing
examples of the GetObjectMeasure function in a chart expression.Example
GetObjectMeasure usagetransaction_quantitytransaction_amount=GetObjectMeasure
()=GetObjectMeasure (0)=GetObjectMeasure (1)13484.21transaction_
quantitytransaction_quantitytransaction_amount6556.31transaction_
quantitytransaction_quantitytransaction_amount21177.42transaction_
quantitytransaction_quantitytransaction_amountIf you want to return a
dimension, use the GetObjectField function instead. (page 1) ([index])
```

GetAlternativeCount

GetAlternativeCount() is used to find the number of alternative (light gray) values in the identified field.

Syntax:

```
GetAlternativeCount (field_name)
```

Return data type: integer

Arguments:

- `field_name`: The field containing the range of data to be measured.

Examples

The following examples use the **First name** field loaded to a list box, and the following syntax:

```
GetAlternativeCount ([First name])
```

- Given that **John** is selected in **First name**, the script returns **4** as there are 4 unique and excluded (gray) values in **First name**.
- Given that **John** and **Peter** are selected, the script returns **3** as there are 3 unique and excluded (gray) values in **First name**.
- Given that no values are selected in **First name**, the script returns **0** as there are no selections.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
```

GetCurrentField

GetCurrentField() is used to find the currently active field in the specified group.

Syntax:

```
GetCurrentField (group_name)
```

Return data type: string

Arguments:

- `group_name`: The name of the group to be evaluated.

Examples

In the following, the field **MyGroup** includes the fields Sales and Price, and the following syntax:

```
GetCurrentField (MyGroup )
```

- Given that **Sales** is active, the script returns **Sales**, the active field.

GetCurrentSelections

GetCurrentSelections() returns the current selections in the document.

If options are used you will need to specify record_sep. To specify a new line set **record_sep** to **chr(13)&chr(10)**.

If all but two, or all but one, values, are selected, the format 'NOT x,y' or 'NOT y' will be used respectively. If you select all values and the count of all values is greater than max_values, the text ALL will be returned.

Syntax:

```
GetCurrentSelections ([record_sep [,tag_sep [,value_sep [,max_values]]]])
```

Return data type: string

Arguments:

- `record_sep`: Separator to be put between field records. The default is <CR><LF> meaning a new line.
- `tag_sep`: Separator to be put between the field name tag and the field values. The default is ': '.
- `value_sep`: The separator to be put between field values. The default is ', '.
- `max_values`: The maximum number of field values to be individually listed. When a larger number of values is selected, the format 'x of y values' will be used instead. The default is 6.

Examples

The following examples use two fields loaded to different list boxes, one for **First name** name and one for **Initials**.

Example 1: John is selected in First name

```
GetCurrentSelections ()
```
returns 'First name: John'.

Example 2: John and Peter are selected in First name.

```
GetCurrentSelections ()
```
returns 'First name: John, Peter'.

Example 3: John is selected in First name and JA is selected in Initials.

```
GetCurrentSelections ()
```
returns 'First name: John; Peter and Initials: JA'.

Example 4: John is selected in First name and JA is selected in Initials.

```
GetCurrentSelections ( chr(13)&chr(10) , ' = ' )
```
returns 'First name = John and Initials = JA'.

Example 5: all names except Sue selected in First name and no selections in Initials.

```
=GetCurrentSelections(chr(13)&chr(10),'=',',',3)
```
returns 'First name=NOT Sue'.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
```

GetExcludedCount

GetExcludedCount() finds the number of excluded distinct values in the identified field. Excluded values include alternative (white or light yellow), excluded and selected excluded (gray) fields.

Syntax:

```
GetExcludedCount (field_name)
```

Return data type: string

Arguments:

- `field_name`: The field containing the range of data to be measured.

Examples

The following example uses three fields loaded to different list boxes, one for **First name** , one for **Last name**, and one for **Initials**.

Example 1: no values selected in First name

```
GetExcludedCount (Initials) = 0
```
There are no selections.

Example 2: John selected in First name

```
GetExcludedCount (Initials) = 5
```
There are 5 excluded values in **Initials** with gray color. The sixth cell (JA) will be white as it is associated with the selection John in **First name**.

Example 3: John and Peter selected in First name

```
GetExcludedCount (Initials) = 3
```
John is associated with 1 value and Peter is associated with 2 values, in **Initials**.

Example 4: John and Peter selected in First name, Franc selected in Last name

```
GetExcludedCount ([First name]) = 4
```
There are 4 excluded values in **First name** with gray color. **GetExcludedCount()** evaluates for fields with excluded values, including alternative and selected excluded fields.

Example 5: John and Peter selected in First name, Franc and Andersonselected in Last name

```
GetExcludedCount (Initials) = 4
```
There are 4 excluded values in **Initials** with gray color. The other two cells (JA and PF) will be white or light yellow as they associated with the selections John and Peter in **First name**.

Example 6: John and Peter selected in First name, Franc and Anderson selected in Last name

```
GetExcludedCount ([Last name]) = 4
```
There are 4 excluded values in **Initials**. Devonshire, Brown, Carr, and Elliot have gray color.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
```

GetFieldSelections

GetFieldSelections() returns a **string** with the current selections in a field.

If all but two, or all but one of the values are selected, the format 'NOT x,y' or 'NOT y' will be used respectively. If you select all values and the count of all values is greater than max_values, the text ALL will be returned.

Syntax:

```
GetFieldSelections ( field_name [, value_sep [, max_values [, state_name]]])
```

Return data type: string

Return string formats

Format	Description
'a, b, c'	If the number of selected values is max_values or less, the string returned is a list of the selected values. The values are separated with value_sep as delimiter.
'NOT a, b, c'	If the number of non-selected values is max_values or less, the string returned is a list of the non-selected values with NOT as a prefix. The values are separated with value_sep as delimiter.
'x of y'	x = the number of selected values y = the total number of values This is returned when max_values < x < (y - max_values).
'ALL'	Returned if all values are selected.
'-'	Returned if no value is selected.
<search string>	If you have selected using search, the search string is returned.

Arguments:

- `field_name`: The field containing the range of data to be measured.
- `value_sep`: The separator to be put between field values. The default is ', '.
- `max_values`: The maximum number of field values to be individually listed. When a larger number of values is selected, the format 'x of y values' will be used instead. The default is 6.
- `state_name`: The name of an alternate state that has been chosen for the specific visualization. If the **state_name** argument is used, only the selections associated with the specified state name are taken into account. For more information, see *Alternate States (page 849)*.

Examples

The following example uses the **First name** field loaded to a list box.

Example 1: John selected in First name

```
GetFieldSelections ([First name])
```
returns 'John'

Example 2: John and Peter selected in First name

```
GetFieldSelections ([First name])
```
returns 'John,Peter'

Example 3: John and Peter selected in First name

```
GetFieldSelections ([First name],'; ')
```
returns 'John; Peter'

Example 4: John, Sue, Mark selected in First name

```
GetFieldSelections ([First name],';',2)
```
returns 'NOT Jane;Peter', because the value 2 is stated as the value of the max_values argument. Otherwise, the result would have been John; Sue; Mark.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
```

GetNotSelectedCount

This chart function returns the number of not-selected values in the field named **fieldname**. The field must be in and-mode for this function to be relevant.

Syntax:

```
GetNotSelectedCount ( field_name [, include_excluded])
(Inherited)GetNotSelectedCount ( FieldName [, IncludeExcluded])
```

Arguments:

- `field_name`: The field containing the range of data to be measured.
- `include_excluded`: If **IncludeExcluded** is **True()**, the count will include selected values, which are currently excluded by selections in other fields. If False or omitted, these values will not be included.

Example:

```
GetNotSelectedCount ( Year )
GetNotSelectedCount (Year,True())
```

GetObjectField

GetObjectField() returns the name of the dimension. **Index** is an optional integer denoting the dimension that should be returned.

You cannot use this function in a chart in the following locations: title, subtitle, footer, reference line expression.

Syntax:

```
GetObjectField ([index])
```

Example:

```
GetObjectField(1)
```

Example: Chart expression

QlikView table showing examples of the GetObjectField function in a chart expression.

Example GetObjectField usage

transaction_ date	customer_ id	transaction_ quantity	=GetObjectField ()	=GetObjectField (0)	=GetObjectField (1)
2018/08/30	049681	13	transaction_date	transaction_date	customer_id
2018/08/30	203521	6	transaction_date	transaction_date	customer_id
2018/08/30	203521	21	transaction_date	transaction_date	customer_id

In this example, transaction_quantity is a measure and would therefore not return a result from the **GetObjectField** function. Use the **GetObjectMeasure** function instead.

GetObjectMeasure

GetObjectMeasure() returns the name of the measure. **Index** is an optional integer denoting the measure that should be returned.

You cannot use this function in a chart in the following locations: title, subtitle, footer, reference line expression.

Syntax:

```
GetObjectMeasure ([index])
```

Example:

```
GetObjectMeasure(1)
```

Example: Chart expression

QlikView table showing examples of the GetObjectMeasure function in a chart expression.

Example GetObjectMeasure usage

transaction_ quantity	transaction_ amount	=GetObjectMeasure ()	=GetObjectMeasure (0)	=GetObjectMeasure (1)
13	484.21	transaction_quantity	transaction_quantity	transaction_amount
6	556.31	transaction_quantity	transaction_quantity	transaction_amount
21	177.42	transaction_quantity	transaction_quantity	transaction_amount

If you want to return a dimension, use the **GetObjectField** function instead.

GetPossibleCount

GetPossibleCount() is used to find the number of possible values in the identified field. If the identified field includes selections, then the selected (green) fields are counted. Otherwise associated (white) values are counted. .

For fields with selections, **GetPossibleCount()** returns the number of selected (green) fields.

Return data type: integer

Syntax:

```
GetPossibleCount (field_name)
```

Arguments:

- `field_name`: The field containing the range of data to be measured.

Examples

The following examples use two fields loaded to different list boxes, one for **First name** name and one for **Initials**.

Example 1: John selected in First name

```
GetPossibleCount ([Initials])
```

returns **1** as there is 1 value in Initials associated with the selection, **John**, in **First name**.

Example 2: John selected in First name

```
GetPossibleCount ([First name])
```
returns **1** as there is 1 selection, **John**, in **First name**.

Example 3: Peterselected in First name

```
GetPossibleCount ([Initials])
```
returns **2** as Peter is associated with 2 values in **Initials**.

Example 4: no values selected in First name

```
GetPossibleCount ([First name])
```
returns **5** as there are no selections and there are 5 unique values in **First name**.

Example 5: no values selected in First name

```
GetPossibleCount ([Initials])
```
returns **6** as there are no selections and there are 6 unique values in **Initials**.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
```

GetSelectedCount

GetSelectedCount() finds the number of selected (green) values in a field.

Syntax:

```
GetSelectedCount (field_name [, include_excluded])
```

Return data type: integer

Arguments:

- `field_name`: The field containing the range of data to be measured.
- `include_excluded`: If set to **True()**, the count will include selected values, which are currently excluded by selections in other fields. If False or omitted, these values will not be included.
- `state_name`: The name of an alternate state. If specified, the counted value for the field in the alternate state is returned. If no alternate state is provided, the default state is used.

Examples

The following example uses three fields loaded to different list boxes, one for **First name** name, one for **Initials** and one for **Has cellphone**.

Example 1: John selected in First name

```
GetSelectedCount ([First name])
```

returns **1** as one value is selected in **First name**.

Example 2: John selected in First name

```
GetSelectedCount ([Initials])
```

returns **0** as no values are selected in **Initials**.

Example 3: no selections in First name, all values selected in Initials, and Yes selected in Has cellphone

```
GetSelectedCount ([Initials], True())
```

returns **6**. Although selections with **Initials**MC and PD have **Has cellphone** set to **No**, the result is still 6, because the argument include_excluded is set to True().

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
```

File functions

The file functions (only available in script expressions) return information about the table file which is currently being read. These functions will return NULL for all data sources except table files (exception: **ConnectString( )**).

File functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Attribute

This script function returns the value of the meta tags of different media files as text. The following file formats are supported: MP3, WMA, WMV, PNG and JPG. If the file **filename** does not exist, is not a supported file format or does not contain a meta tag named **attributename**, NULL will be returned.

```
Attribute (filename, attributename)
```

ConnectString

The **ConnectString()** function returns the name of the active data connection for ODBC or OLE DB connections. The function returns an empty string if no **connect** statement has been executed, or after a **disconnect** statement.

```
ConnectString ()
```

FileBaseName

The **FileBaseName** function returns a string containing the name of the table file currently being read, without path or extension.

```
FileBaseName ()
```

FileDir

The **FileDir** function returns a string containing the path to the directory of the table file currently being read.

```
FileDir ()
```

FileExtension

The **FileExtension** function returns a string containing the extension of the table file currently being read.

```
FileExtension ()
```

FileName

The **FileName** function returns a string containing the name of the table file currently being read, without path but including the extension.

```
FileName ()
```

FilePath

The **FilePath** function returns a string containing the full path to the table file currently being read.

```
FilePath ()
```

FileSize

The **FileSize** function returns an integer containing the size in bytes of the file filename or, if no filename is specified, of the table file currently being read.

```
FileSize ()
```

FileTime

The **FileTime** function returns a timestamp in UTC for the date and time of the last modification of the file filename. If no filename is specified, the function will refer to the currently read table file.

```
FileTime ([ filename ])
```

GetFolderPath

The **GetFolderPath** function returns the value of the Microsoft Windows SHGetFolderPath function. This function takes as input the name of a Microsoft Windows folder and returns the full path of the folder.

```
GetFolderPath ()
```

QvdCreateTime

This script function returns the XML-header timestamp from a QVD file, if any is present, otherwise it returns NULL. In the timestamp, time is provided in UTC.

```
QvdCreateTime (filename)
```

QvdFieldName

This script function returns the name of field number **fieldno**, if it exists in a QVD file (otherwise NULL).

```
QvdFieldName (filename , fieldno)
```

QvdNoOfFields

This script function returns the number of fields in a QVD file.

```
QvdNoOfFields (filename)
```

QvdNoOfRecords

This script function returns the number of records currently in a QVD file.

```
QvdNoOfRecords (filename)
```

QvdTableName

This script function returns the name of the table stored in a QVD file.

```
QvdTableName (filename)
```

Attribute

This script function returns the value of the meta tags of different media files as text. The following file formats are supported: MP3, WMA, WMV, PNG and JPG. If the file **filename** does not exist, is not a supported file format or does not contain a meta tag named **attributename**, NULL will be returned.

Syntax:

```
Attribute(filename, attributename)
```

A large number of meta tags can be read. The examples in this topic show which tags can be read for the respective supported file types.

*You can only read meta tags saved in the file according to the relevant specification, for example ID2v3 for MP3 files or EXIF for JPG files, not meta information saved in the **Windows Explorer** (Windows 7) or **File Explorer** (Windows 8.1 and 10).*

Arguments:

- filename: The name of a media file including path, if needed.
    - absolute

      Example: *c:\data*

- relative to the QlikView document path.

  Example: *data*

- attributename: The name of a meta tag.

Example 1: MP3 files

This script reads all possible MP3 meta tags in folder *MyMusic*.

```
// Script to read MP3 meta tags
for each vExt in 'mp3'
for each vFoundFile in filelist( GetFolderPath('MyMusic') & '\*.'& vExt )
FileList:
LOAD FileLongName,
    subfield(FileLongName,'\',-1) as FileShortName,
    num(FileSize(FileLongName),'# ### ### ###',',',' ') as FileSize,
    FileTime(FileLongName) as FileTime,
    // ID3v1.0 and ID3v1.1 tags
    Attribute(FileLongName, 'Title') as Title,
    Attribute(FileLongName, 'Artist') as Artist,
    Attribute(FileLongName, 'Album') as Album,
    Attribute(FileLongName, 'Year') as Year,
    Attribute(FileLongName, 'Comment') as Comment,
    Attribute(FileLongName, 'Track') as Track,
    Attribute(FileLongName, 'Genre') as Genre,
    // ID3v2.3 tags
    Attribute(FileLongName, 'AENC') as AENC, // Audio encryption
    Attribute(FileLongName, 'APIC') as APIC, // Attached picture
    Attribute(FileLongName, 'COMM') as COMM, // Comments
    Attribute(FileLongName, 'COMR') as COMR, // Commercial frame
    Attribute(FileLongName, 'ENCR') as ENCR, // Encryption method registration
    Attribute(FileLongName, 'EQUA') as EQUA, // Equalization
    Attribute(FileLongName, 'ETCO') as ETCO, // Event timing codes
    Attribute(FileLongName, 'GEOB') as GEOB, // General encapsulated object
    Attribute(FileLongName, 'GRID') as GRID, // Group identification registration
    Attribute(FileLongName, 'IPLS') as IPLS, // Involved people list
    Attribute(FileLongName, 'LINK') as LINK, // Linked information
    Attribute(FileLongName, 'MCDI') as MCDI, // Music CD identifier
    Attribute(FileLongName, 'MLLT') as MLLT, // MPEG location lookup table
    Attribute(FileLongName, 'OWNE') as OWNE, // Ownership frame
    Attribute(FileLongName, 'PRIV') as PRIV, // Private frame
    Attribute(FileLongName, 'PCNT') as PCNT, // Play counter
    Attribute(FileLongName, 'POPM') as POPM, // Popularimeter
    Attribute(FileLongName, 'POSS') as POSS, // Position synchronisation frame
    Attribute(FileLongName, 'RBUF') as RBUF, // Recommended buffer size
    Attribute(FileLongName, 'RVAD') as RVAD, // Relative volume adjustment
    Attribute(FileLongName, 'RVRB') as RVRB, // Reverb
    Attribute(FileLongName, 'SYLT') as SYLT, // Synchronized lyric/text
    Attribute(FileLongName, 'SYTC') as SYTC, // Synchronized tempo codes
    Attribute(FileLongName, 'TALB') as TALB, // Album/Movie/Show title
    Attribute(FileLongName, 'TBPM') as TBPM, // BPM (beats per minute)
    Attribute(FileLongName, 'TCOM') as TCOM, // Composer
    Attribute(FileLongName, 'TCON') as TCON, // Content type
    Attribute(FileLongName, 'TCOP') as TCOP, // Copyright message
```

```
    Attribute(FileLongName, 'TDAT') as TDAT, // Date
    Attribute(FileLongName, 'TDLY') as TDLY, // Playlist delay
    Attribute(FileLongName, 'TENC') as TENC, // Encoded by
    Attribute(FileLongName, 'TEXT') as TEXT, // Lyricist/Text writer
    Attribute(FileLongName, 'TFLT') as TFLT, // File type
    Attribute(FileLongName, 'TIME') as TIME, // Time
    Attribute(FileLongName, 'TIT1') as TIT1, // Content group description
    Attribute(FileLongName, 'TIT2') as TIT2, // Title/songname/content description
    Attribute(FileLongName, 'TIT3') as TIT3, // Subtitle/Description refinement
    Attribute(FileLongName, 'TKEY') as TKEY, // Initial key
    Attribute(FileLongName, 'TLAN') as TLAN, // Language(s)
    Attribute(FileLongName, 'TLEN') as TLEN, // Length
    Attribute(FileLongName, 'TMED') as TMED, // Media type
    Attribute(FileLongName, 'TOAL') as TOAL, // Original album/movie/show title
    Attribute(FileLongName, 'TOFN') as TOFN, // Original filename
    Attribute(FileLongName, 'TOLY') as TOLY, // Original lyricist(s)/text writer(s)
    Attribute(FileLongName, 'TOPE') as TOPE, // Original artist(s)/performer(s)
    Attribute(FileLongName, 'TORY') as TORY, // Original release year
    Attribute(FileLongName, 'TOWN') as TOWN, // File owner/licensee
    Attribute(FileLongName, 'TPE1') as TPE1, // Lead performer(s)/Soloist(s)
    Attribute(FileLongName, 'TPE2') as TPE2, // Band/orchestra/accompaniment
    Attribute(FileLongName, 'TPE3') as TPE3, // Conductor/performer refinement
    Attribute(FileLongName, 'TPE4') as TPE4, // Interpreted, remixed, or otherwise modified by
    Attribute(FileLongName, 'TPOS') as TPOS, // Part of a set
    Attribute(FileLongName, 'TPUB') as TPUB, // Publisher
    Attribute(FileLongName, 'TRCK') as TRCK, // Track number/Position in set
    Attribute(FileLongName, 'TRDA') as TRDA, // Recording dates
    Attribute(FileLongName, 'TRSN') as TRSN, // Internet radio station name
    Attribute(FileLongName, 'TRSO') as TRSO, // Internet radio station owner
    Attribute(FileLongName, 'TSIZ') as TSIZ, // Size
    Attribute(FileLongName, 'TSRC') as TSRC, // ISRC (international standard recording code)
    Attribute(FileLongName, 'TSSE') as TSSE, // Software/Hardware and settings used for
encoding
    Attribute(FileLongName, 'TYER') as TYER, // Year
    Attribute(FileLongName, 'TXXX') as TXXX, // User defined text information frame
    Attribute(FileLongName, 'UFID') as UFID, // Unique file identifier
    Attribute(FileLongName, 'USER') as USER, // Terms of use
    Attribute(FileLongName, 'USLT') as USLT, // Unsychronized lyric/text transcription
    Attribute(FileLongName, 'WCOM') as WCOM, // Commercial information
    Attribute(FileLongName, 'WCOP') as WCOP, // Copyright/Legal information
    Attribute(FileLongName, 'WOAF') as WOAF, // Official audio file webpage
    Attribute(FileLongName, 'WOAR') as WOAR, // Official artist/performer webpage
    Attribute(FileLongName, 'WOAS') as WOAS, // Official audio source webpage
    Attribute(FileLongName, 'WORS') as WORS, // Official internet radio station homepage
    Attribute(FileLongName, 'WPAY') as WPAY, // Payment
    Attribute(FileLongName, 'WPUB') as WPUB, // Publishers official webpage
    Attribute(FileLongName, 'WXXX') as WXXX; // User defined URL link frame
LOAD @1:n as FileLongName Inline "$(vFoundFile)" (fix, no labels);
Next vFoundFile
Next vExt
```

Example 2: JPEG

This script reads all possible EXIF meta tags from JPG files in folder *MyPictures*.

```
// Script to read Jpeg Exif meta tags
for each vExt in 'jpg', 'jpeg', 'jpe', 'jfif', 'jif', 'jfi'
for each vFoundFile in filelist( GetFolderPath('MyPictures') & '\*.'& vExt )
FileList:
LOAD FileLongName,
    subfield(FileLongName,'\',-1) as FileShortName,
    num(FileSize(FileLongName),'# ### ### ###',',',' ') as FileSize,
    FileTime(FileLongName) as FileTime,
    // ************   Exif Main (IFD0) Attributes   ************
    Attribute(FileLongName, 'ImageWidth') as ImageWidth,
    Attribute(FileLongName, 'ImageLength') as ImageLength,
    Attribute(FileLongName, 'BitsPerSample') as BitsPerSample,
    Attribute(FileLongName, 'Compression') as Compression,
    //  examples: 1=uncompressed, 2=CCITT, 3=CCITT 3, 4=CCITT 4,
    //5=LZW, 6=JPEG (old style), 7=JPEG, 8=Deflate, 32773=PackBits RLE,
    Attribute(FileLongName, 'PhotometricInterpretation') as PhotometricInterpretation,
    //  examples: 0=WhiteIsZero, 1=BlackIsZero, 2=RGB, 3=Palette, 5=CMYK, 6=YCbCr,
    Attribute(FileLongName, 'ImageDescription') as ImageDescription,
    Attribute(FileLongName, 'Make') as Make,
    Attribute(FileLongName, 'Model') as Model,
    Attribute(FileLongName, 'StripOffsets') as StripOffsets,
    Attribute(FileLongName, 'Orientation') as Orientation,
    //  examples: 1=TopLeft, 2=TopRight, 3=BottomRight, 4=BottomLeft,
    // 5=LeftTop, 6=RightTop, 7=RightBottom, 8=LeftBottom,
    Attribute(FileLongName, 'SamplesPerPixel') as SamplesPerPixel,
    Attribute(FileLongName, 'RowsPerStrip') as RowsPerStrip,
    Attribute(FileLongName, 'StripByteCounts') as StripByteCounts,
    Attribute(FileLongName, 'XResolution') as XResolution,
    Attribute(FileLongName, 'YResolution') as YResolution,
    Attribute(FileLongName, 'PlanarConfiguration') as PlanarConfiguration,
    //  examples: 1=chunky format, 2=planar format,
    Attribute(FileLongName, 'ResolutionUnit') as ResolutionUnit,
    //  examples: 1=none, 2=inches, 3=centimeters,
    Attribute(FileLongName, 'TransferFunction') as TransferFunction,
    Attribute(FileLongName, 'Software') as Software,
    Attribute(FileLongName, 'DateTime') as DateTime,
    Attribute(FileLongName, 'Artist') as Artist,
    Attribute(FileLongName, 'HostComputer') as HostComputer,
    Attribute(FileLongName, 'WhitePoint') as WhitePoint,
    Attribute(FileLongName, 'PrimaryChromaticities') as PrimaryChromaticities,
    Attribute(FileLongName, 'YCbCrCoefficients') as YCbCrCoefficients,
    Attribute(FileLongName, 'YCbCrSubSampling') as YCbCrSubSampling,
    Attribute(FileLongName, 'YCbCrPositioning') as YCbCrPositioning,
    //  examples: 1=centered, 2=co-sited,
    Attribute(FileLongName, 'ReferenceBlackWhite') as ReferenceBlackWhite,
    Attribute(FileLongName, 'Rating') as Rating,
    Attribute(FileLongName, 'RatingPercent') as RatingPercent,
    Attribute(FileLongName, 'ThumbnailFormat') as ThumbnailFormat,
    //  examples: 0=Raw Rgb, 1=Jpeg,
    Attribute(FileLongName, 'Copyright') as Copyright,
    Attribute(FileLongName, 'ExposureTime') as ExposureTime,
    Attribute(FileLongName, 'FNumber') as FNumber,
    Attribute(FileLongName, 'ExposureProgram') as ExposureProgram,
    //  examples: 0=Not defined, 1=Manual, 2=Normal program, 3=Aperture priority, 4=Shutter
priority,
```

```
    // 5=Creative program, 6=Action program, 7=Portrait mode, 8=Landscape mode, 9=Bulb,
    Attribute(FileLongName, 'ISOSpeedRatings') as ISOSpeedRatings,
    Attribute(FileLongName, 'TimeZoneOffset') as TimeZoneOffset,
    Attribute(FileLongName, 'SensitivityType') as SensitivityType,
    //  examples: 0=Unknown, 1=Standard output sensitivity (SOS), 2=Recommended exposure index
(REI),
    // 3=ISO speed, 4=Standard output sensitivity (SOS) and Recommended exposure index (REI),
    //5=Standard output sensitivity (SOS) and ISO Speed, 6=Recommended exposure index (REI)
and ISO Speed,
    // 7=Standard output sensitivity (SOS) and Recommended exposure index (REI) and ISO speed,
    Attribute(FileLongName, 'ExifVersion') as ExifVersion,
    Attribute(FileLongName, 'DateTimeOriginal') as DateTimeOriginal,
    Attribute(FileLongName, 'DateTimeDigitized') as DateTimeDigitized,
    Attribute(FileLongName, 'ComponentsConfiguration') as ComponentsConfiguration,
    //  examples: 1=Y, 2=Cb, 3=Cr, 4=R, 5=G, 6=B,
    Attribute(FileLongName, 'CompressedBitsPerPixel') as CompressedBitsPerPixel,
    Attribute(FileLongName, 'ShutterSpeedValue') as ShutterSpeedValue,
    Attribute(FileLongName, 'ApertureValue') as ApertureValue,
    Attribute(FileLongName, 'BrightnessValue') as BrightnessValue, //  examples: -1=Unknown,
    Attribute(FileLongName, 'ExposureBiasValue') as ExposureBiasValue,
    Attribute(FileLongName, 'MaxApertureValue') as MaxApertureValue,
    Attribute(FileLongName, 'SubjectDistance') as SubjectDistance,
    //  examples: 0=Unknown, -1=Infinity,
    Attribute(FileLongName, 'MeteringMode') as MeteringMode,
    //  examples: 0=Unknown, 1=Average, 2=CenterWeightedAverage, 3=Spot,
    // 4=MultiSpot, 5=Pattern, 6=Partial, 255=Other,
    Attribute(FileLongName, 'LightSource') as LightSource,
    //  examples: 0=Unknown, 1=Daylight, 2=Fluorescent, 3=Tungsten, 4=Flash, 9=Fine weather,
    // 10=Cloudy weather, 11=Shade, 12=Daylight fluorescent,
    // 13=Day white fluorescent, 14=Cool white fluorescent,
    // 15=White fluorescent, 17=Standard light A, 18=Standard light B, 19=Standard light C,
    // 20=D55, 21=D65, 22=D75, 23=D50, 24=ISO studio tungsten, 255=other light source,
    Attribute(FileLongName, 'Flash') as Flash,
    Attribute(FileLongName, 'FocalLength') as FocalLength,
    Attribute(FileLongName, 'SubjectArea') as SubjectArea,
    Attribute(FileLongName, 'MakerNote') as MakerNote,
    Attribute(FileLongName, 'UserComment') as UserComment,
    Attribute(FileLongName, 'SubSecTime') as SubSecTime,
    Attribute(FileLongName, 'SubsecTimeOriginal') as SubsecTimeOriginal,
    Attribute(FileLongName, 'SubsecTimeDigitized') as SubsecTimeDigitized,
    Attribute(FileLongName, 'XPTitle') as XPTitle,
    Attribute(FileLongName, 'XPComment') as XPComment,
    Attribute(FileLongName, 'XPAuthor') as XPAuthor,
    Attribute(FileLongName, 'XPKeywords') as XPKeywords,
    Attribute(FileLongName, 'XPSubject') as XPSubject,
    Attribute(FileLongName, 'FlashpixVersion') as FlashpixVersion,
    Attribute(FileLongName, 'ColorSpace') as ColorSpace, //  examples: 1=sRGB,
65535=Uncalibrated,
    Attribute(FileLongName, 'PixelXDimension') as PixelXDimension,
    Attribute(FileLongName, 'PixelYDimension') as PixelYDimension,
    Attribute(FileLongName, 'RelatedSoundFile') as RelatedSoundFile,
    Attribute(FileLongName, 'FocalPlaneXResolution') as FocalPlaneXResolution,
    Attribute(FileLongName, 'FocalPlaneYResolution') as FocalPlaneYResolution,
    Attribute(FileLongName, 'FocalPlaneResolutionUnit') as FocalPlaneResolutionUnit,
    //  examples: 1=None, 2=Inch, 3=Centimeter,
    Attribute(FileLongName, 'ExposureIndex') as ExposureIndex,
    Attribute(FileLongName, 'SensingMethod') as SensingMethod,
```

```
    //  examples: 1=Not defined, 2=One-chip color area sensor, 3=Two-chip color area sensor,
    // 4=Three-chip color area sensor, 5=Color sequential area sensor,
    // 7=Trilinear sensor, 8=Color sequential linear sensor,
    Attribute(FileLongName, 'FileSource') as FileSource,
    //  examples: 0=Other, 1=Scanner of transparent type,
    // 2=Scanner of reflex type, 3=Digital still camera,
    Attribute(FileLongName, 'SceneType') as SceneType,
    //  examples: 1=A directly photographed image,
    Attribute(FileLongName, 'CFAPattern') as CFAPattern,
    Attribute(FileLongName, 'CustomRendered') as CustomRendered,
    //  examples: 0=Normal process, 1=Custom process,
    Attribute(FileLongName, 'ExposureMode') as ExposureMode,
    //  examples: 0=Auto exposure, 1=Manual exposure, 2=Auto bracket,
    Attribute(FileLongName, 'WhiteBalance') as WhiteBalance,
    //  examples: 0=Auto white balance, 1=Manual white balance,
    Attribute(FileLongName, 'DigitalZoomRatio') as DigitalZoomRatio,
    Attribute(FileLongName, 'FocalLengthIn35mmFilm') as FocalLengthIn35mmFilm,
    Attribute(FileLongName, 'SceneCaptureType') as SceneCaptureType,
    //  examples: 0=Standard, 1=Landscape, 2=Portrait, 3=Night scene,
    Attribute(FileLongName, 'GainControl') as GainControl,
    //  examples: 0=None, 1=Low gain up, 2=High gain up, 3=Low gain down, 4=High gain down,
    Attribute(FileLongName, 'Contrast') as Contrast,
    //  examples: 0=Normal, 1=Soft, 2=Hard,
    Attribute(FileLongName, 'Saturation') as Saturation,
    //  examples: 0=Normal, 1=Low saturation, 2=High saturation,
    Attribute(FileLongName, 'Sharpness') as Sharpness,
    //  examples: 0=Normal, 1=Soft, 2=Hard,
    Attribute(FileLongName, 'SubjectDistanceRange') as SubjectDistanceRange,
    //  examples: 0=Unknown, 1=Macro, 2=Close view, 3=Distant view,
    Attribute(FileLongName, 'ImageUniqueID') as ImageUniqueID,
    Attribute(FileLongName, 'BodySerialNumber') as BodySerialNumber,
    Attribute(FileLongName, 'CMNT_GAMMA') as CMNT_GAMMA,
    Attribute(FileLongName, 'PrintImageMatching') as PrintImageMatching,
    Attribute(FileLongName, 'OffsetSchema') as OffsetSchema,
    // ************   Interoperability Attributes   ************
    Attribute(FileLongName, 'InteroperabilityIndex') as InteroperabilityIndex,
    Attribute(FileLongName, 'InteroperabilityVersion') as InteroperabilityVersion,
    Attribute(FileLongName, 'InteroperabilityRelatedImageFileFormat') as
InteroperabilityRelatedImageFileFormat,
    Attribute(FileLongName, 'InteroperabilityRelatedImageWidth') as
InteroperabilityRelatedImageWidth,
    Attribute(FileLongName, 'InteroperabilityRelatedImageLength') as
InteroperabilityRelatedImageLength,
    Attribute(FileLongName, 'InteroperabilityColorSpace') as InteroperabilityColorSpace,
    //  examples: 1=sRGB, 65535=Uncalibrated,
    Attribute(FileLongName, 'InteroperabilityPrintImageMatching') as
InteroperabilityPrintImageMatching,
    // ************   GPS Attributes   ************
    Attribute(FileLongName, 'GPSVersionID') as GPSVersionID,
    Attribute(FileLongName, 'GPSLatitudeRef') as GPSLatitudeRef,
    Attribute(FileLongName, 'GPSLatitude') as GPSLatitude,
    Attribute(FileLongName, 'GPSLongitudeRef') as GPSLongitudeRef,
    Attribute(FileLongName, 'GPSLongitude') as GPSLongitude,
    Attribute(FileLongName, 'GPSAltitudeRef') as GPSAltitudeRef,
    //  examples: 0=Above sea level, 1=Below sea level,
    Attribute(FileLongName, 'GPSAltitude') as GPSAltitude,
    Attribute(FileLongName, 'GPSTimeStamp') as GPSTimeStamp,
```

```
    Attribute(FileLongName, 'GPSSatellites') as GPSSatellites,
    Attribute(FileLongName, 'GPSStatus') as GPSStatus,
    Attribute(FileLongName, 'GPSMeasureMode') as GPSMeasureMode,
    Attribute(FileLongName, 'GPSDOP') as GPSDOP,
    Attribute(FileLongName, 'GPSSpeedRef') as GPSSpeedRef,
    Attribute(FileLongName, 'GPSSpeed') as GPSSpeed,
    Attribute(FileLongName, 'GPSTrackRef') as GPSTrackRef,
    Attribute(FileLongName, 'GPSTrack') as GPSTrack,
    Attribute(FileLongName, 'GPSImgDirectionRef') as GPSImgDirectionRef,
    Attribute(FileLongName, 'GPSImgDirection') as GPSImgDirection,
    Attribute(FileLongName, 'GPSMapDatum') as GPSMapDatum,
    Attribute(FileLongName, 'GPSDestLatitudeRef') as GPSDestLatitudeRef,
    Attribute(FileLongName, 'GPSDestLatitude') as GPSDestLatitude,
    Attribute(FileLongName, 'GPSDestLongitudeRef') as GPSDestLongitudeRef,
    Attribute(FileLongName, 'GPSDestLongitude') as GPSDestLongitude,
    Attribute(FileLongName, 'GPSDestBearingRef') as GPSDestBearingRef,
    Attribute(FileLongName, 'GPSDestBearing') as GPSDestBearing,
    Attribute(FileLongName, 'GPSDestDistanceRef') as GPSDestDistanceRef,
    Attribute(FileLongName, 'GPSDestDistance') as GPSDestDistance,
    Attribute(FileLongName, 'GPSProcessingMethod') as GPSProcessingMethod,
    Attribute(FileLongName, 'GPSAreaInformation') as GPSAreaInformation,
    Attribute(FileLongName, 'GPSDateStamp') as GPSDateStamp,
    Attribute(FileLongName, 'GPSDifferential') as GPSDifferential;
    //  examples: 0=No correction, 1=Differential correction,
LOAD @1:n as FileLongName Inline "$(vFoundFile)" (fix, no labels);
Next vFoundFile
Next vExt
```

Example 3: Windows media files

This script reads all possible WMA/WMV ASF meta tags in folder *MyMusic*.

```
/ Script to read WMA/WMV ASF meta tags
for each vExt in 'asf', 'wma', 'wmv'
for each vFoundFile in filelist( GetFolderPath('MyMusic') & '\*.'& vExt )
FileList:
LOAD FileLongName,
    subfield(FileLongName,'\',-1) as FileShortName,
    num(FileSize(FileLongName),'# ### ### ###',',',' ') as FileSize,
    FileTime(FileLongName) as FileTime,
    Attribute(FileLongName, 'Title') as Title,
    Attribute(FileLongName, 'Author') as Author,
    Attribute(FileLongName, 'Copyright') as Copyright,
    Attribute(FileLongName, 'Description') as Description,
    Attribute(FileLongName, 'Rating') as Rating,
    Attribute(FileLongName, 'PlayDuration') as PlayDuration,
    Attribute(FileLongName, 'MaximumBitrate') as MaximumBitrate,
    Attribute(FileLongName, 'WMFSDKVersion') as WMFSDKVersion,
    Attribute(FileLongName, 'WMFSDKNeeded') as WMFSDKNeeded,
    Attribute(FileLongName, 'IsVBR') as IsVBR,
    Attribute(FileLongName, 'ASFLeakyBucketPairs') as ASFLeakyBucketPairs,
    Attribute(FileLongName, 'PeakValue') as PeakValue,
    Attribute(FileLongName, 'AverageLevel') as AverageLevel;
LOAD @1:n as FileLongName Inline "$(vFoundFile)" (fix, no labels);
Next vFoundFile
Next vExt
```

Example 4: PNG

This script reads all possible PNG meta tags in folder *MyPictures*.

```
// Script to read PNG meta tags
for each vExt in 'png'
for each vFoundFile in filelist( GetFolderPath('MyPictures') & '\*.'& vExt )
FileList:
LOAD FileLongName,
    subfield(FileLongName,'\',-1) as FileShortName,
    num(FileSize(FileLongName),'# ### ### ###',',',' ') as FileSize,
    FileTime(FileLongName) as FileTime,
    Attribute(FileLongName, 'Comment') as Comment,
    Attribute(FileLongName, 'Creation Time') as Creation_Time,
    Attribute(FileLongName, 'Source') as Source,
    Attribute(FileLongName, 'Title') as Title,
    Attribute(FileLongName, 'Software') as Software,
    Attribute(FileLongName, 'Author') as Author,
    Attribute(FileLongName, 'Description') as Description,
    Attribute(FileLongName, 'Copyright') as Copyright;
LOAD @1:n as FileLongName Inline "$(vFoundFile)" (fix, no labels);
Next vFoundFile
Next vExt
```

ConnectString

The **ConnectString()** function returns the name of the active data connection for ODBC or OLE DB connections. The function returns an empty string if no **connect** statement has been executed, or after a **disconnect** statement.

Syntax:

```
ConnectString()
```

Examples and results

Example	Result

FileBaseName

The **FileBaseName** function returns a string containing the name of the table file currently being read, without path or extension.

Syntax:

```
FileBaseName()
```

Examples and results:

Examples and results

Example	Result
`LOAD *, filebasename( ) as X from C:\UserFiles\abc.txt`	Will return 'abc' in field X in each record read.

FileDir

The **FileDir** function returns a string containing the path to the directory of the table file currently being read.

Syntax:

```
FileDir()
```

Examples and results:

Examples and results

Example	Result
`Load *, filedir( ) as X from C:\UserFiles\abc.txt`	Will return 'C:\UserFiles' in field X in each record read.

FileExtension

The **FileExtension** function returns a string containing the extension of the table file currently being read.

Syntax:

```
FileExtension()
```

Examples and results:

Examples and results

Example	Result
`LOAD *, FileExtension( ) as X from C:\UserFiles\abc.txt`	Will return 'txt' in field X in each record read.

FileName

The **FileName** function returns a string containing the name of the table file currently being read, without path but including the extension.

Syntax:

```
FileName()
```

Examples and results:

Examples and results

Example	Result
`LOAD *, FileName( ) as X from C:\UserFiles\abc.txt`	Will return 'abc.txt' in field X in each record read.

FilePath

The **FilePath** function returns a string containing the full path to the table file currently being read.

Syntax:

```
FilePath()
```

Examples and results:

Examples and results

Example	Result
`Load *, FilePath( ) as X from C:\UserFiles\abc.txt`	Will return 'C:\UserFiles\abc.txt' in field X in each record read.

FileSize

The **FileSize** function returns an integer containing the size in bytes of the file filename or, if no filename is specified, of the table file currently being read.

Syntax:

```
FileSize([filename])
```

Arguments:

- filename: The name of a file, if necessary including path. If you don't specify a file name, the table file currently being read is used.
    - absolute

      Example: *c:\data*

    - relative to the QlikView document path.

      Example: *data*

    - URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

      Example: *http://www.qlik.com*

Examples and results:

Examples and results

Example	Result
`LOAD *, FileSize( ) as X from abc.txt;`	Will return the size of the specified file (abc.txt) as an integer in field X in each record read.
`FileSize( 'xyz.xls' )`	Will return the size of the file xyz.xls.

FileTime

The **FileTime** function returns a timestamp in UTC for the date and time of the last modification of the file filename. If no filename is specified, the function will refer to the currently read table file.

Syntax:

```
FileTime([ filename ])
```

Arguments:

- filename: The name of a file, if necessary including path.
    - absolute

      Example: *c:\data*

    - relative to the QlikView document path.

      Example: *data*

    - URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

      Example: *http://www.qlik.com*

Examples and results:

Examples and results

Example	Result
`LOAD *, FileTime( ) as X from abc.txt;`	Will return the date and time of the last modification of the file (abc.txt) as a timestamp in field X in each record read.
FileTime('xyz.xls')	Will return the timestamp of the last modification of the file xyz.xls.

GetFolderPath

The **GetFolderPath** function returns the value of the Microsoft Windows SHGetFolderPath function. This function takes as input the name of a Microsoft Windows folder and returns the full path of the folder.

Syntax:

```
GetFolderPath(foldername)
```

Arguments:

GetFolderPath arguments

Argument	Description
foldername	Name of the Microsoft Windows folder. The folder name should not contain any space. Any space in the folder name seen in Windows Explorer should be removed from the folder name. Examples: *MyMusic* *MyDocuments*

Examples and results:

The goal of this example is to get the paths of the following Microsoft Windows folders: *MyMusic*, *MyPictures* and *Windows*. Add the example script to your app and reload it.

```
LOAD
 GetFolderPath('MyMusic') as MyMusic,
 GetFolderPath('MyPictures') as MyPictures,
 GetFolderPath('Windows') as Windows
AutoGenerate 1;
```

Once the app is reloaded, the fields *MyMusic*, *MyPictures* and *Windows* are added to the data model. Each field contains the path to the folder defined in input. For example:

- *C:\Users\smu\Music* for the folder *MyMusic*
- *C:\Users\smu\Pictures* for the folder *MyPictures*
- *C:\Windows* for the folder *Windows*

QvdCreateTime

This script function returns the XML-header timestamp from a QVD file, if any is present, otherwise it returns NULL. In the timestamp, time is provided in UTC.

Syntax:

```
QvdCreateTime(filename)
```

Arguments:

- filename: The name of a QVD file, if necessary including path.
    - absolute

      Example: *c:\data*

- relative to the QlikView document path.

  Example: *data*

- URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

  Example: *http://www.qlik.com*

Example:

```
QvdCreateTime('MyFile.qvd')
QvdCreateTime('C:\MyDir\MyFile.qvd')
```

QvdFieldName

This script function returns the name of field number **fieldno**, if it exists in a QVD file (otherwise NULL).

Syntax:

```
QvdFieldName(filename , fieldno)
```

Arguments:

- filename: The name of a QVD file, if necessary including path.
  - absolute

    Example: *c:\data*

  - relative to the QlikView document path.

    Example: *data*

  - URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

    Example: *http://www.qlik.com*

- fieldno: The number of the field (starting at 1) within the table contained in the QVD file.

Examples:

```
QvdFieldName ('MyFile.qvd', 3)
QvdFieldName ('C:\MyDir\MyFile.qvd', 5)
```

QvdNoOfFields

This script function returns the number of fields in a QVD file.

Syntax:

```
QvdNoOfFields(filename)
```

Arguments:

- filename: The name of a QVD file, if necessary including path.
    - absolute

      Example: *c:\data*

    - relative to the QlikView document path.

      Example: *data*

    - URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

      Example: *http://www.qlik.com*

Examples:

```
QvdNoOfFields ('MyFile.qvd')
QvdNoOfFields ('C:\MyDir\MyFile.qvd')
```

QvdNoOfRecords

This script function returns the number of records currently in a QVD file.

Syntax:

```
QvdNoOfRecords(filename)
```

Arguments:

- filename: The name of a QVD file, if necessary including path.
    - absolute

      Example: *c:\data*

    - relative to the QlikView document path.

      Example: *data*

    - URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

      Example: *http://www.qlik.com*

Examples:

```
QvdNoOfRecords ('MyFile.qvd')
QvdNoOfRecords ('C:\MyDir\MyFile.qvd')
```

QvdTableName

This script function returns the name of the table stored in a QVD file.

Syntax:

```
QvdTableName(filename)
```

Arguments:

- filename: The name of a QVD file, if necessary including path.
    - absolute

      Example: *c:\data*

    - relative to the QlikView document path.

      Example: *data*

    - URL address (HTTP or FTP), pointing to a location on the Internet or an intranet.

      Example: *http://www.qlik.com*

Examples:

```
QvdTableName ('MyFile.qvd')
QvdTableName ('C:\MyDir\MyFile.qvd')
```

Financial functions

Financial functions can be used in the load script and in chart expressions to calculate payments and interest rates.
For all the arguments, cash that is paid out is represented by negative numbers. Cash received is represented by positive numbers.
Listed here are the arguments that are used in the financial functions (excepting the ones beginning with **range**-).

*For all financial functions it is vital that you are consistent when specifying units for **rate** and **nper**. If monthly payments are made on a five-year loan at 6% annual interest, use 0.005 (6%/12) for **rate** and 60 (5*12) for **nper**. If annual payments are made on the same loan, use 6% for **rate** and 5 for **nper**.*

Financial functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

FV

This function returns the future value of an investment based on periodic, constant payments and a simple annual interest.

```
FV (rate, nper, pmt [ ,pv [ , type ] ])
```

nPer

This function returns the number of periods for an investment based on periodic, constant payments and a constant interest rate.

```
nPer (rate, pmt, pv [ ,fv [ , type ] ])
```

Pmt

This function returns the payment for a loan based on periodic, constant payments and a constant interest rate. It cannot change over the life of the annuity. A payment is stated as a negative number, for example, -20.

```
Pmt (rate, nper, pv [ ,fv [ , type ] ] )
```

PV

This function returns the present value of an investment.

```
PV (rate, nper, pmt [ ,fv [ , type ] ])
```

Rate

This function returns the interest rate per period on annuity. The result has a default number format of **Fix** two decimals and %.

```
Rate (nper, pmt , pv [ ,fv [ , type ] ])
```

BlackAndSchole

The Black and Scholes model is a mathematical model for financial market derivative instruments. The formula calculates the theoretical value of an option. In QlikView, the **BlackAndSchole** function returns the value according to the Black and Scholes unmodified formula (European style options).

```
BlackAndSchole(strike , time_left , underlying_price , vol , risk_free_rate , type)
```

Return data type: numeric

Arguments:

BlackAndSchole arguments

Argument	Description
strike	The future purchase price of the stock.
time_left	The number of time periods remaining.
underlying_price	The current value of the stock.
vol	The volatility in % per time period.
risk_free_rate	The risk -free rate in % per time period.
type	The type of option: 'c', 'call' or any non-zero numeric value for call options 'p', 'put' or 0 for put options.

Examples and results:

Examples and results

Example	Result
`BlackAndSchole(130, 4, 68.5, 0.4, 0.04, 'call')` This calculates the theoretical price of an option to buy a share that is worth 68.5 today, at a value of 130 in 4 years. A volatility of 40% per year and a risk-free interest rate of 4% is assumed.	Returns 11.245

FV

This function returns the future value of an investment based on periodic, constant payments and a simple annual interest.

Syntax:

```
FV(rate, nper, pmt [ ,pv [ , type ] ])
```

Return data type: numeric. The result has a default number format of money. .

Arguments:

FV arguments

Argument	Description
rate	The interest rate per period.
nper	The total number of payment periods in an annuity.
pmt	The payment made each period. It cannot change over the life of the annuity. A payment is stated as a negative number, for example, -20.
pv	The present value, or lump-sum amount, that a series of future payments is worth right now. If **pv** is omitted, it is assumed to be 0 (zero).
type	Should be 0 if payments are due at the end of the period and 1 if payments are due at the beginning of the period. If **type** is omitted, it is assumed to be 0.

Examples and results:

Examples and results

Example	Result
You are paying a new household appliance by 36 monthly installments of $20. The interest rate is 6% per annum. The bill comes at the end of every month. What is the total invested, when the last bill has been paid? `FV(0.005,36,-20)`	Returns $786.72

nPer

This function returns the number of periods for an investment based on periodic, constant payments and a constant interest rate.

Syntax:

```
nPer(rate, pmt, pv [ ,fv [ , type ] ])
```

Return data type: numeric

Arguments:

nPer arguments

Argument	Description
rate	The interest rate per period.
nper	The total number of payment periods in an annuity.
pmt	The payment made each period. It cannot change over the life of the annuity. A payment is stated as a negative number, for example, -20.
pv	The present value, or lump-sum amount, that a series of future payments is worth right now. If **pv** is omitted, it is assumed to be 0 (zero).
fv	The future value, or cash balance, you want to attain after the last payment is made. If **fv** is omitted, it is assumed to be 0.
type	Should be 0 if payments are due at the end of the period and 1 if payments are due at the beginning of the period. If **type** is omitted, it is assumed to be 0.

Examples and results:

Examples and results

Example	Result
You want to sell a household appliance by monthly installments of $20. The interest rate is 6% per annum. The bill comes at the end of every month. How many periods are required if the value of the money received after the last bill has been paid should equal $800? `nPer(0.005,-20,0,800)`	Returns 36.56

Pmt

This function returns the payment for a loan based on periodic, constant payments and a constant interest rate. It cannot change over the life of the annuity. A payment is stated as a negative number, for example, -20.

```
Pmt(rate, nper, pv [ ,fv [ , type ] ] )
```

Return data type: numeric. The result has a default number format of money. .

To find the total amount paid over the duration of the loan, multiply the returned **pmt** value by **nper**.

Arguments:

Pmt arguments

Argument	Description
rate	The interest rate per period.
nper	The total number of payment periods in an annuity.
pv	The present value, or lump-sum amount, that a series of future payments is worth right now. If **pv** is omitted, it is assumed to be 0 (zero).
fv	The future value, or cash balance, you want to attain after the last payment is made. If **fv** is omitted, it is assumed to be 0.
type	Should be 0 if payments are due at the end of the period and 1 if payments are due at the beginning of the period. If **type** is omitted, it is assumed to be 0.

Examples and results:

Examples and results

Example	Result
The following formula returns the monthly payment on a $20,000 loan at an annual rate of 10 percent, that must be paid off in 8 months: `Pmt(0.1/12,8,20000)`	Returns -$2,594.66
For the same loan, if payment is due at the beginning of the period, the payment is: `Pmt(0.1/12,8,20000,0,1)`	Returns -$2,573.21

PV

This function returns the present value of an investment.

```
PV(rate, nper, pmt [ ,fv [ , type ] ])
```

Return data type: numeric. The result has a default number format of money. .

The present value is the total amount that a series of future payments is worth right now. For example, when borrowing money, the loan amount is the present value to the lender.

Arguments:

PV arguments

Argument	Description
rate	The interest rate per period.
nper	The total number of payment periods in an annuity.

Argument	Description
pmt	The payment made each period. It cannot change over the life of the annuity. A payment is stated as a negative number, for example, -20.
fv	The future value, or cash balance, you want to attain after the last payment is made. If **fv** is omitted, it is assumed to be 0.
type	Should be 0 if payments are due at the end of the period and 1 if payments are due at the beginning of the period. If **type** is omitted, it is assumed to be 0.

Examples and results:

Examples and results

Example	Result
What is the present value of a debt, when you have to pay $100 at the end of each month during a five-year period, given an interest rate of 7%? `PV(0.07/12,12*5,-100,0,0)`	Returns $5,050.20

Rate

This function returns the interest rate per period on annuity. The result has a default number format of **Fix** two decimals and %.

Syntax:

```
Rate(nper, pmt , pv [ ,fv [ , type ] ])
```

Return data type: numeric.

The **rate** is calculated by iteration and can have zero or more solutions. If the successive results of **rate** do not converge, a NULL value will be returned.

Arguments:

Rate arguments

Argument	Description
nper	The total number of payment periods in an annuity.
pmt	The payment made each period. It cannot change over the life of the annuity. A payment is stated as a negative number, for example, -20.
pv	The present value, or lump-sum amount, that a series of future payments is worth right now. If **pv** is omitted, it is assumed to be 0 (zero).
fv	The future value, or cash balance, you want to attain after the last payment is made. If **fv** is omitted, it is assumed to be 0.
type	Should be 0 if payments are due at the end of the period and 1 if payments are due at the beginning of the period. If **type** is omitted, it is assumed to be 0.

Examples and results:

Examples and results

Example	Result
What is the interest rate of a five-year $10,000 annuity loan with monthly payments of $300? `Rate(60,-300,10000)`	Returns 2.00%

Formatting functions

The formatting functions impose the display format on the input numeric fields or expressions, Depending on data type, you can specify the characters for the the decimal separator, thousands separator, and so on.

The functions all return a dual value with both the string and the number value, but can be thought of as performing a number-to-string conversion. **Dual()** is a special case, but the other formatting functions take the numeric value of the input expression and generate a string representing the number.

In contrast, the interpretation functions do the opposite: they take string expressions and evaluate them as numbers, specifying the format of the resulting number.

The functions can be used both in load scripts and chart expressions.

For reasons of clarity, all number representations are given with a decimal point as the decimal separator.

Formatting functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Date

Date() formats an expression as a date using the format set in the system variables in the load script, or the operating system, or a format string, if supplied.

```
Date (number[, format])
```

Dual

Dual() combines a number and a string into a single record, such that the number representation of the record can be used for sorting and calculation purposes, while the string value can be used for display purposes

```
Dual (text, number)
```

Interval

Interval() formats a number as a time interval using the format in the system variables in the load script, or the operating system, or a format string, if supplied.

```
Interval (number[, format])
```

Money

Money() formats an expression numerically as a money value, in the format set in the system variables set in the load script, or in the operating system, unless a format string is supplied, and optional decimal and thousands separators.

```
Money (number[, format[, dec_sep [, thou_sep]]])
```

Num

Num() formats a number, that is it converts the numeric value of the input to display text using the format specified in the second parameter. If the second parameter is omitted, it uses the decimal and thousand separators set in the data load script. Custom decimal and thousand separator symbols are optional parameters.

```
Num (number[, format[, dec_sep [, thou_sep]]])
```

Time

Time() formats an expression as a time value, in the time format set in the system variables in the load script, or in the operating system, unless a format string is supplied.

```
Time (number[, format])
```

Timestamp

TimeStamp() formats an expression as a date and time value, in the timestamp format set in the system variables in the load script, or in the operating system, unless a format string is supplied.

```
Timestamp (number[, format])
```

Date

Date() formats an expression as a date using the format set in the system variables in the load script, or the operating system, or a format string, if supplied.

Syntax:

```
Date(number[, format])
```

Return data type: dual

Arguments:

Date arguments

Argument	Description
number	The number to be formatted.
format	String describing the format of the resulting string. If no format string is supplied, the date format set in the operating system is used.

Examples:

The examples below assume the following default settings:

- Date setting 1: YY-MM-DD
- Date setting 2: M/D/YY

Example 1:

```
Date( A )
```
where A=35648

Example 1 results

Results	Setting 1	Setting 2
String:	97-08-06	8/6/97
Number:	35648	35648

Example 2:

```
Date( A, 'YY.MM.DD' )
```
where A=35648

Example 2 results

Results	Setting 1	Setting 2
String:	97.08.06	97.08.06
Number:	35648	35648

Example 3:

```
Date( A, 'DD.MM.YYYY' )
```
where A=35648.375

Example 3 results

Results	Setting 1	Setting 2
String:	06.08.1997	06.08.1997
Number:	35648.375	35648.375

Example 4:

```
Date( A, 'YY.MM.DD' )
```
where A=8/6/97

Example 4 results

Results	Setting 1	Setting 2
String:	NULL (nothing)	97.08.06
Number:	NULL	35648

Dual

Dual() combines a number and a string into a single record, such that the number representation of the record can be used for sorting and calculation purposes, while the string value can be used for display purposes

Syntax:

```
Dual(text, number)
```

Return data type: dual

Arguments:

Dual arguments

Argument	Description
text	The string value to be used in combination with the number argument.
number	The number to be used in combination with the string in the string argument.

In QlikView, all field values are potentially dual values. This means that the field values can have both a numeric value and a textual value. An example is a date that could have a numeric value of 40908 and the textual representation '2011-12-31'.

When several data items read into one field have different string representations but the same valid number representation, they will all share the first string representation encountered.

*The **dual** function is typically used early in the script, before other data is read into the field concerned, in order to create that first string representation, which will be shown in list boxes.*

Example 1:

Add the following examples to your script and run it.

```
Load dual ( NameDay,NumDay ) as DayOfWeek inline
[ NameDay,NumDay
Monday,0
Tuesday,1
Wednesday,2
Thursday,3
Friday,4
Saturday,5
Sunday,6 ];
```

The field DayOfWeek can be used in a chart, as a dimension, for example.In a table with the week days are automatically sorted into their correct number sequence, instead of alphabetical order.

Example 2:

```
Load Dual('Q' & Ceil(Month(Now())/3), Ceil(Month(Now())/3)) as Quarter AutoGenerate 1;
```

This example finds the current quarter. It is displayed as Q1 when the **Now()** function is run in the first three months of the year, Q2 for the second three months, and so on. However, when used in sorting, the field Quarter will behave as its numerical value: 1 to 4.

Example 3:

```
Dual('Q' & Ceil(Month(Date)/3), Ceil(Month(Date)/3)) as Quarter
```

As in the previous example, the field Quarter is created with the text values 'Q1' to 'Q4', and assigned the numeric values 1 to 4. In order to use this in the script the values for Date must be loaded.

Example 4:

```
Dual(WeekYear(Date) & '-W' & Week(Date), WeekStart(Date)) as YearWeek
```

This example create sa field YearWeek with text values of the form '2012-W22' and at the same time, assigns a numeric value corresponding to the date number of the first day of the week, for example: 41057. In order to use this in the script the values for Date must be loaded.

Interval

Interval() formats a number as a time interval using the format in the system variables in the load script, or the operating system, or a format string, if supplied.

Intervals may be formatted as a time, as days or as a combination of days, hours, minutes, seconds and fractions of seconds.

Syntax:

```
Interval(number[, format])
```

Return data type: dual

Arguments:

Interval arguments

Argument	Description
number	The number to be formatted.
format	String describing how the resulting interval string is to be formatted. If omitted, the short date format, time format, and decimal separator set in the operating system are used.

Examples:

The examples below assume the following default settings:

- Date format setting 1: YY-MM-DD
- Date format setting 2: hh:mm:ss
- Number decimal separator: .

Examples and results

Example	String	Number
`Interval( A )` where A=0.375	09:00:00	0.375
`Interval( A )` where A=1.375	33:00:00	1.375
`Interval( A, 'D hh:mm' )` where A=1.375	1 09:00	1.375
`Interval( A-B, 'D hh:mm' )` where A=97-08-06 09:00:00 and B=96-08-06 00:00:00	365 09:00	365.375

Num

Num() formats a number, that is it converts the numeric value of the input to display text using the format specified in the second parameter. If the second parameter is omitted, it uses the decimal and thousand separators set in the data load script. Custom decimal and thousand separator symbols are optional parameters.

Syntax:

```
Num(number[, format[, dec_sep [, thou_sep]]])
```

Return data type: dual

The Num function returns a dual value with both the string and the numeric value. The function takes the numeric value of the input expression and generates a string representing the number.

Arguments:

Num arguments

Argument	Description
number	The number to be formatted.
format	String specifying how the resulting string is to be formatted. If omitted, the decimal and thousand separators that are set in the data load script are used.
dec_sep	String specifying the decimal number separator. If omitted, the value of the variable DecimalSep that is set in the data load script is used.
thou_sep	String specifying the thousands number separator. If omitted, the value of the variable ThousandSep that is set in the data load script is used.

Example:

The following table shows the results when field A equals 35648.312.

Results

A	Result
Num(A)	35648.312 (depends on environment variables in script)
Num(A, '0.0', '.')	35648.3
Num(A, '0,00', ',')	35648,31
Num(A, '#,##0.0', '.', ',')	35,648.3
Num(A, '# ##0', ',', ' ')	35 648

Example:

Add this example script to your app and run it.

Then build a straight table with `Field1` and `Field2` as dimensions.

```
Sheet1:
let result= Num( pi( ), '0,00' );
Load * inline
[Field1; Field2
9; 8,2
1; $(result)
](delimiter is ';');
```

`Field1` contains the values 1 and 9.

`Field2` contains the values 3,14 and 8,2.

Money

Money() formats an expression numerically as a money value, in the format set in the system variables set in the load script, or in the operating system, unless a format string is supplied, and optional decimal and thousands separators.

Syntax:

```
Money(number[, format[, dec_sep[, thou_sep]]])
```

Return data type: dual

Arguments:

Money arguments

Argument	Description
number	The number to be formatted.

Argument	Description
format	String describing how the resulting money string is to be formatted.
dec_sep	String specifying the decimal number separator.
thou_sep	String specifying the thousands number separator.

If arguments 2-4 are omitted, the currency format set in the operating system is used.

Examples:

The examples below assume the following default settings:

- MoneyFormat setting 1: kr ##0,00, MoneyThousandSep' '
- MoneyFormat setting 2: $ #,##0.00, MoneyThousandSep','

Example 1:

```
Money( A )
```
where A=35648

Example 1 results

Results	Setting 1	Setting 2
String:	kr 35 648,00	$ 35,648.00
Number:	35648.00	35648.00

Example 2:

```
Money( A, '#,##0 ¥', '.' , ',' )
```
where A=3564800

Example 2 results

Results	Setting 1	Setting 2
String:	3,564,800 ¥	3,564,800 ¥
Number:	3564800	3564800

Time

Time() formats an expression as a time value, in the time format set in the system variables in the load script, or in the operating system, unless a format string is supplied.

Syntax:

```
Time(number[, format])
```

Return data type: dual

Arguments:

Time arguments

Argument	Description
number	The number to be formatted.
format	String describing how the resulting time string is to be formatted. If omitted, the short date format, time format, and decimal separator set in the operating system is used.

Examples:

The examples below assume the following default settings:

- Time format setting 1: hh:mm:ss
- Time format setting 2: hh.mm.ss

Example 1:

```
Time( A )
```
where A=0.375

Example 1 results

Results	Setting 1	Setting 2
String:	09:00:00	09.00.00
Number:	0.375	0.375

Example 2:

```
Time( A )
```
where A=35648.375

Example 2 results

Results	Setting 1	Setting 2
String:	09:00:00	09.00.00
Number:	35648.375	35648.375

Example 3:

```
Time( A, 'hh-mm' )
```
where A=0.99999

Example 3 results

Results	Setting 1	Setting 2
String:	23-59	23-59
Number:	0.99999	0.99999

Timestamp

TimeStamp() formats an expression as a date and time value, in the timestamp format set in the system variables in the load script, or in the operating system, unless a format string is supplied.

Syntax:

```
Timestamp(number[, format])
```

Return data type: dual

Arguments:

Timestamp arguments

Argument	Description
number	The number to be formatted.
format	String describing how the resulting timestamp string is to be formatted. If omitted, the short date format, time format, and decimal separator set in the operating system is used.

Examples:

The examples below assume the following default settings:

- TimeStampFormat setting 1: YY-MM-DD hh:mm:ss
- TimeStampFormat setting 2: M/D/YY hh:mm:ss

Example 1:

```
Timestamp( A )
```
where A=35648.375

Example 1 results

Results	Setting 1	Setting 2
String:	97-08-06 09:00:00	8/6/97 09:00:00
Number:	35648.375	35648.375

Example 2:

```
Timestamp( A,'YYYY-MM-DD hh.mm')
```
where A=35648

Example 2 results

Results	Setting 1	Setting 2
String:	1997-08-06 00.00	1997-08-06 00.00
Number:	35648	35648

General numeric functions

In these general numeric functions, the arguments are expressions where **x** should be interpreted as a real valued number. All functions can be used in both load scripts and chart expressions.

General numeric functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

bitcount

BitCount() finds how many bits in the binary equivalent of a number are set to 1. That is, the function returns the number of set bits in **integer_number**, where **integer_number** is interpreted as a signed 32-bit integer.

```
BitCount() finds how many bits in the binary equivalent of a number are set to 1. That is, the function returns the number of set bits in integer_number, where integer_number is interpreted as a signed 32-bit integer. (integer_number)
```

div

Div() returns the integer part of the arithmetic division of the first argument by the second argument. Both parameters are interpreted as real numbers, that is, they do not have to be integers.

```
Div() returns the integer part of the arithmetic division of the first argument by the second argument. Both parameters are interpreted as real numbers, that is, they do not have to be integers.(integer_number1, integer_number2)
```

fabs

Fabs() returns the absolute value of **x**. The result is a positive number.

```
Fabs() returns the absolute value of x. The result is a positive number.(x)
```

fact

Fact() returns the factorial of a positive integer **x**.

```
Fact() returns the factorial of a positive integer x.(x)
```

frac

Frac() returns the fraction to the right of the decimal point of **x**, where **x** is a real number.

```
Frac() returns the fraction to the right of the decimal point of x, where x is a real number.(x)
```

sign

Sign() returns 1, 0 or -1 depending on whether **x** is a positive number, 0, or a negative number.

```
Sign() returns 1, 0 or -1 depending on whether x is a positive number, 0, or a negative number.(x)
```

Combination and permutation functions

combin

Combin() returns the number of combinations of **q** elements that can be picked from a set of **p** items. As represented by the formula: `Combin(p,q) = p! / q!(p-q)!` The order in which the items are selected is insignificant.

```
Combin() returns the number of combinations of q elements that can be picked from a set of p items. As represented by the formula: Combin(p,q) = p! / q!(p-q)! The order in which the items are selected is insignificant.(p, q)
```

permut

Permut() returns the number of permutations of **q** elements that can be selected from a set of **p** items. As represented by the formula: `Permut(p,q) = (p)! / (p - q)!` The order in which the items are selected is significant.

```
Permut() returns the number of permutations of q elements that can be selected from a set of p items. As represented by the formula: Permut(p,q) = (p)! / (p - q)! The order in which the items are selected is significant.(p, q)
```

Modulo functions

fmod

fmod() is a modulo function that returns the remainder part of the division of the first argument (the dividend) by the second argument (the divisor). The result is a real number. Both arguments are interpreted as real numbers, that is, they do not have to be integers.

```
fmod() is a modulo function that returns the remainder part of the division of the first argument (the dividend) by the second argument (the divisor). The result is a real number. Both arguments are interpreted as real numbers, that is, they do not have to be integers.(a, b)
```

mod

Mod() is a modulo function that returns the non-negative remainder of an integer division. The first argument is the dividend, the second argument is the divisor, Both arguments must be integer values.

```
Mod() is a modulo function that returns the non-negative remainder of an integer division. The first argument is the dividend, the second argument is the divisor, Both arguments must be integer values.(integer_number1, integer_number2)
```

Parity functions

even

Even() returns True (-1), if **integer_number** is an even integer or zero. It returns False (0), if **integer_number** is an odd integer, and NULL if **integer_number** is not an integer.

```
Even() returns True (-1), if integer_number is an even integer or zero. It returns False (0), if integer_number is an odd integer, and NULL if integer_number is not an integer.(integer_number)
```

odd

Odd() returns True (-1), if **integer_number** is an odd integer or zero. It returns False (0), if **integer_number** is an even integer, and NULL if **integer_number** is not an integer.

```
Odd() returns True (-1), if integer_number is an odd integer or zero. It returns False (0), if integer_number is an even integer, and NULL if integer_number is not an integer.(integer_number)
```

Rounding functions

ceil

Ceil() rounds **x** up to the nearest multiple of **step** [+ **offset**]. The default value of **offset** is 0.

```
Ceil() rounds x up to the nearest multiple of step [+ offset]. The default value of offset is 0.(x[, step[, offset]])
```

floor

Floor() rounds **x** down to the nearest multiple of **step** [+ **offset**]. The default value of **offset** is 0.

```
Floor() rounds x down to the nearest multiple of step [+ offset]. The default value of offset is 0.(x[, step[, offset]])
```

round

Round() returns the result of rounding **x** up or down to the nearest multiple of **step** [+ **offset**]. The default value of **offset** is 0.

```
Round() returns the result of rounding x up or down to the nearest multiple of step [+ offset]. The default value of offset is 0. The default value of step is 1.( x [ , step [ , offset ]])
```

BitCount

BitCount() finds how many bits in the binary equivalent of a number are set to 1. That is, the function returns the number of set bits in **integer_number**, where **integer_number** is interpreted as a signed 32-bit integer.

Syntax:

```
BitCount(integer_number)
```

Return data type: integer

Examples and results:

- `BitCount ( 3 )`: 3 is binary 101, therefore this returns 2
- `BitCount ( -1 )`: -1 is 64 ones in binary, therefore this returns 64

Ceil

Ceil() rounds **x** up to the nearest multiple of **step** [+ **offset**]. The default value of **offset** is 0.

Compare with the **floor** function, which rounds input numbers down.

Syntax:

```
Ceil(x[, step[, offset]])
```

Return data type: integer

Examples and results:

- `Ceil( 2.4 )`: returns 3
- `Ceil( 2.6 )`: returns 3
- `Ceil( 3.88 , 0.1 )`: returns 3.9
- `Ceil( 3.88 , 5 )`: returns 5
- `Ceil( 1.1 , 1 )`: returns 2
- `Ceil( 1.1 , 1 , 0.5 )`: returns 1.5
- `Ceil( 1.1 , 1 , -0.01 )`: returns 1.99

Combin

Combin() returns the number of combinations of **q** elements that can be picked from a set of **p** items. As represented by the formula: `Combin(p,q) = p! / q!(p-q)!` The order in which the items are selected is insignificant.

Syntax:

```
Combin(p, q)
```

Return data type: integer

Limitations:

Non-integer arguments will be truncated.

Examples and results:

- How many combinations of 7 numbers can be picked from a total of 35 lottery numbers?
  `Combin( 35,7 )` returns 6,724,520

Div

Div() returns the integer part of the arithmetic division of the first argument by the second argument. Both parameters are interpreted as real numbers, that is, they do not have to be integers.

Syntax:

```
Div(integer_number1, integer_number2)
```

Return data type: integer

Examples and results:

- `Div( 7,2 )`: returns 3
- `Div( 7.1,2.3 )`: returns 3
- `Div( 9,3 )`: returns 3
- `Div( -4,3 )`: returns -1
- `Div( 4,-3 )`: returns -1
- `Div( -4,-3 )`: returns 1

Even

Even() returns True (-1), if **integer_number** is an even integer or zero. It returns False (0), if **integer_number** is an odd integer, and NULL if **integer_number** is not an integer.

Syntax:

```
Even(integer_number)
```

Return data type: Boolean

Examples and results:

- `Even( 3 )`: returns 0, False
- `Even( 2 * 10 )`: returns -1, True
- `Even( 3.14 )`: returns NULL

Fabs

Fabs() returns the absolute value of **x**. The result is a positive number.

Syntax:

```
fabs(x)
```

Return data type: numeric

Examples and results:

- `fabs( 2.4 )`: returns 2.4
- `fabs( -3.8 )`: returns 3.8

Fact

Fact() returns the factorial of a positive integer **x**.

Syntax:

```
Fact(x)
```

Return data type: integer

Limitations:

If the number **x** is not an integer, it will be truncated. Non-positive numbers will return NULL.

Examples and results:

- `Fact( 1 )`: returns 1
- `Fact( 5 )`: returns 120 (1 * 2 * 3 * 4 * 5 = 120)
- `Fact( -5 )`: returns NULL

Floor

Floor() rounds **x** down to the nearest multiple of **step** [+ **offset**]. The default value of **offset** is 0.

Compare with the **ceil** function, which rounds input numbers up.

Syntax:

```
Floor(x[, step[, offset]])
```

Return data type: numeric

Examples and results:

- `Floor( 2,4 )`: returns 0
- `Floor( 4,2 )`: returns 4
- `Floor( 3.88 , 0.1 )`: returns 3.8
- `Floor( 3.88 , 5 )`: returns 0
- `Floor( 1.1 , 1 )`: returns 1
- `Floor( 1.1 , 1 , 0.5 )`: returns 0.5

Fmod

fmod() is a modulo function that returns the remainder part of the division of the first argument (the dividend) by the second argument (the divisor). The result is a real number. Both arguments are interpreted as real numbers, that is, they do not have to be integers.

Syntax:

```
fmod(a, b)
```

Return data type: numeric

Examples and results:

- `fmod( 7,2 )`: returns 1
- `fmod( 7.5,2 )`: returns 1.5
- `fmod( 9,3 )`: returns 0
- `fmod( -4,3 )`: returns -1
- `fmod( 4,-3 )`: returns 1
- `fmod( -4,-3 )`: returns -1

Frac

Frac() returns the fraction to the right of the decimal point of **x**, where **x** is a real number.

The fraction is defined in such a way that `Frac(x ) + Floor(x ) = x`. In simple terms this means that the fractional part of a positive number is the difference between the number (x) and the integer that precedes it.

For example: The fractional part of 11.43 = 11.43 - 11 = 0.43

For a negative number, say -1.4, Floor(-1.4) = -2, which produces the following result:
The fractional part of -1.4 = 1.4 - (-2) = -1.4 + 2 = 0.6

Syntax:

```
Frac(x)
```

Return data type: numeric

Examples and results:

- `Frac( 11.43 )`: returns 0.43
- `Frac( -1.4 )`: returns 0.6

Mod

Mod() is a modulo function that returns the non-negative remainder of an integer division. The first argument is the dividend, the second argument is the divisor, Both arguments must be integer values.

Syntax:

```
Mod(integer_number1, integer_number2)
```

Return data type: integer

Limitations:

integer_number2 must be greater than 0.

Examples and results:

- `Mod( 7,2 )`: returns 1
- `Mod( 7.5,2 )`: returns NULL
- `Mod( 9,3 )`: returns 0
- `Mod( -4,3 )`: returns 2
- `Mod( 4,-3 )`: returns NULL
- `Mod( -4,-3 )`: returns NULL

Odd

Odd() returns True (-1), if **integer_number** is an odd integer or zero. It returns False (0), if **integer_number** is an even integer, and NULL if **integer_number** is not an integer.

Syntax:

```
Odd(integer_number)
```

Return data type: Boolean

Examples and results:

- `Odd( 3 )`: returns -1, True
- `Odd( 2 * 10 )`: returns 0, False
- `Odd( 3.14 )`: returns NULL

Permut

Permut() returns the number of permutations of **q** elements that can be selected from a set of **p** items. As represented by the formula: `Permut(p,q) = (p)! / (p - q)!` The order in which the items are selected is significant.

Syntax:

```
Permut(p, q)
```

Return data type: integer

Limitations:

Non-integer arguments will be truncated.

Examples and results:

- In how many ways could the gold, silver and bronze medals be distributed after a 100 m final with 8 participants?

  `Permut( 8,3 )` returns 336

Round

Round() returns the result of rounding **x** up or down to the nearest multiple of **step** [+ **offset**]. The default value of **offset** is 0. The default value of **step** is 1.

If **x** is exactly in the middle of an interval, it is rounded upwards.

Syntax:

```
Round(x[, step[, offset]])
```

Return data type: numeric

> *If you are rounding a floating point number you may experience results that are erroneous. These mostly insignificant rounding errors are due to that floating point numbers are represented by a finite number of binary digits. That results in QlikView calculating with a number that is already rounded. If it is critical to have correct rounding, a workaround is to multiply the numbers to convert them to integers.*

Examples and results:

- `Round( 3.8 )`: returns 4
- `Round( 3.8, 4 )`: returns 4
- `Round( 2.5 )`: returns 3. Rounded up because 2.5 is exactly half of the default step interval.
- `Round( 2, 4 )`: returns 4. Rounded up because 2 is exactly half of the step interval of 4.
- `Round( 2, 6 )`: returns 0. Rounded down because 2 is less than half of the step interval of 6.
- `Round( 3.88 , 0.1 )`: returns 3.9
- `Round( 3.88 , 5 )`: returns 3.9
- `Round( 1.1 , 1 , 0.5 )`: returns 3.9

Sign

Sign() returns 1, 0 or -1 depending on whether **x** is a positive number, 0, or a negative number.

Syntax:

```
Sign(x)
```

Return data type: numeric

Limitations:

If no numeric value is found, NULL is returned.

Examples and results:

- `Sign( 66 )`: returns 1
- `Sign( 0 )`: returns 0

- `Sign( -234 )`: returns -1

Interpretation functions

The interpretation functions evaluate the contents of input text fields or expressions, and impose a specified data format on the resulting numeric value. With these functions, you can specify the format of the number, in accordance with its data type, including attributes such as: decimal separator, thousands separator,and date format.

The interpretation functions all return a dual value with both the string and the number value, but can be thought of as performing a string-to-number conversion. The functions take the text value of the input expression and generate a number representing the string.

In contrast, the formatting functions do the opposite: they take numeric expressions and evaluate them as strings, specifying the display format of the resulting text.

If no interpretation functions are used, QlikView interprets the data as a mix of numbers, dates, times, time stamps and strings, using the default settings for number format, date format, and time format, defined by script variables and by the operating system.

All interpretation functions can be used in both load scripts and chart expressions.

For reasons of clarity, all number representations are given with a decimal point as the decimal separator.

Interpretation functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Date#

Date# converts a text string to a numerical date by applying the provided date format pattern, or if omitted by the default date format pattern. If the format code is omitted, the default date format set in the operating system is used.

```
Date# converts a text string to a numerical date by applying the provided
date format pattern, or if omitted by the default date format pattern.(text[,
format])
```

Interval#

Interval#() evaluates a text expression as a time interval in the format set in the operating system, by default, or in the format specified in the second argument, if supplied.

```
Interval#() evaluates a text expression as a time interval in the format set
in the operating system, by default, or in the format specified in the second
argument, if supplied.(text[, format])
```

Money#

Money#() converts a text string to a money value, in the format set in the load script or the operating system, unless a format string is supplied. Custom decimal and thousand separator symbols are optional parameters.

```
Money# (page 1384)(text[, format[, dec_sep[, thou_sep ] ] ])
```

Num#

Num#() interprets a text string as a numerical value, that is it converts the input string to a number using the format specified in the second parameter. If the second parameter is omitted, it uses the decimal and thousand separators set in the data load script. Custom decimal and thousand separator symbols are optional parameters.

```
Num#() interprets a text string as a numerical value, that is it converts the input string to a number using the format specified in the second parameter. If the second parameter is omitted, it uses the decimal and thousand separators set in the data load script. Custom decimal and thousand separator symbols are optional parameters.(text[ , format[, dec_sep[ , thou_sep]]])
```

Text

Text() forces the expression to be treated as text, even if a numeric interpretation is possible.

```
Text (expr)
```

Time#

Time#() evaluates an expression as a time value, in the time format set in the load script or the operating system, unless a format string is supplied..

```
Time# (text[, format])
```

Timestamp#

Timestamp#() evaluates an expression as a date and time value, in the timestamp format set in the load script or the operating system, unless a format string is supplied.

```
Timestamp# (text[, format])
```

Date#

Date# converts a text string to a numerical date by applying the provided date format pattern, or if omitted by the default date format pattern.

Syntax:

```
Date#(text[, format])
```

Return data type: dual

Arguments:

Date# arguments

Argument	Description
text	The text string to be evaluated.
format	String describing how the resulting date string is to be formatted. If omitted, the date format set in the operating system is used.

Example:

The following example uses the date format **M/D/YYYY**. The date format is specified in the **SET DateFormat** statement at the top of the data load script.

Add this example script to your app and run it.

```
Load *,
Num(Date#(StringDate)) as Date;
LOAD * INLINE [
StringDate
8/7/97
8/6/1997
];
```

If you create a table with **StringDate** and **Date** as dimensions, the results are as follows:

Example 1 results

StringDate	Date
8/7/97	35649
8/6/1997	35648

Interval#

Interval#() evaluates a text expression as a time interval in the format set in the operating system, by default, or in the format specified in the second argument, if supplied.

Syntax:

```
Interval#(text[, format])
```

Return data type: dual

Arguments:

Argument	Description
text	The text string to be evaluated.
format	String describing the expected input format to use when converting the string to a numeric interval. If omitted, the short date format, time format, and decimal separator set in the operating system are used.

The **interval#** function converts a text time interval to a numeric equivalent.

Example:

The examples below assume the following operating system settings:

- Short date format: YY-MM-DD
- Time format: M/D/YY
- Number decimal separator: .

Examples and results

Example	Result
`Interval#( A, 'D hh:mm' )` where A='1 09:00'	1.375

Money#

Money#() converts a text string to a money value, in the format set in the load script or the operating system, unless a format string is supplied. Custom decimal and thousand separator symbols are optional parameters.

Syntax:

```
Money#(text[, format[, dec_sep [, thou_sep ] ] ])
```

Return data type: dual

Arguments:

Money# arguments

Argument	Description
text	The text string to be evaluated.

Argument	Description
format	String describing the expected input format to use when converting the string to a numeric interval. If omitted, the money format set in the operating system is used.
dec_sep	String specifying the decimal number separator. If omitted, the MoneyDecimalSep value set in the load script is used.
thou_sep	String specifying the thousands number separator. If omitted, the MoneyThousandSep value set in the load script is used.

The **money#** function generally behaves just like the **num#** function but takes its default values for decimal and thousand separator from the script variables for money format or the system settings for currency.

The examples below assume the two following operating system settings:

- Money format default setting 1: kr # ##0,00
- Money format default setting 2: $ #,##0.00

Example 1:

```
Money#(A , '# ##0,00 kr' )
```
where A=35 648,37 kr

Example 1 results

Results	Setting 1	Setting 2
String:	35 648.37 kr	35 648.37 kr
Number:	35648.37	3564837

Example 2:

```
Money#( A, ' $#', '.', ',' )
```
where A= $35,648.37

Example 2 results

Results	Setting 1	Setting 2
String:	$35,648.37	$35,648.37
Number:	35648.37	35648.37

Num#

Num#() interprets a text string as a numerical value, that is it converts the input string to a number using the format specified in the second parameter. If the second parameter is omitted, it uses the decimal and thousand separators set in the data load script. Custom decimal and thousand separator symbols are optional parameters.

Syntax:

```
Num#(text[, format[, dec_sep [, thou_sep ] ] ])
```

Return data type: dual

The **Num#()** function returns a dual value with both the string and the numeric value. The function takes the textual representation of the input expression and generates a number. It does not change the format of the number: the output is formatted in the same way as the input.

Arguments:

Num# arguments

Argument	Description
text	The text string to be evaluated.
format	String specifying the number format used in the first parameter. If omitted, the decimal and thousand separators that are set in the data load script are used.
dec_sep	String specifying the decimal number separator. If omitted, the value of the variable DecimalSep that is set in the data load script is used.
thou_sep	String specifying the thousands number separator. If omitted, the value of the variable ThousandSep that is set in the data load script is used.

Example:

The following table shows the result of *Num#(A, '#', '.' , ',')* for different values of A.

Results

A	String representation	Numeric value (here displayed with decimal point)
35,648.31	35,648.31	35648.31
35 648.312	35 648.312	35648.312
35.648,3123	35.648,3123	-
35 648,31234	35 648,31234	-

Text

Text() forces the expression to be treated as text, even if a numeric interpretation is possible.

Syntax:

```
Text (expr)
```

Return data type: dual

Examples and results:

Examples and results

Example	Result	Result value
`Text( A )` where A=1234	String:	1234
	Number:	-
`Text( pi( ) )`	String:	3.1415926535898
	Number:	-

Time#

Time#() evaluates an expression as a time value, in the time format set in the load script or the operating system, unless a format string is supplied..

Syntax:

```
time#(text[, format])
```

Return data type: dual

Arguments:

Time# arguments

Argument	Description
text	The text string to be evaluated.
format	String describing how the resulting time string is to be formatted. If omitted, the short date format, time format, and decimal separator set in the operating system is used.

Examples and results:
The examples below assume the two following operating system settings:

- Time format default setting 1: hh:mm:ss
- Time format default setting 2: hh.mm.ss

Example 1:

`time#( A )`
where A=09:00:00

Results	Setting 1	Setting 2
String:	09:00:00	09:00:00
Number:	0.375	-

Example 2:

```
time#( A, 'hh.mm' )
```
where A=09.00

Results	Setting 1	Setting 2
String:	09.00	09.00
Number:	0.375	0.375

Timestamp#

Timestamp#() evaluates an expression as a date and time value, in the timestamp format set in the load script or the operating system, unless a format string is supplied.

Syntax:

```
timestamp#(text[, format])
```

Return data type: dual

Arguments:

Timestamp# arguments

Argument	Description
text	The text string to be evaluated.
format	String describing how the resulting timestamp string is to be formatted. If omitted, the short date format, time format, and decimal separator set in the operating system is used. ISO 8601 is supported for timestamps.

Example:

The following example uses the date format **M/D/YYYY**. The date format is specified in the **SET DateFormat** statement at the top of the data load script.

Add this example script to your app and run it.

```
Load *,
Timestamp(Timestamp#(String)) as TS;
LOAD * INLINE [
String
2015-09-15T12:13:14
1952-10-16T13:14:00+0200
1109-03-01T14:15
];
```

If you create a table with **String** and **TS** as dimensions, the results are as follows:

Example 1 results

String	TS
2015-09-15T12:13:14	9/15/2015 12:13:14 PM
1952-10-16T13:14:00+0200	10/16/1952 11:14:00 AM
1109-03-01T14:15	3/1/1109 2:15:00 PM

Inter-record functions

Inter-record functions are used:

- In the load script, when a value from previously loaded records of data is needed for the evaluation of the current record.
- In a chart expression, when another value from the data set of a chart is needed.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when an inter-record chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use an inter-record chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to the inter-record function. This limitation does not apply to the equivalent script function, if there is one.

*From QlikView 12.00, suppression of zero values is activated by default. If you want to retain the same behavior as in QlikView 11.20 when using inter-record functions, you should disable the suppression of zero values. Open **Chart Properties**, go to the **Presentation** tab, and deselect **Suppress Zero-Values**.*

Self-referencing expression definitions can only reliably be made in tables with fewer than 100 rows, but this may vary depending on the hardware that the Qlik engine is running on.

Row functions

These functions can only be used in chart expressions.

Above

Above() evaluates an expression at a row above the current row within a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the row directly above. For charts other than tables, **Above()** evaluates for the row above the current row in the chart's straight table equivalent.

```
Above() evaluates an expression at a row above the current row within a
column segment in a table. The row for which it is calculated depends on the
value of offset, if present, the default being the row directly above. For
```

charts other than tables, Above() evaluates for the row above the current row in the chart's straight table equivalent. ([**TOTAL** [<fld{,fld}>]] expr [, offset [,count]]**)**

Below

Below() evaluates an expression at a row below the current row within a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the row directly below. For charts other than tables, **Below()** evaluates for the row below the current column in the chart's straight table equivalent.

Below() evaluates an expression at a row below the current row within a column segment in a table. The row for which it is calculated depends on the value of offset, if present, the default being the row directly below. For charts other than tables, Below() evaluates for the row below the current column in the chart's straight table equivalent. ([**TOTAL**[<fld{,fld}>]] expression [, offset [,count]]**)**

Bottom

Bottom() evaluates an expression at the last (bottom) row of a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the bottom row. For charts other than tables, the evaluation is made on the last row of the current column in the chart's straight table equivalent.

Bottom() evaluates an expression at the last (bottom) row of a column segment in a table. The row for which it is calculated depends on the value of offset, if present, the default being the bottom row. For charts other than tables, the evaluation is made on the last row of the current column in the chart's straight table equivalent.([**TOTAL**[<fld{,fld}>]] expr [, offset [,count]]**)**

Top

Top() evaluates an expression at the first (top) row of a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the top row. For charts other than tables, the**Top()** evaluation is made on the first row of the current column in the chart's straight table equivalent.

Top() evaluates an expression at the first (top) row of a column segment in a table. The row for which it is calculated depends on the value of offset, if present, the default being the top row. For charts other than tables, theTop () evaluation is made on the first row of the current column in the chart's straight table equivalent.([**TOTAL** [<fld{,fld}>]] expr [, offset [,count]]**)**

NoOfRows

NoOfRows() returns the number of rows in the current column segment in a table. For bitmap charts, **NoOfRows()** returns the number of rows in the chart's straight table equivalent.

NoOfRows() returns the number of rows in the current column segment in a table. For bitmap charts, NoOfRows() returns the number of rows in the chart's straight table equivalent.([TOTAL])

Column functions

These functions can only be used in chart expressions.

Column

Column() returns the value found in the column corresponding to **ColumnNo** in a straight table, disregarding dimensions. For example **Column(2)** returns the value of the second measure column.

```
Column - chart function(ColumnNo)
```

Dimensionality

Dimensionality() returns the number of dimensions for the current row. In the case of pivot tables, the function returns the total number of dimension columns that have non-aggregation content, that is, do not contain partial sums or collapsed aggregates.

```
Dimensionality() returns the number of dimensions for the current row. In the case of pivot tables, the function returns the total number of dimension columns that have non-aggregation content, that is, do not contain partial sums or collapsed aggregates. ( )
```

Secondarydimensionality

Secondarydimensionality() returns the number of dimension pivot table rows that have non-aggregation content, that is, do not contain partial sums or collapsed aggregates. This function is the equivalent of the **dimensionality()** function for horizontal pivot table dimensions.

```
Secondarydimensionality ( )
```

Field functions

FieldIndex

FieldIndex() returns the position of the field value **value** in the field **field_name** (by load order).

```
FieldIndex() returns the position of the field value value in the field field_name (by load order).(field_name , value)
```

FieldValue

FieldValue() returns the value found in position **elem_no** of the field **field_name** (by load order).

```
FieldValue() returns the value found in position elem_no of the field field_name (by load order).(field_name , elem_no)
```

FieldValueCount

FieldValueCount() is an **integer** function that finds the number of distinct values in a field.

```
FieldValueCount() is an integer function that finds the number of distinct values in a field.(field_name)
```

Pivot table functions

These functions can only be used in chart expressions.

After

After() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the column after the current column within a row segment in the pivot table.

```
After ([TOTAL] expression [ , offset [,n]])
```

Before

Before() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the column before the current column within a row segment in the pivot table.

```
Before ([TOTAL] expression [ , offset [,n]])
```

First

First() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the first column of the current row segment in the pivot table. This function returns NULL in all chart types except pivot tables.

```
First ([TOTAL] expression [ , offset [,n]])
```

Last

Last() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the last column of the current row segment in the pivot table. This function returns NULL in all chart types except pivot tables.

```
Last ([TOTAL] expression [ , offset [,n]])
```

ColumnNo

ColumnNo() returns the number of the current column within the current row segment in a pivot table. The first column is number 1.

```
ColumnNo ([TOTAL])
```

NoOfColumns

NoOfColumns() returns the number of columns in the current row segment in a pivot table.

```
NoOfColumns ([TOTAL])
```

Inter-record functions in the load script

Exists

Exists() determines whether a specific field value has already been loaded into the field in the load script. The function returns TRUE or FALSE, so can be used in the **where** clause of a **LOAD** statement or an **IF** function.

```
Exists (field [ , expression ]
```

LookUp

Lookup() looks into a table that is already loaded and returns the value of **field_name** corresponding to the first occurrence of the value **match_field_value** in the field **match_field_name**. The table can be the current table or another table previously loaded.

```
LookUp (fieldname, matchfieldname, matchfieldvalue [, tablename])
```

Peek

Peek() finds the value of a field in a table for a row that has already been loaded or that exists in internal memory. The row number can be specified, as can the table.

```
Peek (fieldname [ , row [ , tablename ] ]
```

Previous

Previous() finds the value of the **expr** expression using data from the previous input record. In the first record of an internal table, the function will return NULL.

```
Previous (expression )
```

Above

Above() evaluates an expression at a row above the current row within a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the row directly above. For charts other than tables, **Above()** evaluates for the row above the current row in the chart's straight table equivalent.

Syntax:

```
Above([TOTAL] expr [ , offset [,count]])
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `count`: By specifying a third argument **count** greater than 1, the function will return a range of **count** values, one for each of **count** table rows counting upwards from the original cell. In this form, the function can be used as an argument to any of the special range functions. *Range functions (page 1439)*
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

On the first row of a column segment, a NULL value is returned, as there is no row above it.

A column segment is defined as a consecutive subset of cells having the same values for the dimensions in the current sort order. Inter-record chart functions are computed in the column segment excluding the right-most dimension in the equivalent straight table chart. If there is only one dimension in the chart, or if the TOTAL qualifier is specified, the expression evaluates across full table.

If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns, except for the column showing the last dimension in the inter-field sort order.

Limitations:

- Recursive calls will return NULL.
- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Examples and results:

Example 1:

Example table output

Customer	Sum (Sales)	Above(Sum (Sales))	Sum(Sales) + Above(Sum (Sales))	Above offset 3	Higher?
-	**2566**	-	-	-	-
Astrida	587	-	-	-	-
Betacab	539	587	1126	-	-
Canutility	683	539	1222	-	Higher
Divadip	757	683	1440	1344	Higher

In the representation of the table chart shown in this example, the table is created from the dimension **Customer** and the measures: `Sum(Sales)` and `Above(Sum(Sales))`.

The column Above(Sum(Sales)) returns NULL for the **Customer** row containing **Astrida**, because there is no row above it. The result for the row **Betacab** shows the value of Sum(Sales) for **Astrida**, the result for **Canutility** shows the value for **Sum(Sales)** for **Betacab**, and so on.

For the column labeled Sum(Sales)+Above(Sum(Sales)), the row for **Betacab** shows the result of the addition of the **Sum(Sales)** values for the rows **Betacab** + **Astrida** (539+587). The result for the row **Canutility** shows the result of the addition of **Sum(Sales)** values for **Canutility** + **Betacab** (683+539).

The measure labeled Above offset 3 created using the expression `Sum(Sales)+Above(Sum(Sales), 3)` has the argument **offset**, set to 3, and has the effect of taking the value in the row three rows above the current row. It adds the **Sum(Sales)** value for the current **Customer** to the value for the **Customer**three rows above. The values returned for the first three **Customer** rows are null.

The table also shows more complex measures: one created from `Sum(Sales)+Above(Sum(Sales))` and one labeled **Higher?**, which is created from `IF(Sum(Sales)>Above(Sum(Sales)), 'Higher')`.

This function can also be used in charts other than tables, for example bar charts.

For other chart types, convert the chart to the straight table equivalent so you can easily interpret which row the function relates to.

Example 2:

In the representations of the table charts shown in this example, more dimensions have been added to the charts: **Month** and **Product**. For charts with more than one dimension, the results of expressions containing the **Above**, **Below**, **Top**, and **Bottom** functions depend on the order in which the column dimensions are sorted by QlikView. QlikView evaluates the functions based on the column segments that result from the dimension that is sorted last. The column sort order is controlled under **Sort** and is not necessarily the order in which the columns appear in a table.

In the following representation of the table chart for Example 2, the last-sorted dimension is **Month**, so the **Above** function evaluates based on months. There is a series of results for each **Product** value for each month (**Jan** to **Aug**) - a column segment. This is followed by a series for the next column segment: for each **Month** for the next **Product**. There will be a column segment for each **Customer** value for each **Product**.

Example table output

Customer	Product	Month	Sum(Sales)	Above(Sum(Sales))
-	-	-	**2566**	-
Astrida	AA	Jan	46	-
Astrida	AA	Feb	60	46
Astrida	AA	Mar	70	60
Astrida	AA	Apr	13	70
Astrida	AA	May	78	13
Astrida	AA	Jun	20	78
Astrida	AA	Jul	45	20
Astrida	AA	Aug	65	45

Example 3:

In the representation of the table chart for Example 3, the last sorted dimension is **Product**. This is done by moving the dimension Product to position 3 in the Sorting tab in the properties panel. The **Above** function is evaluated for each **Product**, and because there are only two products, **AA** and **BB**, there is only one non-null result in each series. In row **BB** for the month **Jan**, the value for **Above(Sum(Sales))**, is 46. For row **AA**, the value is null. The value in each row **AA** for any month will always be null, as there is no value of **Product**

above AA. The second series is evaluated on **AA** and **BB** for the month **Feb**, for the **Customer** value, **Astrida**. When all the months have been evaluated for **Astrida**, the sequence is repeated for the second **Customer**Betacab, and so on.

Example table output

Customer	Product	Month	Sum(Sales)	Above(Sum(Sales))
-	-	-	**2566**	-
Astrida	AA	Jan	46	-
Astrida	BB	Jan	46	46
Astrida	AA	Feb	60	-
Astrida	BB	Feb	60	60
Astrida	AA	Mar	70	-
Astrida	BB	Mar	70	70
Astrida	AA	Apr	13	-
Astrida	BB	Apr	13	13

Example 4:

The Above function can be used as input to the range functions. For example: `RangeAvg (Above(Sum (Sales),1,3))`.

In the arguments for the Above() function, offset is set to 1 and count is set to 3. The function finds the results of the expressionSum(Sales) on the three rows immediately above the current row in the column segment (where there is a row). These three values are used as input to the RangeAvg() function, which finds the average of the values in the supplied range of numbers.

A table with Customer as dimension gives the following results for the RangeAvg() expression.

Example table output

Customer	RangeAvg (Above(Sum(Sales),1,3))
Astrida	-
Betacab	587
Canutility	563
Divadip	603

Data used in examples:

```
Monthnames:
LOAD * INLINE [
Month, Monthnumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
```

```
May, 5
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];
Sales2013:
crosstable (Month, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

To get the months to sort in the correct order, when you create your charts, go to the **Sort** tab of the chart properties, and mark the checkbox **Expression** under **Sort by**. In the expression box write `Monthnumber`.

Below

Below() evaluates an expression at a row below the current row within a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the row directly below. For charts other than tables, **Below()** evaluates for the row below the current column in the chart's straight table equivalent.

Syntax:

```
Below([TOTAL] expression [ , offset [,count ]])
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `count`: By specifying a third argument **count** greater than 1, the function will return a range of **count** values, one for each of **count** table rows counting upwards from the original cell. In this form, the function can be used as an argument to any of the special range functions. *Range functions (page 1439)*
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

On the last row of a column segment, a NULL value is returned, as there is no row below it.

A column segment is defined as a consecutive subset of cells having the same values for the dimensions in the current sort order. Inter-record chart functions are computed in the column segment excluding the right-most dimension in the equivalent straight table chart. If there is only one dimension in the chart, or if the TOTAL qualifier is specified, the expression evaluates across full table.

If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns, except for the column showing the last dimension in the inter-field sort order.

Limitations:

- Recursive calls will return NULL.
- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Examples and results:

Example 1:

Example table output

Customer	Sum (Sales)	Below(Sum (Sales))	Sum(Sales) + Below(Sum (Sales))	Below offset 3	Higher?
-	**2566**	-	-	**1344**	-
Astrida	587	539	1126	-	Higher
Betacab	539	683	1222	-	-
Canutility	683	757	1440	-	-
Divadip	757	-	-	-	-

In the representation of the table chart shown in for Example 1, the table is created from the dimension **Customer** and the measures: `Sum(Sales)` and `Below(Sum(Sales))`.

The column **Below(Sum(Sales))** returns NULL for the **Customer** row containing **Divadip**, because there is no row below it. The result for the row **Canutility** shows the value of Sum(Sales) for **Divadip**, the result for **Betacab** shows the value for **Sum(Sales)** for **Canutility**, and so on.

The table also shows more complex measures, which you can see in the columns labeled: `Sum(Sales)+Below(Sum(Sales))`, **Below +Offset 3**, and **Higher?**. These expressions work as described in the following paragraphs.

For the column labeled **Sum(Sales)+Below(Sum(Sales))**, the row for **Astrida** shows the result of the addition of the **Sum(Sales)** values for the rows **Betacab** + **Astrida** (539+587). The result for the row **Betacab** shows the result of the addition of **Sum(Sales)** values for **Canutility** + **Betacab** (539+683).

The measure labeled **Below +Offset 3** created using the expression `Sum(Sales)+Below(Sum(Sales), 3)` has the argument **offset**, set to 3, and has the effect of taking the value in the row three rows below the current row. It adds the **Sum(Sales)** value for the current **Customer** to the value from the **Customer** three rows below. The values for the lowest three **Customer** rows are null.

The measure labeled **Higher?** is created from the expression:`IF(Sum(Sales)>Below(Sum(Sales)), 'Higher')`. This compares the values of the current row in the measure **Sum(Sales)** with the row below it. If the current row is a greater value, the text "Higher" is output.

This function can also be used in charts other than tables, for example bar charts.

For other chart types, convert the chart to the straight table equivalent so you can easily interpret which row the function relates to.

For charts with more than one dimension, the results of expressions containing the **Above**, **Below**, **Top**, and **Bottom** functions depend on the order in which the column dimensions are sorted by QlikView. QlikView evaluates the functions based on the column segments that result from the dimension that is sorted last. The column sort order is controlled under **Sort** and is not necessarily the order in which the columns appear in a table.Please refer to Example 2 in the **Above** function for further details.

Example 2:

The **Below** function can be used as input to the range functions. For example: `RangeAvg (Below(Sum (Sales),1,3))`.

In the arguments for the **Below()** function, offset is set to 1 and count is set to 3. The function finds the results of the expression**Sum(Sales)** on the three rows immediately below the current row in the column segment (where there is a row). These three values are used as input to the RangeAvg() function, which finds the average of the values in the supplied range of numbers.

A table with **Customer** as dimension gives the following results for the expression.

Example table output

Customer	RangeAvg (Below(Sum(Sales),1,3))
Astrida	659.67
Betacab	720
Canutility	757
Divadip	-

Data used in examples:

```
Monthnames:
```

```
LOAD * INLINE [
Month, Monthnumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
May, 5
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];
Sales2013:
crosstable (Month, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

To get the months to sort in the correct order, when you create your charts, go to the **Sort** tab of the chart properties, and mark the checkbox **Expression** under **Sort by**. In the expression box write `Monthnumber`.

Bottom

Bottom() evaluates an expression at the last (bottom) row of a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the bottom row. For charts other than tables, the evaluation is made on the last row of the current column in the chart's straight table equivalent.

Syntax:

```
Bottom([TOTAL] expr [ , offset [,count ]])
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `count`: By specifying a third argument **count** greater than 1, the function will return a range of **count** values, one for each of **count** table rows counting upwards from the original cell. In this form, the function can be used as an argument to any of the special range functions. *Range functions (page 1439)*
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

A column segment is defined as a consecutive subset of cells having the same values for the dimensions in the current sort order. Inter-record chart functions are computed in the column segment excluding the right-most dimension in the equivalent straight table chart. If there is only one dimension in the chart, or if the TOTAL qualifier is specified, the expression evaluates across full table.

If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns, except for the column showing the last dimension in the inter-field sort order.

Limitations:

- Recursive calls will return NULL.
- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Examples and results:

Example 1:

Example table output

Customer	Sum (Sales)	Bottom(Sum (Sales))	Sum(Sales) + Bottom(Sum (Sales))	Bottom offset 3
-	**2566**	**757**	**3323**	**3105**
Astrida	587	757	1344	1126
Betacab	539	757	1296	1078
Canutility	683	757	1440	1222
Divadip	757	757	1514	1296

In the representation of the table chart shown in this example, the table is created from the dimension **Customer** and the measures: `Sum(Sales)` and `Bottom(Sum(Sales))`.

The column **Bottom(Sum(Sales))** returns 757 for the all rows because this is the value of the bottom row: **Divadip**.

The table also shows more complex measures: one created from `Sum(Sales)+Bottom(Sum(Sales))` and one labeled **Bottom offset 3**, which is created using the expression `Sum(Sales)+Bottom(Sum(Sales), 3)` and has the argument **offset** set to 3. It adds the **Sum(Sales)** value for the current row to the value from the third row from the bottom row, that is, the current row plus the value for **Betacab**.

Example 2:

In the representations of table charts shown in this example, more dimensions have been added to the charts: **Month** and **Product**. For charts with more than one dimension, the results of expressions containing the **Above**, **Below**, **Top**, and **Bottom** functions depend on the order in which the column dimensions are sorted by QlikView. QlikView evaluates the functions based on the column segments that result from the dimension that is sorted last. The column sort order is controlled under **Sort** and is not necessarily the order in which the columns appear in a table.

In the first table, the expression is evaluated based on **Month**, and in the second table it is evaluated based on **Product**. The measure **End value** contains the expression `Bottom(Sum(Sales))`. The bottom row for **Month** is Dec, and the value for Dec both the values of **Product** shown in the table is 22. (Some rows are not shown, to save space.)

Example first table output

Customer	Product	Month	Sum(Sales)	End value
-	-	-	**2566**	-
Astrida	AA	Jan	46	22
Astrida	AA	Feb	60	22
Astrida	AA	Mar	70	22
...	...	...	...	...
Astrida	AA	Sep	78	22
Astrida	AA	Oct	12	22
Astrida	AA	Nov	78	22
Astrida	AA	Dec	22	22
Astrida	BB	Jan	46	22

Example second table output

Customer	Product	Month	Sum(Sales)	End value
			2566	-
Astrida	AA	Jan	46	46
Astrida	BB	Jan	46	46
Astrida	AA	Feb	60	60
Astrida	BB	Feb	60	60
Astrida	AA	Mar	70	70
Astrida	BB	Mar	70	70
Astrida	AA	Apr	13	13
Astrida	BB	Apr	13	13

Please refer to Example 2 in the **Above** function for further details.

Example 3:

The **Bottom** function can be used as input to the range functions. For example: `RangeAvg (Bottom(Sum (Sales),1,3))`.

In the arguments for the **Bottom()** function, offset is set to 1 and count is set to 3. The function finds the results of the expression**Sum(Sales)** on the three rows starting with the row above the bottom row in the column segment (because offset=1), and the two rows above that (where there is a row). These three values are used as input to the RangeAvg() function, which finds the average of the values in the supplied range of numbers.

A table with **Customer** as dimension gives the following results for the RangeAvg() expression.

Example table output

Customer	RangeAvg (Bottom(Sum(Sales),1,3))
Astrida	659.67
Betacab	659.67
Canutility	659.67
Divadip	659.67

Data used in examples:

```
Monthnames:
LOAD * INLINE [
Month, Monthnumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
May, 5
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];
Sales2013:
crosstable (Month, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

To get the months to sort in the correct order, when you create your charts, go to the **Sort** tab of the chart properties, and mark the checkbox **Expression** under **Sort by**. In the expression box write `Monthnumber`.

Column - chart function

Column() returns the value found in the column corresponding to **ColumnNo** in a straight table, disregarding dimensions. For example **Column(2)** returns the value of the second measure column.

Syntax:

```
Column(ColumnNo)
```

Return data type: dual

Arguments:

- ColumnNo: Column number of a column in the table containing a measure.

The Column() function disregards dimension columns.

Limitations:

- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.
- If **ColumnNo** references a column for which there is no measure, a NULL value is returned.
- Recursive calls will return NULL.

Examples and results:

Example script results

Example	Result
Order Value is added to the table as a measure with the expression: `Sum (UnitPrice*UnitSales)`. Total Sales Value is added as a measure with the expression: `Sum(TOTAL UnitPrice*UnitSales)` % Sales is added as a measure with the expression `100*Column(1)/Column(2)`	The result of Column(1) is taken from the column Order Value, because this is the first measure column. The result of Column(2) is taken from Total Sales Value, because this is the second measure column. See the results in the column % Sales in the example *Percentage total sales (page 1405)*.
Make the selection Customer A.	The selection changes the Total Sales Value, and therefore the %Sales. See the example *Percentage of sales for selected customer (page 1405)*.

Percentage total sales

Customer	Product	UnitPrice	UnitSales	Order Value	Total Sales Value	% Sales
A	AA	15	10	150	505	29.70
A	AA	16	4	64	505	12.67
A	BB	9	9	81	505	16.04
B	BB	10	5	50	505	9.90
B	CC	20	2	40	505	7.92
B	DD	25	-	0	505	0.00
C	AA	15	8	120	505	23.76
C	CC	19	-	0	505	0.00

Percentage of sales for selected customer

Customer	Product	UnitPrice	UnitSales	Order Value	Total Sales Value	% Sales
A	AA	15	10	150	295	50.85
A	AA	16	4	64	295	21.69
A	BB	9	9	81	295	27.46

Data used in examples:

```
ProductData:
LOAD * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD||25
Canutility|AA|8|15
Canutility|CC||19
] (delimiter is '|');
```

Dimensionality

Dimensionality() returns the number of dimensions for the current row. In the case of pivot tables, the function returns the total number of dimension columns that have non-aggregation content, that is, do not contain partial sums or collapsed aggregates.

Syntax:

```
Dimensionality ( )
```

Return data type: integer

Limitations:

This function is only available in charts. The number of dimensions in all rows, except the total which will be 0, will be returned. For all chart types, except pivot table it will return the number of dimensions in all rows except the total, which will be 0.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Examples:

A typical use for dimensionality is when you want to make a calculation only if there is a value present for a dimension.

Examples and results

Example	Result
For a table containing the dimension UnitSales, you might only want to indicate an invoice is sent: `IF(Dimensionality()=3, "Invoiced").`	-

Exists

Exists() determines whether a specific field value has already been loaded into the field in the load script. The function returns TRUE or FALSE, so can be used in the **where** clause of a **LOAD** statement or an **IF** function.

*You can also use **Not Exists()** to determine if a field value has not been loaded, but caution is recommended if you use **Not Exists()** in a where clause. The **Exists()** function tests both previously loaded tables and previously loaded values in the current table. So, only the first occurrence will be loaded. When the second occurrence is encountered, the value is already loaded. See the examples for more information.*

Syntax:

```
Exists(field_name [, expr] )
```

Return data type: Boolean

Arguments:

Exists arguments

Argument	Description
field_name	The name of the field where you want to search for a value. You can use an explicit field name without quotes. The field must already be loaded by the script. That means, you cannot refer to a field that is loaded in a clause further down in the script.
expr	The value that you want to check if it exists. You can use an explicit value or an expression that refers to one or several fields in the current load statement.  *You cannot refer to fields that are not included in the current load statement.* This argument is optional. If you omit it, the function will check if the value of **field_name** in the current record already exists.

Example 1:

```
Exists (Employee)
```

Returns -1 (True) if the value of the field **Employee** in the current record already exists in any previously read record containing that field.

Example 2:

```
Exists(Employee, 'Bill')
```

Returns -1 (True) if the field value **'Bill'** is found in the current content of the field **Employee**.

The statements `Exists (Employee, Employee)` and `Exists (Employee)` are equivalent.

Example 3:

```
Employees:
LOAD * inline [
Employee|ID|Salary
Bill|001|20000
John|002|30000
Steve|003|35000
] (delimiter is '|');

Citizens:
Load * inline [
Employee|Address
Bill|New York
Mary|London
Steve|Chicago
Lucy|Madrid
```

```
Lucy|Paris
John|Miami
] (delimiter is '|') where Exists (Employee);

Drop Tables Employees;
```

This results in a table called Citizens in the data model, which can be viewed as a table chart using the dimensions Employee and Address.

The where clause: `where Exists (Employee)`, means only the names from the table Citizens that are also in Employees are loaded into the new table. The Drop statement removes the temporary table Employees to avoid confusion.

Example 3 results

Employee	**Address**
Bill	New York
John	Miami
Steve	Chicago

Example 4:

```
Employees:
Load * inline [
Employee|ID|Salary
Bill|001|20000
John|002|30000
Steve|003|35000
] (delimiter is '|');

Citizens:
Load * inline [
Employee|Address
Bill|New York
Mary|London
Steve|Chicago
Lucy|Madrid
Lucy|Paris
John|Miami
] (delimiter is '|') where not Exists (Employee);

Drop Tables Employees;
```

The where clause includes not: `where not Exists (Employee)`.

This means that only the names from the table Citizens that are not in Employees are loaded into the new table.

Note that there are two values for Lucy in the Citizens table, but only one is included in the result table. When you load the first row with the value Lucy, it is included in the Employee field. Hence, when the second line is checked, the value already exists.

Example 4 results

Employee	Address
Mary	London
Lucy	Madrid

Example 5:

This example shows how to load all values.

```
Employees:
Load Employee As Name;
LOAD * inline [
Employee|ID|Salary
Bill|001|20000
John|002|30000
Steve|003|35000
] (delimiter is '|');

Citizens:
Load * inline [
Employee|Address
Bill|New York
Mary|London
Steve|Chicago
Lucy|Madrid
Lucy|Paris
John|Miami
] (delimiter is '|') where not Exists (Name, Employee);

Drop Tables Employees;
```

To be able to get all values for Lucy, two things were changed:

- A preceding load to the Employees table was inserted where Employee was renamed to Name.
  `Load Employee As Name;`
- The Where condition in Citizens was changed to:
  `not Exists (Name, Employee).`

This creates fields for Name and Employee. When the second row with Lucy is checked, it still does not exist in Name.

Example 5 results

Employee	Address
Mary	London

Lucy	Madrid
Lucy	Paris

Data used in example:

```
LOAD * inline [
Employee|ID|Salary
Bill|001|20000
John|002|30000
Steve|003|35000
] (delimiter is '|');

Citizens:
Load * inline [
Employee|Address
Bill|New York
Mary|London
Steve|Chicago
Lucy|Madrid
Lucy|Paris
John|Miami
] (delimiter is '|');
```

FieldIndex

FieldIndex() returns the position of the field value **value** in the field **field_name** (by load order).

Syntax:

```
FieldIndex(field_name , value)
```

Return data type: integer

Arguments:

- `field_name`: Name of the field for which the index is required. For example, the column in a table. Must be given as a string value. This means that the field name must be enclosed by single quotes.
- `value`: The value of the field **field_name**.

Limitations:

- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function. This limitation does not apply to the equivalent script function.
- If **value** cannot be found among the field values of the field **field_name**, 0 is returned.

Examples:

Add the example data below to your document and run it. The following examples use the field: **First name** from the table**Names**.

Examples and results

Example	Result
Chart function - in a table containing the dimension **First name**, add as a measure: `FieldIndex ('First name','John')`	1, because 'John' appears first in the load order of the **First name** field. Note that in a list box **John** would appear as number 2 from the top as it's sorted alphabetically and not as in the load order.
Chart function with **First name**: `FieldIndex ('First name','Peter')`	4, because **FieldIndex()** returns only one value, that is the first occurrence in the load order.

Script function - given the table **Names** is loaded, as in the example data:
`John1:`
`Load FieldIndex('First name','John') as MyJohnPos`
`Resident Names;`
	`MyJohnPos=1`, because 'John' appears first in the load order of the **First name** field. Note that in a list box **John** would appear as number 2 from the top as it's sorted alphabetically and not as in the load order.

Script function with **Names**:
`Peter1:`
`Load FieldIndex('First name','Peter') as MyPeterPos`
`Resident Names;`
	`MyPeterPos=4`, because **FieldIndex()** returns only one value, that is the first occurrence in the load order.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');

John1:
Load FieldIndex('First name','John') as MyJohnPos
Resident Names;
```

```
Peter1:
Load FieldIndex('First name','Peter') as MyPeterPos
Resident Names;
```

FieldValue

FieldValue() returns the value found in position **elem_no** of the field **field_name** (by load order).

Syntax:

```
FieldValue(field_name , elem_no)
```

Return data type: dual

Arguments:

- `field_name`: Name of the field for which the index is required. For example, the column in a table. Must be given as a string value. This means that the field name must be enclosed by single quotes.
- `elem_no`: The position (element) number of the field,following the load order, that the value is returned for. This could correspond to the row in a table, but it depends on the order in which the elements (rows) are loaded.

Limitations:

- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function. This limitation does not apply to the equivalent script function.
- If **elem_no** is larger than the number of field values, NULL is returned.

Examples:

Add the example data below to your document and run it. The following examples use the field: **First name** from the table**Names**.

Examples and results

Example	Result
Chart function - in a table containing the dimension **First name**, add as a measure: `FieldValue('First name','1')`	John, because John appears first in the load order of the **First name** field. Note that in a list box **John** would appear as number 2 from the top, after **Jane**, as it's sorted alphabetically and not as in the load order.

Example	Result
Chart function with **First name**: `FieldValue('First name','7')`	NULL, because there are only 6 values in the **First name** field.

Script function - given the table **Names** is loaded, as in the example data:
 	
`John1:`
`Load FieldValue('First name',1) as MyPos1`
`Resident Names;`
	`MyPos1=`John, because 'John' appears first in the load order of the **First name** field.

Script function with **Names**:
 	
`Peter1:`
`Load FieldValue('First name',7) as MyPos2`
`Resident Names;`
	`MyPo2s=` - (Null), because there are only 6 values in the **First name**field.

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');
John1:
Load FieldValue('First name',1) as MyPos1
Resident Names;

Peter1:
Load FieldValue('First name',7) as MyPos2
Resident Names;
```

FieldValueCount

FieldValueCount() is an **integer** function that finds the number of distinct values in a field.

Syntax:

```
FieldValueCount(field_name)
```

Return data type: integer

Arguments:

- `field_name`: Name of the field for which the index is required. For example, the column in a table. Must be given as a string value. This means that the field name must be enclosed by single quotes.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Examples:

Add the example data below to your document and run it. The following examples use the field: **First name** from the table**Names**.

Examples and results

Example	Result
Chart function - in a table containing the dimension **First name**, add as a measure: `FieldValueCount('First name')`	5 as **Peter** appears twice.
Chart function with **First name**: `FieldValueCount('Initials')`	6 as **Initials** only has distinct values.

Script function - given the table **Names** is loaded, as in the example data:
`John1:`
`Load FieldValueCount('First name') as MyFieldCount1`
`Resident Names;`
	`MyFieldCount1`=5, because 'John' appears twice.

Script function with **Names**:
`John1:`
`Load FieldValueCount('Initials') as MyInitialsCount1`
`Resident Names;`
	`MyFieldCount1`=6, because 'Initials' only has distinct values.

Data used in example:

Data used in example:

```
Names:
LOAD * inline [
"First name"|"Last name"|Initials|"Has cellphone"
John|Anderson|JA|Yes
Sue|Brown|SB|Yes
Mark|Carr|MC |No
```

```
Peter|Devonshire|PD|No
Jane|Elliot|JE|Yes
Peter|Franc|PF|Yes ] (delimiter is '|');

FieldCount1:
Load FieldValueCount('First name') as MyFieldCount1
Resident Names;

FieldCount2:
Load FieldValueCount('Initials') as MyInitialsCount1
Resident Names;
```

LookUp

Lookup() looks into a table that is already loaded and returns the value of **field_name** corresponding to the first occurrence of the value **match_field_value** in the field **match_field_name**. The table can be the current table or another table previously loaded.

Syntax:

```
lookup(field_name, match_field_name, match_field_value [, table_name])
```

Return data type: dual

Arguments:

LookUp arguments

Argument	Description
field_name	Name of the field for which the return value is required.Input value must be given as a string (for example, quoted literals).
match_field_name	Name of the field to look up **match_field_value** in. Input value must be given as a string (for example, quoted literals).
match_field_value	Value to look up in **match_field_name** field.
table_name	Name of the table in which to look up the value. Input value must be given as a string (for example quoted literals). If **table_name** is omitted the current table is assumed.

Arguments without quotes refer to the current table. To refer to other tables, enclose an argument in single quotes.

Limitations:

The order in which the search is made is the load order, unless the table is the result of complex operations such as joins, in which case, the order is not well defined. Both **field_name** and **match_field_name** must be fields in the same table, specified by **table_name**.

If no match is found, NULL is returned.

Example:

The sample data uses the **Lookup()** function in the following form:

```
Lookup('Category', 'ProductID', ProductID, 'ProductList')
```

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
ProductList:
Load * Inline [
ProductID|Product|Category|Price
1|AA|1|1
2|BB|1|3
3|CC|2|8
4|DD|3|2
] (delimiter is '|');

OrderData:
Load *, Lookup('Category', 'ProductID', ProductID, 'ProductList') as CategoryID
Inline [
InvoiceID|CustomerID|ProductID|Units
1|Astrida|1|8
1|Astrida|2|6
2|Betacab|3|10
3|Divadip|3|5
4|Divadip|4|10
] (delimiter is '|');

Drop Table ProductList
```

The **ProductList** table is loaded first.

The **Lookup()** function is used to build the **OrderData** table. It specifies the third argument as **ProductID**. This is the field for which the value is to be looked up in the second argument **'ProductID'** in the **ProductList**, as denoted by the enclosing single quotes.

The function returns the value for '**Category**' (in the **ProductList** table), loaded as **CategoryID**.

The **drop** statement deletes the **ProductList** table from the data model, because it is not required, which leaves the **OrderData** table with the following result:

Example 1 results

ProductID	InvoiceID	CustomerID	Units	CategoryID
1	1	Astrida	8	1
2	1	Astrida	6	1
3	2	Betacab	10	2
3	3	Divadip	5	2
4	4	Divadip	10	3

The Lookup() function is flexible and can access any previously loaded table. However, it is slow compared with the Applymap() function.

NoOfRows

NoOfRows() returns the number of rows in the current column segment in a table. For bitmap charts, **NoOfRows()** returns the number of rows in the chart's straight table equivalent.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns, except for the column showing the last dimension in the inter-field sort order.

Syntax:

```
NoOfRows([TOTAL])
```

Return data type: integer

Arguments:

- TOTAL: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

Example:

```
if( RowNo( )= NoOfRows( ), 0, Above( sum( Sales )))
```

Peek

Peek() finds the value of a field in a table for a row that has already been loaded or that exists in internal memory. The row number can be specified, as can the table.

Syntax:

```
Peek(field_name[, row_no[, table_name ] ] )
```

Return data type: dual

Arguments:

Peek arguments

Argument	Description
field_name	Name of the field for which the return value is required.Input value must be given as a string (for example, quoted literals).
row_no	The row in the table that specifies the field required. Can be an expression, but must resolve to an integer. 0 denotes the first record, 1 the second, and so on. Negative numbers indicate order from the end of the table. -1 denotes the last record read. If no **row** is stated, -1 is assumed.
table_name	A table label without the ending colon. If no **table_name** is stated, the current table is assumed. If used outside the **LOAD** statement or referring to another table, the **table_name** must be included.

Limitations:

In the first record of an internal table, the function returns NULL.

Example 1:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
EmployeeDates:
Load * Inline [
EmployeeCode|StartDate|EndDate
101|02/11/2010|23/06/2012
102|01/11/2011|30/11/2013
103|02/01/2012|
104|02/01/2012|31/03/2012
105|01/04/2012|31/01/2013
106|02/11/2013|
] (delimiter is '|');

FirstEmployee:
Load EmployeeCode, Peek('EmployeeCode',0) As EmpCode
Resident EmployeeDates;
```

EmpCode = 101, because `Peek(EmployeeCode,0)` returns the first value of EmployeeCode in the table EmployeeDates.

Substituting the value of the argument **row_no** returns the values of other rows in the table, as follows:

`Peek('EmployeeCode',2)` returns the third value in the table: 103.

However, note that without specifying the table as the third argument **table_no**, the function references the current (in this case, internal) table. The result of `Peek(EmployeeCode,-2)` is multiple values:

Example 1 results

EmployeeCode	EmpCode
101	-
102	-
103	101
104	102
105	103
106	104

Example 2:

```
FirstEmployee:
Load EmployeeCode, Peek('EmployeeCode',-2,'EmployeeDates') As EmpCode
Resident EmployeeDates;
```

By specifying the argument **table_no** as `'EmployeeDates'`, the function returns the second-to-last value of EmployeeCode in the table EmployeeDates: 105.

Example 3:

The **Peek()** function can be used to reference data that is not yet loaded.

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
T1:
LOAD * inline [
ID, Value
1|3
1|4
1|6
3|7
3|8
2|1
2|11
5|2
5|78
5|13
] (delimiter is '|');
T2:
LOAD
*,
IF(ID=Peek('ID'), Peek('List')&','&Value,Value) AS List
RESIDENT T1
ORDER BY ID ASC;
DROP TABLE T1;
```

Create a table in a sheet in your document with **ID**, **List**, and **Value** as the dimensions.

Example 3 results

ID	List	Value
1	6	6
1	6,3	3
1	6,3,4	4
2	11	11
2	11,10	10
2	11,10,1	1
3	8	8
3	8,7	7
5	13	13
5	13,2	2
5	13,2,78	78

The **IF()** statement is built from the temporary table T1.
`Peek('ID')` references the field ID in the previous row in the current table T2.
`Peek('List')` references the field List in the previous row in the table T2, currently being built as the expression is evaluated.

The statement is evaluated as follows:
If the current value of ID is the same as the previous value of ID, then write the value of Peek('List') concatenated with the current value of Value. Otherwise, write the current value of Value only.

If Peek('List') already contains a concatenated result, the new result of Peek('List)' will be concatenated to it.

*Note the **Order by** clause. This specifies how the table is ordered (by ID in ascending order). Without this, the Peek() function will use whatever arbitrary ordering the internal table has, which can lead to unpredictable results.*

Previous

Previous() finds the value of the **expr** expression using data from the previous input record. In the first record of an internal table, the function will return NULL.

Syntax:

```
Previous(expr)
```

Return data type: dual

Arguments:

Previous arguments

Argument	Description
expr	The expression or field containing the data to be measured. The expression can contain nested **previous()** functions in order to access records further back. Data are fetched directly from the input source, making it possible to refer also to fields that have not been loaded into QlikView, that is,even if they have not been stored in its associative database.

Limitations:

In the first record of an internal table, the function returns NULL.

Example 1:

```
Sales2013:
Load *, (Sales - Previous(Sales) )as Increase Inline [
Month|Sales
1|12
2|13
3|15
4|17
5|21
6|21
7|22
8|23
9|32
10|35
11|40
12|41
] (delimiter is '|');
```

By using the **Previous()** function in the **Load** statement, we can compare the current value of Sales with the preceding value, and use it in a third field, Increase.

Example 1 results

Month	Sales	Increase
1	12	-
2	13	1
3	15	2
4	17	2
5	21	4
6	21	0

Month	Sales	Increase
7	22	1
8	23	1
9	32	9
10	35	3
11	40	5
12	41	1

Example 2:

```
Sales2013:
Load * Inline [
Month|Sales
1|12
2|13
3|15
4|17
5|21
6|21
7|22
8|23
9|32
10|35
11|40
12|41
] (delimiter is '|');

Sales:
NoConcatenate Load *, (Sales - Previous(Sales) )as Increase Resident Sales2013 where Month >
6;

Drop Table Sales2013;
```

In this example we exclude the records where Month is 6 or less by using a **WHERE** clause. This still makes it possible to use **Previous()** as the function can refer to data that is excluded from the load.

In this case the calculation of Increase for Month=7 refers to the Sales value for Month=6, which is excluded from the load.

Example 2 results

Month	Sales	Increase
7	22	1
8	23	1
9	32	9
10	35	3

Month	Sales	Increase
11	40	5
12	41	1

Top

Top() evaluates an expression at the first (top) row of a column segment in a table. The row for which it is calculated depends on the value of **offset**, if present, the default being the top row. For charts other than tables, the**Top()** evaluation is made on the first row of the current column in the chart's straight table equivalent.

Syntax:

```
Top([TOTAL] expr [ , offset [,count ]])
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `count`: By specifying a third argument **count** greater than 1, the function will return a range of **count** values, one for each of **count** table rows counting upwards from the original cell. In this form, the function can be used as an argument to any of the special range functions. *Range functions (page 1439)*
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

A column segment is defined as a consecutive subset of cells having the same values for the dimensions in the current sort order. Inter-record chart functions are computed in the column segment excluding the right-most dimension in the equivalent straight table chart. If there is only one dimension in the chart, or if the TOTAL qualifier is specified, the expression evaluates across full table.

If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns, except for the column showing the last dimension in the inter-field sort order.

Limitations:

- Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.
- Recursive calls will return NULL.

Examples and results:

Example 1:

Example table output

Customer	Sum(Sales)	Top(Sum(Sales))	Sum(Sales) + Top(Sum(Sales))	Top offset 3
	2566	**587**	**3153**	**3249**
Astrida	587	587	1174	1270
Betacab	539	587	1126	1222
Canutility	683	587	1270	1366
Divadip	757	587	1344	1440

In the representation of the table chart shown in this example, the table is created from the dimension **Customer** and the measures: `Sum(Sales)` and `Top(Sum(Sales))`.

The column **Top(Sum(Sales))** returns 587 for the all rows because this is the value of the top row: **Astrida**.

The table also shows more complex measures: one created from `Sum(Sales)+Top(Sum(Sales))` and one labeled **Top offset 3**, which is created using the expression `Sum(Sales)+Top(Sum(Sales), 3)` and has the argument **offset** set to 3. It adds the **Sum(Sales)** value for the current row to the value from the third row from the top row, that is, the current row plus the value for **Canutility**.

Example 2:

In the representations of table charts shown in this example, more dimensions have been added to the charts: **Month** and **Product**. For charts with more than one dimension, the results of expressions containing the **Above**, **Below**, **Top**, and **Bottom** functions depend on the order in which the column dimensions are sorted by QlikView. QlikView evaluates the functions based on the column segments that result from the dimension that is sorted last. The column sort order is controlled under **Sort** and is not necessarily the order in which the columns appear in a table. (Some rows are not shown, to save space.)

Example first table output

Customer	Product	Month	Sum(Sales)	First value
			2566	-

Customer	Product	Month	Sum(Sales)	First value
Astrida	AA	Jan	46	46
Astrida	AA	Feb	60	46
Astrida	AA	Mar	70	46
...	...	...	...	...
Astrida	AA	Sep	78	46
Astrida	AA	Oct	12	46
Astrida	AA	Nov	78	46
Astrida	AA	Dec	22	46
Astrida	BB	Jan	46	46

Example second table output

Customer	Product	Month	Sum(Sales)	First value
			2566	-
Astrida	AA	Jan	46	46
Astrida	BB	Jan	46	46
Astrida	AA	Feb	60	60
Astrida	BB	Feb	60	60
Astrida	AA	Mar	70	70
Astrida	BB	Mar	70	70
Astrida	AA	Apr	13	13
Astrida	BB	Apr	13	13

Please refer to Example 2 in the **Above** function for further details.

Example 3:

The **Top** function can be used as input to the range functions. For example: `RangeAvg (Top(Sum (Sales),1,3))`.

In the arguments for the **Top()** function, offset is set to 1 and count is set to 3. The function finds the results of the expression**Sum(Sales)** on the three rows starting with the row below the bottom row in the column segment (because the offset=1), and the two rows below that (where there is a row). These three values are used as input to the RangeAvg() function, which finds the average of the values in the supplied range of numbers.

A table with **Customer** as dimension gives the following results for the RangeAvg() expression.

Example table output

Customer	RangeAvg (Top(Sum(Sales),1,3))
Astrida	603
Betacab	603
Canutility	603
Divadip	603

Data used in examples:

```
Monthnames:
LOAD * INLINE [
Month, Monthnumber
Jan, 1
Feb, 2
Mar, 3
Apr, 4
May, 5
Jun, 6
Jul, 7
Aug, 8
Sep, 9
Oct, 10
Nov, 11
Dec, 12
];
Sales2013:
crosstable (Month, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

To get the months to sort in the correct order, when you create your charts, go to the **Sort** tab of the chart properties, and mark the checkbox **Expression** under **Sort by**. In the expression box write `Monthnumber`.

Secondarydimensionality

Secondarydimensionality() returns the number of dimension pivot table rows that have non-aggregation content, that is, do not contain partial sums or collapsed aggregates. This function is the equivalent of the **dimensionality()** function for horizontal pivot table dimensions.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Syntax:

`SecondaryDimensionality( )`

Return data type: integer

The **secondarydimensionality** function always returns 0 when used outside of pivot tables.

After

After() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the column after the current column within a row segment in the pivot table.

Syntax:

```
after([ total ] expression [ , offset [,n ]])
```

This function returns NULL in all chart types except pivot tables.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Arguments:

- `expression`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `n`: By specifying a third parameter **n** greater than 1, the function will return a range of **n** values, one for each of **n** table rows counting to the right from the original cell.
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

On the last column of a row segment a NULL value will be returned, as there is no column after this one.

If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last horizontal dimension of the inter-field sort order. The inter-field sort order for horizontal dimensions in pivot tables is defined simply by the order of the dimensions from top to bottom.

Example:

```
after( sum( Sales ))
after( sum( Sales ), 2 )
after( total sum( Sales ))
```

`rangeavg (after(sum(x),1,3))` returns an average of the three results of the **sum(x)** function evaluated in the three columns immediately to the right of the current column.

Before

Before() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the column before the current column within a row segment in the pivot table.

Syntax:

```
before([ total ] expression [ , offset [,n ]])
```

This function returns NULL in all chart types except pivot tables.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Arguments:

- `expression`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `n`: By specifying a third parameter **n** greater than 1, the function will return a range of **n** values, one for each of **n** table rows counting to the right from the original cell.
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

On the first column of a row segment a NULL value will be returned, as there is no column before this one.

If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last horizontal dimension of the inter-field sort order.The inter-field sort order for horizontal dimensions in pivot tables is defined simply by the order of the dimensions from top to bottom.

Examples:

```
before( sum( Sales ))
before( sum( Sales ), 2 )
before( total sum( Sales ))
```

`rangeavg (before(sum(x),1,3))` returns an average of the three results of the **sum(x)** function evaluated in the three columns immediately to the left of the current column.

First

First() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the first column of the current row segment in the pivot table. This function returns NULL in all chart types except pivot tables.

Syntax:

```
first([ total ] expression [ , offset [,n ]])
```

Arguments:

- `expression`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `n`: By specifying a third parameter **n** greater than 1, the function will return a range of **n** values, one for each of **n** table rows counting to the right from the original cell.
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last horizontal dimension of the inter-field sort order.The inter-field sort order for horizontal dimensions in pivot tables is defined simply by the order of the dimensions from top to bottom.

Examples:

```
first( sum( Sales ))
first( sum( Sales ), 2 )
first( total sum( Sales )
```

`rangeavg (first(sum(x),1,5))` returns an average of the results of the **sum(x)** function evaluated on the five leftmost columns of the current row segment.

Last

Last() returns the value of an expression evaluated with a pivot table's dimension values as they appear in the last column of the current row segment in the pivot table. This function returns NULL in all chart types except pivot tables.

Syntax:

```
last([ total ] expression [ , offset [,n ]])
```

Arguments:

- `expression`: The expression or field containing the data to be measured.
- `offset`: Specifying an **offset n**, greater than 0, moves the evaluation of the expression **n** rows further up from the current row. Specifying an offset of 0 will evaluate the expression on the current row. Specifying a negative offset number makes the **Above** function work like the **Below** function with the corresponding positive offset number.
- `n`: By specifying a third parameter **n** greater than 1, the function will return a range of **n** values, one for each of **n** table rows counting to the right from the original cell.
- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last horizontal dimension of the inter-field sort order.The inter-field sort order for horizontal dimensions in pivot tables is defined simply by the order of the dimensions from top to bottom.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Example:

```
last( sum( Sales ))
last( sum( Sales ), 2 )
last( total sum( Sales )
```

`rangeavg (last(sum(x),1,5))` returns an average of the results of the **sum(x)** function evaluated on the five rightmost columns of the current row segment.

ColumnNo

ColumnNo() returns the number of the current column within the current row segment in a pivot table. The first column is number 1.

Syntax:

```
ColumnNo([total])
```

Arguments:

- `TOTAL`: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last horizontal dimension of the inter-field sort order.The inter-field sort order for horizontal dimensions in pivot tables is defined simply by the order of the dimensions from top to bottom.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Example:

```
if( ColumnNo( )=1, 0, sum( Sales ) / before( sum( Sales )))
```

NoOfColumns

NoOfColumns() returns the number of columns in the current row segment in a pivot table.

Syntax:

```
NoOfColumns([total])
```

Arguments:

- TOTAL: If the table is one-dimensional or if the qualifier **TOTAL** is used as argument, the current column segment is always equal to the entire column.

If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last dimension in the inter-field sort order.The inter-field sort order for horizontal dimensions in pivot tables is defined simply by the order of the dimensions from top to bottom.

Sorting on y-values in charts or sorting by expression columns in tables is not allowed when this chart function is used in any of the chart's expressions. These sort alternatives are therefore automatically disabled. When you use this chart function in a visualization or table, the sorting of the visualization will revert back to the sorted input to this function.

Example:

```
if( ColumnNo( )=NoOfColumns( ), 0, after( sum( Sales )))
```

Logical functions

This section describes functions handling logical operations. All functions can be used in both the load script and in chart expressions.

IsNum

Returns -1 (True) if the expression can be interpreted as a number, otherwise 0 (False).

```
IsNum( expr )
```

IsText

Returns -1 (True) if the expression has a text representation, otherwise 0 (False).

```
IsText( expr )
```

*Both **IsNum** and **IsText** return 0 if the expression is NULL.*

Example:

The following example loads an inline table with mixed text and numerical values, and adds two fields to check if the value is a numerical value, respectively a text value.

```
Load *, IsNum(Value), IsText(Value)
Inline [
Value
23
Green
Blue
12
33Red];
```

The resulting table looks like this:

Example 1

Value	IsNum(Value)	IsText(Value)
23	-1	0
Green	0	-1
Blue	0	-1
12	-1	0
33Red	0	-1

Mapping functions

This section describes functions for handling mapping tables. A mapping table can be used to replace field values or field names during script execution.

Mapping functions can only be used in the load script.

Mapping functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

ApplyMap

The **ApplyMap** script function is used for mapping the output of an expression to a previously loaded mapping table.

```
ApplyMap ('mapname', expr [ , defaultexpr ] )
```

MapSubstring

The **MapSubstring** script function is used to map parts of any expression to a previously loaded mapping table. The mapping is case sensitive and non-iterative, and substrings are mapped from left to right.

```
MapSubstring ('mapname', expr)
```

ApplyMap

The **ApplyMap** script function is used for mapping the output of an expression to a previously loaded mapping table.

Syntax:

```
ApplyMap('map_name', expression [ , default_mapping ] )
```

Return data type: dual

Arguments:

ApplyMap arguments

Argument	Description
map_name	The name of a mapping table that has previously been created through the **mapping load** or the **mapping select** statement. Its name must be enclosed by single, straight quotation marks.  *If you use this function in a macro expanded variable and refer to a mapping table that does not exist, the function call fails and a field is not created.*
expression	The expression, the result of which should be mapped.
default_ mapping	If stated, this value will be used as a default value if the mapping table does not contain a matching value for expression. If not stated, the value of expression will be returned as is.

 *The output field of ApplyMap should not have the same name as one of its input fields. This may cause unexpected results. Example not to use:* `ApplyMap('Map', A) as A`.

Example:

In this example we load a list of salespersons with a country code representing their country of residence. We use a table mapping a country code to a country to replace the country code with the country name. Only three countries are defined in the mapping table, other country codes are mapped to 'Rest of the world'.

```
// Load mapping table of country codes:
map1:
mapping LOAD *
Inline [
CCode, Country
Sw, Sweden
```

```
Dk, Denmark
No, Norway
] ;

// Load list of salesmen, mapping country code to country
// If the country code is not in the mapping table, put Rest of the world
Salespersons:
LOAD *,
ApplyMap('map1', CCode,'Rest of the world') As Country
Inline [
CCode, Salesperson
Sw, John
Sw, Mary
Sw, Per
Dk, Preben
Dk, Olle
No, Ole
Sf, Risttu
] ;

// We don't need the CCode anymore
Drop Field 'CCode';
```

The resulting table (Salespersons) looks like this:

Example 1

Salesperson	**Country**
John	Sweden
Mary	Sweden
Per	Sweden
Preben	Denmark
Olle	Denmark
Ole	Norway
Risttu	Rest of the world

MapSubstring

The **MapSubstring** script function is used to map parts of any expression to a previously loaded mapping table. The mapping is case sensitive and non-iterative, and substrings are mapped from left to right.

Syntax:

```
MapSubstring('map_name', expression)
```

Return data type: string

Arguments:

MapSubstring arguments

Argument	Description
map_name	The name of a mapping table previously read by a **mapping load** or a **mapping select** statement. The name must be enclosed by single straight quotation marks.  *If you use this function in a macro expanded variable and refer to a mapping table that does not exist, the function call fails and a field is not created.*
expression	The expression whose result is to be mapped by substrings.

Example:

In this example we load a list of product models. Each model has a set of attributes that are described by a composite code. Using the mapping table with MapSubstring, we can expand the attribute codes to a description.

```
map2:
mapping LOAD *
Inline [
AttCode, Attribute
R, Red
Y, Yellow
B, Blue
C, Cotton
P, Polyester
S, Small
M, Medium
L, Large
] ;

Productmodels:
LOAD *,
MapSubString('map2', AttCode) as Description
Inline [
Model, AttCode
Twixie, R C S
Boomer, B P L
Raven, Y P M
Seedling, R C L
SeedlingPlus, R C L with hood
Younger, B C with patch
MultiStripe, R Y B C S/M/L
] ;
// We don't need the AttCode anymore
Drop Field 'AttCode';
```

The resulting table looks like this:

Example 1

Model	Description
Twixie	Red Cotton Small
Boomer	Blue Polyester Large
Raven	Yellow Polyester Medium
Seedling	Red Cotton Large
SeedlingPlus	Red Cotton Large with hood
Younger	Blue Cotton with patch
MultiStripe	Red Yellow Blue Cotton Small/Medium/Large

Mathematical functions

This section describes functions for mathematical constants and Boolean values. These functions do not have any parameters, but the parentheses are still required.

All functions can be used in both the load script and in chart expressions.

e
The function returns the base of the natural logarithms, **e** (2.71828...).

```
e( )
```

false
The function returns a dual value with text value 'False' and numeric value 0, which can be used as logical false in expressions.

```
false( )
```

pi
The function returns the value of π (3.14159...).

```
pi( )
```

rand
The function returns a random number between 0 and 1. This can be used to create sample data.

```
rand( )
```

Example:

This example script creates a table of 1000 records with randomly selected upper case characters, that is, characters in the range 65 to 91 (65+26).

```
Load
     Chr( Floor(rand() * 26) + 65) as UCaseChar,
```

```
    RecNo() as ID
    Autogenerate 1000;
```

true
The function returns a dual value with text value 'True' and numeric value -1, which can be used as logical true in expressions.

```
true( )
```

NULL functions

This section describes functions for returning or detecting NULL values.

All functions can be used in both the load script and in chart expressions.

NULL functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

Null
The **Null** function returns a NULL value.

```
The Null function returns a NULL value.( )
```

IsNull
The **IsNull** function tests if the value of an expression is NULL and if so, returns -1 (True), otherwise 0 (False).

```
IsNull (expr )
```

EmptyIsNull

The **EmptyIsNull** function converts empty strings to NULL. Hence, it returns NULL if the parameter is an empty string, otherwise it returns the parameter.

Syntax:

```
EmptyIsNull(exp )
```

Examples and results:

Scripting examples

Example	Result
`EmptyIsNull(AdditionalComments)`	This expression will return as null any empty string values of the *AdditionalComments* field, instead of empty strings. Non-empty strings and numbers are returned.
`EmptyIsNull(PurgeChar (PhoneNumber, ' -()'))`	This expression will strip any dashes, spaces and parentheses from the *PhoneNumber* field. If there are no characters left, the EmptyIsNull function returns the empty string as null; an empty phone number is the same as no phone number.

IsNull

The **IsNull** function tests if the value of an expression is NULL and if so, returns -1 (True), otherwise 0 (False).

Syntax:

```
IsNull(expr )
```

*A string with length zero is not considered as a NULL and will cause **IsNull** to return False.*

Example: Load script

In this example, an inline table with four rows is loaded, where the first three lines contain either nothing, - or 'NULL' in the Value column. We convert these values to true NULL value representations with the middle preceding **LOAD** using the **Null** function.

The first preceding **LOAD** adds a field checking if the value is NULL,using the **IsNull** function.

```
NullsDetectedAndConverted:

LOAD *,
If(IsNull(ValueNullConv), 'T', 'F') as IsItNull;

LOAD *,
If(len(trim(Value))= 0 or Value='NULL' or Value='-', Null(), Value ) as ValueNullConv;

LOAD * Inline
[ID, Value
0,
1,NULL
2,-
3,Value];
```

This is the resulting table. In the ValueNullConv column, the NULL values are represented by -.

Example 1

ID	Value	ValueNullConv	IsItNull
0	-	-	T
1	NULL	-	T
2	-	-	T
3	Value	Value	F

NULL

The **Null** function returns a NULL value.

Syntax:

```
Null( )
```

Example: Load script

In this example, an inline table with four rows is loaded, where the first three lines contain either nothing, - or 'NULL' in the Value column. We want to convert these values to true NULL value representations.

The middle preceding **LOAD** performs the conversion using the **Null** function.

The first preceding **LOAD** adds a field checking if the value is **NULL**, just for illustration purposes in this example.

```
NullsDetectedAndConverted:

LOAD *,
If(IsNull(ValueNullConv), 'T', 'F') as IsItNull;

LOAD *,
If(len(trim(Value))= 0 or Value='NULL' or Value='-', Null(), Value ) as ValueNullConv;

LOAD * Inline
[ID, Value
0,
1,NULL
2,-
3,Value];
```

This is the resulting table. In the ValueNullConv column, the NULL values are represented by -.

Example 1

ID	Value	ValueNullConv	IsItNull
0	-	-	T
1	NULL	-	T
2	-	-	T
3	Value	Value	F

Range functions

The range functions are functions that take an array of values and produce a single value as a result. All range functions can be used in both the load script and in chart expressions.

For example, in a chart, a range function can calculate a single value from an inter-record array. In the load script, a range function can calculate a single value from an array of values in an internal table.

Range functions supersede the following general numeric functions: ***numsum****,* ***numavg****,* ***numcount****,* ***nummin*** *and* ***nummax****. These can still be used, but are not recommended.*

Basic range functions

RangeMax

RangeMax() returns the highest numeric value found within the expression or field.

```
RangeMax() returns the highest numeric value found within the expression or field. (first_expr[, Expression])
```

RangeMaxString

RangeMaxString() returns the last value in the text sort order that it finds in the expression or field.

```
RangeMaxString() returns the last value in the text sort order that it finds in the expression or field. (first_expr[, Expression])
```

RangeMin

RangeMin() returns the lowest numeric values found within the expression or field.

```
RangeMin() returns the lowest numeric values found within the expression or field. (first_expr[, Expression])
```

RangeMinString

RangeMinString() returns the first value in the text sort order that it finds in the expression or field.

```
RangeMinString() returns the first value in the text sort order that it finds in the expression or field. (first_expr[, Expression])
```

RangeMode

RangeMode() finds the most commonly occurring value (mode value) in the expression or field.

```
RangeMode() finds the most commonly occurring value (mode value) in the expression or field. (first_expr[, Expression])
```

RangeOnly

RangeOnly() is a **dual** function that returns a value if the expression evaluates to one unique value. If this is not the case then **NULL** is returned.

```
RangeOnly() is a dual function that returns a value if the expression evaluates to one unique value. If this is not the case then NULL is returned. (first_expr[, Expression])
```

RangeSum

RangeSum() returns the sum of a range of values.All non-numeric values are treated as 0, unlike the **+** operator.

```
RangeSum() returns the sum of a range of values.All non-numeric values are treated as 0, unlike the + operator. (first_expr[, Expression])
```

Counter range functions

RangeCount

RangeCount() returns the number of values, both text and numeric, in the expression or field.

RangeCount() returns the number of values, both text and numeric, in the expression or field. (first_expr[, Expression]**)**

RangeMissingCount

RangeMissingCount() returns the number of non-numeric values (including NULL) in the expression or field.

RangeMissingCount() returns the number of non-numeric values (including NULL) in the expression or field. (first_expr[, Expression]**)**

RangeNullCount

RangeNullCount() finds the number of NULL values in the expression or field.

RangeNullCount() finds the number of NULL values in the expression or field. (first_expr[, Expression]**)**

RangeNumericCount

RangeNumericCount() finds the number of numeric values in an expression or field.

RangeNumericCount() finds the number of numeric values in an expression or field. (first_expr[, Expression]**)**

RangeTextCount

RangeTextCount() returns the number of text values in an expression or field.

RangeTextCount() returns the number of text values in an expression or field. (first_expr[, Expression]**)**

Statistical range functions

RangeAvg

RangeAvg() returns the average of a range. Input to the function can be either a range of values or an expression.

RangeAvg() returns the average of a range. Input to the function can be either a range of values or an expression.(first_expr[, Expression]**)**

RangeCorrel

RangeCorrel() returns the correlation coefficient for two sets of data. The correlation coefficient is a measure of the relationship between the data sets.

RangeCorrel() returns the correlation coefficient for two sets of data. The correlation coefficient is a measure of the relationship between the data sets. (x_values , y_values[, Expression]**)**

RangeFractile

RangeFractile() returns the value that corresponds to the n-th **fractile** (quantile) of a range of numbers.

RangeFractile() returns the value that corresponds to the n-th fractile (quantile) of a range of numbers. (fractile, first_expr[,Expression]**)**

RangeKurtosis

RangeKurtosis() returns the value that corresponds to the kurtosis of a range of numbers.

```
RangeKurtosis() returns the value that corresponds to the kurtosis of a range of numbers. (first_expr[, Expression])
```

RangeSkew

RangeSkew() returns the value corresponding to the skewness of a range of numbers.

```
RangeSkew() returns the value corresponding to the skewness of a range of numbers. (first_expr[, Expression])
```

RangeStdev

RangeStdev() finds the standard deviation of a range of numbers.

```
RangeStdev() finds the standard deviation of a range of numbers.(expr1[, Expression])
```

Financial range functions

RangeIRR

RangeIRR() returns the internal rate of return for a series of cash flows represented by the input values.

```
RangeIRR (value[, value][, Expression])
```

RangeNPV

RangeNPV() returns the net present value of an investment based on a discount rate and a series of future payments (negative values) and incomes (positive values). The result has a default number format of **money**.

```
RangeNPV (discount_rate, value[, value][, Expression])
```

RangeXIRR

RangeXIRR() returns the internal rate of return for a schedule of cash flows that is not necessarily periodic. To calculate the internal rate of return for a series of periodic cash flows, use the **RangeIRR** function.

```
RangeXIRR (values, dates[, Expression])
```

RangeXNPV

RangeXNPV() returns the net present value for a schedule of cash flows that is not necessarily periodic. The result has a default number format of money. To calculate the net present value for a series of periodic cash flows, use the **RangeNPV** function.

```
RangeXNPV (discount_rate, values, dates[, Expression])
```

RangeAvg

RangeAvg() returns the average of a range. Input to the function can be either a range of values or an expression.

Syntax:

```
RangeAvg(first_expr[, Expression])
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be averaged.
- `Expression`: Optional expressions or fields containing additional data to be averaged. Multiple additional expressions can be used.

Limitations:

If no numeric value is found, NULL is returned.

Examples:

Examples and results

Example	Result
`RangeAvg (1,2,4)`	Returns 2.33333333
`RangeAvg (1,'xyz')`	Returns 1
`RangeAvg (null( ), 'abc')`	Returns NULL

Example: (using expression)

```
RangeAvg (Above(MyField),0,3))
```

Returns a sliding average of the result of the range of three values of **MyField** calculated on the current row and two rows above the current row. By specifying the third argument as 3, the **Above()** function returns three values, where there are sufficient rows above, which are taken as input to the **RangeAvg()** function.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeAvg (Above (MyField,0,3))	Explanation
10	10	Because this is the top row, the range consists of one value only.
2	6	There is only one row above this row, so the range is: 10,2.
8	6.6666666667	The equivalent to RangeAvg(10,2,8)
18	9.333333333	-
5	10. 333333333	-
9	10.6666666667	-

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
2
8
18
5
9
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD recno() as RangeID, RangeAvg(Field1,Field2,Field3) as MyRangeAvg INLINE [
Field1, Field2, Field3
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeAvg for each of the records in the table.

Example output in table form

RangeID	MyRangeAvg
1	7
2	4
3	6
4	12.666
5	6.333
6	5

RangeCorrel

RangeCorrel() returns the correlation coefficient for two sets of data. The correlation coefficient is a measure of the relationship between the data sets.

Syntax:

```
RangeCorrel(x_values , y_values[, Expression])
```

Return data type: numeric

Data series should be entered as (x,y) pairs. For example, to evaluate two series of data, array 1 and array 2, where the array 1 = 2,6,9 and array 2 = 3,8,4 you would write `RangeCorrel (2,3,6,8,9,4)` which returns 0.269.

Arguments:

- `x-value, y-value`: Each value represents a single value or a range of values as returned by an inter-record functions with a third optional parameter. Each value or range of values must correspond to an **x-value** or a range of **y-values**.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Limitations:

The function needs at least two pairs of coordinates to be calculated.

Text values, NULL values and missing values return NULL.

Examples:

Examples and results

Example	Result
`RangeCorrel (2,3,6,8,9,4)`	Returns 0.269

RangeCount

RangeCount() returns the number of values, both text and numeric, in the expression or field.

Syntax:

```
RangeCount(first_expr[, Expression])
```

Return data type: integer

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be counted.
- `Expression`: Optional expressions or fields containing additional data to be counted.

Limitations:

NULL values are not counted.

Examples:

Examples and results

Example	Result
`RangeCount (1,2,4)`	Returns 3
`RangeCount (2,'xyz')`	Returns 2
`RangeCount (null( ))`	Returns 0
`RangeCount (2,'xyz', null())`	Returns 2

Example: (using expression)

```
RangeCount (Above(MyField,1,3))
```

Returns the number of values contained in the three results of **MyField**. By specifying the second and third arguments of the **Above()** function as 3, it returns the values from the three fields above the current row, where there are sufficient rows, which are taken as input to the **RangeSum()** function.

Example expression output

MyField	RangeCount(Above(MyField,1,3))
10	0
2	1
8	2
18	3
5	3
9	3

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
2
8
18
5
9
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
```

```
LOAD recno() as RangeID, RangeCount(Field1,Field2,Field3) as MyRangeCount INLINE [
Field1, Field2, Field3
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeCount for each of the records in the table.

Example output in table form

RangeID	MyRangeCount
1	3
2	3
3	3
4	3
5	3
6	3

RangeFractile

RangeFractile() returns the value that corresponds to the n-th **fractile** (quantile) of a range of numbers.

RangeFractile() uses linear interpolation between closest ranks when calculating the fractile.

Syntax:

```
RangeFractile(fractile, first_expr[, Expression])
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `fractile`: A number between 0 and 1 corresponding to the fractile (quantile expressed as a fraction) to be calculated.
- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Examples:

Examples and results

Example	Result
`RangeFractile (0.24,1,2,4,6)`	Returns 1.72
`RangeFractile(0.5,1,2,3,4,6)`	Returns 3
`RangeFractile (0.5,1,2,5,6)`	Returns 3.5

Example: (using expression)

```
RangeFractile (0.5, Above(Sum(MyField),0,3))
```

In this example, the inter-record function **Above()** contains the optional offset and count arguments. This produces a range of results that can be used as input to the any of the range functions. In this case, `Above(Sum(MyField),0,3)` returns the values of `MyField` for the current row and the two rows above. These values provide the input to the **RangeFractile()** function. So, for the bottom row in the table below, this is the equivalent of `RangeFractile(0.5, 3,4,6)`, that is, calculating the 0.5 fractile for the series 3, 4, and 6. The first two rows in the table below, the number of values in the range is reduced accordingly, where there no rows above the current row. Similar results are produced for other inter-record functions.

Example expression output

MyField	RangeFractile(0.5, Above(Sum(MyField),0,3))
1	1
2	1.5
3	2
4	3
5	4
6	5

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
1
2
3
4
5
6
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab:
LOAD recno() as RangeID, RangeFractile(0.5,Field1,Field2,Field3) as MyRangeFrac INLINE [
Field1, Field2, Field3
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeFrac for each of the records in the table.

Example output in table form

RangeID	MyRangeFrac
1	6
2	3
3	8
4	11
5	5
6	4

RangeIRR

RangeIRR() returns the internal rate of return for a series of cash flows represented by the input values.

The internal rate of return is the interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods.

This function uses a simplified version of the Newton method for calculating the internal rate of return (IRR).

Syntax:

```
RangeIRR(value[, value][, Expression])
```

Return data type: numeric

Arguments:

- `value`: A single value or a range of values as returned by an inter record function with a third optional parameter. The function needs at least one positive and one negative value to be calculated.
- Expression: Optional expressions or fields containing the range of data to be measured.

Limitations:

Text values, NULL values and missing values are disregarded.

Example 1:

`RangeIRR(-70000,12000,15000,18000,21000,26000)` returns **`0.0866`**.

Example 2:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD *,
recno() as RangeID,
RangeIRR(Field1,Field2,Field3) as RangeIRR;
LOAD * INLINE [
Field1|Field2|Field3
-10000|5000|6000
-2000|NULL|7000
-8000|'abc'|8000
-1800|11000|9000
-5000|5000|9000
-9000|4000|2000
] (delimiter is '|');
```

The resulting table shows the returned values of RangeIRR for each of the records in the table:

Example results

RangeID	RangeIRR
1	0.0639
2	0.8708
3	-
4	5.8419
5	0.9318
6	-0.2566

RangeKurtosis

RangeKurtosis() returns the value that corresponds to the kurtosis of a range of numbers.

Syntax:

```
RangeKurtosis(first_expr[, Expression])
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Limitations:

If no numeric value is found, NULL is returned.

Examples:

Examples and results

Example	Result
`RangeKurtosis (1,2,4,7)`	Returns -0.28571428571429

RangeMax

RangeMax() returns the highest numeric value found within the expression or field.

Syntax:

```
RangeMax(first_expr[, Expression])
```

Return data type: numeric

Arguments:

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured. Multiple additional expressions can be used.

Limitations:

If no numeric value is found, NULL is returned.

Examples:

Examples and results

Example	Result
`RangeMax (1,2,4)`	Returns 4
`RangeMax (1,'xyz')`	Returns 1
`RangeMax (null( ), 'abc')`	Returns NULL

Example: (using expression)

```
RangeMax (Above(MyField,0,3))
```

Returns the maximum value in the range of three values of **MyField** calculated on the current row and two rows above the current row. By specifying the third argument as 3, the **Above()** function returns three values, where there are sufficient rows above, which are taken as input to the **RangeMax()** function.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeMax (Above(Sum(MyField),1,3))
10	10
2	10
8	10
18	18
5	18
9	18

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
2
8
18
5
9
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD recno() as RangeID, RangeMax(Field1,Field2,Field3) as MyRangeMax INLINE [
Field1, Field2, Field3
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeMax for each of the records in the table.

Example output in table form

RangeID	MyRangeMax
1	10
2	7
3	8
4	18
5	9
6	9

RangeMaxString

RangeMaxString() returns the last value in the text sort order that it finds in the expression or field.

Syntax:

```
RangeMaxString(first_expr[, Expression])
```

Return data type: string

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured. Multiple additional expressions can be used.

Examples:

Examples and results

Example	Result
`RangeMaxString (1,2,4)`	Returns 4
`RangeMaxString ('xyz','abc')`	Returns 'xyz'
`RangeMaxString (5,'abc')`	Returns 'abc'
`RangeMaxString (null( ))`	Returns NULL

Example: (using expression)

```
RangeMaxString (Above(MaxString(MyField),0,3))
```

Returns the last (in text sort order) of the three results of the **MaxString(MyField)** function evaluated on the current row and two rows above the current row.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeMaxString(Above(MaxString(MyField),0,3))
10	10
abc	abc
8	abc
def	def
xyz	xyz
9	xyz

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
'abc'
8
'def'
'xyz'
9
] ;
```

RangeMin

RangeMin() returns the lowest numeric values found within the expression or field.

Syntax:

```
RangeMin(first_expr[, Expression])
```

Return data type: numeric

Arguments:

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured. Multiple additional expressions can be used.

Limitations:

If no numeric value is found, NULL is returned.

Examples:

Examples and results

Example	Result
`RangeMin (1,2,4)`	Returns 1
`RangeMin (1,'xyz')`	Returns 1
`RangeMin (null( ), 'abc')`	Returns NULL

Example: (using expression)

```
RangeMin (Above(MyField,0,3))
```

Returns the minimum value in the range of three values of **MyField** calculated on the current row and two rows above the current row. By specifying the third argument as 3, the **Above()** function returns three values, where there are sufficient rows above, which are taken as input to the **RangeMin()** function.

Example expression output

MyField	RangeMin(Above(MyField,0,3))
10	10
2	2
8	2
18	2
5	5
9	5

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
2
8
18
5
9
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD recno() as RangeID, RangeMin(Field1,Field2,Field3) as MyRangeMin INLINE [
Field1, Field2, Field3
```

```
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeMin for each of the records in the table.

Example output in table form

RangeID	MyRangeMin
1	5
2	2
3	2
4	9
5	5
6	2

RangeMinString

RangeMinString() returns the first value in the text sort order that it finds in the expression or field.

Syntax:

```
RangeMinString(first_expr[, Expression])
```

Return data type: string

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured. Multiple additional expressions can be used.

Examples and results:

Examples	Results
`RangeMinString (1,2,4)`	Returns 1
`RangeMinString ('xyz','abc')`	Returns 'abc'
`RangeMinString (5,'abc')`	Returns 5
`RangeMinString (null( ))`	Returns NULL

Example: (using expression)

```
RangeMinString (Above(MinString(MyField),0,3))
```

Returns the first (in text sort order) of the three results of the **MinString(MyField)** function evaluated on the current row and two rows above the current row.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeMinString(Above(MinString(MyField),0,3))
10	10
abc	10
8	8
def	8
xyz	8
9	9

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
'abc'
8
'def'
'xyz'
9
] ;
```

RangeMissingCount

RangeMissingCount() returns the number of non-numeric values (including NULL) in the expression or field.

Syntax:

```
RangeMissingCount(first_expr[, Expression])
```

Return data type: integer

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be counted.
- `Expression`: Optional expressions or fields containing the range of data to be counted.

Examples:

Examples and results

Example	Result
`RangeMissingCount (1,2,4)`	Returns 0
`RangeMissingCount (5,'abc')`	Returns 1
`RangeMissingCount (null( ))`	Returns 1

Example: (using expression)

```
RangeMissingCount (Above(MinString(MyField),0,3))
```

Returns the number of non-numeric values in the three results of the **MinString(MyField)** function evaluated on the current row and two rows above the current row.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeMissingCount(Above (MinString(MyField),0,3))	Explanation
10	2	Returns 2 because there are no rows above this row so 2 of the 3 values are missing.
abc	2	Returns 2 because there is only 1 row above the current row and the current row is non-numeric ('abc').
8	1	Returns 1 because 1 of the 3 rows includes a non-numeric ('abc').
def	2	Returns 2 because 2 of the 3 rows include non-numeric values ('def' and 'abc').
xyz	2	Returns 2 because 2 of the 3 rows include non-numeric values (' xyz' and 'def').
9	2	Returns 2 because 2 of the 3 rows include non-numeric values (' xyz' and 'def').

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
'abc'
8
'def'
'xyz'
```

```
9
] ;
```

RangeMode

RangeMode() finds the most commonly occurring value (mode value) in the expression or field.

Syntax:

```
RangeMode(first_expr {, Expression})
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Limitations:

If more than one value shares the highest frequency, NULL is returned.

Examples:

Examples and results

Example	Result
`RangeMode (1,2,9,2,4)`	Returns 2
`RangeMode ('a',4,'a',4)`	Returns NULL
`RangeMode (null( ))`	Returns NULL

Example: (using expression)

```
RangeMode (Above(MyField,0,3))
```

Returns the most commonly occurring value in the three results of **MyField** evaluated on the current row and two rows above the current row. By specifying the third argument as 3, the **Above()** function returns three values, where there are sufficient rows above, which are taken as input to the **RangeMode()** function.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeMode(Above(MyField,0,3))
10	Returns 10 because there are no rows above so the single value is the most commonly occurring.

MyField	RangeMode(Above(MyField,0,3))
2	-
8	-
18	-
5	-
9	-

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
2
8
18
5
9
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD recno() as RangeID, RangeMode(Field1,Field2,Field3) as MyRangeMode INLINE [
Field1, Field2, Field3
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeMode for each of the records in the table.

Example output in table form

RangeID	MyRangeMode
1	-
2	-
3	8
4	-
5	5
6	-

RangeNPV

RangeNPV() returns the net present value of an investment based on a discount rate and a series of future payments (negative values) and incomes (positive values). The result has a default number format of **money**.

For cash flows that are not necessarily periodic, see *RangeXNPV (page 1472)*.

Syntax:

```
RangeNPV(discount_rate, value[,value][, Expression])
```

Return data type: numeric

Arguments:

- `discount_rate`: The interest rate per period.
- `value`: A payment or income occurring at the end of each period. Each value may be a single value or a range of values as returned by an inter-record function with a third optional parameter.
- Expression: Optional expressions or fields containing the range of data to be measured.

Limitations:

Text values, NULL values and missing values are disregarded.

Example 1:

`RangeNPV(0.1,-10000,3000,4200,6800)` returns **`1188.44`**.

Example 2:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD *,
recno() as RangeID,
RangeNPV(Field1,Field2,Field3) as RangeNPV;
LOAD * INLINE [
Field1|Field2|Field3
10|5|-6000
2|NULL|7000
8|'abc'|8000
18|11|9000
5|5|9000
9|4|2000
] (delimiter is '|');
```

The resulting table shows the returned values of RangeNPV for each of the records in the table:

Example results

RangeID	RangeNPV
1	$-49.13
2	$777.78
3	$98.77
4	$25.51
5	$250.83
6	$20.40

RangeNullCount

RangeNullCount() finds the number of NULL values in the expression or field.

Syntax:

```
RangeNullCount(firstexpr [, Expression])
```

Return data type: integer

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Examples:

Examples and results

Example	Result
`RangeNullCount (1,2,4)`	Returns 0
`RangeNullCount (5,'abc')`	Returns 0
`RangeNullCount (null( ), null( ))`	Returns 2

Example: (using expression)

```
RangeNullCount (Above(Sum(MyField),0,3))
```

Returns the number of NULL values in the three results of the **Sum(MyField)** function evaluated on the current row and two rows above the current row.

*Copying **MyField** in example below will not result in NULL value.*

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeNullCount(Above(Sum(MyField),0,3))
10	Returns 2 because there are no rows above this row so 2 of the 3 values are missing (=NULL).
'abc'	Returns 1 because there is only one row above the current row, so one of the three values is missing (=NULL).
8	Returns 0 because none of the three rows is a NULL value.

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
'abc'
8
] ;
```

RangeNumericCount

RangeNumericCount() finds the number of numeric values in an expression or field.

Syntax:

```
RangeNumericCount(first_expr[, Expression])
```

Return data type: integer

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Examples:

Examples and results

Example	Result
`RangeNumericCount (1,2,4)`	Returns 3
`RangeNumericCount (5,'abc')`	Returns 1
`RangeNumericCount (null( ))`	Returns 0

Example: (using expression)

```
RangeNumericCount (Above(MaxString(MyField),0,3))
```

Returns the number of numeric values in the three results of the **MaxString(MyField)** function evaluated on the current row and two rows above the current row.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeNumericCount(Above(MaxString(MyField),0,3))
10	1
abc	1
8	2
def	1
xyz	1
9	1

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
'abc'
8
def
xyz
9
] ;
```

RangeOnly

RangeOnly() is a **dual** function that returns a value if the expression evaluates to one unique value. If this is not the case then **NULL** is returned.

Syntax:

```
RangeOnly(first_expr[, Expression])
```

Return data type: dual

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Examples:

Examples and results

Example	Result
`RangeOnly (1,2,4)`	Returns NULL
`RangeOnly (5,'abc')`	Returns NULL
`RangeOnly (null( ), 'abc')`	Returns 'abc'
`RangeOnly(10,10,10)`	Returns 10

RangeSkew

RangeSkew() returns the value corresponding to the skewness of a range of numbers.

Syntax:

```
RangeSkew(first_expr[, Expression])
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Limitations:

If no numeric value is found, NULL is returned.

Examples:

Examples and results

Example	Result
`rangeskew (1,2,4)`	Returns 0.93521952958283
`rangeskew (above (SalesValue,0,3))`	Returns a sliding skewness of the range of three values returned from the above() function calculated on the current row and the two rows above the current row, as seen in the below table output.

Example output in table form

CustID	RangeSkew(Above(SalesValue,0,3))
1-20	-, -, 0.5676, 0.8455, 1.0127, -0.8741, 1.7243, -1.7186, 1.5518, 1.4332, 0, 1.1066, 1.3458, 1.5636, 1.5439, 0.6952, -0.3766

Data used in examples:

```
SalesTable:
LOAD recno() as CustID, * inline [
SalesValue
101
163
126
139
167
86
83
22
32
70
108
124
176
113
95
32
42
92
61
21
] ;
```

RangeStdev

RangeStdev() finds the standard deviation of a range of numbers.

Syntax:

```
RangeStdev(first_expr[, Expression])
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Limitations:

If no numeric value is found, NULL is returned.

Examples:

Examples and results

Example	Result
`RangeStdev (1,2,4)`	Returns 1.5275252316519
`RangeStdev (null( ))`	Returns NULL

Example	Result
`RangeStdev (above (SalesValue),0,3))`	Returns a sliding standard of the range of three values returned from the above() function calculated on the current row and the two rows above the current row, as seen in the below table output.

Example output in table form

CustID	RangeStdev(SalesValue, 0,3))
1-20	-,43.841, 34.192, 18.771, 20.953, 41.138, 47.655, 36.116, 32.716, 25.325, 38,000, 27.737, 35.553, 33.650, 42.532, 33.858, 32.146, 25.239, 35.595

Data used in examples:

```
SalesTable:
LOAD recno() as CustID, * inline [
SalesValue
101
163
126
139
167
86
83
22
32
70
108
124
176
113
95
32
42
92
61
21
] ;
```

RangeSum

RangeSum() returns the sum of a range of values.All non-numeric values are treated as 0, unlike the **+** operator.

Syntax:

```
RangeSum(first_expr[, Expression])
```

Return data type: numeric

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be summed.
- `Expression`: Optional expressions or fields containing the range of data to be summed. Multiple additional expressions can be used.

Limitations:

The **RangeSum** function treats all non-numeric values as 0, unlike the **+** operator.

Examples:

Examples and results

Example	Result
`RangeSum (1,2,4)`	Returns 7
`RangeSum (5,'abc')`	Returns 5
`RangeSum (null( ))`	Returns 0

Example: (using expression)

```
RangeSum (Above(MyField,0,3))
```

Returns the sum of the three values of **MyField)**: from the current row and two rows above the current row. By specifying the third argument as 3, the **Above()** function returns three values, where there are sufficient rows above, which are taken as input to the **RangeSum()** function.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	RangeSum(Above(MyField,0,3))
10	10
2	12
8	20
18	28
5	31
9	32

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
2
8
18
```

```
5
9
] ;
```

Example: (in table form)

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD recno() as RangeID, Rangesum(Field1,Field2,Field3) as MyRangeSum INLINE [
Field1, Field2, Field3
10,5,6
2,3,7
8,2,8
18,11,9
5,5,9
9,4,2
];
```

The resulting table shows the returned values of MyRangeSum for each of the records in the table.

Example output in table form

RangeID	MyRangeSum
1	21
2	12
3	18
4	38
5	19
6	15

RangeTextCount

RangeTextCount() returns the number of text values in an expression or field.

Syntax:

```
RangeTextCount(first_expr[, Expression])
```

Return data type: integer

Arguments:

The argument of this function may contain inter-record functions which in themselves return a list of values.

- `first_expr`: The expression or field containing the data to be measured.
- `Expression`: Optional expressions or fields containing the range of data to be measured.

Examples:

Examples and results

Example	Result
`RangeTextCount (1,2,4)`	Returns 0
`RangeTextCount (5,'abc')`	Returns 1
`RangeTextCount (null( ))`	Returns 0

Example: (using expression)

```
RangeTextCount (Above(MaxString(MyField),0,3))
```

Returns the number of text values within the three results of the **MaxString(MyField)** function evaluated over the current row and two rows above the current row.

*Disable sorting of **MyField** to ensure that example works as expected.*

Example expression output

MyField	MaxString(MyField)	RangeTextCount(Above(Sum(MyField),0,3))
10	10	0
abc	abc	1
8	8	1
def	def	2
xyz	xyz	2
9	9	2

Data used in examples:

```
RangeTab:
LOAD * INLINE [
MyField
10
'abc'
8
null()
'xyz'
9
] ;
```

RangeXIRR

RangeXIRR() returns the internal rate of return for a schedule of cash flows that is not necessarily periodic. To calculate the internal rate of return for a series of periodic cash flows, use the **RangeIRR** function.

Qlik's XIRR functionality (**XIRR()** and **RangeXIRR()** functions) uses the following equation, solving for the `Rate` value, to determine the correct XIRR value:

```
XNPV(Rate, pmt, date) = 0
```

The equation is solved using a simplified version of the Newton method.

Syntax:

```
RangeXIRR(values, dates[, Expression])
```

Return data type: numeric

Arguments:

- `dates`: A payment date or a schedule of payment dates that corresponds to the cash flow payments.
- `values`: A cash flow or a series of cash flows that correspond to a schedule of payments in dates. Each value may be a single value or a range of values as returned by an inter-record function with a third optional parameter. The series of values must contain at least one positive and one negative value.
- Expression: Optional expressions or fields containing the range of data to be measured.

Limitations:

Text values, NULL values and missing values are disregarded.

All payments are discounted based on a 365-day year.

Example 1:

`RangeXIRR(-2500,'2008-01-01',2750,'2008-09-01')` returns **`0.1532`**.

Example 2:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD *,
recno() as RangeID,
RangeXIRR(Field1,Field2,Field3) as RangeXIRR;
LOAD * INLINE [
Field1|Field2|Field3
10|5|-6000
2|NULL|7000
8|'abc'|8000
18|11|9000
5|5|9000
9|4|2000
] (delimiter is '|');
```

The resulting table shows the returned values of RangeXIRR for each of the records in the table:

Example results

RangeID	RangeXIRR
1	-
2	0.5893
3	0.5089
4	0.4476
5	0.4476
6	2.5886

RangeXNPV

RangeXNPV() returns the net present value for a schedule of cash flows that is not necessarily periodic. The result has a default number format of money. To calculate the net present value for a series of periodic cash flows, use the **RangeNPV** function.

Syntax:

```
RangeXNPV(discount_rate, values, dates[, Expression])
```

Return data type: numeric

Arguments:

- `dates`: A payment date or a schedule of payment dates that corresponds to the cash flow payments.
- `discount_rate`: The interest rate per period.
- `values`: A cash flow or a series of cash flows that corresponds to a schedule of payments in dates. Each value may be a single value or a range of values as returned by an inter-record function with a third optional parameter. The series of values must contain at least one positive and one negative value.

Limitations:

Text values, NULL values and missing values are disregarded.

All payments are discounted based on a 365-day year.

Example 1:

`RangeXNPV(0.1, -2500,'2008-01-01',2750,'2008-09-01')` returns **80.25**.

Example 2:

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
RangeTab3:
LOAD *,
recno() as RangeID,
```

```
RangeXNPV(Field1,Field2,Field3) as RangeNPV;
LOAD * INLINE [
Field1|Field2|Field3
10|5|-6000
2|NULL|7000
8|'abc'|8000
18|11|9000
5|5|9000
9|4|2000
] (delimiter is '|');
```

The resulting table shows the returned values of RangeXNPV for each of the records in the table:

Example results

RangeID	RangeXNPV
1	$-49.13
2	$777.78
3	$98.77
4	$25.51
5	$250.83
6	$20.40

NumAvg

Returns the numeric average of 1 to **N** arguments. If no numeric value is found, NULL is returned.

The numavg function has been superseded by the RangeAvg() returns the average of a range. Input to the function can be either a range of values or an expression. (page 1442) function. Although numavg can be used, it is not recommended.

Syntax:

```
NumAvg(expr1 [ , expr2, ... exprN ])
```

Examples and results:

- `numavg( 1,2,4 )` returns 2.33333333
- `numavg( 1,'xyz' )` returns 1
- `numavg( null( ) 'abc' )` returns NULL

NumCount

Returns the number of numeric values found in 1 to **N** arguments.

The numcount function has been superseded by the RangeCount() returns the number of values, both text and numeric, in the expression or field. (page 1445) function. Although numcount can be used, it is not recommended.

Syntax:

```
NumCount(expr1 [ , expr2, ... exprN ])
```

Examples and results:

- `numcount( 1,2,4, )` returns 3
- `numcount( 2,xyz )` returns 1
- `numcount( null( ) )` returns 0

NumMax

Returns the highest numeric value of 1 to **N** arguments. If no numeric value is found, NULL is returned.

The nummax function has been superseded by the RangeMax() returns the highest numeric value found within the expression or field. (page 1451) function. Although nummax can be used, it is not recommended.

Syntax:

```
NumMax(expr1 [ , expr2, ... exprN ])
```

Examples and results:

- `nummax( 1,2,4 )` returns 4
- `nummax( 1,'xyz' )` returns 1
- `nummax( null( ) 'abc' )` returns NULL

NumMin

Returns the lowest numeric value of 1 to **N** arguments. If no numeric value is found, NULL is returned.

The nummin function has been superseded by the RangeMin() returns the lowest numeric values found within the expression or field. (page 1454) function. Although nummin can be used, it is not recommended.

Syntax:

```
NumMin(expr1 [ , expr2, ... exprN ])
```

Examples and results:

- `nummin( 1,2,4 )` returns 1
- `nummin( 1,'xyz' )` returns 1
- `nummin( null( ) 'abc' )` returns NULL

NumSum

Returns the numeric sum of 1 to **N** arguments. As opposed to the + operator, **numsum** will treat all non-numeric values as 0.

The numsum function has been superseded by the RangeSum() returns the sum of a range of values.All non-numeric values are treated as 0, unlike the + operator. (page 1467) function. Although numsum can be used, it is not recommended.

Syntax:

```
NumSum(expr1 [ , expr2, ... exprN ])
```

Examples and results:

- `numsum( 1,2,4 )` returns 7
- `numsum( 1,'xyz' )` returns 1
- `numsum( null( ) )` returns 0

Relational functions

This is a group of functions that calculate properties of individual dimensional values in a chart, using already aggregated numbers.

The functions are relational in the sense that the function output depends not only on the value of the data point itself, but also on the value's relation to other data points. For example, a rank cannot be calculated without a comparison with other dimensional values.

These functions can only be used in chart expressions. They cannot be used in the load script.

A dimension is needed in the chart, since this defines the other data points needed for the comparison. Consequently, a relational function is not meaningful in a dimensionless chart (for example, a KPI object).

Ranking functions

Suppression of zero values is automatically disabled when these functions are used. NULL values are disregarded.

Rank

Rank() evaluates the rows of the chart in the expression, and for each row, displays the relative position of the value of the dimension evaluated in the expression. When evaluating the expression, the function compares the result with the result of the other rows containing the current column segment and returns the ranking of the current row within the segment.

```
Rank - chart function([TOTAL [<fld {, fld}>]] expr[, mode[, fmt]])
```

HRank

HRank() evaluates the expression, and compares the result with the result of the other columns containing the current row segment of a pivot table. The function then returns the ranking of the current column within the segment.

```
HRank - chart function([TOTAL] expr[, mode[, fmt]])
```

Clustering functions

KMeans2D

KMeans2D() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the cluster id of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, and coordinate_2, respectively. These are both aggregations. The number of clusters that are created is determined by the num_clusters parameter. Data can be optionally normalized by the norm parameter.

```
KMeans2D - chart function(num_clusters, coordinate_1, coordinate_2 [, norm])
```

KMeansND

KMeansND() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the cluster id of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, and coordinate_2, etc., up to n columns. These are all aggregations. The number of clusters that are created is determined by the num_clusters parameter.

```
KMeansND - chart function(num_clusters, num_iter, coordinate_1, coordinate_2
[,coordinate_3 [, ...]])
```

KMeansCentroid2D

KMeansCentroid2D() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the desired coordinate of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, and coordinate_2, respectively. These are both aggregations. The number of clusters that are created is determined by the num_clusters parameter. Data can be optionally normalized by the norm parameter.

```
KMeansCentroid2D - chart function(num_clusters, coordinate_no, coordinate_1,
coordinate_2 [, norm])
```

KMeansCentroidND

KMeansCentroidND() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the desired coordinate of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, coordinate_2, etc., up to n columns. These are all aggregations. The number of clusters that are created is determined by the num_ clusters parameter.

```
KMeansCentroidND - chart function(num_clusters, num_iter, coordinate_no,
coordinate_1, coordinate_2 [,coordinate_3 [, ...]])
```

Time series decomposition functions

STL_Trend

STL_Trend is a time series decomposition function. Along with **STL_Seasonal** and **STL_Residual**, this function is used to decompose a time series into seasonal, trend, and residual components. In the context of the STL algorithm, time series decomposition is used to identify both a recurring seasonal pattern and a general trend, given an input metric and other parameters. The **STL_Trend** function will identify a general trend, independent of seasonal patterns or cycles, from time series data.

```
STL_Trend - chart function(target_measure, period_int [,seasonal_smoother
[,trend_smoother]])
```

STL_Seasonal

STL_Seasonal is a time series decomposition function. Along with **STL_Trend** and **STL_Residual**, this function is used to decompose a time series into seasonal, trend, and residual components. In the context of the STL algorithm, time series decomposition is used to identify both a recurring seasonal pattern and a general trend, given an input metric and other parameters. The **STL_Seasonal** function can identify a seasonal pattern within a time series, separating this from the general trend displayed by the data.

```
STL_Seasonal - chart function(target_measure, period_int [,seasonal_smoother
[,trend_smoother]])
```

STL_Residual

STL_Residual is a time series decomposition function. Along with **STL_Seasonal** and **STL_Trend**, this function is used to decompose a time series into seasonal, trend, and residual components. In the context of the STL algorithm, time series decomposition is used to identify both a recurring seasonal pattern and a general trend, given an input metric and other parameters. In performing this operation, part of the variation in the input metric will neither fit within the seasonal nor the trend component, and will be defined as the residual component. The **STL_Residual** chart function captures this portion of the calculation.

```
STL_Residual - chart function(target_measure, period_int [,seasonal_smoother
[,trend_smoother]])
```

Rank - chart function

Rank() evaluates the rows of the chart in the expression, and for each row, displays the relative position of the value of the dimension evaluated in the expression. When evaluating the expression, the function compares the result with the result of the other rows containing the current column segment and returns the ranking of the current row within the segment.

For charts other than tables, the current column segment is defined as it appears in the chart's straight table equivalent.

Syntax:

```
Rank([TOTAL expr[, mode[, fmt]])
```

Return data type: dual

Arguments:

- `expr`: The expression or field containing the data to be measured.
- `mode`: Specifies the number representation of the function result.
- `fmt`: Specifies the text representation of the function result.
- `TOTAL`: If the chart is one-dimensional, or if the expression is preceded by the **TOTAL** qualifier,the function is evaluated across the entire column. If the table or table equivalent has multiple vertical dimensions, the current column segment will include only rows with the same values as the current row in all dimension columns except for the column showing the last dimension in the inter-field sort order.

The ranking is returned as a dual value, which in the case when each row has a unique ranking, is an integer between 1 and the number of rows in the current column segment.

In the case where several rows share the same ranking, the text and number representation can be controlled with the **mode** and **fmt** parameters.

mode

The second argument, **mode**, can take the following values:

Second argument values

Value	Description
0 (default)	If all ranks within the sharing group fall on the low side of the middle value of the entire ranking, all rows get the lowest rank within the sharing group. If all ranks within the sharing group fall on the high side of the middle value of the entire ranking, all rows get the highest rank within the sharing group. If ranks within the sharing group span over the middle value of the entire ranking, all rows get the value corresponding to the average of the top and bottom ranking in the entire column segment.
1	Lowest rank on all rows.
2	Average rank on all rows.
3	Highest rank on all rows.
4	Lowest rank on first row, then incremented by one for each row.

fmt

The third argument, **fmt**, can take the following values:

Third argument values

Value	Description
0 (default)	Low value - high value on all rows (for example 3 - 4).
1	Low value on all rows.
2	Low value on first row, blank on the following rows.

The order of rows for **mode** 4 and **fmt** 2 is determined by the sort order of the chart dimensions.

Examples and results:

Create two charts from the dimensions Product and Sales and another from Product and UnitSales. Add measures as shown in the following table.

Example 1:

Create a table with the dimensions `Customer`and `Sales` and the measure `Rank(Sales)`.

The result depends on the sort order of the dimensions. If the table is sorted on Customer, the table lists all the values of Sales for Astrida, then Betacab, and so on. The results for Rank(Sales) will show 10 for the Sales value 12, 9 for the Sales value 13, and so on, with the rank value of 1 returned for the Sales value 78.The next column segment begins with Betacab, for which the first value of Sales in the segment is 12. The rank value of Rank(Sales) for this is given as 11.

If the table is sorted on Sales, the column segments consist of the values of Sales and the corresponding Customer. Because there are two Sales values of 12 (for Astrida and Betacab), the value of Rank(Sales) for that column segment is 1-2, for each value of Customer. This is because there are two values of Customer for the Sales value 12. If there had been 4 values, the result would be 1-4, for all rows. This shows what the result looks like for the default value (0) of the argument fmt.

Example 2:

Replace the dimension Customer with Product and add the measure `Rank(Sales,1,2)`.

This returns 1 on the first row on each column segment and leaves all other rows blank, because arguments **mode** and **fmt** are set to 1 and 2 respectively.

Data used in examples:

```
ProductData:
Load * inline [
Customer|Product|UnitSales|UnitPrice
Astrida|AA|4|16
Astrida|AA|10|15
Astrida|BB|9|9
Betacab|BB|5|10
Betacab|CC|2|20
Betacab|DD|0|25
Canutility|AA|8|15
Canutility|CC|0|19
] (delimiter is '|');
```

```
Sales2013:
crosstable (Month, Sales) LOAD * inline [
Customer|Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec
Astrida|46|60|70|13|78|20|45|65|78|12|78|22
Betacab|65|56|22|79|12|56|45|24|32|78|55|15
Canutility|77|68|34|91|24|68|57|36|44|90|67|27
Divadip|57|36|44|90|67|27|57|68|47|90|80|94
] (delimiter is '|');
```

HRank - chart function

HRank() evaluates the expression, and compares the result with the result of the other columns containing the current row segment of a pivot table. The function then returns the ranking of the current column within the segment.

Syntax:

```
HRank([ total ] expression [ , mode [, format ] ])
```

Return data type: dual

This function only works in pivot tables. In all other chart types it returns NULL.

Arguments:

- `expression`: The expression or field containing the data to be measured.
- `mode`: Specifies the number representation of the function result.
- `format`: Specifies the text representation of the function result.
- `TOTAL`: If the word **TOTAL** occurs before the function arguments, the calculation is made over all possible values given the current selections, and not just those that pertain to the current dimensional value, that is, it disregards the chart dimensions. The **TOTAL** qualifier may be followed by a list of one or more field names within angle brackets <fld>. These field names should be a subset of the chart dimension variables.

If the pivot table is one-dimensional or if the expression is preceded by the **total** qualifier, the current row segment is always equal to the entire row. If the pivot table has multiple horizontal dimensions, the current row segment will include only columns with the same values as the current column in all dimension rows except for the row showing the last horizontal dimension of the inter-field sort order.

The ranking is returned as a dual value, which in the case when each column has a unique ranking will be an integer between 1 and the number of columns in the current row segment.

In the case where several columns share the same ranking, the text and number representation can be controlled with the **mode** and **format** arguments.

The second argument, **mode**, specifies the number representation of the function result:

Second argument values

Value	Description
0 (default)	If all ranks within the sharing group fall on the low side of the middle value of the entire ranking, all columns get the lowest rank within the sharing group. If all ranks within the sharing group fall on the high side of the middle value of the entire ranking, all columns get the highest rank within the sharing group. If ranks within the sharing group span over the middle value of the entire ranking, all rows get the value corresponding to the average of the top and bottom ranking in the entire column segment.
1	Lowest rank on all columns in the group.
2	Average rank on all columns in the group.
3	Highest rank on all columns in the group.
4	Lowest rank on first column, then incremented by one for each column in the group.

The third argument, **format**, specifies the text representation of the function result:

Third argument values

Value	Description
0 (default)	Low value**&' - '&**high value on all columns in the group (for example 3 - 4).
1	Low value on all columns in the group.
2	Low value on first column, blank on the following columns in the group.

The order of columns for **mode** 4 and **format** 2 is determined by the sort order of the chart dimensions.

Examples:

```
HRank( sum( Sales ))
HRank( sum( Sales ), 2 )
HRank( sum( Sales ), 0, 1 )
```

VRank - chart function

VRank() performs the same function as **Rank** function. You may use either.

Syntax:

```
VRank([TOTAL [<fld {,fld}>]] expr[, mode[, fmt]])
```

Return data type: dual

KMeans2D - chart function

KMeans2D() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the cluster id of the cluster this data point has been assigned to. The columns that are used by the clustering

algorithm are determined by the parameters coordinate_1, and coordinate_2, respectively. These are both aggregations. The number of clusters that are created is determined by the num_clusters parameter. Data can be optionally normalized by the norm parameter.

KMeans2D returns one value per data point. The returned value is a dual and is the integer value corresponding to the cluster each data point has been assigned to.

Syntax:

```
KMeans2D(num_clusters, coordinate_1, coordinate_2 [, norm])
```

Return data type: dual

Arguments:

Arguments

Argument	Description
num_clusters	Integer that specifies the number of clusters.
coordinate_1	The aggregation that calculates the first coordinate, usually the x-axis of the scatter chart that can be made from the chart. The additional parameter, coordinate_2, calculates the second coordinate.
norm	The optional normalization method applied to datasets before KMeans clustering. Possible values: 0 or 'none' for no normalization 1 or 'zscore' for z-score normalization 2 or 'minmax' for min-max normalization If no parameter is supplied or if the supplied parameter is incorrect, no normalization is applied. Z-score normalizes data based on feature mean and standard deviation. Z-score does not ensure each feature has the same scale but it is a better approach than min-max when dealing with outliers. Min-max normalization ensures that the features have the same scale by taking the minimum and maximum values of each and recalculating each datapoint.

Auto-clustering

KMeans functions support auto-clustering using a method called depth difference (DeD). When a user sets 0 for the number of clusters, an optimal number of clusters for that dataset is determined. Note that while an integer for the number of clusters (*k*) is not explicitly returned, it is calculated within the KMeans algorithm. For example, if 0 is specified in the function for the value of *KmeansPetalClusters* or set through a variable input box, cluster assignments are automatically calculated for the dataset based on an optimal number of clusters.

KMeansND - chart function

KMeansND() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the cluster id of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, and coordinate_2, etc., up to n columns. These are all aggregations. The number of clusters that are created is determined by the num_clusters parameter.

KMeansND returns one value per data point. The returned value is a dual and is the integer value corresponding to the cluster each data point has been assigned to.

Syntax:

```
KMeansND(num_clusters, num_iter, coordinate_1, coordinate_2 [,coordinate_3 [,...]])
```

Return data type: dual

Arguments:

Arguments

Argument	Description
num_clusters	Integer that specifies the number of clusters.
num_iter	The number of iterations of clustering with reinitialized cluster centers.
coordinate_1	The aggregation that calculates the first coordinate, usually the x-axis (of a scatter chart that can be made from the chart). The additional parameters calculate the second, third, and fourth coordinates, etc.

Auto-clustering

KMeans functions support auto-clustering using a method called depth difference (DeD). When a user sets 0 for the number of clusters, an optimal number of clusters for that dataset is determined. Note that while an integer for the number of clusters (*k*) is not explicitly returned, it is calculated within the KMeans algorithm. For example, if 0 is specified in the function for the value of *KmeansPetalClusters* or set through a variable input box, cluster assignments are automatically calculated for the dataset based on an optimal number of clusters.

KMeansCentroid2D - chart function

KMeansCentroid2D() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the desired coordinate of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, and coordinate_2, respectively. These are both aggregations. The number of clusters that are created is determined by the num_clusters parameter. Data can be optionally normalized by the norm parameter.

KMeansCentroid2D returns one value per data point. The returned value is a dual and is one of the coordinates of the position corresponding to the cluster center the data point has been assigned to.

Syntax:

```
KMeansCentroid2D(num_clusters, coordinate_no, coordinate_1, coordinate_2 [, norm])
```

Return data type: dual

Arguments:

Arguments

Argument	Description
num_clusters	Integer that specifies the number of clusters.
coordinate_no	The desired coordinate number of the centroids (corresponding, for example, to the x, y, or z axis).
coordinate_1	The aggregation that calculates the first coordinate, usually the x-axis of the scatter chart that can be made from the chart. The additional parameter, coordinate_2, calculates the second coordinate.
norm	The optional normalization method applied to datasets before KMeans clustering. Possible values: 0 or 'none' for no normalization 1 or 'zscore' for z-score normalization 2 or 'minmax' for min-max normalization If no parameter is supplied or if the supplied parameter is incorrect, no normalization is applied. Z-score normalizes data based on feature mean and standard deviation. Z-score does not ensure each feature has the same scale but it is a better approach than min-max when dealing with outliers. Min-max normalization ensures that the features have the same scale by taking the minimum and maximum values of each and recalculating each datapoint.

Auto-clustering

KMeans functions support auto-clustering using a method called depth difference (DeD). When a user sets 0 for the number of clusters, an optimal number of clusters for that dataset is determined. Note that while an integer for the number of clusters (*k*) is not explicitly returned, it is calculated within the KMeans algorithm. For example, if 0 is specified in the function for the value of *KmeansPetalClusters* or set through a variable input box, cluster assignments are automatically calculated for the dataset based on an optimal number of clusters.

KMeansCentroidND - chart function

KMeansCentroidND() evaluates the rows of the chart by applying k-means clustering, and for each chart row displays the desired coordinate of the cluster this data point has been assigned to. The columns that are used by the clustering algorithm are determined by the parameters coordinate_1, coordinate_2, etc., up to n columns. These are all aggregations. The number of clusters that are created is determined by the num_ clusters parameter.

KMeansCentroidND returns one value per row. The returned value is a dual and is one of the coordinates of the position corresponding to the cluster center the data point has been assigned to.

Syntax:

```
KMeansCentroidND((num_clusters, num_iter, coordinate_no, coordinate_1,
coordinate_2 [,coordinate_3 [, ...]])
```

Return data type: dual

Arguments:

Arguments

Argument	Description
num_clusters	Integer that specifies the number of clusters.
num_iter	The number of iterations of clustering with reinitialized cluster centers.
coordinate_no	The desired coordinate number of the centroids (corresponding, for example, to the x, y, or z axis).
coordinate_1	The aggregation that calculates the first coordinate, usually the x-axis (of a scatter chart that can be made from the chart). The additional parameters calculate the second, third, and fourth coordinates, etc.

Auto-clustering

KMeans functions support auto-clustering using a method called depth difference (DeD). When a user sets 0 for the number of clusters, an optimal number of clusters for that dataset is determined. Note that while an integer for the number of clusters (*k*) is not explicitly returned, it is calculated within the KMeans algorithm. For example, if 0 is specified in the function for the value of *KmeansPetalClusters* or set through a variable input box, cluster assignments are automatically calculated for the dataset based on an optimal number of clusters.

STL_Trend - chart function

STL_Trend is a time series decomposition function. Along with **STL_Seasonal** and **STL_Residual**, this function is used to decompose a time series into seasonal, trend, and residual components. In the context of the STL algorithm, time series decomposition is used to identify both a recurring seasonal pattern and a general trend, given an input metric and other parameters. The **STL_Trend** function will identify a general trend, independent of seasonal patterns or cycles, from time series data.

The three STL functions are related to the input metric through a simple sum:

STL_Trend + **STL_Seasonal** + **STL_Residual** = Input metric

STL (seasonal and trend decomposition using Loess) employs data smoothing techniques, and through its input parameters, allows the user to adjust the periodicity of the calculations it performs. This periodicity determines how the time dimension of the input metric (a measure) is segmented in the analysis.

At minimum, **STL_Trend** takes an input metric (`target_measure`) and an integer value for its `period_int`, returning a floating-point value. The input metric will be in the form of an aggregation that varies along the time dimension. Optionally, you can include values for the `seasonal_smoother` and `trend_smoother` to adjust the smoothing algorithm.

Syntax:

```
STL_Trend(target_measure, period_int [,seasonal_smoother [,trend_smoother]])
```

Return data type: dual

Arguments

Argument	Description
target_measure	The measure to decompose into Seasonal and Trend components. This should be a measure such as Sum(Sales) or Sum(Passengers) that varies along the time dimension. This must not be a constant value.
period_int	The periodicity of the dataset. This parameter is an integer value representing the number of discrete steps that make up one period, or seasonal cycle, of the signal. For instance, if the time series is segmented into one section for each quarter of the year, you must set the **period_int** to a value of 4 to define the periodicity as Year.
seasonal_smoother	Length of the seasonal smoother. This must be an odd integer. The seasonal smoother uses data for a particular phase in the seasonal variation, over a number of periods. One discrete step of the time dimension is used from each period. The seasonal smoother indicates the number of periods used for smoothing. For example, if the time dimension is segmented by month and the period is Year (12), the seasonal component will be computed so that each particular month of each year is calculated from data for the same month, both in that year and in adjacent years. The **seasonal_smoother** value is the number of years used for smoothing.
trend_smoother	Length of the trend smoother. This must be an odd integer. The trend smoother uses the same time scale as the **period_int** parameter, and its value is the number of granules used for smoothing. For example, if a time series is segmented by month, the trend smoother will be the number of months used for smoothing.

The **STL_Trend** chart function is often used in combination with the following functions:

Related functions

Function	Interaction
STL_Seasonal - chart function (page 1487)	This is the function used to compute the seasonal component of a time series.
STL_Residual - chart function (page 1489)	When breaking down an input metric into seasonal and trend component, part of the measure's variation will not fit within either of the two main components. The **STL_Residual** function computes this portion of the decomposition.

STL_Seasonal - chart function

STL_Seasonal is a time series decomposition function. Along with **STL_Trend** and **STL_Residual**, this function is used to decompose a time series into seasonal, trend, and residual components. In the context of the STL algorithm, time series decomposition is used to identify both a recurring seasonal pattern and a general trend, given an input metric and other parameters. The **STL_Seasonal** function can identify a seasonal pattern within a time series, separating this from the general trend displayed by the data.

The three STL functions are related to the input metric through a simple sum:

STL_Trend + **STL_Seasonal** + **STL_Residual** = Input metric

STL (seasonal and trend decomposition using Loess) employs data smoothing techniques, and through its input parameters, allows the user to adjust the periodicity of the calculations it performs. This periodicity determines how the time dimension of the input metric (a measure) is segmented in the analysis.

At minimum, **STL_Seasonal** takes an input metric (`target_measure`) and an integer value for its `period_int`, returning a floating-point value. The input metric will be in the form of an aggregation that varies along the time dimension. Optionally, you can include values for the `seasonal_smoother` and `trend_smoother` to adjust the smoothing algorithm.

Syntax:

```
STL_Seasonal(target_measure, period_int [,seasonal_smoother [,trend_
smoother]])
```

Return data type: dual

Arguments

Argument	Description
target_measure	The measure to decompose into Seasonal and Trend components. This should be a measure such as Sum(Sales) or Sum(Passengers) that varies along the time dimension. This must not be a constant value.
period_int	The periodicity of the dataset. This parameter is an integer value representing the number of discrete steps that make up one period, or seasonal cycle, of the signal. For instance, if the time series is segmented into one section for each quarter of the year, you must set the **period_int** to a value of 4 to define the periodicity as Year.
seasonal_smoother	Length of the seasonal smoother. This must be an odd integer. The seasonal smoother uses data for a particular phase in the seasonal variation, over a number of periods. One discrete step of the time dimension is used from each period. The seasonal smoother indicates the number of periods used for smoothing. For example, if the time dimension is segmented by month and the period is Year (12), the seasonal component will be computed so that each particular month of each year is calculated from data for the same month, both in that year and in adjacent years. The **seasonal_smoother** value is the number of years used for smoothing.
trend_smoother	Length of the trend smoother. This must be an odd integer. The trend smoother uses the same time scale as the **period_int** parameter, and its value is the number of granules used for smoothing. For example, if a time series is segmented by month, the trend smoother will be the number of months used for smoothing.

The **STL_Seasonal** chart function is often used in combination with the following functions:

Related functions

Function	Interaction
STL_Trend - chart function (page 1485)	This is the function used to compute the trend component of a time series.

Function	Interaction
STL_Residual - chart function (page 1489)	When breaking down an input metric into seasonal and trend component, part of the measure's variation will not fit within either of the two main components. The **STL_Residual** function computes this portion of the decomposition.

STL_Residual - chart function

STL_Residual is a time series decomposition function. Along with **STL_Seasonal** and **STL_Trend**, this function is used to decompose a time series into seasonal, trend, and residual components. In the context of the STL algorithm, time series decomposition is used to identify both a recurring seasonal pattern and a general trend, given an input metric and other parameters. In performing this operation, part of the variation in the input metric will neither fit within the seasonal nor the trend component, and will be defined as the residual component. The **STL_Residual** chart function captures this portion of the calculation.

The three STL functions are related to the input metric through a simple sum:

STL_Trend + **STL_Seasonal** + **STL_Residual** = Input metric

STL (seasonal and trend decomposition using Loess) employs data smoothing techniques, and through its input parameters, allows the user to adjust the periodicity of the calculations it performs. This periodicity determines how the time dimension of the input metric (a measure) is segmented in the analysis.

Since time series decomposition primarily looks for seasonality and general variations in data, the information in the residual is considered the least significant of the three components. However, a skewed or periodic residual component can help identify issues in the calculation, such as incorrect periodicity settings.

At minimum, **STL_Residual** takes an input metric (`target_measure`) and an integer value for its `period_int`, returning a floating-point value. The input metric will be in the form of an aggregation that varies along the time dimension. Optionally, you can include values for the `seasonal_smoother` and `trend_smoother` to adjust the smoothing algorithm.

Syntax:

```
STL_Residual(target_measure, period_int [,seasonal_smoother [,trend_
smoother]])
```

Return data type: dual

Arguments

Argument	Description
target_measure	The measure to decompose into Seasonal and Trend components. This should be a measure such as Sum(Sales) or Sum(Passengers) that varies along the time dimension. This must not be a constant value.
period_int	The periodicity of the dataset. This parameter is an integer value representing the number of discrete steps that make up one period, or seasonal cycle, of the signal. For instance, if the time series is segmented into one section for each quarter of the year, you must set the **period_int** to a value of 4 to define the periodicity as Year.
seasonal_smoother	Length of the seasonal smoother. This must be an odd integer. The seasonal smoother uses data for a particular phase in the seasonal variation, over a number of periods. One discrete step of the time dimension is used from each period. The seasonal smoother indicates the number of periods used for smoothing. For example, if the time dimension is segmented by month and the period is Year (12), the seasonal component will be computed so that each particular month of each year is calculated from data for the same month, both in that year and in adjacent years. The **seasonal_smoother** value is the number of years used for smoothing.
trend_smoother	Length of the trend smoother. This must be an odd integer. The trend smoother uses the same time scale as the **period_int** parameter, and its value is the number of granules used for smoothing. For example, if a time series is segmented by month, the trend smoother will be the number of months used for smoothing.

The **STL_Residual** chart function is often used in combination with the following functions:

Related functions

Function	Interaction
STL_Seasonal - chart function (page 1487)	This is the function used to compute the seasonal component of a time series.
STL_Trend - chart function (page 1485)	This is the function used to compute the trend component of a time series.

Statistical distribution functions

Statistical distribution functions return the probabilities of occurrence of different possible outcomes for a given input variable. You can use these functions to calculate the potential values of your data points.

The three groups of statistical distribution functions described below are all implemented in Qlik Sense using the Cephes function library. For references and details on algorithms used, accuracy, and so on, see: Cephes library. The Cephes function library is used by permission.

- The probability functions calculate the probability at the point in the distribution given by the supplied value.
    - The Frequency functions are used for discrete distributions.
    - The Density functions are used for continuous functions.
- The Dist functions calculate the accumulated probability of the distribution at the point in the distribution given by the supplied value.
- The Inv functions calculate the inverse value, given the accumulated probability of the distribution.

All functions can be used in both the data load script and in chart expressions.

Statistical distribution functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

BetaDensity

`BetaDensity()` returns the probability of the Beta distribution.

```
BetaDensity (value, alpha, beta)
```

BetaDist

`BetaDist()` returns the accumulated probability of the Beta distribution.

```
BetaDist (value, alpha, beta)
```

BetaInv

`BetaINV()` returns the inverse of the accumulated probability of the Beta distribution.

```
BetaInv (prob, alpha, beta)
```

BinomDist

`BinomDist()` returns the accumulated probability of the Binomial distribution.

```
BinomDist (value, trials, trial_probability)
```

BinomFrequency

`BinomFrequency()` returns the Binomial probability distribution.

```
BinomFrequency (value, trials, trial_probability)
```

BinomInv

`BinomInv()` returns the inverse of the accumulated probability of the Binomial distribution.

```
BinomInv (prob, trials, trial_probability)
```

ChiDensity

`ChiDensity()` returns the one-tailed probability of the chi^2 distribution. The chi^2 density function is associated with a chi^2 test.

```
ChiDensity (value, degrees_freedom)
```

ChiDist

`ChiDist()` returns the one-tailed probability of the chi^2 distribution. The chi^2 distribution is associated with a chi^2 test.

```
ChiDist (value, degrees_freedom)
```

ChiInv

`ChiInv()` returns the inverse of the one-tailed probability of the chi^2 distribution.

```
ChiInv (prob, degrees_freedom)
```

FDensity

`FDensity()` returns the probability of the `F` distribution.

```
FDensity (value, degrees_freedom1, degrees_freedom2)
```

FDist

`FDist()` returns the accumulated probability of the `F` distribution.

```
FDist (value, degrees_freedom1, degrees_freedom2)
```

FInv

`FInv()` returns the inverse of the accumulated probability of the `F` distribution.

```
FInv (prob, degrees_freedom1, degrees_freedom2)
```

GammaDensity

`GammaDensity()` returns the probability of the Gamma distribution.

```
GammaDensity (value, k, θ)
```

GammaDist

`GammaDist()` returns the accumulated probability of the Gamma distribution.

```
GammaDist (value, k, θ)
```

GammaInv

`GammaInv()` returns the inverse of the accumulated probability of the Gamma distribution.

```
GammaInv (prob, k, θ)
```

NormDist

`NormDist()` returns the cumulative normal distribution for the specified mean and standard deviation. If mean = 0 and standard_dev = 1, the function returns the standard normal distribution.

```
NormDist (value, mean, standard_dev)
```

NormInv

`NormInv()` returns the inverse of the normal cumulative distribution for the specified mean and standard deviation.

```
NormInv (prob, mean, standard_dev)
```

PoissonDist

`PoissonDist()` returns the accumulated probability of the Poisson distribution.

```
PoissonDist (value, mean)
```

PoissonFrequency

`PoissonFrequency()` returns the Poisson probability distribution.

```
PoissonFrequency (value, mean)
```

PoissonInv

`PoissonInv()` returns the inverse of the accumulated probability of the Poisson distribution.

```
PoissonInv (prob, mean)
```

TDensity

`TDensity()` returns the value for the student's `t` density function where a numeric value is a calculated value of `t` for which the probability is to be computed.

```
TDensity (value, degrees_freedom, tails)
```

TDist

`TDist()` returns the probability for the student's `t` distribution where a numeric value is a calculated value of `t` for which the probability is to be computed.

```
TDist (value, degrees_freedom, tails)
```

TInv

`TInv()` returns the `t` value of the student's `t` distribution as a function of the probability and the degrees of freedom.

```
TInv (prob, degrees_freedom)
```

BetaDensity

`BetaDensity()` returns the probability of the Beta distribution.

Syntax:

```
BetaDensity(value, alpha, beta)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must be between 0 and 1.
alpha	A positive number defining the first shape parameter. It is the exponent of the random variable
beta	A positive number defining the second shape parameter. It states the number of denominator degrees of freedom.

BetaDist

`BetaDist()` returns the accumulated probability of the Beta distribution.

Syntax:

```
BetaDist(value, alpha, beta)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must be between 0 and 1.
alpha	A positive number defining the first shape parameter. It is the exponent of the random variable
beta	A positive number defining the second shape parameter. It is the exponent that controls the shape of the distribution.

This function is related to the `BetaInv` function in the following way:
`If prob = BetaDist(value, alpha, beta), then BetaInv(prob, alpha, beta) = value`

BetaInv

`BetaINV()` returns the inverse of the accumulated probability of the Beta distribution.

Syntax:

```
BetaInv(prob, alpha, beta)
```

Return data type: number

Arguments

Argument	Description
prob	A probability associated with the Beta-probability distribution. It must be a number between 0 and 1.
alpha	A positive number defining the first shape parameter. It is the exponent of the random variable
beta	A positive number defining the second shape parameter. It is the exponent that controls the shape of the distribution.

This function is related to the BetaDist function in the following way:
`If prob = BetaDist(value, alpha, beta), then BetaInv(prob, alpha, beta) = value`

BinomDist

`BinomDist()` returns the accumulated probability of the Binomial distribution.

Syntax:

```
BinomDist(value, trials, trial_probability)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must be an integer not smaller than zero and not greater than the number of trials.
trials	A positive integer that states the number of trials.
trial_probability	The success probability for each trial. It is always a number between 0 and 1.

This function is related to the BinomInv function in the following way:
`If prob = BinomDIST(value, trials, trial_probability), then BinomInv(prob, trials, trial_probability) = value`

BinomFrequency

`BinomFrequency()` returns the Binomial probability distribution.

Syntax:

```
BinomFrequency(value, trials, trial_probability)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must be an integer not smaller than zero and not greater than the number of trials.
trials	A positive integer that states the number of trials
trial_probability	The success probability for each trial. It is always a number between 0 and 1.

BinomInv

`BinomInv()` returns the inverse of the accumulated probability of the Binomial distribution.

Syntax:

```
BinomInv(prob, trials, trial_probability)
```

Return data type: number

Arguments

Argument	Description
prob	A probability associated with the Binomial-probability distribution. It must be a number between 0 and 1.
trials	A positive integer that states the number of trials.
trial_probability	The success probability for each trial. It is always a number between 0 and 1.

This function is related to the `BinomDist` function in the following way:
`If prob = BinomDist(value, trials, trial_probability), then BinomInv(prob, trials, trial_probability) = value`

ChiDensity

`ChiDensity()` returns the one-tailed probability of the chi^2 distribution. The chi^2 density function is associated with a chi^2 test.

Syntax:

```
ChiDensity(value, degrees_freedom)
```

Return data type: number

Arguments

Argument	Description
`value`	The value at which you want to evaluate the distribution. The value must not be negative.
`degrees_freedom`	A positive integer stating the number of numerator degrees of freedom.

ChiDist

ChiDist() returns the one-tailed probability of the chi^2 distribution. The chi^2 distribution is associated with a ch^{i2} test.

Syntax:

```
ChiDist(value, degrees_freedom)
```

Return data type: number

Arguments:

CHIDIST arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must not be negative.
degrees_freedom	A positive integer stating the number of degrees of freedom.

This function is related to the **ChiInv** function in the following way:
`If prob = ChiDist(value,df), then ChiInv(prob, df) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
CHIDIST(8, 15)	Returns 0.9238

ChiInv

ChiInv() returns the inverse of the one-tailed probability of the chi^2 distribution.

Syntax:

```
ChiInv(prob, degrees_freedom)
```

Return data type: number

Arguments:

CHIINV arguments

Argument	Description
prob	A probability associated with the chi^2 distribution. It must be a number between 0 and 1.
degrees_ freedom	An integer stating the number of degrees of freedom.

This function is related to the **ChiDist** function in the following way:
`If prob = ChiDist(value,df), then ChiInv(prob, df) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
ChiInv(0.9237827, 15)	Returns 8.0000

FDensity

`FDensity()` returns the probability of the `F` distribution.

Syntax:

```
FDensity(value, degrees_freedom1, degrees_freedom2)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must not be negative.
degrees_ freedom1	A positive integer stating the number of numerator degrees of freedom.
degrees_ freedom2	A positive integer stating the number of denominator degrees of freedom.

FDist

FDist() returns the F-probability distribution.

Syntax:

```
FDist(value, degrees_freedom1, degrees_freedom2)
```

Return data type: number

Arguments:

FDIST arguments

Argument	Description
value	The value at which you want to evaluate the distribution. **Value** must not be negative.
degrees_freedom1	A positive integer stating the number of numerator degrees of freedom.
degrees_freedom2	A positive integer stating the number of denominator degrees of freedom.

This function is related to the **FInv** function in the following way:
`If prob = FDist(value, df1, df2), then FInv(prob, df1, df2) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
FDist(15, 8, 6)	Returns 0.0019

FInv

FInv() returns the inverse of the F-probability distribution.

Syntax:

```
FInv(prob, degrees_freedom1, degrees_freedom2)
```

Return data type: number

Arguments:

FINV arguments

Argument	Description
prob	A probability associated with the F-probability distribution and must be a number between 0 and 1.
degrees_ freedom	An integer stating the number of degrees of freedom.

This function is related to the **FDist** function in the following way:
`If prob = FDist(value, df1, df2), then FInv(prob, df1, df2) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
FInv(0.0019369, 8, 6)	Returns 15.0000

GammaDensity

`GammaDensity()` returns the probability of the Gamma distribution.

Syntax:

```
GammaDensity(value, k, θ)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must not be negative.
k	A positive number defining the shape parameter.
θ	A positive number defining the scale parameter.

GammaDist

`GammaDist()` returns the accumulated probability of the Gamma distribution.

Syntax:

```
GammaDist(value, k, θ)
```

Return data type: number

Arguments

Argument	Description
value	The value at which you want to evaluate the distribution. The value must not be negative.
k	A positive number defining the shape parameter.
θ	A positive number defining the scale parameter.

This function is related to the GammaINV function in the following way:
`If prob = GammaDist(value, k, θ), then GammaInv(prob, k, θ) = value`

GammaInv

`GammaInv()` returns the inverse of the accumulated probability of the Gamma distribution.

Syntax:

```
GammaInv(prob, k, θ)
```

Return data type: number

Arguments

Argument	Description
prob	A probability associated with the Gamma-probability distribution. It must be a number between 0 and 1.
k	A positive number defining the shape parameter.
θ	A positive number defining the scale parameter.

This function is related to the GammaDist function in the following way:
`If prob = GammaDist(value, k, θ), then GammaInv(prob, k, θ) = value`

NormDist

NormDist() returns the cumulative normal distribution for the specified mean and standard deviation. If mean = 0 and standard_dev = 1, the function returns the standard normal distribution.

Syntax:

```
NormDist(value, mean, standard_dev)
```

Return data type: number

Arguments:

NORMDIST arguments

Argument	Description
value	The value at which you want to evaluate the distribution.
mean	A value stating the arithmetic mean for the distribution.
standard_dev	A positive value stating the standard deviation of the distribution.

This function is related to the **NormInv** function in the following way:
`If prob = NormDist(value, m, sd), then NormInv(prob, m, sd) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
NormDist(0.5, 0, 1)	Returns 0.6915

NormInv

NormInv() returns the inverse of the normal cumulative distribution for the specified mean and standard deviation.

Syntax:

```
NormInv(prob, mean, standard_dev)
```

Return data type: number

Arguments:

NORMINV arguments

Argument	Description
prob	A probability associated with the normal distribution. It must be a number between 0 and 1.
mean	A value stating the arithmetic mean for the distribution.
standard_dev	A positive value stating the standard deviation of the distribution.

This function is related to the **NormDist** function in the following way:
`If prob = NormDist(value, m, sd), then NormInv(prob, m, sd) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
NormInv(0.6914625, 0, 1)	Returns 0.5000

PoissonDist

`PoissonDist()` returns the accumulated probability of the Poisson distribution.

Syntax:

```
PoissonDist(value, mean)
```

Return data type: number

Arguments

Argument	Description
`value`	The value at which you want to evaluate the distribution. The value must not be negative.
`mean`	A positive number defining the average outcome.

This function is related to the `PoissonInv` function in the following way:
`If prob = PoissonDist(value, mean), then PoissonInv(prob, mean) = value`

PoissonFrequency

`PoissonFrequency()` returns the Poisson probability distribution.

Syntax:

```
PoissonFrequency(value, mean)
```

Return data type: number

Arguments

Argument	Description
`value`	The value at which you want to evaluate the distribution. The value must not be negative.
`mean`	A positive number defining the average outcome.

PoissonInv

`PoissonInv()` returns the inverse of the accumulated probability of the Poisson distribution.

Syntax:

```
PoissonInv(prob, mean)
```

Return data type: number

Arguments

Argument	Description
`prob`	A probability associated with the Poisson-probability distribution. It must be a number between 0 and 1.
`mean`	A positive number defining the average outcome.

This function is related to the `PoissonDIST` function in the following way:
`If prob = PoissonDist(value, mean), then PoissonInv(prob, mean) = value`

TDensity

`TDensity()` returns the value for the student's `t` density function where a numeric value is a calculated value of `t` for which the probability is to be computed.

Syntax:

```
TDensity(value, degrees_freedom)
```

Return data type: number

Arguments

Argument	Description
`value`	The value at which you want to evaluate the distribution. The value must not be negative.
`degrees_ freedom`	A positive integer stating the number of degrees of freedom.

TDist

TDist() returns the probability for the Student's t-distribution where a numeric value is a calculated value of t for which the probability is to be computed.

Syntax:

```
TDist(value, degrees_freedom, tails)
```

Return data type: number

Arguments:

TDIST arguments

Argument	Description
value	The value at which you want to evaluate the distribution and must not be negative.
degrees_freedom	A positive integer stating the number of degrees of freedom.
tails	Must be either 1 (one-tailed distribution) or 2 (two-tailed distribution).

This function is related to the **TInv** function in the following way:
`If prob = TDist(value, df ,2), then TInv(prob, df) = value`

Limitations:

All arguments must be numeric, else NULL will be returned.

Examples and results:

Examples and results

Example	Result
TDist(1, 30, 2)	Returns 0.3253

TInv

TInv() returns the t-value of the Student's t-distribution as a function of the probability and the degrees of freedom.

Syntax:

```
TInv(prob, degrees_freedom)
```

Return data type: number

Arguments:

TINV arguments

Argument	Description
prob	A two-tailed probability associated with the t-distribution. It must be a number between 0 and 1.
degrees_ freedom	An integer stating the number of degrees of freedom.

Limitations:

All arguments must be numeric, else NULL will be returned.

This function is related to the **TDist** function in the following way:
`If prob = TDist(value, df ,2), then TInv(prob, df) = value`.

Examples and results:

Examples and results

Example	Result
TInv(0.3253086, 30)	Returns 1.0000

String functions

This section describes functions for handling and manipulating strings. In the functions below, the parameters are expressions where **s** should be interpreted as a string.

All functions can be used in both the load script and in chart expressions, except for **Evaluate** which can only be used in the load script.

String functions overview

Each function is described further after the overview. You can also click the function name in the syntax to immediately access the details for that specific function.

ApplyCodepage
Applies a different codepage to the field or text stated in the expression. The codepage must be in number format.

```
ApplyCodepage(text, codepage)
```

Capitalize
Capitalize() returns the string with all words in initial uppercase letters.

```
Capitalize (text)
```

Chr
Chr() returns the Unicode character corresponding to the input integer.

```
Chr (int )
```

Evaluate
Evaluate() finds if the input text string can be evaluated as a valid QlikView expression, and if so, returns the value of the expression as a string. If the input string is not a valid expression, NULL is returned.

```
Evaluate (expression_text)
```

FindOneOf

FindOneOf() searches a string to find the position of the occurrence of any character from a set of provided characters. The position of the first occurrence of any character from the search set is returned unless a third argument (with a value greater than 1) is supplied. If no match is found, **0** is returned.

```
FindOneOf (text, char_set[, count])
```

Hash128

Hash128() returns a 128-bit hash of the combined input expression values. The result is a 22-character string.

```
Hash128 (expr{, expression})
```

Hash160

Hash160() returns a 160-bit hash of the combined input expression values. The result is a 27-character string.

```
Hash160 (expr{, expression})
```

Hash256

Hash256() returns a 256-bit hash of the combined input expression values. The result is a 43-character string.

```
Hash256 (expr{, expression})
```

Index

Index() searches a string to find the starting position of the nth occurrence of a provided substring. An optional third argument provides the value of n, which is 1 if omitted. A negative value searches from the end of the string. The positions in the string are numbered from **1** and up.

```
Index  (text, substring[, count])
```

KeepChar

KeepChar() returns a string consisting of the first string, 'text', less any of the characters NOT contained in the second string, "keep_chars".

```
KeepChar (text, keep_chars)
```

Left

Left() returns a string consisting of the first (left-most) characters of the input string, where the number of characters in the returned string is determined by the second argument.

```
Left (text, count )
```

Len

Len() returns the length of the input string.

```
Len (text )
```

Lower

Lower() converts all the characters in the input string to lower case.

```
Lower (text)
```

LTrim

LTrim() returns the input string trimmed of any leading spaces.

```
LTrim (text)
```

Mid

Mid() returns the part of the input string starting at the position of the character defined by the second argument, 'start', and returning the number of characters defined by the third argument, 'count'. If 'count' is omitted, the rest of the input string is returned. The first character in the input string is numbered 1.

```
Mid (text, start[, count])
```

Ord

Ord() returns the Unicode code point number of the first character of the input string.

```
Ord (char )
```

PurgeChar

PurgeChar() returns a string consisting of the characters contained in the input string ('text'), excluding any that appear in the second argument ('remove_chars').

```
PurgeChar (text, remove_chars)
```

Repeat

Repeat() forms a string consisting of the input string repeated the number of times defined by the second argument.

```
Repeat (text[, repeat_count])
```

Replace

Replace() returns a string after replacing all occurrences of a given substring within the input string with another substring. The function is non-recursive and works from left to right.

```
Replace (text, from_str, to_str)
```

Right

Right() returns a string consisting of the of the last (right-most) characters of the input string, where the number of characters is determined by the second argument.

```
Right (text, count )
```

RTrim

RTrim() returns the input string trimmed of any trailing spaces.

```
RTrim (text)
```

SubField

Subfield() is used to extract substring components from a parent string field, where the original record fields consist of two or more parts separated by a delimiter.

```
SubField (text, delimiter[, field_no ])
```

SubStringCount

SubstringCount() returns the number of occurrences of the specified substring in the input string text. If there is no match, 0 is returned.

```
SubStringCount ( text , substring)
```

TextBetween

TextBetween() returns the text in the input string that occurs between the characters specified as delimiters.

```
TextBetween (text, sub_string)
```

Trim

Trim() returns the input string trimmed of any leading and trailing spaces.

```
Trim (text)
```

Upper

Upper() converts all the characters in the input string to upper case for all text characters in the expression. Numbers and symbols are ignored.

```
Upper (text)
```

Capitalize

Capitalize() returns the string with all words in initial uppercase letters.

Syntax:

```
Capitalize(text)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
`Capitalize ( 'my little pony' )`	Returns 'My Little Pony'
`Capitalize ( 'AA bb cC Dd')`	Returns 'Aa Bb Cc Dd'

Chr

Chr() returns the Unicode character corresponding to the input integer.

Syntax:

```
Chr(int)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
Chr(65)	Returns the string 'A'
Chr(163)	Returns the string '£'
Chr(35)	Returns the string '#'

Evaluate

Evaluate() finds if the input text string can be evaluated as a valid QlikView expression, and if so, returns the value of the expression as a string. If the input string is not a valid expression, NULL is returned.

Syntax:

```
Evaluate(expression_text)
```

Return data type: dual

This string function can not be used in chart expressions.

Examples and results:

Examples and results

Example	Result
`Evaluate ( 5 * 8 )`	Returns '40'

FindOneOf

FindOneOf() searches a string to find the position of the occurrence of any character from a set of provided characters. The position of the first occurrence of any character from the search set is returned unless a third argument (with a value greater than 1) is supplied. If no match is found, **0** is returned.

Syntax:

```
FindOneOf(text, char_set[, count])
```

Return data type: integer

Arguments:

FindOneOf arguments

Argument	Description
text	The original string.
char_set	A set of characters to search for in text.
count	Defines which occurrence of any of the character to search for. For example, a value of 2 searches for the second occurrence.

Examples and results:

Examples and results

Example	Result
`FindOneOf( 'my example text string', 'et%s')`	Returns '4'.
`FindOneOf( 'my example text string', 'et%s', 3)`	Returns '12'. Because the search is for any of the characters: e, t, % or s, and "t" is the third occurrence, and is in position 12.
`FindOneOf( 'my example text string', '¤%&')`	Returns '0'.

Hash128

Hash128() returns a 128-bit hash of the combined input expression values. The result is a 22-character string.

Syntax:

```
Hash128(expr{, expression})
```

Return data type: string

Example:

```
Hash128 ( 'abc', 'xyz', '123' )
Hash128 ( Region, Year, Month )
```

Hash160

Hash160() returns a 160-bit hash of the combined input expression values. The result is a 27-character string.

Syntax:

```
Hash160(expr{, expression})
```

Return data type: string

Example:

```
Hash160 ( 'abc', 'xyz', '123' )
Hash160 ( Region, Year, Month )
```

Hash256

Hash256() returns a 256-bit hash of the combined input expression values. The result is a 43-character string.

Syntax:

```
Hash256(expr{, expression})
```

Return data type: string

Example:

```
Hash256 ( 'abc', 'xyz', '123' )
Hash256 ( Region, Year, Month )
```

Index

Index() searches a string to find the starting position of the nth occurrence of a provided substring. An optional third argument provides the value of n, which is 1 if omitted. A negative value searches from the end of the string. The positions in the string are numbered from **1** and up.

Syntax:

```
Index(text, substring[, count])
```

Return data type: integer

Arguments:

Index arguments

Argument	Description
text	The original string.
substring	A string of characters to search for in text.
count	Defines which occurrence of **substring** to search for. For example, a value of 2 searches for the second occurrence.

Examples and results:

Examples and results

Example	Result
Index('abcdefg', 'cd')	Returns 3

Example	Result
Index('abcdabcd', 'b', 2)	Returns 6 (the second occurrence of 'b')
Index('abcdabcd', 'b',-2)	Returns 2 (the second occurrence of 'b' starting from the end)
`Left( Date, Index( Date,'-') -1 )` where **Date** = 1997-07-14	Returns 1997
`Mid( Date, Index( Date, '-', 2 ) -2, 2 )` where **Date** = 1997-07-14	Returns 07

KeepChar

KeepChar() returns a string consisting of the first string, 'text', less any of the characters NOT contained in the second string, "keep_chars".

Syntax:

```
KeepChar(text, keep_chars)
```

Return data type: string

Arguments:

KeepChar arguments

Argument	Description
text	The original string.
keep_chars	A string containing the characters in text to be kept.

Examples and results:

Examples and results

Example	Result
`KeepChar ( 'a1b2c3','123' )`	Returns '123'.
`KeepChar ( 'a1b2c3','1234' )`	Returns '123'.
`KeepChar ( 'a1b22c3','1234' )`	Returns '1223'.
`KeepChar ( 'a1b2c3','312' )`	Returns '123'

Left

Left() returns a string consisting of the first (left-most) characters of the input string, where the number of characters in the returned string is determined by the second argument.

Syntax:

```
Left(text, count)
```

Return data type: string

Arguments:

Left arguments

Argument	Description
text	The original string.
count	Defines the number of characters to included from the left-hand part of the string **text**.

Examples and results:

Examples and results

Example	Result
`Left('abcdef', 3)`	Returns 'abc'

the *Index (page 1512)*, which allows more complex string analysis.

Len

Len() returns the length of the input string.

Syntax:

```
Len(text)
```

Return data type: integer

Examples and results:

Examples and results

Example	Result
`Len ('Peter')`	Returns '5'

LevenshteinDist

LevenshteinDist() returns the Levenshtein distance between two strings. It is defined as the minimum number of single-character edits (insertions, deletions, or substitutions) required to change one string into the other. The function is useful for fuzzy string comparisons.

Syntax:

```
LevenshteinDist(text1, text2)
```

Return data type: integer

Examples and results:

Example	Result
`LevenshteinDist('Kitten','Sitting')`	Returns '3'

Lower

Lower() converts all the characters in the input string to lower case.

Syntax:

```
Lower(text)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
`Lower('abcD')`	Returns 'abcd'

LTrim

LTrim() returns the input string trimmed of any leading spaces.

Syntax:

```
LTrim(text)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
`LTrim( ' abc' )`	Returns 'abc'
`LTrim( 'abc ' )`	Returns 'abc '

Mid

Mid() returns the part of the input string starting at the position of the character defined by the second argument, 'start', and returning the number of characters defined by the third argument, 'count'. If 'count' is omitted, the rest of the input string is returned. The first character in the input string is numbered 1.

Syntax:

```
Mid(text, start[, count])
```

Return data type: string

Arguments:

Mid arguments

Argument	Description
text	The original string.
start	Integer defining the position of the first character in text to include.
count	Defines the string length of the output string. If omitted, all characters from the position defined by **start** are included.

Examples and results:

Examples and results

Example	Result
`Mid('abcdef',3 )`	Returns 'cdef'
`Mid('abcdef',3, 2 )`	Returns 'cd'

Ord

Ord() returns the Unicode code point number of the first character of the input string.

Syntax:

```
Ord(char)
```

Return data type: integer

Examples and results

Example	Result
`Ord('A')`	Returns the integer 65.
`Ord('Ab')`	Returns the integer 65.

PurgeChar

PurgeChar() returns a string consisting of the characters contained in the input string ('text'), excluding any that appear in the second argument ('remove_chars').

Syntax:

```
PurgeChar(text, remove_chars)
```

Return data type: string

Arguments:

PurgeChar arguments

Argument	Description
text	The original string.
remove_chars	A string containing the characters in text to be removed.

Return data type: string

Examples and results:

Examples and results

Example	Result
`PurgeChar ( 'a1b2c3','123' )`	Returns 'abc'
`PurgeChar ( 'a1b2c3','312' )`	Returns 'abc'

Repeat

Repeat() forms a string consisting of the input string repeated the number of times defined by the second argument.

Syntax:

```
Repeat(text[, repeat_count])
```

Return data type: string

Arguments:

Repeat arguments

Argument	Description
text	The original string.
repeat_ count	Defines the number of times the characters in the string **text** are to be repeated in the output string.

Examples and results:

Examples and results

Example	Result
`Repeat( ' * ', rating )` when **rating** = 4	Returns `' * * * * '`

Replace

Replace() returns a string after replacing all occurrences of a given substring within the input string with another substring. The function is non-recursive and works from left to right.

Syntax:

```
Replace(text, from_str, to_str)
```

Return data type: string

Arguments:

Replace arguments

Argument	Description
text	The original string.
from_str	A string which may occur one or more times within the input string **text**.
to_str	The string that will replace all occurrences of **from_str** within the string **text**.

Examples and results:

Examples and results

Example	Result
`Replace('abccde','cc','xyz')`	Returns 'abxyzde'

Right

Right() returns a string consisting of the of the last (right-most) characters of the input string, where the number of characters is determined by the second argument.

Syntax:

```
Right(text, count)
```

Return data type: string

Arguments:

Right arguments

Argument	Description
text	The original string.
count	Defines the number of characters to be included from the right-hand part of the string **text**.

Examples and results:

Examples and results

Example	Result
`Right('abcdef', 3)`	Returns 'def'

RTrim

RTrim() returns the input string trimmed of any trailing spaces.

Syntax:

```
RTrim(text)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
`RTrim( ' abc' )`	Returns ' abc'
`RTrim( 'abc ' )`	Returns 'abc'

SubField

Subfield() is used to extract substring components from a parent string field, where the original record fields consist of two or more parts separated by a delimiter.

The **Subfield()** function can be used, for example, to extract first name and surname from a list of records consisting of full names, the component parts of a path name, or for extracting data from comma-separated tables.

If you use the **Subfield()** function in a **LOAD** statement with the optional field_no parameter left out, one full record will be generated for each substring. If several fields are loaded using **Subfield()** the Cartesian products of all combinations are created.

Syntax:

```
SubField(text, delimiter[, field_no ])
```

Return data type: string

Arguments:

SubField arguments

Argument	Description
text	The original string. This can be a hard-coded text, a variable, a dollar-sign expansion, or another expression.
delimiter	A character within the input **text** that divides the string into component parts.
field_no	The optional third argument is an integer that specifies which of the substrings of the parent string **text** is to be returned. • If **field_no** is a positive value, substrings are extracted from left to right. • If **field_no** is a negative value, substrings are extracted from right to left.

SubField() can be used instead of using complex combinations of functions such as Len(), Right(), Left (), Mid(), and other string functions.

Examples and results:

Examples 1-3

Example	Result
`SubField('abc;cde;efg', ';', 2)`	Returns 'cde'
`SubField('', ';', 1)`	Returns NULL
`SubField(';', ';', 1)`	Returns an empty string

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
FullName:
LOAD * inline [
Name
'Dave Owen'
'Joe Tem'
];

SepNames:
Load Name,
SubField(Name, ' ',1) as FirstName,
SubField(Name, ' ',-1) as Surname
Resident FullName;
Drop Table FullName;
```

Example 4

Name	FirstName	Surname
Dave Owen	Dave	Owen
Joe Tem	Joe	Tem

Suppose you have a variable that holds a path name vMyPath,

```
Set vMyPath=\Users\ext_jrb\Documents\Qlik\Sense\Apps;.
```

In a text & image chart, you can add a measure such as:
`SubField(vMyPath, '\',-3)`, which results in 'Qlik', because it is the substring third from the right-hand end of the variable vMyPath.

This example shows how multiple rows are created from a single instance of **Subfield()**.

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
LOAD DISTINCT
Player,
SubField(Project,',') as Project;

Load * inline [
Player|Project
Neil|Music,OST
Jo|Music
Mike|Music,OST,Video
] (delimiter is '|');
```

Example 5

Player	Project
Neil	Music
Neil	OST
Jo	Music
Mike	Music
Mike	OST
Mike	Video

This example shows how using multiple instances of the **Subfield()** function, each with the field_no parameter left out, from within the same **LOAD** statement creates Cartesian products of all combinations. The **DISTINCT** option is used to avoid creating duplicate record.

Add the example script to your document and run it. Then add, at least, the fields listed in the results column to a sheet in your document to see the result.

```
LOAD DISTINCT
Instrument,
SubField(Player,',') as Player,
SubField(Project,',') as Project;
```

```
Load * inline [
Instrument|Player|Project
Guitar|Neil,Mike|Music,Video
Guitar|Neil|Music,OST
Synth|Neil,Jen|Music,Video,OST
Synth|Jo|Music
Guitar|Neil,Mike|Music,OST
] (delimiter is '|');
```

Example 6

Instrument	Player	Project
Guitar	Mike	Music
Guitar	Mike	Video
Guitar	Mike	OST
Guitar	Neil	Music
Guitar	Neil	Video
Guitar	Neil	OST
Synth	Jen	Music
Synth	Jen	Video
Synth	Jen	OST
Synth	Jo	Music
Synth	Neil	Music
Synth	Neil	Video
Synth	Neil	OST

SubStringCount

SubstringCount() returns the number of occurrences of the specified substring in the input string text. If there is no match, 0 is returned.

Syntax:

```
SubStringCount(text, sub_string)
```

Return data type: integer

Arguments:

SubStringCount arguments

Argument	Description
text	The original string.
sub_string	A string which may occur one or more times within the input string **text**.

Examples and results:

Examples and results

Example	Result
`SubStringCount ( 'abcdefgcdxyz', 'cd' )`	Returns '2'
`SubStringCount ( 'abcdefgcdxyz', 'dc' )`	Returns '0'

TextBetween

TextBetween() returns the text in the input string that occurs between the characters specified as delimiters.

Syntax:

```
TextBetween(text, delimiter1, delimiter2[, n])
```

Return data type: string

Arguments:

TextBetween arguments

Argument	Description
text	The original string.
delimiter1	Specifies the first delimiting character (or string) to search for in **text**.
delimiter2	Specifies the second delimiting character (or string) to search for in **text**.
n	Defines which occurrence of the delimiter pair to search between. For example, a value of 2 returns the characters between the second occurrence of delimiter1 and the second occurrence of delimiter2.

Examples and results:

Examples and results

Example	Result
`TextBetween('<abc>', '<', '>')`	Returns 'abc'
`TextBetween('<abc><de>', '<', '>',2)`	Returns 'de'

Trim

Trim() returns the input string trimmed of any leading and trailing spaces.

Syntax:

```
Trim(text)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
`Trim( ' abc' )`	Returns 'abc'
`Trim( 'abc ' )`	Returns 'abc'
`Trim( ' abc ' )`	Returns 'abc'

Upper

Upper() converts all the characters in the input string to upper case for all text characters in the expression. Numbers and symbols are ignored.

Syntax:

```
Upper(text)
```

Return data type: string

Examples and results:

Examples and results

Example	Result
`Upper(' abcD')`	Returns 'ABCD'

System functions

System functions provide functions for accessing system, device and QlikView document properties.

System functions overview

Some of the functions are described further after the overview. For those functions, you can click the function name in the syntax to immediately access the details for that specific function.

Author

This function returns a string containing the author property of the current document. It can be used in both the load script and in a chart expression.

```
Author( )
```

ClientPlatform

This function returns the user agent string of the client browser. It can be used in both the load script and in a chart expression.

Example:

```
Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/35.0.1916.114 Safari/537.36
```

```
ClientPlatform( )
```

ComputerName

This function returns a string containing the name of the computer as returned by the operating system. It can be used in both the load script and in a chart expression.

```
ComputerName( )
```

DocumentName

This function returns a string containing the name of the current QlikView document, without path but with extension. It can be used in both the load script and in a chart expression.

```
DocumentName( )
```

DocumentPath

This function returns a string containing the full path to the current QlikView document. It can be used in both the load script and in a chart expression.

```
DocumentPath( )
```

DocumentTitle

This function returns a string containing the title of the current QlikView document. It can be used in both the load script and in a chart expression.

```
DocumentTitle( )
```

GetCollationLocale

This script function returns the culture name of the collation locale that is used. If the variable CollationLocale has not been set, the actual user machine locale is returned.

```
GetCollationLocale( )
```

GetActiveSheetID

Returns a string containing the ID of the active sheet

```
GetActiveSheetID( )
```

GetExtendedProperty

This function returns the value of a named extended property in the sheet object with the given object ID. If **objectid** is not given, the sheet object containing the expression will be used. An extended property is defined for the extension object in its definition file.

```
GetExtendedProperty - chart function(name[, objectid])
```

GetObjectField

GetObjectField() returns the name of the dimension. **Index** is an optional integer denoting the dimension that should be returned.

```
GetObjectField - chart function([index])
```

GetRegistryString

This function returns the value of a key in the Windows registry. It can be used in both the load script and in a chart expression.

```
GetRegistryString(path, key)
```

Input

This function can be used in the script only and opens an input box that prompts the user for a value during the script execution. The parameters cue and caption are used as message and caption texts, respectively. The function returns the entered value.
The input box function returns NULL if the dialog is canceled, closed or cannot be shown.

Example:

```
Load
Input('Enter value', 'Input box') as v,
Recno () as r
autogenerate 3;
```

```
Input(str cue [, str caption])
```

IsPartialReload

Returns -1 (True) if the current reload is partial, otherwise 0 (False). This only works in the script.

```
IsPartialReload( )
```

MsgBox

This function can be used in the script only and opens a message box during the script execution. The parameters **msg** and **caption** are used as message and caption texts, respectively. The parameter **mb_buttons** defines what buttons will be shown in the message box, according to:

0 or 'OK' for a single OK button,
1 or 'OKCANCEL' for two buttons, OK and Cancel,
2 or 'ABORTRETRYIGNORE' for three buttons, Abort, Retry and Ignore,
3 or 'YESNOCANCEL' for three buttons, Yes, No and Cancel,
4 or 'YESNO' for two buttons, Yes and No,
5 or 'RETRYCANCEL' for two buttons, Retry and Cancel.

The parameter **mb_icons** defines what icon will be shown in the message box, according to:

0 or empty string for no icon,
16 or 'ICONHAND' for an icon with an X, used for critical errors,
32 or 'ICONQUESTION' for an icon with a question mark,
48 or 'ICONEXCLAMATION' for icon with an exclamation mark, used for minor errors, cautions and warnings
64 or 'ICONASTERISK' icon with an *i*, used for informational messages.

The parameter **mb_defbutton** defines what button will have focus when the message box is shown, according to:

0 or 'DEFBUTTON1' if the first button should have focus,
256 or 'DEFBUTTON2' if the second button should have focus,
512 or 'DEFBUTTON3' if the third button should have focus,
768 or 'DEFBUTTON4' if the fourth button should have focus.

The function returns an integer that shows what button has been pressed by the user, according to:

1 for OK,
2 for Cancel,
3 for Abort,
4 for Retry,
5 for Ignore,
6 for Yes,
7 for No

The parameter 3, 4 and 5 will internally be added, so if numeric values other than the above mentioned ones are used, you may get an unexpected combination of icons and buttons.
The message box function returns NULL if the dialog cannot be shown.

Example:

```
Load
MsgBox('Message 2', 'msgbox', 'OKCANCEL', 'ICONASTERISK') as x, 2 as r
autogenerate 1;
```

MsgBox(str msg [, str caption [, mb_buttons [, mb_icons[, mb_defbutton]]]])

OSUser

This function returns a string containing the name of the current user as returned by the operating system. It can be used in both the load script and in a chart expression.

OSUser( )

QlikViewVersion

This function returns the full QlikView version and build number as a string.

QlikViewVersion (page 1528)()

QVuser

Returns a string containing the name of the current QlikView user as entered in for section access.

QVuser( )

ReloadTime

This function returns a timestamp for when the last data load finished. It can be used in both the load script and in a chart expression.

ReloadTime( )

StateName
This chart function returns the state name of the object in which it is used. The QlikView developer can use this function to have dynamic text and colors when an object's state is changed. It is important to note that this function works on objects only. It cannot be used in a chart expression to determine the state that the expression refers to.

```
StateName - chart function()
```

GetExtendedProperty - chart function

This function returns the value of a named extended property in the sheet object with the given object ID. If **objectid** is not given, the sheet object containing the expression will be used. An extended property is defined for the extension object in its definition file.

Syntax:

```
GetExtendedProperty (name[, objectid])
```

Example:

```
GetExtendedProperty ('Greeting')
```

GetObjectField - chart function

GetObjectField() returns the name of the dimension. **Index** is an optional integer denoting the dimension that should be returned.

Syntax:

```
GetObjectField ([index])
```

Example:

```
GetObjectField(2)
```

ProductVersion

This function returns the full product version and build number as a string. Using ProductVersion makes the version number compatible with the other Qlik products such as Qlik Sense.

Syntax:

```
ProductVersion()
```

QlikViewVersion

This function returns the full QlikView version and build number as a string.

Syntax:

```
QlikViewVersion()
```

Using ProductVersion will make the version number compatible with the other Qlik products such as Qlik Sense.

See also: ProductVersion

StateName - chart function

This chart function returns the state name of the object in which it is used. The QlikView developer can use this function to have dynamic text and colors when an object's state is changed. It is important to note that this function works on objects only. It cannot be used in a chart expression to determine the state that the expression refers to.

Syntax:

```
StateName ()
```

*Alternate states can be defined under **Settings** > **Document Properties** > **General** > **Alternate States**.*

Example 1:

```
      Dynamic Text
='Region - ' & if(StateName() = '$', 'Default', StateName())
```

Example 2:

```
      Dynamic Colors
if(StateName() = 'Group 1', rgb(152, 171, 206),
      if(StateName() = 'Group 2', rgb(187, 200, 179),
            rgb(210, 210, 210)
      )
)
```

Table functions

The table functions return information about the data table which is currently being read. If no table name is specified and the function is used within a **LOAD** statement, the current table is assumed.

All functions can be used in the load script, while only **NoOfRows** can be used in a chart expression.

Table functions overview

Some of the functions are described further after the overview. For those functions, you can click the function name in the syntax to immediately access the details for that specific function.

FieldName

The **FieldName** script function returns the name of the field with the specified number within a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

```
FieldName (field_number ,table_name)
```

FieldNumber

The **FieldNumber** script function returns the number of a specified field within a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

```
FieldNumber (field_name ,table_name)
```

NoOfFields

The **NoOfFields** script function returns the number of fields in a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

```
NoOfFields (table_name)
```

NoOfRows

The **NoOfRows** function returns the number of rows (records) in a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

```
NoOfRows (table_name)
```

NoOfTables

This script function returns the number of tables previously loaded.

```
NoOfTables()
```

TableName

This script function returns the name of the table with the specified number.

```
TableName(table_number)
```

TableNumber

This script function returns the number of the specified table. The first table has number 0.

If table_name does not exist, no value is returned. If a function is set to return a functional value, this variable is not initialized. As a workaround, you can specify `LET vImaginaryTabNum = If(TableNumber ('NotExistingTable')>=0,TableNumber('NotExistingTable'),'NULL') ;`

```
TableNumber(table_name)
```

Example:

In this example, we want to create a table with information about the tables and fields that have been loaded.

First we load some sample data. This creates the two tables that will be used to illustrate the table functions described in this section.

```
Characters:
Load Chr(RecNo()+Ord('A')-1) as Alpha, RecNo() as Num autogenerate 26;
```

```
ASCII:
Load
 if(RecNo()>=65 and RecNo()<=90,RecNo()-64) as Num,
 Chr(RecNo()) as AsciiAlpha,
 RecNo() as AsciiNum
autogenerate 255
 Where (RecNo()>=32 and RecNo()<=126) or RecNo()>=160 ;
```

Next, we iterate through the tables that have been loaded, using the **NoOfTables** function, and then through the fields of each table, using the **NoOfFields** function, and load information using the table functions.

```
//Iterate through the loaded tables
For t = 0 to NoOfTables() - 1

//Iterate through the fields of table
 For f = 1 to NoOfFields(TableName($(t)))
  Tables:
  Load
   TableName($(t)) as Table,
   TableNumber(TableName($(t))) as TableNo,
   NoOfRows(TableName($(t))) as TableRows,
   FieldName($(f),TableName($(t))) as Field,
   FieldNumber(FieldName($(f),TableName($(t))),TableName($(t))) as FieldNo
   Autogenerate 1;
 Next f
Next t;
```

The resulting table Tables will look like this:

Tables table

Table	TableNo	TableRows	Field	FieldNo
Characters	0	26	Alpha	1
Characters	0	26	Num	2
ASCII	1	191	Num	1
ASCII	1	191	AsciiAlpha	2
ASCII	1	191	AsciiNum	3

FieldName

The **FieldName** script function returns the name of the field with the specified number within a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

Syntax:

```
FieldName(field_number ,table_name)
```

Arguments:

FieldName arguments

Argument	Description
field_number	The field number of the field you want to reference.
table_name	The table containing the field you want to reference.

Example:

```
LET a = FieldName(4,'tab1');
```

FieldNumber

The **FieldNumber** script function returns the number of a specified field within a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

Syntax:

```
FieldNumber(field_name ,table_name)
```

FieldNumber arguments

Argument	Description
field_name	The name of the field.
table_name	The name of the table containing the field.

If the field field_name does not exist in table_name, or table_name does not exist, the function returns 0.

Example:

```
LET a = FieldNumber('Customer','tab1');
```

NoOfFields

The **NoOfFields** script function returns the number of fields in a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

Syntax:

```
NoOfFields(table_name)
```

Arguments:

NoOfFields arguments

Argument	Description
table_name	The name of the table.

Example:

```
LET a = NoOfFields('tab1');
```

NoOfRows

The **NoOfRows** function returns the number of rows (records) in a previously loaded table. If the function is used within a **LOAD** statement, it must not reference the table currently being loaded.

Syntax:

```
NoOfRows(table_name)
```

Arguments:

NoOfRows arguments

Argument	Description
table_name	The name of the table.

Example:

```
LET a = NoOfRows('tab1');
```

Trigonometric and hyperbolic functions

This section describes functions for performing trigonometric and hyperbolic operations. In all of the functions, the arguments are expressions resolving to angles measured in radians, where **x** should be interpreted as a real number.

All angles are measured in radians.

All functions can be used in both the load script and in chart expressions.

cos

Cosine of **x**. The result is a number between -1 and 1.

```
cos( x )
```

acos

Inverse cosine of **x**. The function is only defined if -1≤**x**≤1. The result is a number between 0 and π.

```
acos( x )
```

sin

Sine of **x**. The result is a number between -1 and 1.

```
sin( x )
```

asin

Inverse sine of **x**. The function is only defined if -1≤**x**≤1. The result is a number between - π/2 and π/2.

```
asin( x )
```

tan

Tangent of **x**. The result is a real number.

```
tan( x )
```

atan

Inverse tangent of **x**. The result is a number between - π/2 and π/2.

```
atan( x )
```

atan2

Two-dimensional generalization of the inverse tangent function. Returns the angle between the origin and the point represented by the coordinates **x** and **y**. The result is a number between - π and + π.

```
atan2( y,x )
```

cosh

Hyperbolic cosine of **x**. The result is a positive real number.

```
cosh( x )
```

sinh

Hyperbolic sine of **x**. The result is a real number.

```
sinh( x )
```

tanh

Hyperbolic tangent of **x**. The result is a real number.

```
tanh( x )
```

Examples:

The following script code loads a sample table, and then loads a table containing the calculated trigonometric and hyperbolic operations on the values.

```
SampleData:
LOAD * Inline
[Value
-1
0
1];

Results:
Load *,
cos(Value),
acos(Value),
sin(Value),
asin(Value),
tan(Value),
atan(Value),
atan2(Value, Value),
cosh(Value),
sinh(Value),
tanh(Value)
RESIDENT SampleData;
```

```
Drop Table SampleData;
```

10 Security

A security mechanism in QlikView can be set up in two different ways: It can either be built into the QlikView document script, or it can be set up through the use of QlikView Publisher.

10.1 Authentication and Authorization

Authentication is any process by which it is verified that someone is who they claim they are. QlikView can either let the Windows operating system do the authentication, or prompt for a User ID and Password (different from the Windows User ID and Password) or use the QlikView license key as a simple authentication method.

Authorization is finding out if the person, once identified, is permitted to have the resource. QlikView can either let the Windows operating system do the authorization or do the authorization itself. For the latter, a security table must be built into the script.

10.2 Security Using the QlikView Publisher

If the QlikView Publisher is set up to handle security, then each QlikView file will be split up into several files, each containing the data pertaining to the relevant user or user group. These files will be stored in folders with the correct OS security settings, that is, QlikView lets the operating system handle Authentication and Authorization.

There is, however, no security built into the file itself, so there is no protection on a downloaded file.

The file sizes will usually be smaller, since one single file will be split into several and the user only opens the file with his own data. However, this also means that a QlikView Server can potentially use more memory than if all data are kept in one file, since several files containing the same data sometimes will be loaded.

For further information, see the QlikView Publisher documentation.

10.3 Security Using the Section Access in the QlikView Script

If the Section Access in the QlikView script is set up to handle security, then one single file can be made to hold the data for a number of users or user groups. QlikView will use the information in the Section Access for Authentication and Authorization and dynamically reduce the data, so that the user only sees his own data.

The security is built into the file itself, so also a downloaded file is to some extent protected. However, if the security demands are high, downloads of files and offline use should be prevented. The files should be published by the QlikView Server only.

Since all data are kept in one file, the size of this file can potentially be very large.

QlikView documents can be made invisible in offline mode. To make an offline user document invisible, add the following attribute in the document information section of a user document using the QMC:

- Name: *Invisible*
- Value: *True*

All information below refers to the security method of using Section Access in the QlikView script.

10.4 Sections in the Script

Row-level access is managed through one or several security tables loaded in the same way as data is normally loaded. This makes it possible to store these tables in a standard database or in a spreadsheet. The script statements managing the security tables are given within an authorization section, which in the script is initiated by the statement **Section Access**.
If an authorization section is defined in the script, the part of the script loading the app data must be put in a different section, initiated by the statement **Section Application**.

Example:

```
Section Access;
AuthorizationTable:
Load ACCESS,  USERID,   REGION From ...;

Section Application;
Load ... From ...;
```

10.5 Access Levels in Section Access

Access to QlikView documents can be authorized for specified users or groups of users. In the security table, users can be assigned to the access levels ADMIN or USER. If no access level is assigned, the user cannot open the QlikView document.
A person with ADMIN access can change everything in the document. Using the **Security** page in the **Document Properties** and **Sheet Properties** dialogs, a person with ADMIN access can limit the users' possibilities of modifying the document. A person with USER privileges cannot access the **Security** pages.

ADMIN rights are only relevant for local documents! Documents opened on a Server are always accessed with USER rights.

10.6 Section Access System Fields

The access levels are assigned to users in one or several tables loaded within the section access. These tables can contain several different user-specific system fields, typically USERID and PASSWORD, and the field defining the access level, ACCESS. All **Section Access** system fields will be used for authentication or authorization. The full set of **section access** system fields are described below.
None, all, or any combination of the security fields may be loaded in the access section. It is thus not necessary to use USERID – an authorization can be made using other fields, for example, serial number only.

Section Access system fields

Field	Description
ACCESS	A field that defines what access the corresponding user should have.

Field	Description
USERID	A field that should contain an accepted user ID. QlikView will prompt for a User ID and compare it to the value in this field. This user ID is not the same as the Windows user ID.
USER.EMAIL	Currently not supported, will in QlikView only match on wildcard.
PASSWORD	A field that should contain an accepted password. QlikView will prompt for a Password and compare it to the value in this field. This password is not the same as the Windows password.
SERIAL	A field that should contain a number corresponding to the QlikView serial number or the string 'QLIKVIEW'. Example: 4900 2394 7113 7304 QlikView will check the serial number of the user or the string 'QLIKVIEW' and compare it to the value in this field.
NTNAME	A field that should contain a string corresponding to a Windows NT Domain user name or group name. If a different authentication system is used, it should contain the name of an authenticated user. QlikView will fetch the logon information from the OS and compare it to the value in this field.
NTDOMAINSID	A field that should contain a string corresponding to a Windows NT Domain SID. Example: S-1-5-21-125976590-4672381061092489882 QlikView will fetch the logon information from the OS and compare it to the value in this field.
NTSID	A field that should contain a Windows NT SID. Example: S-15-21-125976590-467238106-1092489882-1378 QlikView will fetch the logon information from the OS and compare it to the value in this field.
OMIT	A field that should contain the field that should be omitted for this specific user. Wildcards may be used and the field may be empty. A facile way of doing this is to use a subfield.  *You should not apply OMIT on key fields, as this will change the underlying data structure. This may create logical islands and calculation inconsistencies.*

QlikView will compare the QlikView serial number with the field *SERIAL*, the Windows NT User name and groups with *NTNAME*, the Windows NT Domain SID with *NTDOMAINSID* and the Windows NT SID with *NTSID*. It will further prompt for User ID and Password and compare these with the fields *USERID* and *PASSWORD*.

If the found combination of user ID, password and environment properties is also found in the **section access** table, then the document is opened with the corresponding access level. If not, QlikView will deny the user access to the document. If the User ID and/or the Password are not entered correctly within three attempts the entire log-on procedure must be repeated.

Since the same internal logic that is the hallmark of QlikView is used also in the access section, the security fields may be put in different tables. (It is thus possible for a system manager to make a QlikView document out of the security tables. In this case a correct serial number, password etc. is simulated by a click on the corresponding field value.)

In the logon procedure, QlikView will first check *SERIAL, NTNAME, NTDOMAINSID* and *NTSID* to see if this information is enough to grant the user access to the document. If so, QlikView will open the document without prompting for User ID and Password.

If only some of the access fields are loaded, the appropriate of the above requirements are used.

All the fields listed in **Load** or **Select** statements in the section access must be written in UPPER CASE. Any field name containing lower case letters in the database should be converted to upper case using the **upper** function before being read by the **Load** or **Select** statement.

Upper (page 1524)

However the user ID and the password entered by the end-user opening the QlikView documents are case insensitive.

A wildcard (*) is interpreted as all (listed) values of this field, that is, a value listed elsewhere in this table. If used in one of the system fields (*USERID, PASSWORD, NTNAME* or *SERIAL*) in a table loaded in the access section of the script, it is interpreted as all (also not listed) possible values of this field.

When loading data from a QVD file, the use of the upper function will slow down the loading speed.

*To generate access tables in inline statements use the **Access Restriction Table Wizard**.*

If you have enabled section access, you cannot use the section access system field names listed here as field names in your data model.

Example 1:

Only serial number is checked. One specific computer gets ADMIN access. Everyone else gets USER access. Note that a star can be used to mark “any serial number”.

Example 1

ACCESS	SERIAL
ADMIN	4900 2394 7113 7304
USER	*

Example 2:

The administrator and the server on which QlikView runs as a batch job get ADMIN access. Everyone else in the Domain gets USER access when entering “USER” as user ID and password.

Example 2

ACCESS	SERIAL	NTDOMAINSID	USERID	PASSWORD
ADMIN	*	S-1-5-21-125976590-467238106-1092489882	ADMIN	ADMIN
ADMIN	4900 2394 7113 7304	*	*	*
USER	*	S-1-5-21-125976590-467238106-1092489882	USER	USER

10.7 Mixed environments

If you plan to use the same authorization table in both QlikView and Qlik Sense SaaS, there are a couple of things to be aware of:

• USERID has different meanings in QlikView and Qlik Sense SaaS, and could, if used, cause security problems. Use NTNAME instead or combine it with SERIAL as described below.

• GROUP and fields beginning with ‘USER.’, such as 'USER.NAME' and 'USER.EMAIL', etc. are (or will be) authenticating fields in Qlik Sense Enterprise SaaS. If you use these fields in your Section Access, access may be denied in Qlik Sense SaaS.

• PASSWORD, NTSID and NTDOMAINSID cannot be used in Qlik Sense SaaS. Access will be denied, unless a wildcard is used.

• SERIAL cannot be used to check license number in Qlik Sense SaaS. However, if this field contains the string ‘QLIKCLOUD’ or 'QLIKVIEW', access might be granted. This means that it is possible to have an authorization table like the following, where line 1 will grant access in QlikView (but not in Qlik Sense SaaS), and line 2 will grant access in Qlik Sense SaaS (but not in QlikView).

Line	SERIAL	USERID	Comment
1	4600 0123 4567 8901	*	Grants access to correct license number in QlikView.
2	QLIKCLOUD	John Doe	Grants access to correct user in Qlik Sense Enterprise SaaS.

Line	SERIAL	USERID	Comment
1	QLIKVIEW	*	Grants access to QlikView.
2	QLIKCLOUD	John Doe	Grants access to correct user in Qlik Sense Enterprise SaaS.

10.8 Restrictions on QlikView Functionality

The controls found on the **Document Properties: Security** page and the **Sheet Properties: Security** page make it possible to disallow the access to certain menu items and prohibit changes in the layout. If these settings are to be used as a truly protective measure, it is important that the document users are logged in as USER. Anyone logged in as ADMIN can change the security settings at any time.

A user that has opened the document with USER rights does not have the **Security** pages in the Properties dialogs.

10.9 Dynamic Data Reduction

QlikView and QlikView Server support a feature by which some of the data in a document can be hidden from the user based on the **section access** login.

First of all, fields (columns) can be hidden by the use of the system field **OMIT**.

Secondly, records (rows) can be hidden by linking the **Section Access** data with the real data: The selection of values to be shown/excluded is controlled by means of having one or more fields with common names in **section access** and **section application**. After user login QlikView will attempt to copy the selections in fields in **section access** to any fields in **section application** with exactly the same field names (the field names must be written in UPPER CASE). After the selections have been made, QlikView will permanently hide all data excluded by these selections from the user.

In order for this procedure to take place, the option **Initial Data Reduction Based on Section Access** on the **Document Properties: Opening** page must be selected. If this feature is used in documents that are to be distributed by other means than via QlikView Server, the option **Prohibit Binary Load** on the same page of the Document Properties must be selected in order to maintain data protection.

*All field names used in the transfer described above and all field values in these fields must be upper case, since all field names and field values are by default converted to upper case in **section access**.*

Example:

```
section access;
LOAD * inline [
ACCESS, USERID, REDUCTION, OMIT
ADMIN, ADMIN, *,
USER, A, 1
USER, B, 2, NUM
USER, C, 3, ALPHA
];
section application;
T1:
LOAD *,
NUM AS REDUCTION;
LOAD
Chr( RecNo()+ord('A')-1) AS ALPHA,
RecNo() AS NUM
AUTOGENERATE 3;
```

The field REDUCTION (upper case) now exists in both **section access** and **section application** (all field values are also upper case). The two fields would normally be totally different and separated, but if the **Initial Data Reduction Based on Section Access** option has been selected, they will link and reduce the number of records displayed to the user.

The field OMIT in **section access** defines the fields that should be hidden from the user.

The result will be as follows:

User A can see all fields, but only those records connected to REDUCTION=1.

User B can see all fields except NUM, and only those records connected to REDUCTION=2.

User C can see all fields except ALPHA, and only those records connected to REDUCTION=3.

10.10 Inherited Access Restrictions

A binary load will cause the access restrictions to be inherited by the new QlikView document. A person with ADMIN rights to this new document may change the access rights of this new document by adding a new **access** section. A person with USER rights can execute the script and change the script, thus adding own data to the binary loaded file. A person with USER rights cannot change the access rights. This makes it possible for a database administrator to control the user access also to binary loaded QlikView documents.

10.11 Encryption

The communication between a QlikView Server and a QlikView Windows client is encrypted. If, however, the AJAX client is used, the communication is not encrypted.

In addition, all QlikView documents are scrambled which makes the information unreadable with viewers, debuggers etc.

You can also encrypt sensitive data in QVD files with customer supplied key pairs which allows you to control who gets access to your data.

11 AJAX/WebView

This guide is used for the AJAX client as well as the WebView mode in the QlikView Desktop. Some features might differ slightly in the different clients.

11.1 WebView Mode in QlikView Desktop

Via a single click on a toolbar button it is now possible to switch between traditional rendering and AJAX rendering when running QlikView Desktop. This feature provides a convenient way for the developer to see exactly how the layout will look when used from an AJAX client. Naturally the AJAX property dialogs are available when running in WebView, providing some nice functionality that is not available to the developer in standard view. However, it should be noted that some functionality are not available in WebView, for example:

- Report editing.
- Menu commands cut, copy, and paste (shortcuts Ctrl+X, Ctrl+C, and Ctrl+V).
- Animation of charts.
- Printing or exporting embedded images.

11.2 Copying Chart Images to Clipboard

It is possible to copy images of chart objects to clipboard by holding down Ctrl+Shift and right clicking on the chart object, then selecting Copy from the menu.

11.3 Touch Functionality

The following functionality is supported on touch screens:

- Creating objects
- Moving, copying and resizing objects
- Changing properties

11.4 File Name Limitations

If you want to share a QlikView document using AJAX clients, the file name must not contain hash (#) characters.

11.5 Keyboard Shortcuts

QlikView Desktop keyboard shortcuts are not available in the AJAX client.

11.6 AJAX on Small Devices

AJAX on Small Devices creates support for QlikView data exploration on small form touch devices, such as smart phones. Existing applications may be used without redesigning, as QlikView features are used along with built-in scrolling and zooming functionality in the small device. It is possible to open the QlikView

document in a layout that automatically redesigns objects to suit small devices, or in its original application layout. Unlike in the Ajax client, Small device version does not have sheet concept, therefore loads all objects. Please avoid to develop large document for Small device version.

The following descriptions are made using an iPhone, and may vary slightly when using other small devices.

Preparations for AJAX on Small Devices

Connecting to the QlikView Document

You can select all QlikView documents available to you from QlikView AccessPoint. Connection to QlikView AccessPoint is done by typing *http://localhost/qlikview/index.htm* in the web browser.

Settings in QlikView AccessPoint

Set the preferred mobile version on the QlikView AccessPoint start page:

QlikView platform versions

Version	Details
Small Device Version	Shows the QlikView document in a layout that automatically redesigns objects to suit small devices.
Ajax client	Shows the QlikView document in original application layout.

Also select if the setting is to be saved for the device. The setting may be edited later, by selecting **Favorites & Profiles** at the top right-hand corner of the QlikView AccessPoint start page, on the **Profile** tab.

It is possible to switch between the different layouts at any time, when the QlikView document is opened.

Creating a Shortcut on the Home Screen

Once the QlikView document is opened, it is possible to create a shortcut to the document from the **Home** screen. This maximizes work space for the QlikView document, rather than displaying the browser address field. After having created the shortcut, tap the icon to relaunch the application.

This description applies only when using an iPad or an iPhone.

Working with QlikView documents on Small Devices

Adapted Layout

In order to use the limited space of the small device in an optimized way, some objects are not included when opening the document using AJAX on Small Devices:

- Button
- Container
- Line Arrow
- Current Selections Box

- Input Box
- Multi Box
- Bookmark Object
- Search Object
- Text Object

Access to the excluded objects is available by switching to Ajax client.

Navigating Among Sheets

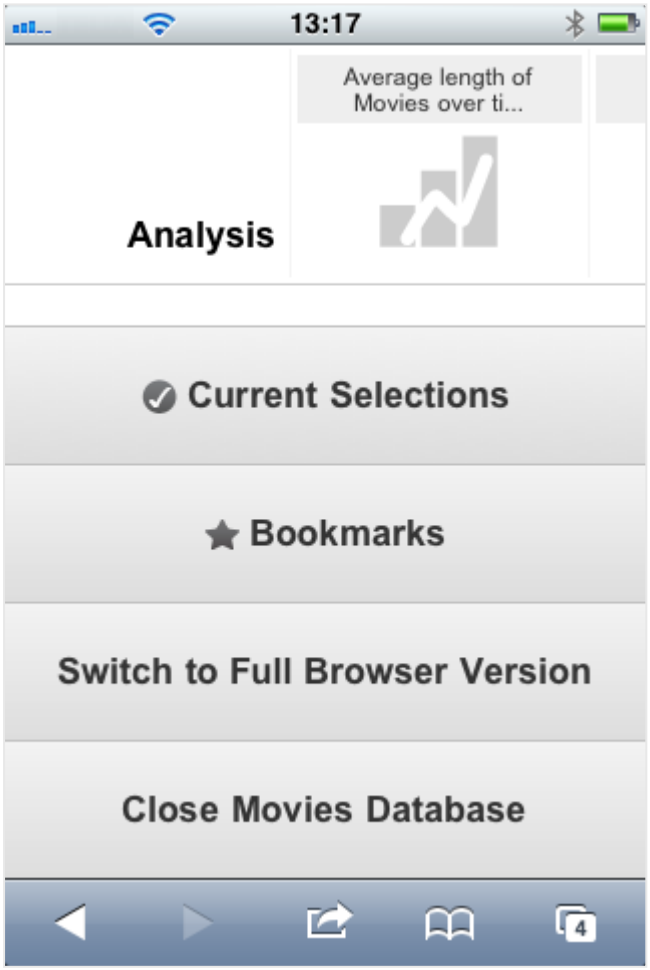
To navigate between sheets, drag your finger up or down on the screen (vertical scrolling).

Navigating Among Objects

To navigate between objects of the current sheet from the document start screen, drag your finger right or left on the screen (horizontal scrolling). To select an object, press it with your finger.

To navigate to the next object on the sheet when an object has been selected, flick left or right, or tap to the left or right of the row of dots at the bottom of the screen.

Main Menu



The main menu is located at the bottom of the screen when a QlikView document is opened, and contains a number of options:

Current Selections

Pressing **Current Selections** displays selections that are currently made, and any already made selections can be edited or removed. The current selections affect what is displayed in all objects in the QlikView document. Pressing the arrow in the top right-hand corner opens the **Current Selections** menu, with the following options:

Current Selections options

Option	Description
Back	Reverts to the preceding selection state.
Forward	Reverts to the selection state before having selected **Back**. It is possible to toggle between two states by alternating between the **Back** and **Forward** commands.
Lock all fields	Locks all selected values.
Unlock all fields	Unlocks all currently locked values.
Clear all selections	Clears all selections, except locked ones.
Unlock and clear all	Unlocks and clears all values.

Bookmarks

Pressing **Bookmarks** displays all bookmarks that are defined for the document. The current state of selections can be saved as bookmarks for later use. Bookmarks capture selections in all states defined in a QlikView document. When recalling a bookmark, the selections in all states will be applied. Bookmarks cannot be defined, only viewed, when using the layout adapted for small devices.

Switch to Ajax Client

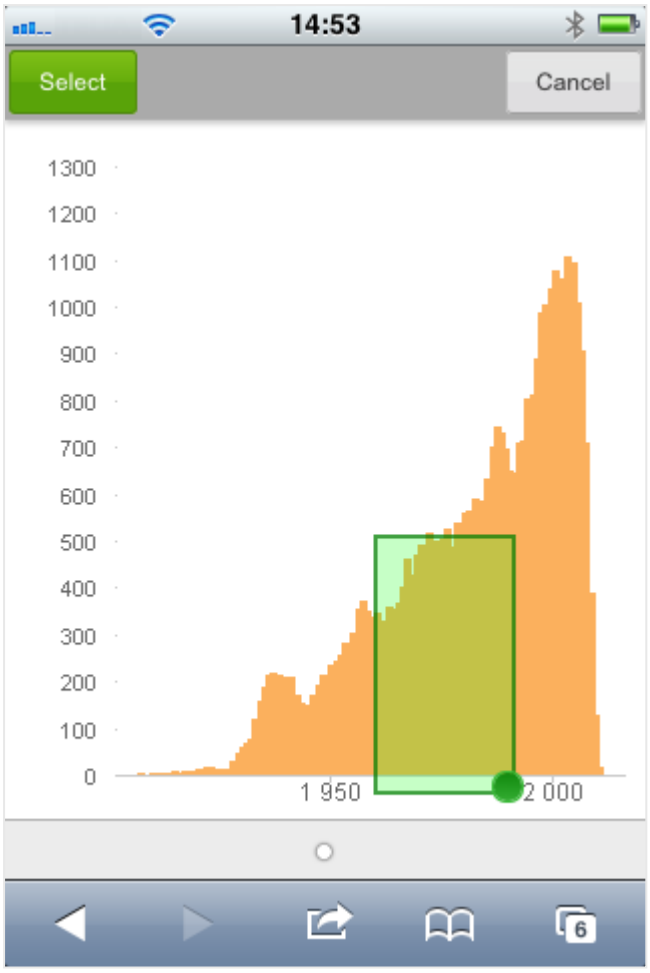
When having opened the QlikView document in the version optimized for small devices, it is possible to switch to original application layout by selecting the **Switch to Ajax Client** option.

Close [Current Document]

Closes the current document.

Working with Objects

To select a part of the displayed values in for example a bar chart, or to select multiple lines in a line chart, hold your finger on the object until the resizable selection area pops up. Resize the selection area according to your preference, and press the **Select** button at the top left-hand corner.



The selected values are now displayed.

When a menu is available, it is accessed by pressing the arrow at the top right-hand corner. When an object is selected, the menu includes **Current Selections** and **Bookmarks** . The menu is closed by pressing the X-icon.

To return to the previous view, press the **Back** icon at the top left-hand corner.

To select multiple items in a list box or in a table, hold your finger on the item until the **Select**, **Clear** and **Cancel** buttons are displayed at the top of the screen. Use the **Select** button to add selections, and **Clear** buttons to remove selections.

Orientation and Zooming

Rotating the small device 90° allows working with the QlikView document in landscape orientation.

Zooming of QlikView objects is supported when having opened the document in Ajax client, using the regular zooming functionality of the small device.

11.7 Setting your preferred language in AccessPoint

By default, QlikView WebView uses the language selected during installation while AJAX uses English for both AccessPoint and QlikView documents. You can change your language setting in QlikView AccessPoint to another language. Your language selection is saved in a cookie for one year. For a full list of the supported languages, see *Supported languages (page 32)*

If you clear your browser's cookies, you must set your language again. If you use multiple browsers, you must set your language preference in AccessPoint in each browser that you use.

If you have any QlikView documents open when you change your language in AccessPoint, the language will not change until they are closed and reopened.

Do the following:

1. Log into AccessPoint.
2. Click **Favorites & profile**.
3. Click the **Profile** tab.
4. Select a language from the **Preferred language** drop-down.

AccessPoint will refresh and display in the selected language.

11.8 NPrinting On-Demand

You can create reports based on Qlik NPrinting templates by using the On-Demand feature available in the QlikView WebView interface. For more information about installing the On-Demand Add-on and creating On-Demand reports, see the following section:
On-Demand reports

Create a Qlik NPrinting report in QlikView

1. In the QlikView WebView interface, click the **On-Demand** button in the toolbar.
   The **Qlik Nprinting** window opens.
2. Click **Create a report**.
3. Click a report to select the Qlik NPrinting report template that you want to use.
4. Select an export format for the report.
5. Click **Generate report**.

The report status will be listed as **In queue**. When the report is complete, you can download a copy to your computer.

11.9 Sheet

A QlikView document can have one or several sheets on which the sheet objects are placed. Each sheet can contain many sheet objects. The sheets have no connection with the logic - if two fields are logically connected, it does not matter if they are put on the same sheet or on different sheets. The logical result when making selections will still be the same.

Depending on whether you are running WebView or AJAX, some of these settings may not be available.

Sheet: Object Menu

Sheet: Object Menu properties

Property	Details
Properties...	Opens the sheet's **Properties** dialog.
New Sheet Object	Opens a dialog, from which you can drag a sheet object onto the sheet.
Select Fields...	Opens the **Fields** dialog. Here you can select the fields to be displayed on the current sheet.
Clear	Clicking on this button applies the start selection of a QlikView document, which can be configured, see **Set Clear State** below.
Clear All Selections	Deselects all the selected values of the document.
Set Clear State	Sets the current selection as **Clear State**.
Reset Clear State	Resets Clear State to no selections.
Back	QlikView remembers the last 100 selections. By clicking this button, you go one step back in the list of selections.
Forward	By clicking **Forward**, you go one step forward in the list of selections (equivalent to canceling the last **Back** command).
Undo Layout	Undoes the last layout action.
Redo Layout	Redoes the latest undone layout action.
Lock All Selections	Prevents selections from being cleared by mistake.
Unlock All Selections	Takes away the lock described above.

Property	Details
Selections	Opens a **Current Selections** box in which it is possible to see the selections that are active.
Add Sheet	Adds a new sheet to the document.
Paste Sheet Object	Pastes a sheet object which has previously been put on the clipboard via the **Cut** or **Copy** commands within the QlikView document.
Create Quick Chart...	Opens the **Quick Chart Wizard** where you can create bar, line and pie charts with only very basic settings.
Repository...	Opens the **Repository** dialog.
Add Bookmark	Saves the current set of selections as a bookmark.
Remove Bookmark	Opens a drop-down list showing all bookmarks in the document. Here you can choose which bookmark to remove.
Mail with Bookmark as Link	Creates an e-mail with a URL link to the current server document. A temporary server bookmark will be created (including layout state) and encoded in the URL. The mail recipient will be able to use the URL link to open the server document and see what you see, provided that he has access rights to the document and its data. **Limitations:** • An e-mail client has to be configured for this command to work. • The QlikView Server must be configured to allow server bookmarks. • This feature is not supported in extranet deployments.
Delete	Deletes the selected item.
Refresh	Refreshes the QlikView document.

11.10 Toolbar

The toolbar at the top in the web browser window contains the following icons:

Toolbar icons

Icon	Description
	Returns you to AccessPoint.
	Applies the start selection of the QlikView document.
	Moves one step back in the list of selections.
	Moves one step forward in the list of selections, provided that you have previously used the **Back** button.

Icon	Description
	Undoes the last layout action.
	Redoes the latest undone layout action.
	Locks all the selected cells.
	Unlocks all the locked cells.
	Opens the current selections window.
	Opens the *Notes and Comments*window where you can view notes.
	Opens the **Repository** dialog.
	Opens the **New Sheet Object** dialog where you can choose an object to drag to the sheet.
	Opens the **Fields** dialog.
	Opens the **Add Bookmark** dialog. In order to access a shared bookmark, it has to be added from the repository. From the repository, select **Edit** and check **Show in my favorites**.
	Opens a list of all bookmarks in the document. Select a bookmark to delete it.
	The drop-down contains a list of all bookmarks in the document. Bookmarks can be searched by name or selected from the drop-down.
	The drop-down contains a list of all reports in the document. Reports can be searched by name or selected from the drop-down.
	Opens help.

11.11 Repository

In this dialog you see a list of the objects, dimensions, expressions and bookmarks that the document contains. With objects and bookmarks you can filter and sort the list using the two drop-down boxes at the top.

Filter Options (Objects and Bookmarks)

Filter Options (Objects and Bookmarks)

Option	Description
Show items created by me (default)	Show only objects or bookmarks that you have created as user items on the server.
Show shared items	Show only objects or bookmarks that have been shared by another user.
Show document items	Show only objects or bookmarks that are created in the QlikView document. Items created in WebView developer mode of QlikView are also considered document items.
Show all items	Show all objects or bookmarks.

Sort Options (Objects and Bookmarks)

You can sort the list by name, type, owner or date.

Objects

A list of all the objects of the document. Click and drag an object from the list onto the sheet to create a copy of the object. Clicking  opens the properties dialog for the object. Click  to remove all instances of the object from the document. The question mark at the top of the list opens a small help dialog.

Dimensions

A list of all the dimensions that are used in the document. From here you can drag a dimension to an existing object and change the existing dimensions, add it as a new dimension, change an expression or add it as a new expression.

Expression

A list of all the expressions that are used in the document. From here you can drag a dimension to an existing object and change the existing dimensions, add it as a new dimension, change an expression or add it as a new expression.

Bookmarks

A list of all the bookmarks that are used in the document. Click on one of the bookmarks to apply it. Clicking  opens the properties dialog for the object. Click  to remove all instances of the object from the document. The question mark at the top of the list opens a small help dialog. In order to access a shared bookmark, it has to be added from the Repository. From the Repository, select **Edit** and check **Show in my favorites**.

11.12 List Box - AJAX/Webview

This is the most basic object on the screen. It contains a list of all the possible values of a specific field. In a list box you often make selections, and look at logical connections and implications.

A list box may also contain a cyclic or drill-down group. If a drill-down group is used, selecting a single value in the list box will cause the list box to drill down and switch to the next underlying field in the group. Drilling back up can be accomplished by clicking the drill-up icon in the list box caption.

If a cyclic group is assigned to a list box it can be made to show the next field in the group by clicking on the cycle icon that appears in the list box caption. It is also possible to go directly to any field in the group by using the **Cycle->** option on the list box object menu.

List Box: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

List Box: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Search	Opens the text search box.
Fuzzy Search	Opens the text search in fuzzy search mode.
Select Possible	All non-excluded values in the sheet object are selected.
Select Excluded	All excluded values in the sheet object are selected.
Select All	All values in the sheet object are selected.
Clear	Clears all the current selections in the active sheet object. Clicking on the icon in the object caption (if shown) produces the same result.
Clear Other Fields	Clears the selections in all the other sheet objects, while maintaining the ones in the currently active sheet object.
Lock	Locks the selected value(s) in the active sheet object. (Unavailable if no selections have been made).
Unlock	Unlocks the locked value(s) in the active sheet object. (Appears instead of **Lock** if selections have been locked).

Command	Details
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Copy selections to clipboard	Copies the list box selections to the clipboard.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Delete	Removes the selected object from the sheet.

List Box Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Field

Select a field in the drop-down.

For more information click the **More...** button.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **`State`** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.

- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
    - **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected on top.

Number

Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:

- **Override Default Settings**: Select to override the default settings for the active object.Number FormatChoose a number format from the alternatives below.
    - **Mixed**: Both numbers and text. Numbers are shown in original format.
    - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
    - **Integer**: Shows numeric values as integers.
    - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
    - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
    - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
    - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
    - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
    - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
- **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Hide Excluded

Toggles whether the excluded values of the field should be shown or not. Excluded values become unselectable as well.

Override Locked Field

Checking this option enables selections to be made in the sheet object even if it is locked. The sheet object will still be locked for selections made elsewhere in the document.

Show Frequency

Toggles the status for whether the frequency of a field value is shown or not. By frequency is meant the number of selectable combinations in which the value occurs. This option is not available for calculated fields.

In Percent
Toggles the status for whether the frequency should be shown in absolute numbers or as percentages of the total number of entries.

Expressions

To add an expression click  .Choose expression in the list. The  icon moves the items in the list. The  icon removes items from the list. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog. Click  to open the **Expression Settings** dialog.

Enable

Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.

Conditional

The column will be displayed or hidden depending on a condition expression which will be evaluated each time the object is drawn. The value may be entered as a calculated formula.

Expression

Enter the expression you wish to display. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.

Data (Numeric)

Sets the alignment for numeric data to **Left**, **Centered** or **Right**.

Data (Text)

Sets the alignment for text data to **Left**, **Centered** or **Right**.

Representation

Choose a representation in the drop-down list. Depending on which representation is chosen different settings are shown.

- **Text**: No other settings.
- **Image**:
- **No Stretch**: When **Image** is selected, settings can be made for **Image Stretch**:
    - **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
    - **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
    - **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
    - **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Gauge**: Different gauge styles are available. The gauge chart will be inscribed in the available table cell. Settings for the different gauge alternatives:
    - **Min**: Specifies the minimum value of the gauge. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
    - **Max**: Specifies the maximum value of the gauge. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
    - **Mini Chart**: When selecting this option, QlikView will display the expression value in a miniature chart with the expression aggregated over an extra dimension. The chart will be inscribed in the available table cell. The mini chart dimension can be defined as well as visual settings. Settings for the Mini Chart:
        - **Field**: Choose the field for which the expression should be plotted.
        - **Mode**: Set the mini chart as sparklines, lines, dots, bars or whiskers.

        The mini chart will not be displayed when exporting to Excel!

List Box Properties: Presentation

Presentation

Selection Style Sets the selection style for the document. Select between the available alternatives in the drop-down menu. By choosing **<User Default>** the document will always be opened with the selection style set as preferred by the user under **User Preferences** on the computer where it is opened.

- **Representation**: This section describes **Representation** options.
    - **Text**: When selecting this option, the field values will always be interpreted and displayed as text.
    - **Image**: When selecting this option QlikView will try to interpret each field value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.png) or inside the QlikView document (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret a field value as a valid image reference, the value itself will be displayed. Click  to open the **Image Settings** popup.

- **Image Settings Popup**:
    - **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
    - **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
    - **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
    - **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
    - **Hide Text When Image is Missing**: No text will be displayed if QlikView cannot interpret the image reference.
- **Info as Image**: When selecting this option, QlikView will display image info linked to the field value through info load/select in the script. If no image is available for the field value, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

List Box properties

This section describes **List Box** properties.

Text Align

Here you set the alignment of text field values in the list box.

Number Align

Here you set the alignment of numeric field values in the list box.

Auto Columns

The number of columns is automatically selected.

Fixed Number of Columns

If multiple columns are allowed, specify the number of columns in the input field, or drag the slider to the desired number.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

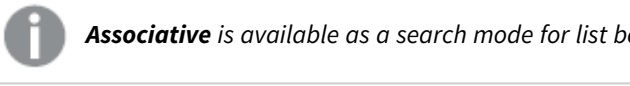
- **Image Popup**:
    - **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
    - **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
    - **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.

- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

- **General**:
  - **Show as TreeView**: Shows the list box as a tree view. This control is only relevant if the field contains the path representation of nodes in a hierarchy. Such a field can be generated using the **Path** parameter of the **Hierarchy** prefix.
  - **With Separator**: Sets the character that should be interpreted as separator in the path used for the **Tree View**.
  - **Search Mode**:
    - **Default Search Mode**:

      Here you may determine the default search mode, **Wildcard**, **Fuzzy**, **Normal** and **Associative**, to be used in any text search.

      Associative *is available as a search mode for list boxes only.*
  - **Include Excluded Values in Search**: The drop-down list lets you choose between **Yes**, **No** or **<use default>** which applies the default setting as specified under **User Preferences, General**.
  - **Suppress Horizontal Scrollbar**: Check this option to suppress the horizontal scrollbar that is normally displayed when field values are too wide to for the specified width of the list box. Instead, field values will be truncated as needed.
  - **Order by Column**: In sheet objects with more than one column, values are displayed row-wise in the sort order specified. The **Order by Column** option switches to column-wise display.
  - **Cell Borders**: The field values will be separated by horizontal lines, resembling the rows of a table. **Cell borders** are automatically activated when the **Wrap Cell Text** option is checked, but may be subsequently deactivated.
  - **Wrap Cell Text**: With this option selected, a cell will display its contents in more than one row.
  - **Cell Rows**: Set the number of cell rows.
  - **Print All Values**: The normal print behavior for list boxes is to print only possible values. By marking this check box, all values (also excluded values) will be printed.
  - **Layout-Dependent Print**: By marking this check box, the list box will be printed as it appears on the screen in terms of multiple columns, selection color coding of cells etc. This may be useful e g when including list boxes in reports.
  - **Null Symbol**: The symbol entered here will be used for displaying null values in the object.
  - **Missing Symbol**: The symbol entered here will be used for displaying missing values in the object.

- **Style**:
  - **Text**: To set the font type click Aa .
  - **Caption Font**: To set the caption font click Aa.
  - **Active Caption**: To set the background color for the active caption click . To set the text color click .
  - **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
  - **Use Border**: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
  - **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
  - **Rounded Corners**: Click to open the **Rounded Corners** popup.

    > ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

    - **Rounded Corners Popup**:
      - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected.
      - Set the **Squareness** value by entering a value.
  - **Scrollbar Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels. This control affects both the width and the relative size of the scroll bar symbols.

List Box Properties: Caption

This section describes Caption properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.

- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

More.../Less... contains **Icons in Caption**. This section describes several elements in **Icons Caption**.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

List Box Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.13 Statistics Box - AJAX/Webview

Statistics boxes can show most types of statistical entities such as sum, average, minimum etc. of the possible values of a field. The calculations are made dynamically, i.e. the display changes instantaneously as selections are made in sheet objects.

Statistics Box: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Object Menu properties

Property	Description
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Select Possible	All non-excluded values in the sheet object are selected.
Select Excluded	All excluded values in the sheet object are selected.
Select All	All values in the sheet object are selected.
Clear	Clears all the current selections in the active sheet object. Clicking on the icon in the object caption (if shown) produces the same result.
Clear Other Fields	Clears the selections in all the other sheet objects, while maintaining the ones in the currently active sheet object.
Lock	Locks the selected value(s) in the active sheet object. (Unavailable if no selections have been made).
Unlock	Unlocks the locked value(s) in the active sheet object. (Appears instead of **Lock** if selections have been locked).
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the icon in the object caption (if shown) produces the same result.

Property	Description
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Delete	Removes the selected object from the sheet.

Statistics Box Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Field

Select the field you want to show statistics for in the drop-down.

Displayed Functions

In the list below, check the box to use the function. Enter an alternative label in the field to the right.

Numeric Count

Sample size, i.e. the number of numeric values among the possible values.

Null Count

Number of empty field values among the possible values.

Text Count

Number of alphanumeric values among the possible values.

Total Count

Total number of possible values. This is the same number as the frequency that can be shown in a list box.

Missing Count

Number of non-numeric values among the possible values.

Sum

Sample sum.

Average

Sample arithmetic mean.

Standard Deviation

Sample standard deviation.

Skewness

Sample skewness.

Kurtosis

Sample kurtosis.

Min

Sample minimum.

Max

Sample maximum.

Only Value

Only possible numeric value.

Statistics Box Properties: Presentation

The section describes **Statistics Box** properties.

Show Standard Error

Displays the standard error of the average and the standard deviation.

Cell Borders

Displays borders between the cells in the sheet object.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

No Stretch: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.**Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.**Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.**Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.**Horizontal**: **Left**, **Centered** or **Right** alignment.**Vertical**: **Top**, **Centered** or **Bottom** alignment.**Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes **More.../Less...** properties.

Style

- **Text**: To set the font type click Aa .
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- **Rounded Corners**: Click to open the **Rounded Corners** popup.

  > ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

  - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.
- **Scroll Bar Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels. This control affects both the width and the relative size of the scroll bar symbols.

Statistics Box Properties: Caption

This section describes **Statistics Box** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.

- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Statistics Box Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.14 Multi Box - AJAX/Webview

The multi box is a sheet object that shows several fields simultaneously.

For each field in the multi box, you will also find a selection indicator: a small beacon that will give you information on the content of the multi box. A green selection indicator shows that there are selected values, a white that there are optional values, and a gray that there are no possible values in the drop-down list.

Multi Box: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Multi Box: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the icon in the object caption (if shown) produces the same result.
Lock All Selections	Locks the selected value(s) in the active sheet object. (Unavailable if no selections have been made).
Unlock All Selections	Unlocks the locked value(s) in the active sheet object. (Appears instead of **Lock** if selections have been locked).
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Delete	Removes the selected object from the sheet.

Multi Box Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Field

To add an item click . Select a field in the drop-down. The icon moves the items in the list. The icon removes items from the list. The object will contain the values of the selected field.

For more information click the **More...** button.

Label

Enter the label name. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Representation

This section describes options in **Representation**.

Text

When selecting this option, the field values will always be interpreted and displayed as text.

Image

When selecting this option QlikView will try to interpret each field value as a reference to an image. The reference may be a path to an image file on disk (e.g. *C:\Mypic.png*) or inside the QlikView document (e.g. *qmem://<Name>/<Peter>*). If QlikView cannot interpret a field value as a valid image reference, the value itself will be displayed. Click  to open the **Image Settings** popup.

- **Image Settings Popup**:
  - **Image Stretch**:
    - **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
    - **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
    - **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
    - **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
    - **Hide Text When Image is Missing**: No text will be displayed if QlikView cannot interpret the image reference.
    - **Info as Image**: When selecting this option QlikView will display image info linked to the field value via info load/select in the script. If no image is available for the field value, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.

Search Mode

Here you may determine the default search mode, **Wildcard**, **Fuzzy**, **Normal** and **Associative**, to be used in any text search.

Associative *is available as a search mode for list boxes only.*

Include Excluded Values in Search

The drop-down list lets you choose between **Yes**, **No** or **<use default>** which applies the default setting as specified under **User Preferences, General**.

Dropdown Select Settings

Click  to open the popup.

- **Dropdown Select Settings Popup**:
  - **Ignore Null**: NULL-values are not considered for the sake of displaying possible values of a specific field.
  - **Hide Excluded**: Toggles whether the excluded values of the field should be shown or not. Excluded values become unselectable as well.
  - **Show Frequency**: Toggles the status for whether the frequency of a field value is shown or not. By frequency is meant the number of selectable combinations in which the value occurs. This option is not available for calculated fields.
    In Percent
    Toggles the status for whether the frequency should be shown in absolute numbers or as percentages of the total number of entries.
  - **Override Locked Field**: Checking this option enables selections to be made in the sheet object even if it is locked. The sheet object will still be locked for selections made elsewhere in the document.
  - **Read Only**: Checking this option will prevent making selections in the sheet object. However, it will still reflect selections made elsewhere in the document.
  - **Dropdown Select Alignment**: Click  to open the popup.
    - **Dropdown Select Alignment Popup**:
      - **Number Align**: Here you set the alignment of numeric field values in the list box.
      - **Text Align**: Here you set the alignment of text field values in the list box.
      - **Rows and Columns**: Click  to open the popup.
        - **Rows and Colums Popup**: This section outlines the Rows and Columns Popup elements.
          - **Single Column**: With this option checked, the list box field values will always be presented in a single column.
          - **Show Horizontal Scrollbar**: Check this box to display the horizontal scroll bar.
          - **Multiple Columns**: With this option checked, the list box field values will be presented in a two or more columns.
          - **Multiline Cells**: If this option is checked, the text will be displayed in two or more rows.
            - Specify the number of rows to display in the input box, or drag the slider to the desired number.
          - **Order by Column**: In sheet objects with more than one column, values are displayed row-wise in the sort order specified. The **Order by Column** option switches to column-wise display.
          - **Cell Border**: The field values will be separated by horizontal lines, resembling the rows of a table. Cell Border is automatically activated when the **Wrap Text**option is checked, but may be consequentiality deactivated.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **`State`** refers to the logical state (selected, optional, or excluded).

Primary Sort

Y-Value: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.

Secondary Sort

Frequency: Sorts the field values by frequency (number of concurrences in the table).
Numeric Value: Sorts the field values by their numeric values.
Text: Sorts the field values in alphabetical order.
Load Order: Sorts the field values by the initial load order.

Sort by Expression

Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Keep Selected on Top

Enable this to keep the selected values on top.

Number Format

Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object.

This property page applies to the active object and contains the following controls for formatting values:

- **Override Default Settings**: Select to override the default settings for the active object.
- **Number Format**: Choose a number format from the alternatives below.
- **Mixed**: Both numbers and text. Numbers are shown in original format.
- **Number**: Shows numeric values with the number of digits set in the **Precision** field.
- **Integer**: Shows numeric values as integers.
- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field.
    - The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.

- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
- **Format Pattern**: The format code that further specifies the display format of the field.
- **ISO**: Sets the format to the ISO standard.

  *Only valid for **Date**, **Time**, **Timestamp** and **Interval**.*

- **Sys**: Sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Multi Box Properties: Presentation

Style

Choose between the styles **Borders** and **Light**.

Text Align

Here you set the alignment of text field values in the list box.

Number Align

Here you set the alignment of numeric field values in the list box.

Sort by Applicability

Sorts the fields in the multi box according to whether they contain possible field values or not. Fields lacking possible field values are dynamically moved down if this check box is marked.

Grid Style

Mark the check box if you want the grid style appearance for the multi box.

This option is not applicable in AJAX/WebView.

Limit Drop-down to

By marking this check box you can limit the length of opened drop-down list boxes in the multi box. Enter the maximum number of values to be shown in the edit box, or use the slider to set the desired value.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes **Style** options in **More.../Less...**.

Text

To set the font type click  .

Caption Font

To set the caption font type click  .

Active Caption

To set the background color for the active caption click  . To set the text color click  .

Inactive Caption

To set the background color for the inactive caption click  . To set the text color click  .

Use Border

Mark this check box in order to use a border around the sheet object. Click  to set the color of the border.

Border Width

Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.

Rounded Corners

Click  to open the **Rounded Corners** popup.

***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

- **Rounded Corners Popup**: Select Fixed or Relative roundness
  - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Select **Squareness** by entering a value.
- **Scroll Bar Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels. This control affects both the width and the relative size of the scroll bar symbols.

Multi Box Properties: Caption

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **Icon in Caption** and its properties. **Icon in Caption** exists inside **More.../Less...**

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel

worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Multi Box Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.

- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.15 Table Box - AJAX/Webview

The table box is a sheet object that shows several fields simultaneously. The content of every row is logically connected. The columns may be fetched from different internal tables, letting the user create tables from any possible combination of fields.

By right-clicking the object, the **Object Menu** will be displayed.

The Table Box: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Object Menu properties

Property	Description
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.

Property	Description
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result. Images in a table box will not be printed using the Ajax client.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.  *Export to Excel can fail when using large data sets in AJAX mode due to product limitations.*
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Table Box Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Column Fields

Select a field in the drop-down.

To add an item click  . Select a field in the drop-down. The  icon moves the items in the list. The  icon removes items from the list. The object will contain the values of the selected field.

For more information click the **More...** button.

Field

- **Field**: The field that is currently edited.
- **Label**: Enter the label name. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.
- **Label Align**: Set the alignment of the label in the table box.
- **Representation**: This section describes **Representation** options.
    - **Text**: When selecting this option, the field values will always be interpreted and displayed as text.
    - **Image**: When selecting this option QlikView will try to interpret each field value as a reference to an image. The reference may be a path to an image file on disk (e.g. C:\Mypic.png) or inside the QlikView document (e.g. qmem://<Name>/<Peter>). If QlikView cannot interpret a field value as a valid image reference, the value itself will be displayed. Click  to open the **Image Settings** popup.
        - **Image Settings Popup**:
            - **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
            - **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
            - **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
            - **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
            - **Hide Text When Image is Missing**: No text will be displayed if QlikView cannot interpret the image reference.
        - **Info as Image**: When selecting this option, QlikView will display image info linked to the field value through info load/select in the script. If no image is available for the field value, the value itself will be displayed, unless the **Hide Text When Image Missing** box is checked.
- **Number Align**: Set the alignment of numeric field values in the table box.
- **Text Align**: Set the alignment of text field values in the table box.
- **Ignore Null**: NULL-values are not considered for the sake of displaying possible values of a specific field.
- **Dropdown Select**: If this check box is selected for a field column, a drop-down icon will appear to the left of the column header. By clicking the icon, a list box showing all field values of the field will be opened over the table. It is then possible to make selections and searches in the same manner as if the field had been a row in a multi box.

- **Search Mode**:
  - **Default Search Mode**:
    Here you may determine the default search mode, **Wildcard**, **Fuzzy**, **Normal** and **Associative**, to be used in any text search.

    Associative *is available as a search mode for list boxes only.*
  - **Include Excluded Values in Search**: The drop-down list lets you choose between **Yes**, **No** or **<use default>** which applies the default setting as specified under **User Preferences, General**.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Number Format

Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values: Override Default SettingsSelect to override the default settings for the active object.Number FormatChoose a number format from the alternatives below.

- **Mixed**: Both numbers and text. Numbers are shown in original format.
- **Number**: Shows the numeric values with the number of digits set in the **Precision** field.
- **Integer**: Shows numeric values as integers.
- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.

- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).Format PatternThe format code that further specifies the display format of the field.
- **ISO**: Sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp**, and Interval.
- **Sys**: Sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. This setting is only available for **Number**, **Integer**, and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Table Box Properties: Presentation

This section describes **Table Box** properties.

Suppress Header Row

Displays the table without header (label) row.

Sort Indicators

Displays a sort indicator icon (arrow) in the header of the column. The direction of the icon indicates whether the column is sorted ascending or descending.

Selection Indicators

Displays selection indicators (beacons) in the table columns containing fields with selections.

Allow Move Column

Deselect this check box to disable moving columns.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.

- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes **More.../Less...** properties.

General

- **Style**: Choose an appropriate style from the drop-down list.
- **Stripes every _ Rows**: Specify if and how long intervals in rows, shaded stripes should appear.
- **Vertical Labels**: Displays the column titles vertically.
- **Wrap Header**: The contents of the header will be wrapped in two or more lines.
- **Wrap Cell Text**: The contents of the data cells will be wrapped in two or more lines.

Style

- **Font**: To set the font type click Aa .
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Scroll Bar Background**: To set the scroll bar background color click .
- **Scroll Bar Slider**: To set the scroll bar slider color click .
- **Scroll Bar Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels. This control affects both the width and the relative size of the scroll bar symbols.
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.

- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  > ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - **Rounded Corners Popup**: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Select **Squareness** by entering a value.

Table Box Properties: Caption

Caption

This section describes **Caption** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel

worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Table Box Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.

- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.16 Input Box - AJAX/Webview

The input box is a sheet object that is used to enter data into QlikView variables and to show their values.

By right-clicking the object, the **Object Menu** will be displayed.

Input Box: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Input Box: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.

Command	Details
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Delete	Removes the selected object from the sheet.

Input Box Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

To add an item click . Select a variable in the drop-down. The icon moves the items in the list. The icon removes the items from the list. The object will contain the values of the selected variable.

For more information click the **More...** button.

The **Variables** property in **Input Box** has the following Fields:

- **Variable**: The available variables are listed in the drop-down.
- **Label**: An alternative name for the displayed variable can be entered here. It will be used as variable title in the input box. The label may be defined as a calculated formula for dynamic update. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Align**: Select **Left**, **Centered** or **Right** alignment of the variable.
- **Row Color**: Set row color by clicking , and text color by clicking .

Input Box Properties: Presentation

This section describes several properties in **Presentation**.

Show Equal Sign

Displays an equal sign in the input box. The setting is general for all variables.

Background Color

Sets the background to a color, either a solid color or a gradient. Click to choose the color.

Background Image

Sets an image as background. Click to browse for an image. Click to open the **Image** popup.

Image Popup

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes the **Style** settings in **More.../Less...**

Text

To set the font type click Aa .

Caption Font

To set the caption font type click Aa.

Active Caption

To set the background color for the active caption click  . To set the text color click  .

Inactive Caption

To set the background color for the inactive caption click  . To set the text color click  .

Use Border

Mark this check box in order to use a border around the sheet object. Click  to set the color of the border.

Border Width

Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.

Rounded Corners

Click  to open the **Rounded Corners** popup.

***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

Rounded Corners Popup:

- Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.
- **Scroll Bar Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels. This control affects both the width and the relative size of the scroll bar symbols.

Input Box Properties: Caption

This section describes **Caption** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.

- **Caption Alignment**: Can be Left, Centered, or Right.

- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes the **More.../Less...** property, which contains several **Icon Caption** properties.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Input Box Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.17 Current Selections Box - AJAX/Webview

The current selections box is a sheet object that shows selections in the fields and their logical status. The current selections box shows the same data as the free floating Current Selections Window but can be positioned on the sheet as any other sheet object.

By right-clicking the object, the **Object Menu** will be displayed.

Current Selections Box: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Current Selections Box: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the icon in the object caption (if shown) produces the same result.
Lock All Selections	Locks the selected value(s) in the active sheet object. (Unavailable if no selections have been made).
Unlock all Selections	Unlocks the locked value(s) in the active sheet object. (Appears instead of **Lock** if selections have been locked).
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.

Command	Details
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Delete	Removes the selected object from the sheet.

Current Selections Box Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Show Values

Displays a **Values** column showing the values selected in the fields.

Show Status

Displays a **Status** column with colored beacons indicating the current logical status of the selections in the fields.

Show Clear Icons

Each field row will display a small clear icon. Clicking the clear icon will clear selections in the field. No clear icon will be displayed for locked fields.

Show Lock/Unlock Icons

Each field row will display a small lock or unlock icon. Clicking the icon will lock or unlock selections in the fields.

Current Selection Box Properties: Presentation

This section describes Presentation properties.

Use Column Labels

Displays a header row. Labels can be edited in the group below.

Fields

Specify a label to be displayed in the header row above the **Fields** column.

Values

Specify a label to be displayed in the header row above the **Values** column.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

More.../Less... provides the following options for **Styles**:

- **Text**: To set the text color click  . To set the font type click  .
- **Label**: To to set the background color for the label click  . To set the text color click  .
- **Caption Font**: To set the caption font type click .
- **Active Caption**: To set the background color for the active caption click  . To set the text color click  .
- **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click  to set the color of the border.

- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

  - **Rounded Corners Popup**:
    - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected.
    - Select **Squareness** by entering a value.
- **Scroll Bar Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels. This control affects both the width and the relative size of the scroll bar symbols.

Current Selection Box Properties: Caption

This section describes Caption properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

Icon Caption

Icon Caption consists of one property, **More.../Less...**, which contains several options that will be described in this section.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!

- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Current Selection Box Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon

to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.

- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.18 Button - AJAX/Webview

Buttons can be used in QlikView to perform commands or actions, e.g. export data to files, launch other applications or execute macros.

By right-clicking the object, the **Object Menu** will be displayed.

Button: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Button: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Command	Details
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Delete	Removes the selected object from the sheet.

Button Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Button Text

Enter the text the button should display. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Actions

To add an action click  . The **Action Settings** popup for the new action opens instantly. It is also possible to select an action in the drop-down and to click  to edit. The  icon moves the items in the list. The  icon removes the items from the list.

Actions Settings Popup

- **Type**: Choose a **Type** in the drop-down list.
- **Subtype**: Choose a **Subtype** in the drop-down list. The subtypes available depend on the **Action Type** chosen.

Action Types and Actions

- **Selection**
    - **Select in Field**: Selects the values and fields that are specified. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
    - **Select Excluded**: Selects the excluded values in the specified field.
    - **Select Possible**: Selects the possible values in the specified field.
    - **Toggle Select**: Toggles between the current selection and the specified **Field** and **Search String**. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
    - **Forward**: Goes one step forward in the list of selections.
    - **Back**: Goes back one step in the list of selections.
    - **Pareto Select**: Makes a pareto selection in the specified field based on an expression and percentage. This type of selection is used to select the top contributors to a measure, typically in line of a general 80/20 rule. For example, to find the top customers that contribute to 80% of the turnover, Customer should be used as field, sum(Turnover) should be used as expression and 80 should be used as percentage.
    - **Lock Field**: Locks the selections in the specified field.
    - **Lock All**: Locks all values in all fields.

    - **Unlock Field**: Unlocks the selections in the specified field.
    - **Unlock All**: Unlocks all values in all fields.
    - **Unlock and Clear All**: Unlocks all values and clears all selections in all fields.
    - **Clear Other Fields**: Clears all related fields except the one specified.
    - **Clear All**: Clears all selections except locked ones.
    - **Clear Field**: Clears a specific field.
- **Layout**
    - **Activate Object**: Activates the object specified by **Object ID**. This function does not work in Ajax client.
    - **Activate Sheet**: Activates the sheet specified by **Sheet ID**.
    - **Activate Next Sheet**: Opens the next sheet in the document.
    - **Activate Previous Sheet**: Opens the previous sheet in the document.
    - **Minimize Object**: Minimizes the object specified by **Object ID**.
    - **Maximize Object**: Maximizes the object specified by **Object ID**.
    - **Restore Object**: Restores the object specified by **Object ID**.
- **Bookmark**
    - **Apply Bookmark**: Applies a bookmark specified by **Bookmark ID**. If two bookmarks have the same ID, the document bookmark is applied. To apply the server bookmark specify Server\bookmarkID.
    - **Create Bookmark**: Creates a bookmark from the current selection. Specify **Bookmark ID** and **Bookmark Name**. Select **Hidden** to create a hidden bookmark.
    - **Replace Bookmark**: Replaces the bookmark specified by **Bookmark ID** with the current selection.
- **Print**
    - **Print Object**: Prints the object specified by **Object ID**. Specify the **Printer name** if the object should be sent to another printer than the default printer. (Not available as document and sheet trigger.)
    - **Print Sheet**: Prints the sheet specified by **Sheet ID**. (Not available as document and sheet trigger.) This function does not work in AJAX client.
    - **Print Report**: Prints the report specified by **Report ID**. Specify the **Printer name** if the report should be sent to another printer than the default printer. Mark the check box **Show Print Dialog** if you want the Windows print dialog to be shown. (Not available as document and sheet trigger.)
- **External**: Some clients may not handle this setting!
- **Export**: Exports a table containing a specific set of fields, but only those records that are applicable according to the made selection are exported. Click on the **Setup** button on the **Actions** page to open the **Export Action Settings** dialog. This is not available as document or sheet trigger.

This function does not work in AJAX client.

- **Launch**: Launches an external program. The following settings can be configured in the **Actions** dialog:
  - **Application**: Click on **Browse...** to find the application that should be launched. (Not available as document and sheet trigger.)
  - **Filename**: Enter the path to the file that should be opened with the application specified above. (Not available as document and sheet trigger.)
  - **Parameters**: Specify parameters for the command line from which the application is started. (Not available as document and sheet trigger.)
  - **Working Directory**: Sets the working directory for the application to be launched. (Not available as document and sheet trigger.)
  - **Exit application when QlikView is closed**: Forces the application to be closed when QlikView is exited. (Not available as document and sheet trigger.)

    This function does not work in AJAX client.

- **Open URL**: You can use **Open URL** to open a URL to a QlikView document from within another QlikView document (document chaining). This setting opens the URL in the default web browser. This function cannot be used as a document and sheet trigger. If using **Open URL**, make sure to enter the document name in the action-string in lower case.
  Where possible, use **Open QlikView Document** instead of **Open URL**.

  The use of Javascript in URLs is prevented by default.
  You can allow Javascript in URLs by changing the `PreventJavascriptInObjectActions` parameter in the custom.config file.

- **Open QlikView Document**: You can use **Open QlikView Document** to open a QlikView document from within another QlikView document (document chaining). This function cannot be used as a document or sheet trigger. For more information, see *Document chaining examples (page 1600)*.
- **Run Macro**: Enter the path and name of the macro to be run. Type any name for which it is possible to later create a macro in the **Edit Module** dialog, or a **calculated expression** for dynamic update.
- **Set Variable**: Assigns a value to the specified variable.
- **Show Information**: Shows the associated information, such as a text file or an image for the field specified by **Field**. This function does not work in AJAX client.
- **Close This Document**: Closes the active QlikView document.
- **Reload**: Performs a reload on the current document. This function does not work both in AJAX client and IE-plugin.
- **Dynamic Update**: Performs a dynamic update of the data in the currently loaded document. The statement for the dynamic update is to be entered in the **Statement** field.
  The intended usage of Dynamic Update allows a QlikView Administrator to feed limited amounts of data in to a QlikView document from a single source without running a reload of the document. Analysis can then be performed by multiple clients connecting to the QlikView Server.

  The uploaded information is stored in RAM only so any data added or updated using Dynamic Update will be lost if a reload of the document is performed.

The following grammar describes the possible statements and their components that can be used with the Dynamic Update feature:

- statements ::= statement { “;” statement }
- statement ::= insert_statement | update_statement | delete_statement | begin_transaction_statement | commit_transaction_statement
- insert_statement ::= "INSERT" "INTO" ("*" | table_name) field_list "VALUES" value_list {"," value_list} ["KEY" ["AUTO" | (" (" field_list ")")] ["REPLACE" (["WITH" "ONE"] | "EACH")]]
- update_statement ::= "UPDATE" ("*" | table_name) set_clause {"," | set_clause} "WHERE" condition ["AUTO" "INSERT"]
- delete_statement ::= "DELETE" "FROM" ("*" | table_name] "WHERE" condition
- begin_transaction_statement ::= "BEGIN" ("TRANSACTION" | "TRAN") [trans_name]
- commit_transaction_statement ::= "COMMIT" ["TRANSACTION" | "TRAN"] [trans_name]
- table_name ::= identifier | quoted_name
- field_list ::= "(" field_name {"," field_name} ")"
- value_list ::= "("value {"," value} ")"
- set_clause ::= "SET" field_name "=" any_valid_non_aggregated_qlikview_expression
- field_name ::= identifier | quoted string
- value ::= identifier | any_qlikview_number | quoted string
- condition ::= any_valid_non_aggregated_qlikview_expression
- identifier ::= any_qlikview_identifier
- quoted_string ::= "[" [^]]+ "]"

Example:

```
UPDATE AbcTable SET Discount = 123 WHERE AbcField=1
```

To use this feature, Dynamic Update must be allowed both on the Document and on the Server.

Document chaining examples

You can use **Open QlikView Document** to create document chaining.

The following settings can be applied:

- **Transfer State**: to transfer the selections from the original document to the destination document. The destination document will first be cleared of selections.
- **Apply state on top of current**: to retain the destination document’s selections and apply the original document’s selections on top of them.

*Using **Apply state on top of current** can return unexpected results if the selections made in the two documents are conflicting.*

- **Open in same Window**: to open the new document in the same browser tab when using the AJAX ZFC client.

  Open QlikView Document action is not supported for non domain users when using the QlikView plug-in.

QlikView documents: The extension of the destination file must be included. Relative paths to navigate from one QlikView document to another are supported in all clients, as long as the chained documents are stored in the same folder structure (mount).

The following examples show how to write the file path to the destination file:

Example: File located in the same folder structure (same mount).

- If the destination file is in the same folder:
  DestinationDoc.qvw
- If the destination file is in a sub folder:
  SubFolder/DestinationDoc.qvw
- If the destination file is in an upper folder:
  ../DestinationDoc.qvw
- If the destination file is in an upper and parallel folder:
  ../ParallelFolder/DestinationDoc.qvw

Example: File located in a different folder structure (different mount). The relative path between different mounts is supported in the Ajax client only.

- If the destination file is in a different mount:
  ../DifferentMount/DestinationDoc.qvw

Example: Using the mount path to point to a QlikView document. Setting the path to mounted folders is supported in the Ajax client only.

- If the destination file is in the same mounted folder:
  \Mount\DestinationDoc.qvw
- If the destination file is in a different mounted folder:
  \DifferentMount\DestinationDoc.qvw

  Document chaining with mounted folders does not work with the QlikView plug-in.

Example: Using the absolute path to point to a QlikView document. The use of absolute paths for document chaining is supported in the Ajax client and in QlikView Desktop.

- Absolute path to the Local Root folder or mount:
  C:\...\DestinationDoc.qvw
- Absolute path to a Network Share:
  \\SharedStorage\...\DestinationDoc.qvw

QlikView apps in the Qlik Sense Cloud hub: you need the AppId, not the path. Apps need to be prepared and updated in QlikView Desktop. The AppId is found in the URL when the app is open in the hub.

Example

If the URL is *https://qcs.us.qlikcloud.com/qv/opendoc.htm?document=1cc71b323f172f93a8121ce1456cdg*. Then the AppId is *1cc71b323f172f93a8121ce1456cdg*.

Enable Condition

Enter an expression that will determine the status of the button. If the expression returns 0, the button will be disabled, if the expression returns 1, the button will be enabled. If no expression is entered, 1 is assumed. Buttons that are disabled due to underlying status cannot be enabled by means of a condition. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Button Properties: Presentation

Background Style

Aqua

Default for new buttons. Gives a rounded button with three dimensional glassy look. Click  to set a color.

Plain

Produces a traditional plain QlikView button. Click  to set a color.

System Default

Provides a solid background in the color defined for buttons in the operating system.

Single Image

Uses an image for the button. Click  to browse for an image.

Combined Image

Produces an image button with three parts, one for each possible state (active, inactive or depressed). Click  to browse for an image. The image file must consist of three images of the button side by side, the first of the active button, the second of a depressed button and the third of a dimmed (inactive) button.

Transparency

Sets the level of transparency of the object background by entering a value or by dragging the slider. At 100% the background will be completely transparent.

Text Align

Left, **Centered** or **Right** alignment of the button text.

More.../Less...

Styles

- **Text on Button**: To set the text color click  . To set the font type click  .
- **Caption Font**: To set the caption font type click .
- **Active Caption**: To set the background color for the active caption click  . To set the text color click  .
- **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click  to set the color of the border.
- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  Rounded Corners *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Button Properties: Caption

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.

- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Button Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.19 Text Object - AJAX/Webview

Text objects can be used for displaying text information or an image in the layout.

Text Object: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Object menu commands

Command	Description
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Delete	Removes the selected object from the sheet.

Text Object Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Text

Enter the text the text object should display. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Actions

To add an action click  . The **Action Settings** popup for the new action opens instantly. It is also possible to select an action in the drop-down and to click  to edit. The  icon moves the items in the list. The  icon removes the items from the list.

Actions Settings Popup

The following options are available:

- **Type**: Choose a **Type** in the drop-down list.
- **Subtype**: Choose a **Subtype** in the drop-down list. The subtypes available depend on the **Action Type** chosen.

Actions Types and Actions

Selection:

- **Select in Field**: Selects the values and fields that are specified. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
- **Select Excluded**: Selects the excluded values in the specified field.
- **Select Possible**: Selects the possible values in the specified field.
- **Toggle Select**: Toggles between the current selection and the specified **Field** and **Search String**. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
- **Forward**: Goes one step forward in the list of selections.

- **Back**: Goes back one step in the list of selections.
- **Pareto Select**: Makes a pareto selection in the specified field based on an expression and percentage. This type of selection is used to select the top contributors to a measure, typically in line of a general 80/20 rule. For example, to find the top customers that contribute to 80% of the turnover, Customer should be used as field, sum(Turnover) should be used as expression and 80 should be used as percentage.
- **Lock Field**: Locks the selections in the specified field.
- **Lock All**: Locks all values in all fields.
- **Unlock Field**: Unlocks the selections in the specified field.
- **Unlock All**: Unlocks all values in all fields.
- **Unlock and Clear All**: Unlocks all values and clears all selections in all fields.
- **Clear Other Fields**: Clears all related fields except the one specified.
- **Clear All**: Clears all selections except locked ones.
- **Clear Field**: Clears a specific field.

Layout

- **Activate Object**: Activates the object specified by **Object ID**. This function does not work in Ajax client.
- **Activate Sheet**: Activates the sheet specified by **Sheet ID**.
- **Activate Next Sheet**: Opens the next sheet in the document.
- **Activate Previous Sheet**: Opens the previous sheet in the document.
- **Minimize Object**: Minimizes the object specified by **Object ID**.
- **Maximize Object**: Maximizes the object specified by **Object ID**.
- **Restore Object**: Restores the object specified by **Object ID**.

Bookmark

- **Apply Bookmark**: Applies a bookmark specified by **Bookmark ID**. If two bookmarks have the same ID, the document bookmark is applied. To apply the server bookmark specify Server\bookmarkID.
- **Create Bookmark**: Creates a bookmark from the current selection. Specify **Bookmark ID** and **Bookmark Name**. Select **Hidden** to create a hidden bookmark.
- **Replace Bookmark**: Replaces the bookmark specified by **Bookmark ID** with the current selection.

Print

- **Print Object**: Prints the object specified by **Object ID**. Specify the **Printer name** if the object should be sent to another printer than the default printer. (Not available as document and sheet trigger.)
- **Print Sheet**: Prints the sheet specified by **Sheet ID**. (Not available as document and sheet trigger.) This function does not work in AJAX client.
- **Print Report**: Prints the report specified by **Report ID**. Specify the **Printer name** if the report should be sent to another printer than the default printer. Mark the check box **Show Print Dialog** if you want the Windows print dialog to be shown. (Not available as document and sheet trigger.)

External

Some clients may not handle this setting!

- **Export**: Exports a table containing a specific set of fields, but only those records that are applicable according to the made selection are exported. Click on the **Setup** button on the **Actions** page to open the **Export Action Settings** dialog. This is not available as document or sheet trigger.

  This function does not work in AJAX client.

- **Launch**: Launches an external program. The following settings can be configured in the **Actions** dialog:
  - **Application**: Click on **Browse...** to find the application that should be launched. (Not available as document and sheet trigger.)
  - **Filename**: Enter the path to the file that should be opened with the application specified above. (Not available as document and sheet trigger.)
  - **Parameters**: Specify parameters for the command line from which the application is started. (Not available as document and sheet trigger.)
  - **Working Directory**: Sets the working directory for the application to be launched. (Not available as document and sheet trigger.)
  - **Exit application when QlikView is closed**: Forces the application to be closed when QlikView is exited. (Not available as document and sheet trigger.)

    This function does not work in AJAX client.

- **Open URL**: You can use **Open URL** to open a URL to a QlikView document from within another QlikView document (document chaining). This setting opens the URL in the default web browser. This function cannot be used as a document and sheet trigger. If using **Open URL**, make sure to enter the document name in the action-string in lower case.
  Where possible, use **Open QlikView Document** instead of **Open URL**.

  The use of Javascript in URLs is prevented by default.
  You can allow Javascript in URLs by changing the `PreventJavascriptInObjectActions` parameter in the custom.config file.

- **Open QlikView Document**: You can use **Open QlikView Document** to open a QlikView document from within another QlikView document (document chaining). This function cannot be used as a document or sheet trigger. For more information, see *Document chaining examples (page 1609)*.
- **Run Macro**: Enter the path and name of the macro to be run. Type any name for which it is possible to later create a macro in the **Edit Module** dialog, or a **calculated expression** for dynamic update.
- **Set Variable**: Assigns a value to the specified variable.
- **Show Information**: Shows the associated information, such as a text file or an image for the field specified by **Field**. This function does not work in AJAX client.
- **Close This Document**: Closes the active QlikView document.
- **Reload**: Performs a reload on the current document. This function does not work both in AJAX client and IE-plugin.
- **Dynamic Update**: Performs a dynamic update of the data in the currently loaded document. The statement for the dynamic update is to be entered in the **Statement** field.
  The intended usage of Dynamic Update allows a QlikView Administrator to feed limited amounts of

data in to a QlikView document from a single source without running a reload of the document. Analysis can then be performed by multiple clients connecting to the QlikView Server.

The uploaded information is stored in RAM only so any data added or updated using Dynamic Update will be lost if a reload of the document is performed.

The following grammar describes the possible statements and their components that can be used with the Dynamic Update feature:

- statements ::= statement { “;” statement }
- statement ::= insert_statement | update_statement | delete_statement | begin_transaction_ statement | commit_transaction_statement
- insert_statement ::= "INSERT" "INTO" ("*" | table_name) field_list "VALUES" value_list {"," value_list} ["KEY" ["AUTO" | (" (" field_list ")")] ["REPLACE" (["WITH" "ONE"] | "EACH")]]
- update_statement ::= "UPDATE" ("*" | table_name) set_clause {"," | set_clause} "WHERE" condition ["AUTO" "INSERT"]
- delete_statement ::= "DELETE" "FROM" ("*" | table_name] "WHERE" condition
- begin_transaction_statement ::= "BEGIN" ("TRANSACTION" | "TRAN") [trans_name]
- commit_transaction_statement ::= "COMMIT" ["TRANSACTION" | "TRAN"] [trans_name]
- table_name ::= identifier | quoted_name
- field_list ::= "(" field_name {"," field_name} ")"
- value_list ::= "("value {"," value} ")"
- set_clause ::= "SET" field_name "=" any_valid_non_aggregated_qlikview_expression
- field_name ::= identifier | quoted string
- value ::= identifier | any_qlikview_number | quoted string
- condition ::= any_valid_non_aggregated_qlikview_expression
- identifier ::= any_qlikview_identifier
- quoted_string ::= "[" [^]]+ "]"

Example:

```
UPDATE AbcTable SET Discount = 123 WHERE AbcField=1
```

To use this feature, Dynamic Update must be allowed both on the Document and on the Server.

Document chaining examples

You can use **Open QlikView Document** to create document chaining.

The following settings can be applied:

- **Transfer State**: to transfer the selections from the original document to the destination document. The destination document will first be cleared of selections.

- **Apply state on top of current**: to retain the destination document's selections and apply the original document's selections on top of them.

  *Using **Apply state on top of current** can return unexpected results if the selections made in the two documents are conflicting.*

- **Open in same Window**: to open the new document in the same browser tab when using the AJAX ZFC client.

  Open QlikView Document action is not supported for non domain users when using the QlikView plug-in.

QlikView documents: The extension of the destination file must be included. Relative paths to navigate from one QlikView document to another are supported in all clients, as long as the chained documents are stored in the same folder structure (mount).

The following examples show how to write the file path to the destination file:

Example: File located in the same folder structure (same mount).

- If the destination file is in the same folder:
  DestinationDoc.qvw
- If the destination file is in a sub folder:
  SubFolder/DestinationDoc.qvw
- If the destination file is in an upper folder:
  ../DestinationDoc.qvw
- If the destination file is in an upper and parallel folder:
  ../ParallelFolder/DestinationDoc.qvw

Example: File located in a different folder structure (different mount). The relative path between different mounts is supported in the Ajax client only.

- If the destination file is in a different mount:
  ../DifferentMount/DestinationDoc.qvw

Example: Using the mount path to point to a QlikView document. Setting the path to mounted folders is supported in the Ajax client only.

- If the destination file is in the same mounted folder:
  \Mount\DestinationDoc.qvw
- If the destination file is in a different mounted folder:
  \DifferentMount\DestinationDoc.qvw

  Document chaining with mounted folders does not work with the QlikView plug-in.

Example: Using the absolute path to point to a QlikView document. The use of absolute paths for document chaining is supported in the Ajax client and in QlikView Desktop.

- Absolute path to the Local Root folder or mount:
  C:\...\DestinationDoc.qvw
- Absolute path to a Network Share:
  \\SharedStorage\...\DestinationDoc.qvw

QlikView apps in the Qlik Sense Cloud hub: you need the AppId, not the path. Apps need to be prepared and updated in QlikView Desktop. The AppId is found in the URL when the app is open in the hub.

Example

If the URL is *https://qcs.us.qlikcloud.com/qv/opendoc.htm?document=1cc71b323f172f93a8121ce1456cdg*. Then the AppId is *1cc71b323f172f93a8121ce1456cdg*.

Text Object Properties: Presentation

Representation

The text in the text object can be interpreted as a reference to an image in memory or on disk. When selecting **Text** the contents of the text object will always be interpreted and displayed as text. When selecting **Image**, QlikView will try to interpret the text contents as a reference to an image. The reference may be a path to an image file on disk or inside the qvw document. It can also be an info function linked to a field containing image info. If QlikView cannot interpret the text contents as a valid reference to an image, the text itself will be displayed. Click  to open the popup.

Formatting

The following formatting options are available:

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.

Horizontal

Left, **Centered** or **Right** alignment of the text or image.

Vertical

Top, **Centered** or **Bottom** alignment of the text or image.

Text Margin

Sets the margin between the outer borders of the text object and the text itself.

Show Horizontal Scrollbar

If this check box is marked, a horizontal scroll bar will be added to the text object when its text content is too wide to be displayed within the given area.

Show Vertical Scrollbar

If this check box is marked, a vertical scroll bar will be added to the text object when its text content is too long to be displayed within the given area

Background Style

Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

Background Transparency

Sets the degree of transparency of the text object background. At 100% the background will be completely transparent.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

Styles

Presentation styles

Option	Description
Text	To set the text color click  . To set the font type click  .

Option	Description
Caption Font	To set the caption font type click Aa.
Active Caption	To set the background color for the active caption click . To set the text color click .
Inactive Caption	To set the background color for the inactive caption click . To set the text color click .
Use Border	Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
Border Width	Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
Rounded Corners	Click to open the **Rounded Corners** popup. ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.* Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Text Object Properties: Caption

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.
  The value may be entered as a calculated formula.
  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Text Object Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.

- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.20 Line/Arrow Object - AJAX/Webview

The Line/Arrow object is a sheet object that draws a line or an arrow in the layout. A line can, for example make the layout clearer by separating the documents into sections.

Line/Arrow: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Line/Arrow Object - AJAX/Webview commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Delete	Removes the selected object from the sheet.

Line/Arrow Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. This command can also be invoked by the following keyboard shortcut: Alt+Enter. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Line Orientation

Sets the direction of the line/arrow to horizontal, vertical or one of two diagonal modes.

Arrow Style

Choose how the arrowhead should be drawn.

Actions

To add an action click  . The **Action Settings** popup for the new action opens instantly. It is also possible to select an action in the drop-down and to click  to edit. The  icon moves the items in the list. The  icon removes the items from the list.

Actions Settings Popup

- **Type**: Choose a **Type** in the drop-down list.
- **Subtype**: Choose a **Subtype** in the drop-down list. The subtypes available depend on the **Action Type** chosen.

Action Types and Actions

- **Selection**:
    - **Select in Field**: Selects the values and fields that are specified. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
    - **Select Excluded**: Selects the excluded values in the specified field.
    - **Select Possible**: Selects the possible values in the specified field.
    - **Toggle Select**: Toggles between the current selection and the specified **Field** and **Search String**. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
    - **Forward**: Goes one step forward in the list of selections.
    - **Back**: Goes back one step in the list of selections.
    - **Pareto Select**: Makes a pareto selection in the specified field based on an expression and percentage. This type of selection is used to select the top contributors to a measure, typically in line of a general 80/20 rule. For example, to find the top customers that contribute to 80% of the turnover, Customer should be used as field, sum(Turnover) should be used as expression and 80 should be used as percentage.
    - **Lock Field**: Locks the selections in the specified field.
    - **Lock All**: Locks all values in all fields.
    - **Unlock Field**: Unlocks the selections in the specified field.
    - **Unlock All**: Unlocks all values in all fields.
    - **Unlock and Clear All**: Unlocks all values and clears all selections in all fields.
    - **Clear Other Fields**: Clears all related fields except the one specified.
    - **Clear All**: Clears all selections except locked ones.
    - **Clear Field**: Clears a specific field.
- **Layout**:
    - **Activate Object**: Activates the object specified by **Object ID**. This function does not work in Ajax client.
    - **Activate Sheet**: Activates the sheet specified by **Sheet ID**.
    - **Activate Next Sheet**: Opens the next sheet in the document.
    - **Activate Previous Sheet**: Opens the previous sheet in the document.
    - **Minimize Object**: Minimizes the object specified by **Object ID**.
    - **Maximize Object**: Maximizes the object specified by **Object ID**.
    - **Restore Object**: Restores the object specified by **Object ID**.
- **Bookmark**:
    - **Apply Bookmark**: Applies a bookmark specified by **Bookmark ID**. If two bookmarks have the same ID, the document bookmark is applied. To apply the server bookmark specify Server\bookmarkID.
    - **Create Bookmark**: Creates a bookmark from the current selection. Specify **Bookmark ID** and **Bookmark Name**. Select **Hidden** to create a hidden bookmark.
    - **Replace Bookmark**: Replaces the bookmark specified by **Bookmark ID** with the current selection.

- **Print**:
  - **Print Object**: Prints the object specified by **Object ID**. Specify the **Printer name** if the object should be sent to another printer than the default printer. (Not available as document and sheet trigger.)
  - **Print Sheet**: Prints the sheet specified by **Sheet ID**. (Not available as document and sheet trigger.) This function does not work in AJAX client.
  - **Print Report**: Prints the report specified by **Report ID**. Specify the **Printer name** if the report should be sent to another printer than the default printer. Mark the check box **Show Print Dialog** if you want the Windows print dialog to be shown. (Not available as document and sheet trigger.)
- **External**: Some clients may not handle this setting!
  - **Export**: Exports a table containing a specific set of fields, but only those records that are applicable according to the made selection are exported. Click on the **Setup** button on the **Actions** page to open the **Export Action Settings** dialog. This is not available as document or sheet trigger.

    This function does not work in AJAX client.
  - **Launch**: Launches an external program. The following settings can be configured in the **Actions** dialog:
    - **Application**: Click on **Browse...** to find the application that should be launched. (Not available as document and sheet trigger.)
    - **Filename**: Enter the path to the file that should be opened with the application specified above. (Not available as document and sheet trigger.)
    - **Parameters**: Specify parameters for the command line from which the application is started. (Not available as document and sheet trigger.)
    - **Working Directory**: Sets the working directory for the application to be launched. (Not available as document and sheet trigger.)
    - **Exit application when QlikView is closed**: Forces the application to be closed when QlikView is exited. (Not available as document and sheet trigger.)

      This function does not work in AJAX client.
  - **Open URL**: You can use **Open URL** to open a URL to a QlikView document from within another QlikView document (document chaining). This setting opens the URL in the default web browser. This function cannot be used as a document and sheet trigger. If using **Open URL**, make sure to enter the document name in the action-string in lower case.
    Where possible, use **Open QlikView Document** instead of **Open URL**.

    The use of Javascript in URLs is prevented by default.
    You can allow Javascript in URLs by changing the `PreventJavascriptInObjectActions` *parameter in the custom.config file.*

- **Open QlikView Document**: You can use **Open QlikView Document** to open a QlikView document from within another QlikView document (document chaining). This function cannot be used as a document or sheet trigger. For more information, see *Document chaining examples (page 1620)*.
- **Run Macro**: Enter the path and name of the macro to be run. Type any name for which it is possible to later create a macro in the **Edit Module** dialog, or a **calculated expression** for dynamic update.
- **Set Variable**: Assigns a value to the specified variable.
- **Show Information**: Shows the associated information, such as a text file or an image for the field specified by **Field**. This function does not work in AJAX client.
- **Close This Document**: Closes the active QlikView document.
- **Reload**: Performs a reload on the current document. This function does not work both in AJAX client and IE-plugin.
- **Dynamic Update**: Performs a dynamic update of the data in the currently loaded document. The statement for the dynamic update is to be entered in the **Statement** field.
  The intended usage of Dynamic Update allows a QlikView Administrator to feed limited amounts of data in to a QlikView document from a single source without running a reload of the document. Analysis can then be performed by multiple clients connecting to the QlikView Server.

  The uploaded information is stored in RAM only so any data added or updated using Dynamic Update will be lost if a reload of the document is performed.

  The following grammar describes the possible statements and their components that can be used with the Dynamic Update feature:
  - statements ::= statement { “;” statement }
  - statement ::= insert_statement | update_statement | delete_statement | begin_ transaction_statement | commit_transaction_statement
  - insert_statement ::= "INSERT" "INTO" ("*" | table_name) field_list "VALUES" value_list {"," value_list} ["KEY" ["AUTO" | (" (" field_list ")")] ["REPLACE" (["WITH" "ONE"] | "EACH")]]
  - update_statement ::= "UPDATE" ("*" | table_name) set_clause {"," | set_clause} "WHERE" condition ["AUTO" "INSERT"]
  - delete_statement ::= "DELETE" "FROM" ("*" | table_name] "WHERE" condition
  - begin_transaction_statement ::= "BEGIN" ("TRANSACTION" | "TRAN") [trans_name]
  - commit_transaction_statement ::= "COMMIT" ["TRANSACTION" | "TRAN"] [trans_name]
  - table_name ::= identifier | quoted_name
  - field_list ::= "(" field_name {"," field_name} ")"
  - value_list ::= "("value {"," value} ")"
  - set_clause ::= "SET" field_name "=" any_valid_non_aggregated_qlikview_expression
  - field_name ::= identifier | quoted string
  - value ::= identifier | any_qlikview_number | quoted string

- condition ::= any_valid_non_aggregated_qlikview_expression
- identifier ::= any_qlikview_identifier
- quoted_string ::= "[" [^]]+ "]"

Example:

```
UPDATE AbcTable SET Discount = 123 WHERE AbcField=1
```

To use this feature, Dynamic Update must be allowed both on the Document and on the Server.

Document chaining examples

You can use **Open QlikView Document** to create document chaining.

The following settings can be applied:

- **Transfer State**: to transfer the selections from the original document to the destination document. The destination document will first be cleared of selections.
- **Apply state on top of current**: to retain the destination document's selections and apply the original document's selections on top of them.

  *Using **Apply state on top of current** can return unexpected results if the selections made in the two documents are conflicting.*

- **Open in same Window**: to open the new document in the same browser tab when using the AJAX ZFC client.

  Open QlikView Document action is not supported for non domain users when using the QlikView plug-in.

QlikView documents: The extension of the destination file must be included. Relative paths to navigate from one QlikView document to another are supported in all clients, as long as the chained documents are stored in the same folder structure (mount).

The following examples show how to write the file path to the destination file:

Example: File located in the same folder structure (same mount).

- If the destination file is in the same folder:
  DestinationDoc.qvw
- If the destination file is in a sub folder:
  SubFolder/DestinationDoc.qvw
- If the destination file is in an upper folder:
  ../DestinationDoc.qvw
- If the destination file is in an upper and parallel folder:
  ../ParallelFolder/DestinationDoc.qvw

Example: File located in a different folder structure (different mount). The relative path between different mounts is supported in the Ajax client only.

- If the destination file is in a different mount:
  ../DifferentMount/DestinationDoc.qvw

Example: Using the mount path to point to a QlikView document. Setting the path to mounted folders is supported in the Ajax client only.

- If the destination file is in the same mounted folder:
  \Mount\DestinationDoc.qvw
- If the destination file is in a different mounted folder:
  \DifferentMount\DestinationDoc.qvw

  Document chaining with mounted folders does not work with the QlikView plug-in.

Example: Using the absolute path to point to a QlikView document. The use of absolute paths for document chaining is supported in the Ajax client and in QlikView Desktop.

- Absolute path to the Local Root folder or mount:
  C:\...\DestinationDoc.qvw
- Absolute path to a Network Share:
  \\SharedStorage\...\DestinationDoc.qvw

QlikView apps in the Qlik Sense Cloud hub: you need the AppId, not the path. Apps need to be prepared and updated in QlikView Desktop. The AppId is found in the URL when the app is open in the hub.

Example

If the URL is *https://qcs.us.qlikcloud.com/qv/opendoc.htm?document=1cc71b323f172f93a8121ce1456cdg*. Then the AppId is *1cc71b323f172f93a8121ce1456cdg*.

Line/Arrow Properties: Presentation

This section describes **Presentation** properties.

Line Style

Set the style of the line to **Solid**, **Dashed** or **Dotted**.

Line Weight

Sets the weight of the line.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes **Styles** in **More.../Less...**

Styles

Styles:

- **Line Color**: To set the line color click  .
- **Caption Font**: To set the caption font type click  .
- **Active Caption**: To set the background color for the active caption click  . To set the text color click  .
- **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click  to set the color of the border.
- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  Rounded Corners *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

Rounded Corners Popup

Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Line/Arrow Properties: Caption

This section describes **Caption** properties.

Caption properties

This section describes **Caption** properties options.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

Icon Caption properties

This section describes **Icon Caption** properties.

More.../Less...

- Icons in Caption:
  - **Menu**: Opens the object menu.
  - **Clear**: Clears all the current selections in the active sheet object.
  - **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
  - **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
  - **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
  - **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects. Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Line/Arrow Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.

- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.21 Calendar Object - AJAX/Webview

The Calendar object provides alternative means to select values in QlikView fields or enter values in QlikView variables. The calendar object has two different modes.

It is possible to select multiple dates if the **Multi Value** option is checked in the calendar object's **Properties** menu. To select multiple dates, click on each date required to highlight it. To deselect dates, click on each highlighted date that is not required.

Calendar: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Calendar: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Command	Details
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Calendar Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Field

Select the field you want to include in the calendar in the drop-down. Choose whether the object should be connected to a **Field** or to a **Variable**.

Variable(s)

Select the variable in the drop-down menu. Choose whether the object should be connected to a **Field** or to a **Variable**.

Calendar Mode

- **Single Value**: For selection of a single value.
- **Multi Value (Ranged)**: For selection of a range of values. Multi value selection is not available in Ajax client.

More.../Less...

This section describes the tabs available inside More.../Less...

General Tab

When **Field** is selected **Min Value** and **Max Value** are disabled and when **Variable** is selected **Override Locked Field** is disabled.

- **Min Value**: Set a fixed minimum value for the object. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Max Value**: Set a fixed maximum value for the object. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Override Locked Field**: Selections can be made via the calendar object in a field even if the field is locked. The field will still be locked for logical changes stemming from selections in other fields.

Number Format Tab

Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values: Override Default SettingsSelect to override the default settings for the active object.Number Choose a number format from the alternatives below.

- **Mixed**: Both numbers and text. Numbers are shown in original format.
- **Number**: Shows numeric values with the number of digits set in the **Precision** field.
- **Integer**: Shows numeric values as integers.
- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
  Format Pattern: The format code that further specifies the display format of the field.
  - **ISO**: sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**.
  - **Sys**: sets the format to the system settings.

- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Calendar Properties: Presentation

This section describes the Presentation properties for Calendar.

Background Color

Sets the background to a color, either a solid color or a gradient. Click to choose the color.

Background Image

Sets an image as background. Click to browse for an image. Click to open the **Image** popup.

Image Popup

The Image Popup contains several formatting options:

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less

More.../Less... contains the following styles:

- Text: To set the text color click . To set the font type click Aa .
- Caption Font: To set the caption font type click Aa.
- Active Caption: To set the background color for the active caption click . To set the text color click .

- Inactive Caption: To set the background color for the inactive caption click . To set the text color click .
- Use Border: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
- Border Width: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- Rounded Corners: Click to open the **Rounded Corners** popup.

  > ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - **Rounded Corners Popup**: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Calendar Properties: Caption

This section describes the Caption properties for Calendar

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

Icon caption

Icon caption has one property, **More.../Less...**, which contains several options that will be outlined in this section.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!

- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Calendar Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.22 Slider Object - AJAX/Webview

The Slider object provides alternative means to select values in QlikView fields or enter values in QlikView variables. The slider object has two different modes.

Slider: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Object Menu properties

Property	Description
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Property	Description
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Slider Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Field

Select the field you want to show in the slider in the drop-down. Choose whether the object should be connected to a **Field** or to a **Variable**.

Variable(s)

Select the variable in the drop-down menu. Choose whether the object should be connected to a **Field** or to a **Variable**.

Slider Mode

- **Single Value**: For selection of a single value.
- **Multi Value (Ranged)**: For selection of a range of values.

Value Mode

- **Discrete**: For selection of discrete values.
- **Continuous/Numeric**: For selection of continuous/numeric values (unavailable for Single Value mode with Field data).

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

General

When **Field** is selected **Min value**, **Max Value** and **Static Steps** are disabled and when **Variable** is selected are they enabled.

- **Min Value**: Set a fixed minimum value for the object. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Max Value**: Set a fixed maximum value for the object. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tic marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Move with Selection**: Only available in slider mode. Override Locked FieldSelections can be made via the slider object in a field even if the field is locked. The field will still be locked for logical changes stemming from selections in other fields.
- **Number**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
    - Override Default Settings: Select to override the default settings for the active object.
- **Number Format**: Choose a number format from the alternatives below.
- **Mixed**: Both numbers and text. Numbers are shown in original format.
- **Number**: Shows numeric values with the number of digits set in the **Precision** field.
- **Integer**: Shows numeric values as integers.
- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field. An example of this format is shown in the **Preview** field. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field. An example of this format is shown in the **Preview** field.

- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field. An example of this format is shown in the **Preview** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field. An example of this format is shown in the **Preview** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).Format PatternThe format code that further specifies the display format of the field.
- **ISO**: Sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp**, and **Interval**.
- **Sys**: Sets the format to the system settings.
    - **Precision**: The number of digits that will be displayed.
    - **Decimals**: Sets the number of decimals included.
    - **Decimal Separator**: Sets the symbol for decimal separators.
    - **Thousand Separator**: Sets the symbol for thousand separators.
    - **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer**, and **Fixed to**.
    - **Preview**: Shows a preview of the format code specified above.

Slider Properties: Presentation

This section describes **Slider** properties.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

No Stretch: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.**Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.**Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.**Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.**Horizontal**: **Left**, **Centered** or **Right** alignment.**Vertical**: **Top**, **Centered** or **Bottom** alignment.**Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes **More.../Less...** properties.

Styles

- **Text**: To set the text color click  . To set the font type click  .
- **Caption Font**: To set the caption font type click .

- **Active Caption**: To set the background color for the active caption click  . To set the text color click  .
- **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click  to set the color of the border.
- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  Rounded Corners *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - **Rounded Corners Popup**: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Slider Properties: Caption

This section describes **Slider** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Slider Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.

- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.23 Bookmark Object - AJAX/Webview

This object is used to display and select selection bookmarks. Bookmarks can be searched by name or selected from the drop-down. Depending on its configuration it can also be used for adding new bookmarks or deleting old ones. It basically offers the same options as the Bookmark menu but can be positioned on the sheet as a sheet object.

Bookmark: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the ▾ icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Bookmark: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Add Bookmark	Saves the current selections as a bookmark.
Remove Bookmark	Removes the current bookmark
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Bookmark Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Add Button

Type the text that will be displayed on the **Add Bookmark** button. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Remove Button

Type the text that will be displayed on the **Remove Bookmark** button. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Bookmark Properties: Presentation

Presentation

Background Color

Sets the background to a color, either a solid color or a gradient. Click to choose the color.

Background Image

Sets an image as background. Click to browse for an image. Click to open the **Image** popup.

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

- Styles:
  - **Text**: To set the font type click Aa .
  - **Add Button**: To set the font color for the Add button click .
  - **Remove Button**: To set the font color for the Remove button click .
  - **Caption Font**: To set the caption font type click Aa.
  - **Active Caption**: To set the background color for the active caption click . To set the text color click .
  - **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
  - **Use Border**: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
  - **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.

- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

  Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Bookmark Properties: Caption

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Bookmark Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.

- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.24 Search Object - AJAX/Webview

Search objects can be used for searching for information anywhere in the document.

Search Object: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Object Menu properties

Property	Description
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.

Property	Description
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Search Object Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Sort by Applicability

Sorts the fields according to whether they contain possible field values. Fields lacking possible field values are dynamically moved down if this check box is marked.

Filed Sorting

Sets the sort order of the object.

Mode

Sets which fields should be searchable.

Search Object Properties: Presentation

This section describes **Search Object** properties.

Include Excluded

Includes values that have been excluded by selections in the search.

Highlight Substring

The search string so far will be highlighted in the matches.

Collapse when results in field exceeds

Limit the number of displayed matches in each field.

Text in Search Field

Enter the text that should be visible in the search object before you enter a search string.

More.../Less...

This section describes **More.../Less...** properties.

Style

- Style: To set the font type click Aa .
- Caption Font: To set the caption font type click Aa.
- Active Caption: To set the background color for the active caption click . To set the text color click .
- Inactive Caption: To set the background color for the inactive caption click . To set the text color click .
- Use Border: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
- Border Width: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- Rounded Corners: Click to open the **Rounded Corners** popup.
    - Rounded Corners Popup: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

> ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

Search Object Properties: Caption

This section describes **Search Object** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

The value may be entered as a calculated formula.

Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window

caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects. Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Search Object Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown.

To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.25 Container Object - AJAX/Webview

The container object can contain all other sheet objects. The objects are grouped together and have common settings for font, layout and caption.

Container: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the ▾ icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Container: Object Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Minimize	Iconizes the object. Clicking on the ▬ icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the ☐ icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Container Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

To add an object to the container click  . Select an object in the drop-down. The  icon moves the items in the list. The  icon removes items from the list.

Container Properties: Presentation

This section describes the properties available for Container Properties: Presentation.

Container Type

Select **Single Object** or **Grid**. Grid allows viewing and interacting with more than one object at a time in the container object.

*The following properties described in the sections below differ depending on selected **Container Type**.*

Appearance

The Appearance property provides the following options for customizing the location of objects in a container:

- **Tabs at top**: All objects in the container are displayed as tabs at the top of the container object.
- **Tabs on the left**: All objects in the container are displayed as tabs on the left of the container object.
- **Tabs at bottom**: All objects in the container are displayed as tabs at the bottom of the container object.
- **Tabs on the right**: All objects in the container are displayed as tabs on the right of the container object.
- **Dropdown at top**: All objects in the container are displayed in a drop-down menu at the top of the container object.
- **Hide tabs**: Hides all tabs and only displays the first object in the object list, or the first object with a show condition that returns TRUE.

Display Object Type Icons

Enable this setting to have icons symbolizing the different sheet objects in the tabs of the container object.

Columns

The number of columns in the container object.

Rows

The number of rows in the container object.

Spacing

Spacing between rows and columns in the container object.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

- **Image Popup**: **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.**Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.**Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.**Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.**Horizontal**: **Left**, **Centered** or **Right** alignment.**Vertical**: **Top**, **Centered** or **Bottom** alignment.**Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

The following styles are available for configuration:

- **Text**: To set the background color click . To set the text color click . To set the font type click Aa.
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click to set the color of the border.
- **Border Width**: Specify the width of the border in the input field, or drag the slider to the desired width. The width is specified in pixels.
- **Rounded Corners**: Click to open the **Rounded Corners** popup.

  > ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

  - **Rounded Corners Popup**: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Select **Squareness** by entering a value.

Container Properties: Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

Icon Caption

Icon Caption consists of one property, More.../Less..., which contains several options that will be outlined in this section.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects. Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Container Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.26 Bar Chart - AJAX/Webview

The most basic chart type. It displays values as bars of different height.

Bar Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.

Command	Details
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Bar Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click  . Select a dimension in the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.

- **Dimension**: Displays the currently selected dimension. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.
- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **`State`** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**:
    - **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
    - **Number Value**: Sorts the field values by their numeric values.
    - **Text**: Sorts the field values in alphabetical order.
    - **Load Order**: Sorts the field values by the initial load order.Sort by ExpressionSorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. Keep Selected on TopEnable this to keep the selected values on top.

Limits

Restrict which values are displayed using the first expression.

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

- **Show only**:
  Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
  - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.
  - The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
  - The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
  - Enter the number of values to display.

  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  Select **Include Boundary Values** to include the dimension value that contains the comparison value.
- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. If

there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.

- **Show Total**:The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Major Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the major labels.
- **Minor Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the minor labels.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Stagger Labels**: Select this option to stagger x-axis labels when they become to many to show side by side.
- **Reverse Stagger**: X-axis labels are normally staggered bottom-up from left to right. When marking this check box, the stagger will be reversed to top-down.
- **Continuous X**: Sets the x-axis to be continuous, i.e. it will be interpreted numerically and shown with numerically correct intervals.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Backcast**: By entering an integer in the edit field, you force the x-axis to be extended to the left of the actual data points plotted. This is useful when using trend lines. The backcast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Forecast**: By entering an integer in the edit field, you force the x-axis to be extended to the right of the actual data points plotted. This is useful when using trendlines. The forecast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expressions

To add an expression click  .Choose expression in the list. The  icon moves the items in the list. The  icon removes items from the list. Click on each dimension and make additional settings by clicking on the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.

  - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
    - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.
    - **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
    - **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
    - **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.
- **Use Trendlines**:

  Check this box to use trendlines. Click  to open the popup.
  Trendline Popup: Choose one of the following Trendline options:
  - **Average**: The average is plotted as a straight line.
  - **Linear**: A linear regression line is plotted.
  - **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
  - **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.

- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
  For each option, it is possible to check the **Show Equation** box and the **Show R^2** box.
  - **Show Equation**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the trend line equation expressed as text in the chart.
  - **Show R^2**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the coefficient of determination expressed as text in the chart.

- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Statistical Distributions**:

  Check this box to use statistical distribution. Click  to open the popup.
  - **Statistical Distributions Popup**: Enable the checkboxes **Error Above**, **Error Below**, and **Error Symmetric** to utilize one or two expressions following the selected expression as auxiliary expressions for bars plotted on top on the main expression's data points.
    - If **Error Symmetric** is selected, then only one auxiliary expression will be used and plotted symmetrically around the data point.
    - If **Error Above** or **Error Below** is selected, then two auxiliary expressions will be used and plotted above and below the data point respectively.
    - The error bar expressions should return positive numbers.
    - The auxiliary expressions utilized for error bars are preceded by the icons (error symmetric), (error above) or (error below) in the Expressions list and cannot be utilized for anything else in the chart.
    - If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically.
- **Bar Border Settings Popup**: Specifies the width of the border line around bars in bar and combo charts.
- **Value Display Settings**:
  - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.
  - **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
  - **Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.
- **Attribute Expression Styles**:

- **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
- **Bar Offset**: Define an attribute expression for calculating the bar offset.
- **Show Value**: Define an attribute expression for calculation whether the data point plot should be complemented with a "number on data point value", even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded.

- **Edit Expression** dialog: The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Number Format Tab**:
  - **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
    - **Number Format**: Choose a number format from the alternatives below.
    - **Default**: Both numbers and text. Numbers are shown in original format.
    - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
    - **Integer**: Shows numeric values as integers.
    - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
    - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
    - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
    - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
    - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
    - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
    - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
    - **Precision**: The number of digits that will be displayed.
    - **Decimals**: Sets the number of decimals included.
    - **Decimals Separator**: Sets the symbol for decimal separators.
    - **Thousand Separator**: Sets the symbol for thousand separators.

- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Split Axis**: Check this box to split the y-axis into two parts, thus creating an impression of two charts sharing a common x-axis.
- **Position**: Choose **Left** or **Right** position.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Log Scale**: If this box is checked, the scale will be logarithmic.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Center**:Sets a fixed value on the axis which will be positioned in the center of the plot area. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Bar Chart Properties: Presentation

Some options may not be available for all objects.

Look

Click  to open the popup.

- **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 0 and 30.
- **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 0 and 45.

Orientation

Sets the orientation of the chart.

Color Style

Defines the color style on all plot colors in the chart. Click  to open the popup.

- **Persistent Colors**: Locks the colors assigned to each data point even if selections reduce the total number of data points. In this mode color representation will never change for a given data point, but there is a risk of having two adjacent bars or slices with the same color for different data points.
- **Repeat Last Color**: Select this check box to assign the last (18th) color to field values loaded as number 18 and forward. If this check box is left unselected, the 19th value (according to the original load order) will get the first color, the 20th value the second color, etc.

Show Legend

Displays the legend in the chart. Click  to open the popup.

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.
- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Stacked Bars

Checking this option displays the bars stacked instead of grouped.

Bar Distance

Enter a number or drag the slider to set the distance between the bars in the cluster.

Cluster Distance

Enter a number or drag the slider to set the distance between clusters in the chart.

Background

Sets the background of the chart. The following options are available:

- **Color**: Click  to select a color.
- **Image**: Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Background

Sets the background of the plot area. The following options are available:

- **Color**: The plot area will have a colored background. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Style

This control can be used to change the appearance of the plot area background. The following options are available:

- **Frame**: A frame is drawn around the plot area.
- **Shadow**: This options gives a shadow effect on the plot area background.
- **Minimal**: The plot area background is removed.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

General

- **Reverse Direction**: When this check box is marked, the values shown in the chart will be reversed, i.e. if the 10 highest values are shown and the box is checked the chart will then show the 10 lowest values.
- **Max Values Shown**: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Zero on Bars**: This setting is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected, zero values will appear as text above the data points. In other cases zero values will be suppressed.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
- **Synchronize Zero for Expression Axes**: Synchronizes the zero level of the two y-axes (left/right or top/bottom).

- **Use Full Symbol Set**: This alternative makes more symbol representations available (rings, triangles, etc.)
- **Allow Thin Bars**: For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. By default bars will be drawn with a minimum width of four pixels, so that they are clearly distinguishable. Mark this check box to allow bar width down to one pixel.
- **Show All Bars**: For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Mark this check box to force plotting of all bars. The bars will be compressed and some data points may become obscured by others.
- **Vertical Numbers**: Shows the values vertically.
- **Plot Numbers on Segments**: Marking this check box will plot values on data points inside the segments instead of on top of them.
- **Popup Labels**: By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **Highlight**: This option is not supported for AJAX/Webview.

Chart Scrolling

Click to open the popup.

- **Chart Scrolling Popup**: Enable this check box to show a scroll control in place of the X-axis, when the number of bars exceeds the defined number. The scroll bar can be used to scroll the selection of the X-axis values that are displayed.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click to open the **Edit Expression** dialog.

Styles

- **Legend**: To set the color of the legend click . To set the font color of the legend click . To set the font type click .
- **Chart Title Style**: To set the font color of the chart title click . To set the font type click .
- **Caption Font**: To set the caption font type click .
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .

- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- **Rounded Corners**: Click to open the **Rounded Corners** popup.

  > ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - Rounded Corners Popup: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.
- **Scroll Bar Background**: To set the scroll bar background color click .
- **Scroll Bar Slider**: To set the scroll bar slider color click .
- **Scroll Bar Width**: Specify a value or drag the slider to set the width of the scroll bar. This control affects both the width and the relative size of the scroll bar symbols.
- **Trendline Width**: Specify the width of the trendline.
- **Error Bar**: To set the error bar slider color click .
- **Error Bar Width**: Specify the width of the error bar.
- **Error Bar Thickness**: Specify the thickness of the error bar.
- **Reference Lines**:
  - **Reference Lines**: Add a reference line by clicking .
  - **Show Label in Chart**: Displays the label next to the reference line.
  - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - **X-Axis**: Select this option if the reference line should originate from the x-axis.
  - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
  - **Line Weight**: Specifies the weight of the reference line.
  - **Line Style**: Specifies the style of the reference line.
  - **Line Color**: Specifies the color of the reference line.
  - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
  - **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Text**:
  - **Text in Chart**: Click  to add text in the chart.
  - **Text**: The text added in **Text in Chart** are displayed here.
  - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
  - **Horizontal Align**: Sets the horizontal alignment.
  - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
  - **Text Style**:
    - To set the background color for the text click  .
    - To set the font color click  . To set the font type click  .
  - **Size Position**: Sets the position and size of the text on the object.

Bar Chart Properties: Caption

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

The following icons in captions are available:

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!

- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Bar Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon

to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.

- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.27 Line Chart - AJAX/Webview

Line charts present data as lines between value points, as value points only or as both lines and value points. Line charts are useful when you want to show changes or trends.

Line Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Command	Details
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the ›› icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.

Command	Details
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Line Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click . Select a dimension in the drop-down. Use the icon to move items in the list. The icon removes items from the list. For more settings, click the **More...** button.

Dimension

This section describes the elements in **Dimension**.

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.

- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

This section describes elements in **Sort**.

- Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
  If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. `State` refers to the logical state (selected, optional, or excluded).
- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Limits

This section describes elements in **Limits**.

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**:
- Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
    - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.

- The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
- The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
- Enter the number of values to display.
- The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- Select **Include Boundary Values** to include the dimension value that contains the comparison value.

- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected, all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

  If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**:
- The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Axis

This section describes elements in **Axis**.

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Major Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the major labels.
- **Minor Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the minor labels.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Stagger Labels**: Select this option to stagger x-axis labels when they become to many to show side by side.
- **Reverse Stagger**: X-axis labels are normally staggered bottom-up from left to right. When marking this check box, the stagger will be reversed to top-down.
- **Continuous X**: Sets the x-axis to be continuous, i.e. it will be interpreted numerically and shown with numerically correct intervals.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Backcast**: By entering an integer in the edit field, you force the x-axis to be extended to the left of the actual data points plotted. This is useful when using trend lines. The backcast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Forecast**: By entering an integer in the edit field, you force the x-axis to be extended to the right of the actual data points plotted. This is useful when using trendlines. The forecast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

This section describes the elements in **Expression**.

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.

  - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
    - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.
    - **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
    - **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
    - **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.
- **Use Trendlines**:

  Check this box to use trendlines. Click  to open the popup.

  Trendline Popup: Choose one of the following Trendline options:

  - **Average**: The average is plotted as a straight line.
  - **Linear**: A linear regression line is plotted.
  - **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
  - **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
  - **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
  - **Exponential**: An exponential trend line is plotted.
    For each option, it is possible to check the **Show Equation** box and the **Show R^2** box.
    - **Show Equation**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the trend line equation expressed as text in the chart.

- **Show R^2**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the coefficient of determination expressed as text in the chart.

- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Line Symbol Settings**: Check this box to make layout settings for bars, lines and symbols. Click  to open the popup.
    - **Line Symbol Settings Popup**:
        - **Line**: Make setting s for the layout of lines.
        - **Symbol**: Make settings for the layout of used symbols.
- **Value Display Settings**:
    - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.
    - **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
    - **Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.
- **Attribute Expression Styles**:
    - **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Line Style**: Click on **Line Style** in order to enter an attribute expression for calculating the line style for the line or line segment associated with the data point. This type of attribute expression only has effect on line, combo and radar charts.
        - The relative width of the line can be controlled by including a tag <Wn> where n is a multiplying factor to be applied on the default line width of the chart. The number n must be a real number between 0.5 and 8. Example: <W2.5>. The style of the line can be controlled by including a tag <Sn> where n is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <Wn> and <Sn> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.
    - **Show Value**:
        - Define an attribute expression for calculation whether the data point plot should be complemented with a “number on data point value“, even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for

the main expression the attribute expression will be disregarded.

- **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
  - **Number Format**: Choose a number format from the alternatives below.
  - **Default**: Both numbers and text. Numbers are shown in original format.
  - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
  - **Integer**: Shows numeric values as integers.
  - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
  - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
  - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
  - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
  - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
  - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
  - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
  - **Precision**: The number of digits that will be displayed.
  - **Decimals**: Sets the number of decimals included.
  - **Decimals Separator**: Sets the symbol for decimal separators.
  - **Thousand Separator**: Sets the symbol for thousand separators.
  - **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
  - **Preview**: Shows a preview of the number format specified above.

Axis

This section describes elements in **Axis**.

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Split Axis**: Check this box to split the y-axis into two parts, thus creating an impression of two charts sharing a common x-axis.
- **Position**: Choose **Left** or **Right** position.

- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Log Scale**: If this box is checked, the scale will be logarithmic.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Center**: Sets a fixed value on the axis which will be positioned in the center of the plot area. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Line Chart Properties: Presentation

This section describes **Presentation** properties.

Presentation options

Some options may not be available for all objects.

Look

Select one of the available looks in the drop-down.

Click  to open the popup.

- **Bar 3D Look Settings Popup**:
  - **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 5 and 45.
  - **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 5 and 45.

Orientation

Sets the orientation of the chart.

Color Style

Defines the color style on all plot colors in the chart. Click  to open the popup.

- **Color Properties Popup**:
  - **Persistent Colors**: Locks the colors assigned to each data point even if selections reduce the total number of data points. In this mode color representation will never change for a given data point, but there is a risk of having two adjacent bars or slices with the same color for different data points.
  - **Repeat Last Color**: Select this check box to assign the last (18th) color to field values loaded as number 18 and forward. If this check box is left unselected, the 19th value (according to the original load order) will get the first color, the 20th value the second color, etc.

Show Legend

Displays the legend in the chart. Click  to open the popup.

- **Legend Settings Popup**:
  - **Legend Style**: Sets the legend style.
  - **Vertical Placement**: Sets the vertical alignment of the legend.
  - **Line Spacing**: Specifies the distance between items in the legend.
  - **Reverse Order**: To reverse the sort order of the legend mark this check box.
  - **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Stacked Bars

Checking this option displays the bars stacked instead of grouped.

Bar Distance

Enter a number or drag the slider to set the distance between the bars in the cluster.

Cluster Distance

Enter a number or drag the slider to set the distance between clusters in the chart.

Background

Sets the background of the chart. The following options are available:

- **Color**: Click  to select a color.
- **Image**: Click  to change the image.
- **Dynamicc Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Background

Sets the background of the plot area. The following options are available:

- **Color**: The plot area will have a colored background. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Style

This control can be used to change the appearance of the plot area background. The following options are available:

- **Frame**: A frame is drawn around the plot area.
- **Shadow**: This options gives a shadow effect on the plot area background.
- **Minimal**: The plot area background is removed.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

- **General**:
    - **Reverse Direction**: When this check box is marked, the values shown in the chart will be reversed, i.e. if the 10 highest values are shown and the box is checked the chart will then show the 10 lowest values.
    - **Max Values Shown**: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
    - **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
    - **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
    - **Synchronize Zero for Expression Axes**: Synchronizes the zero level of the two y-axes (left/right or top/bottom).
    - **Use Full Symbol Set**: This alternative makes more symbol representations available (rings, triangles, etc.)
    - **Semi-transparent**: Check this box to make filled lines be drawn semi-transparent.
    - **Vertical Numbers**: Shows the values vertically.
    - **Plot Numbers on Segments**: Marking this check box will plot values on data points inside the segments instead of on top of them.

- **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **Highlight**: This option is not supported for AJAX/Webview.
- **Chart Scrolling**: Click to open the popup.
  - Chart Scrolling Popup: Enable this check box to show a scroll control in place of the X-axis, when the number of bars exceeds the defined number. The scroll bar can be used to scroll the selection of the X-axis values that are displayed.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click to open the **Edit Expression** dialog.

- Styles:
  - **Legend**: To set the color of the legend click . To set the font color of the legend click .To set the font type click .
  - **Chart Title Style**: To set the font color of the chart title click . To set the font type click .
  - **Caption Font**: To set the caption font type click .
  - **Active Caption**: To set the background color for the active caption click . To set the text color click .
  - **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
  - **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
  - **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
  - **Rounded Corners**: Click to open the **Rounded Corners** popup.

    > ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

    - **Rounded Corners Popup**: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Select **Squareness** by entering a value.
  - **Scroll Bar Background**: To set the scroll bar background color click .
  - **Scroll Bar Slider**: To set the scroll bar slider color click .

- **Scroll Bar Width**: Specify a value or drag the slider to set the width of the scroll bar. This control affects both the width and the relative size of the scroll bar symbols.
- **Trendline Width**: Specify the width of the trendline.
  - **Reference Lines**:
    - **Reference Lines**: Add a reference line by clicking  .
    - **Show Label in Chart**: Displays the label next to the reference line.
    - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
    - **X-Axis**: Select this option if the reference line should originate from the x-axis.
    - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
    - **Line Weight**: Specifies the weight of the reference line.
    - **Line Style**: Specifies the style of the reference line.
    - **Line Color**: Specifies the color of the reference line.
    - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
    - **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - **Text**:
    - **Text in Chart**: Click  to add text in the chart.
    - **Text**: The text added in **Text in Chart** are displayed here.
    - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
    - **Horizontal Align**: Sets the horizontal alignment.
    - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
    - **Text Style**:
      - To set the background color for the text click  .
      - To set the font color click  . To set the font type click  .
    - **Size Position**: Sets the position and size of the text on the object.

Line Chart Properties: Caption

This section describes **Caption** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

The value may be entered as a calculated formula.

Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

Icons in Caption

This section describes the elements in the **More.../Less...** property.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window

caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects. Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Line Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown.

To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.28 Combo Chart - AJAX/Webview

The combo chart allows you to combine the features of the bar chart with those of the line chart: you can show the values of one expression as bars while displaying those of a second expression as lines or symbols.

Combo Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the ▾ icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	**Details**
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.

Command	Details
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Combo Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click  . Select a dimension in the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.
- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **`State`** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table). **Numeric Value**: Sorts the field values by their numeric values.

Text: Sorts the field values in alphabetical order.
Load Order: Sorts the field values by the initial load order.

- **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**: Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.
- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected, all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. If

there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.

- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Major Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the major labels.
- **Minor Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the minor labels.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Stagger Labels**: Select this option to stagger x-axis labels when they become to many to show side by side.
- **Reverse Stagger**: X-axis labels are normally staggered bottom-up from left to right. When marking this check box, the stagger will be reversed to top-down.
- **Continuous X**: Sets the x-axis to be continuous, i.e. it will be interpreted numerically and shown with numerically correct intervals.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Backcast**: By entering an integer in the edit field, you force the x-axis to be extended to the left of the actual data points plotted. This is useful when using trend lines. The backcast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Forecast**: By entering an integer in the edit field, you force the x-axis to be extended to the right of the actual data points plotted. This is useful when using trendlines. The forecast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.
  - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
    - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.
    - **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
    - **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
    - **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.
- **Use Trendlines**:

  Check this box to use trendlines. Click  to open the popup.
  Trendline Popup: Choose one of the following Trendline options:
  - **Average**: The average is plotted as a straight line.
  - **Linear**: A linear regression line is plotted.
  - **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
  - **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.
  - **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.

- **Exponential**: An exponential trend line is plotted.
  For each option, it is possible to check the **Show Equation** box and the **Show R^2** box.
    - **Show Equation**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the trend line equation expressed as text in the chart.
    - **Show R^2**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the coefficient of determination expressed as text in the chart.

- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Statistical Distribution**:

  Check this box to use statistical distribution. Click  to open the popup.
    - **Statistical Distributions Popup**: Enable the checkboxes **Error Above**, **Error Below**, and **Error Symmetric** to utilize one or two expressions following the selected expression as auxiliary expressions for bars plotted on top on the main expression's data points.
        - If **Error Symmetric** is selected, then only one auxiliary expression will be used and plotted symmetrically around the data point.
        - If **Error Above** or **Error Below** is selected, then two auxiliary expressions will be used and plotted above and below the data point respectively.
        - The error bar expressions should return positive numbers.
        - The auxiliary expressions utilized for error bars are preceded by the icons (error symmetric), (error above) or (error below) in the Expressions list and cannot be utilized for anything else in the chart.
        - If there are no expressions already defined after the selected expression, new dummy auxiliary expressions will be created automatically.
- **Bar, Line, Symbol Settings**:

  Check this box to make layout settings for bars, lines and symbols. Click  to open the popup.
  Bar, Line, Symbol Settings Popup
  Bar
  Enter a value or drag the slider to specify the width of the border line around bars and combo charts.
  Line
  Make setting s for the layout of lines.
  Symbol
  Make settings for the layout of used symbols.

- **Value Display Settings**:
    - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.

- **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
- **Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.

- **Attribute Expression Styles**:
  - **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
  - **Bar Offset**: Define an attribute expression for calculating the bar offset.
  - **Line Style**: Define an attribute expression for calculating the line style.
  - **Show Value**: Define an attribute expression for calculation whether the data point plot should be complemented with a "number on data point value", even if **Values on Data Points** has not been selected for the main expression. If **Values on Data Points** is selected for the main expression the attribute expression will be disregarded.
- **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
  - **Number Format**: Choose a number format from the alternatives below.
  - **Default**: Both numbers and text. Numbers are shown in original format.
  - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
  - **Integer**: Shows numeric values as integers.
  - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
  - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
  - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
  - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
  - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
  - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
  - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
  - **Precision**: The number of digits that will be displayed.
  - **Decimals**: Sets the number of decimals included.

- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Split Axis**: Check this box to split the y-axis into two parts, thus creating an impression of two charts sharing a common x-axis.
- **Position**: Choose **Left** or **Right** position.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Log Scale**: If this box is checked, the scale will be logarithmic.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Center**: Sets a fixed value on the axis which will be positioned in the center of the plot area. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Combo Chart Properties: Presentation

Some options may not be available for all objects.

Look

Click  to open the popup.

- **Top Angle**: Defines the vertical angle of the 3D view. The value must be an integer between 0 and 30.
- **Side Angle**: Defines the side angle of the 3D view. The value must be an integer between 0 and 45.

Orientation

Sets the orientation of the chart.

Color Style

Defines the color style on all plot colors in the chart. Click  to open the popup.

- **Persistent Colors**: Locks the colors assigned to each data point even if selections reduce the total number of data points. In this mode color representation will never change for a given data point, but there is a risk of having two adjacent bars or slices with the same color for different data points.
- **Repeat Last Color**: Select this check box to assign the last (18th) color to field values loaded as number 18 and forward. If this check box is left unselected, the 19th value (according to the original load order) will get the first color, the 20th value the second color, etc.

Show Legend

Displays the legend in the chart. Click  to open the popup.

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.
- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Stacked Bars

Checking this option displays the bars stacked instead of grouped.

Bar Distance

Enter a number or drag the slider to set the distance between the bars in the cluster.

Cluster Distance

Enter a number or drag the slider to set the distance between clusters in the chart.

Background

Sets the background of the chart. The following options are available:

- **Color**: Click  to select a color.
- **Image**: Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Background

Sets the background of the plot area. The following options are available:

- **Color**: The plot area will have a colored background. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Style

This control can be used to change the appearance of the plot area background. The following options are available:

- **Frame**: A frame is drawn around the plot area.
- **Shadow**: This options gives a shadow effect on the plot area background.
- **Minimal**: The plot area background is removed.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

General

- **Reverse Direction**: When this check box is marked, the values shown in the chart will be reversed, i.e. if the 10 highest values are shown and the box is checked the chart will then show the 10 lowest values.
- **Max Values Shown**: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Zero on Bars**: This setting is only applicable when **Suppress Zero-Values** is deselected. If the check box is marked and **Values on Data Points** is selected, zero values will appear as text above the data points. In other cases zero values will be suppressed.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is

selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.

- **Synchronize Zero for Expression Axes**: Synchronizes the zero level of the two y-axes (left/right or top/bottom).
- **Use Full Symbol Set**: This alternative makes more symbol representations available (rings, triangles, etc.)
- **Allow Thin Bars**: For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. By default bars will be drawn with a minimum width of four pixels, so that they are clearly distinguishable. Mark this check box to allow bar width down to one pixel.
- **Show All Bars**: For charts with a non-continuous x-axis, QlikView will only display as many data points as can be accommodated in the plot area available. Remaining data points are truncated from the chart. Mark this check box to force plotting of all bars. The bars will be compressed and some data points may become obscured by others.
- **Vertical Numbers**: Shows the values vertically.
- **Plot Numbers on Segments**: Marking this check box will plot values on data points inside the segments instead of on top of them.
- **Popup Labels**: By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **Highlight**: This option is not supported for AJAX/Webview.

Chart Scrolling

Click to open the popup.

- **Chart Scrolling Popup**: Enable this check box to show a scroll control in place of the X-axis, when the number of bars exceeds the defined number. The scroll bar can be used to scroll the selection of the X-axis values that are displayed.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Styles

- **Legend**: To set the color of the legend click . To set the font color of the legend click . To set the font type click Aa.
- **Chart Title Style**: To set the font color of the chart title click . To set the font type click Aa.
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click .

- **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the  to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  > ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

  - Rounded Corners Popup: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.
- **Scroll Bar Background**: To set the scroll bar background color click  .
- **Scroll Bar Slider**: To set the scroll bar slider color click  .
- **Scroll Bar Width**: Specify a value or drag the slider to set the width of the scroll bar. This control affects both the width and the relative size of the scroll bar symbols.
- **Trendline Width**: Specify the width of the trendline.
- **Error Bar**: To set the error bar slider color click  .
- **Error Bar Width**: Specify the width of the error bar.
- **Error Bar Thickness**: Specify the thickness of the error bar.
- **Reference Lines**:
  - **Reference Lines**: Add a reference line by clicking  .
  - **Show Label in Chart**: Displays the label next to the reference line.
  - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.
  - **X-Axis**: Select this option if the reference line should originate from the x-axis.
  - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
  - **Line Weight**: Specifies the weight of the reference line.
  - **Line Style**: Specifies the style of the reference line.
  - **Line Color**: Specifies the color of the reference line.
  - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.

- **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Text**:
  - **Text in Chart**: Click  to add text in the chart.
  - **Text**: The text added in **Text in Chart** are displayed here.
  - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
  - **Horizontal Align**: Sets the horizontal alignment.
  - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
  - **Text Style**:
    - To set the background color for the text click  .
    - To set the font color click  . To set the font type click  .
  - **Size Position**: Sets the position and size of the text on the object.

Combo Chart Properties: Caption

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.

- **Caption Alignment**: Can be Left, Centered, or Right.

- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!

- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Combo Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.

- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.29 Radar Chart - AJAX/Webview

Radar charts could be described as line charts where the x-axis is wrapped around 360 degrees and with one y-axis for each x-value. The result is similar to a spider web or a radar screen.

Radar Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Command	Details
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the  icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.

Command	Details
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Radar Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click . Select a dimension in the drop-down. Use the icon to move items in the list. The icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.
- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.

- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered.
- **Keep Selected on Top**: The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. Enable this to keep the selected values on top.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**:
  Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
  - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.
  - The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
  - The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while

interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.

- Enter the number of values to display.
- The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- Select **Include Boundary Values** to include the dimension value that contains the comparison value.

- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.

  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Major Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the major labels.
- **Minor Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the minor labels.

- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Stagger Labels**: Select this option to stagger x-axis labels when they become to many to show side by side.
- **Reverse Stagger**: X-axis labels are normally staggered bottom-up from left to right. When marking this check box, the stagger will be reversed to top-down.
- **Continuous X**: Sets the x-axis to be continuous, i.e. it will be interpreted numerically and shown with numerically correct intervals.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Backcast**: By entering an integer in the edit field, you force the x-axis to be extended to the left of the actual data points plotted. This is useful when using trend lines. The backcast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Forecast**: By entering an integer in the edit field, you force the x-axis to be extended to the right of the actual data points plotted. This is useful when using trendlines. The forecast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.

- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.

  - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
    - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.
    - **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
    - **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
    - **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.
- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Line & Symbol Settings**: Check this box to make layout settings for lines and symbols. Click  to open the popup.
  - **Line & Symbol Settings Popup**:
    - Line: Make setting s for the layout of lines.
    - Symbol: Make settings for the layout of used symbols.
- **Value Display Settings**:
  - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.
  - **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
  - **Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.

Attribute Expression Styles

- **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
- **Line Style**: Define an attribute expression for calculating the line style for the line or line segment associated with the data point. The relative width of the line can be controlled by including a tag <Wn> where n is a multiplying factor to be applied on the default line width of the chart. The number n must

be a real number between 0.5 and 8. Example: <W2.5>. The style of the line can be controlled by including a tag <Sn> where n is an integer between 1 and 4 indicating the style to be used (1=continuous, 2= dashed, 3=dotted, 4=dashed/dotted). Example: <S3>. The <Wn> and <Sn> tags can be freely combined, but only the first occurrence of each counts. The tags must be enclosed by single quotations.

- **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
  - **Number Format**: Choose a number format from the alternatives below.
  - **Default**: Both numbers and text. Numbers are shown in original format.
  - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
  - **Integer**: Shows numeric values as integers.
  - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
  - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
  - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
  - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
  - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
  - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
  - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
  - **Precision**: The number of digits that will be displayed.
  - **Decimals**: Sets the number of decimals included.
  - **Decimals Separator**: Sets the symbol for decimal separators.
  - **Thousand Separator**: Sets the symbol for thousand separators.
  - **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
  - **Preview**: Shows a preview of the number format specified above.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Split Axis**: Check this box to split the y-axis into two parts, thus creating an impression of two charts sharing a common x-axis.
- **Position**: Choose **Left** or **Right** position. If **Split Axis** was selected, choose **Top**or **Bottom**position.

- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Log Scale**: If this box is checked, the scale will be logarithmic.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Center**: Sets a fixed value on the axis which will be positioned in the center of the plot area. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Radar Chart Properties: Presentation

This section describes **Radar Chart** properties.

Look

Select one of the available looks in the drop-down.

Show Legend

Displays the legend in the chart. Click  to open the popup.

Legend Settings Popup

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.

- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Stacked

Checking this option displays data points stacked.

Line Width

Sets the line width for lines.

Symbol Size

Sets the size of the symbols, when such are used.

Background

Sets the background of the chart. The following options are available:

- **Color**: Click to select a color.
- **Image**: Click to change the image.
- **Dynamic Image**: Click to set the dynamic image.
    - Enter a calculated expression to show dynamic background images that change with the selection.

Background Transparency

Click to set the background transparency. Enter a value in the box or drag the slider to set the transparency.

More.../Less...

This section describes the **General** property.

General

- **Reverse Direction**: When this check box is marked, the values shown in the chart will be reversed, i.e. if the 10 highest values are shown and the box is checked the chart will then show the 10 lowest values.
- **Max Values Shown**: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is

selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.

- **Synchronize Zero for Expression Axes**: Synchronizes the zero level of the two y-axes (left/right or top/bottom).
- **Use Full Symbol Set**: This alternative makes more symbol representation available (rings, triangles etc.)
- **Semi-transparent**: Check this box to make filled lines to be drawn semi-transparent.
- **Vertical Numbers**: Shows the values vertically.
- **Plot Numbers on Segments**: Marking this check box will plot values on data points inside the segments instead of on top of them.
- **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **Highlight**: If this check box is marked hovering with the mouse over a line or symbol in it will result in the line or symbol being highlighted for better overview. The highlighting applies also in the legend where applicable.
- **Calculate Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Styles

- **Legend**: To set the color of the legend click . To set the font color click . To set the font type click Aa.
- **Chart Title Style**: To set the font color of the chart title click . To set the font type click Aa.
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.

- **Rounded Corners**:
  - Click  to open the **Rounded Corners** popup.

    >  ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.
- **Scroll Bar Background**: To set the scroll bar background color click  .
- **Scroll Bar Slider**: To set the scroll bar slider color click 
- **Scroll Bar Width**: Specify a value or drag the slider to set the width of the scroll bar. This control affects both the width and the relative size of the scroll bar symbols.
  - **Reference Lines**:
    - **Reference Lines**: Add a reference line by clicking  .
    - **Show Label in Chart**: Displays the label next to the reference line.
    - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.
    - **X-Axis**: Select this option if the reference line should originate from the x-axis.
    - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
    - **Line Weight**: Specifies the weight of the reference line.
    - **Line Style**: Specifies the style of the reference line.
    - **Line Color**: Specifies the color of the reference line.
    - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
    - **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.
  - **Text**:
    - **Text in Chart**: Click  to add text in the chart.
    - **Text**: The text added in **Text in Chart** are displayed here.
    - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
    - **Horizontal Align**: Sets the horizontal alignment.
    - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.

- **Text Style**:
  - To set the background color for the text click  .
  - To set the font color click  . To set the font type click  .
- **Size Position**: Sets the position and size of the text on the object.

Radar Chart Properties: Caption

This section describes **Radar Chart** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Radar Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.

- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.30 Gauge Chart - AJAX/Webview

Gauge charts are used to display the value of a single expression without dimensions.

Gauge Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.

Command	Details
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Command	Details
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Gauge Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Expressions

Choose expressions in the drop-down list. To add an expression, click . Select an expression from the drop-down. Use the icon to move items in the list. The icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**:
  - The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression.
  - **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
    - **Number Format**: Choose a number format from the alternatives below.
    - **Default**: Both numbers and text. Numbers are shown in original format.
    - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
    - **Integer**: Shows numeric values as integers.

- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
- **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Actions

Choose actions in the drop-down list. To add an action, click  . Select an action from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. Click  to open the **Action Settings** popup.

- **Action Settings Popup**: Select action **Type** and **Subtype** in the drop-down lists:
  - **Selection**:
    - **Select in Field**: Selects the values and fields that are specified. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
    - **Select Excluded**: Selects the excluded values in the specified field.
    - **Select Possible**: Selects the possible values in the specified field.
    - **Toggle Select**: Toggles between the current selection and the specified **Field** and **Search String**. In the **Search String** you can specify a search mask, e.g. (A|B) will select both A and B.
    - **Forward**: Goes one step forward in the list of selections.
    - **Back**: Goes back one step in the list of selections.
    - **Pareto Select**: Makes a pareto selection in the specified field based on an expression and percentage. This type of selection is used to select the top contributors to a measure, typically in line of a general 80/20 rule. For example, to find the top customers

that contribute to 80% of the turnover, Customer should be used as field, sum(Turnover) should be used as expression and 80 should be used as percentage.

- **Lock Field**: Locks the selections in the specified field.
- **Lock All**: Locks all values in all fields.
- **Unlock Field**: Unlocks the selections in the specified field.
- **Unlock All**: Unlocks all values in all fields.
- **Unlock and Clear All**: Unlocks all values and clears all selections in all fields.
- **Clear Other Fields**: Clears all related fields except the one specified.
- **Clear All**: Clears all selections except locked ones.
- **Clear Field**: Clears a specific field.

- **Layout**:
  - **Activate Object**: Activates the object specified by **Object ID**. This function does not work in Ajax client.
  - **Activate Sheet**: Activates the sheet specified by **Sheet ID**.
  - **Activate Next Sheet**: Opens the next sheet in the document.
  - **Activate Previous Sheet**: Opens the previous sheet in the document.
  - **Minimize Object**: Minimizes the object specified by **Object ID**.
  - **Maximize Object**: Maximizes the object specified by **Object ID**.
  - **Restore Object**: Restores the object specified by **Object ID**.
- **Bookmark**:
  - **Apply Bookmark**: Applies a bookmark specified by **Bookmark ID**. If two bookmarks have the same ID, the document bookmark is applied. To apply the server bookmark specify Server\bookmarkID.
  - **Create Bookmark**: Creates a bookmark from the current selection. Specify **Bookmark ID** and **Bookmark Name**. Select **Hidden** to create a hidden bookmark.
  - **Replace Bookmark**: Replaces the bookmark specified by **Bookmark ID** with the current selection.
- **Print**:
  - **Print Object**: Prints the object specified by **Object ID**. Specify the **Printer name** if the object should be sent to another printer than the default printer. (Not available as document and sheet trigger.)
  - **Print Sheet**: Prints the sheet specified by **Sheet ID**. (Not available as document and sheet trigger.) This function does not work in AJAX client.
  - **Print Report**: Prints the report specified by **Report ID**. Specify the **Printer name** if the report should be sent to another printer than the default printer. Mark the check box **Show Print Dialog** if you want the Windows print dialog to be shown. (Not available as document and sheet trigger.)

- **External**:
    - Some clients may not handle this setting!
        - **Export**: Exports a table containing a specific set of fields, but only those records that are applicable according to the made selection are exported. Click on the **Setup** button on the **Actions** page to open the **Export Action Settings** dialog. This is not available as document or sheet trigger.

          This function does not work in AJAX client.

        - **Launch**: Launches an external program. The following settings can be configured in the **Actions** dialog:
            - **Application**: Click on **Browse...** to find the application that should be launched. (Not available as document and sheet trigger.)
            - **Filename**: Enter the path to the file that should be opened with the application specified above. (Not available as document and sheet trigger.)
            - **Parameters**: Specify parameters for the command line from which the application is started. (Not available as document and sheet trigger.)
            - **Working Directory**: Sets the working directory for the application to be launched. (Not available as document and sheet trigger.)
            - **Exit application when QlikView is closed**: Forces the application to be closed when QlikView is exited. (Not available as document and sheet trigger.)

              This function does not work in AJAX client.

        - **Open URL**: You can use **Open URL** to open a URL to a QlikView document from within another QlikView document (document chaining). This setting opens the URL in the default web browser. This function cannot be used as a document and sheet trigger. If using **Open URL**, make sure to enter the document name in the action-string in lower case.
          Where possible, use **Open QlikView Document** instead of **Open URL**.

          The use of Javascript in URLs is prevented by default.
          You can allow Javascript in URLs by changing the `PreventJavascriptInObjectActions` *parameter in the custom.config file.*

        - **Open QlikView Document**: You can use **Open QlikView Document** to open a QlikView document from within another QlikView document (document chaining). This function cannot be used as a document or sheet trigger. For more information, see *Document chaining examples (page 1719)*.

- **Run Macro**: Enter the path and name of the macro to be run. Type any name for which it is possible to later create a macro in the **Edit Module** dialog, or a **calculated expression** for dynamic update.
- **Set Variable**: Assigns a value to the specified variable.
- **Show Information**: Shows the associated information, such as a text file or an image for the field specified by **Field**. This function does not work in AJAX client.
- **Close This Document**: Closes the active QlikView document.
- **Reload**: Performs a reload on the current document. This function does not work both in AJAX client and IE-plugin.
- **Dynamic Update**: Performs a dynamic update of the data in the currently loaded document. The statement for the dynamic update is to be entered in the **Statement** field.
  The intended usage of Dynamic Update allows a QlikView Administrator to feed limited amounts of data in to a QlikView document from a single source without running a reload of the document. Analysis can then be performed by multiple clients connecting to the QlikView Server.

  The uploaded information is stored in RAM only so any data added or updated using Dynamic Update will be lost if a reload of the document is performed.

  The following grammar describes the possible statements and their components that can be used with the Dynamic Update feature:
  - statements ::= statement { “;” statement }
  - statement ::= insert_statement | update_statement | delete_statement | begin_transaction_statement | commit_transaction_statement
  - insert_statement ::= "INSERT" "INTO" ("*" | table_name) field_list "VALUES" value_list {"," value_list} ["KEY" ["AUTO" | (" (" field_list ")")] ["REPLACE" (["WITH" "ONE"] | "EACH")]]
  - update_statement ::= "UPDATE" ("*" | table_name) set_clause {"," | set_clause} "WHERE" condition ["AUTO" "INSERT"]
  - delete_statement ::= "DELETE" "FROM" ("*" | table_name] "WHERE" condition
  - begin_transaction_statement ::= "BEGIN" ("TRANSACTION" | "TRAN") [trans_name]
  - commit_transaction_statement ::= "COMMIT" ["TRANSACTION" | "TRAN"] [trans_name]
  - table_name ::= identifier | quoted_name
  - field_list ::= "(" field_name {"," field_name} ")"
  - value_list ::= "("value {"," value} ")"
  - set_clause ::= "SET" field_name "=" any_valid_non_aggregated_qlikview_expression
  - field_name ::= identifier | quoted string

- value ::= identifier | any_qlikview_number | quoted string
- condition ::= any_valid_non_aggregated_qlikview_expression
- identifier ::= any_qlikview_identifier
- quoted_string ::= "[" [^]]+ "]"

Example:

```
UPDATE AbcTable SET Discount = 123 WHERE AbcField=1
```

To use this feature, Dynamic Update must be allowed both on the Document and on the Server.

Document chaining examples

You can use **Open QlikView Document** to create document chaining.
The following settings can be applied:

- **Transfer State**: to transfer the selections from the original document to the destination document. The destination document will first be cleared of selections.
- **Apply state on top of current**: to retain the destination document's selections and apply the original document's selections on top of them.

*Using **Apply state on top of current** can return unexpected results if the selections made in the two documents are conflicting.*

- **Open in same Window**: to open the new document in the same browser tab when using the AJAX ZFC client.

Open QlikView Document action is not supported for non domain users when using the QlikView plug-in.

QlikView documents: The extension of the destination file must be included. Relative paths to navigate from one QlikView document to another are supported in all clients, as long as the chained documents are stored in the same folder structure (mount).
The following examples show how to write the file path to the destination file:
Example: File located in the same folder structure (same mount).

- If the destination file is in the same folder:
  DestinationDoc.qvw
- If the destination file is in a sub folder:
  SubFolder/DestinationDoc.qvw
- If the destination file is in an upper folder:
  ../DestinationDoc.qvw
- If the destination file is in an upper and parallel folder:
  ../ParallelFolder/DestinationDoc.qvw

Example: File located in a different folder structure (different mount). The relative path between different mounts is supported in the Ajax client only.

- If the destination file is in a different mount:
  ../DifferentMount/DestinationDoc.qvw

Example: Using the mount path to point to a QlikView document. Setting the path to mounted folders is supported in the Ajax client only.

- If the destination file is in the same mounted folder:
  \Mount\DestinationDoc.qvw
- If the destination file is in a different mounted folder:
  \DifferentMount\DestinationDoc.qvw

> *Document chaining with mounted folders does not work with the QlikView plug-in.*

Example: Using the absolute path to point to a QlikView document. The use of absolute paths for document chaining is supported in the Ajax client and in QlikView Desktop.

- Absolute path to the Local Root folder or mount:
  C:\...\DestinationDoc.qvw
- Absolute path to a Network Share:
  \\SharedStorage\...\DestinationDoc.qvw

QlikView apps in the Qlik Sense Cloud hub: you need the AppId, not the path. Apps need to be prepared and updated in QlikView Desktop. The AppId is found in the URL when the app is open in the hub.
Example
If the URL is *https://qcs.us.qlikcloud.com/qv/opendoc.htm?document=1cc71b323f172f93a8121ce1456cdg*. Then the AppId is *1cc71b323f172f93a8121ce1456cdg*.

Show title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

Gauge Chart Properties: Presentation

Presentation

- **Look**: Select one of the available looks in the drop-down.
- **Gauge Min**: Specifies the minimum value of the gauge. This corresponds to the bottom position of the gauge indicator.

- **Gauge Max**: Specifies the maximum value of the gauge. This corresponds to the top position of the gauge indicator.
- **Gauge Segment Settings**: In this group you define the segments making up the gauge. All gauges except LED style gauges must have at least one segment. For circular and linear gauges the segments make up differently colored areas in the gauge background. For traffic light gauges each segment corresponds to one light. A list of segments is shown and you may select one segment in the list to change its properties. Select a segment in the drop-down, to add a segment click  . Click  to select a color on the bound. Click  to remove items from the list. Click  to open the popup.
- **Autowidth Segments**: If this check box is marked, the segment bounds will be calculated automatically based on the gauges Min value, Max value and the number of segments defined.
- **Logarithmic Scale**: If this check box is marked, the gauge scale will be logarithmic.
- **Relative Segment Limits**: If this option is selected the segment bounds can be entered as numbers between 0 and 1 indicating a fraction of the total range between the Min and Max values.
- **Show Segment Outlines**: Shows the outlines of the gauge segments
- **Show Segment Boundaries**: If this check box is marked outlines will be made in the segment boundaries of circular and linear gauges.
- **Segments**: Click  to add segments to the gauge.
    - **Background**: Sets the background of the chart. The following options are available:
    - **Color**: Click  to select a color.
    - **Image**: Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.
- **Background Transparency**: Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

- **General**: General Tab Speedometer and Circular Look.
- **Show Gauge Indicator**: Shows the gauge value by means of a needle indicator.
- **Indicator Style**: Specifies the style of the needle.
- **Fill Gauge to Value Only**: Shows the gauge value by means of filling the gauge background with the defined segment color(s) only up to the current value. The remaining part up to the Max value is left blank.
- **Show Gauge Scale**: Select this check box to show a scale.
- **No. of Major Units**: Defines the number of major units on the gauge scale.
- **No. of Minor Units**: Defines the number of minor units between each major unit on the gauge scale.
- **Show Gauge Labels**: Select this check box to show text labels on the gauge scale.
- **Label Frequency**: The density of labels can be entered in the edit box.

- **Cylinder Thickness**: The gauge is normally drawn as a solid circle or circle segment. The greater the number here, the thicker the cylinder. The value which indicates the percentage of the radius to be left unfilled must be between 0 and 99.
- **Angle Span**: The angle in degrees between the Min and Max values in the gauge. Must be a value between 45 and 360.
- **Center Angle**: The angle of the gauge's center value in relation to the clock. Must be a value between 0 and 360. 0 indicates the center at the top of the gauge (12 o'clock).
- **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **General Tab Straight Gauge Look**:
    - **Show Gauge Indicator**: Shows the gauge value by means of a needle indicator.
    - **Indicator Style**: Specifies the style of the needle
    - **Fill Gauge to Value Only**: Shows the gauge value by means of filling the gauge background with the defined segment color(s) only up to the current value. The remaining part up to the Max value is left blank.
    - **Show Gauge Scale**: Select this check box to show a scale.
    - **No. of Major Units**: Defines the number of major units on the gauge scale.
    - **No. of Minor Units**: Defines the number of minor units between each major unit on the gauge scale.
    - **Show Gauge Labels**: Select this check box to show text labels on the gauge scale.
    - **Label Frequency**: The density of labels can be entered in the edit box.
    - **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **General Tab Traffic Light Look**:
    - **Single Light**: Checking the box displays only one light.
    - **Indicator Style**: Specifies the style of the area surrounding the lights
    - **Fill Gauge to Value Only**: Shows the gauge value by means of filling the gauge background with the defined segment color(s) only up to the current value. The remaining part up to the Max value is left blank.
    - **Reverse Direction**: Checking the box displays the lights in reversed order.
    - **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **General Tab LedStyle Look**:
    - **Digits**: Choose how many digits there should be.
    - **Digit Color**: To set the color click  .
    - **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **General Tab Test Tube Look**:
    - **Test Tube Color**: To set the color click  .
    - **Show Gauge Scale**: Select this check box to show a scale.

- **No. of Major Units**: Defines the number of major units on the gauge scale.
- **No. of Minor Units**: Defines the number of minor units between each major unit on the gauge scale.
- **Show Gauge Labels**: Select this check box to show text labels on the gauge scale.
- **Label Frequency**: The density of labels can be entered in the edit box.
- **Popup Labels**: By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.

- **General Tab Reflected Tube Look**:
  - **Show Gauge Scale**: Select this check box to show a scale.
  - **No. of Major Units**: Defines the number of major units on the gauge scale.
  - **No. of Minor Units**: Defines the number of minor units between each major unit on the gauge scale.
  - **Show Gauge Labels**: Select this check box to show text labels on the gauge scale.
  - **Label Frequency**: The density of labels can be entered in the edit box.
  - **Popup Labels**: By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.

- **Styles**:
  - **Chart Title Style**: To set the font color of the chart title click  . To set the font type click  .
  - **Scale Label**: To set the font type click  .
  - **Caption Font**: To set the caption font type click  .
  - **Active Caption**: To set the background color for the active caption click  . To set the text color click  .
  - **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
  - **Use Border**: Mark this check box in order to use a border around the sheet object. Click the  to set the color of the border.
  - **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
  - **Rounded Corners**: Click  to open the **Rounded Corners** popup.
  - **Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.
  - **Rounded Corners Popup**: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

- **Reference Lines**:
  - **Reference Lines**: Add a reference line by clicking  .
  - **Show Label in Chart**: Displays the label next to the reference line.
  - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - **X-Axis**: Select this option if the reference line should originate from the x-axis.
  - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
  - **Line Weight**: Specifies the weight of the reference line.
  - **Line Style**: Specifies the style of the reference line.
  - **Line Color**: Specifies the color of the reference line.
  - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
  - **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Text**:
  - **Text in Chart**: Click  to add text in the chart.
  - **Text**: The text added in **Text in Chart** are displayed here.
  - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
  - **Horizontal Align**: Sets the horizontal alignment.
  - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
  - **Text Style**:
    - To set the background color for the text click  .
    - To set the font color click  . To set the font type click  .
  - **Size Position**: Sets the position and size of the text on the object.

Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.

- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **Icon Caption** properties in **More.../Less...**

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Gauge Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.31 Scatter Chart - AJAX/Webview

The scatter chart presents pairs of values from two expressions. This is useful when you want to show data where each instance has two numbers, e.g. country (population and population growth).

Scatter Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.

Command	Details
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Scatter Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click  . Select a dimension in the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable**: Marking this check box will enable the selected dimension. If the box is not marked, the dimension will not be used at all.

- **Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Legend**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.
- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**: Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.Enter the number of values to display. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. Select **Include Boundary Values** to include the dimension value that contains the comparison value.
- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
    - If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the

label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Major Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the major labels.
- **Minor Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the minor labels.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Stagger Labels**: Select this option to stagger x-axis labels when they become to many to show side by side.
- **Reverse Stagger**: X-axis labels are normally staggered bottom-up from left to right. When marking this check box, the stagger will be reversed to top-down.
- **Continuous X**: Sets the x-axis to be continuous, i.e. it will be interpreted numerically and shown with numerically correct intervals.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Label Along Axis**: Check this box to change the position of the x-axis label.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Backcast**: By entering an integer in the edit field, you force the x-axis to be extended to the left of the actual data points plotted. This is useful when using trend lines. The backcast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Forecast**: By entering an integer in the edit field, you force the x-axis to be extended to the right of the actual data points plotted. This is useful when using trendlines. The forecast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.

  - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
    - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.
    - **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
    - **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
    - **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.
- **Use Trendlines**:

  Check this box to use trendlines. Click  to open the popup.

  Trendline Popup: Choose one of the following Trendline options:

  - **Average**: The average is plotted as a straight line.
  - **Linear**: A linear regression line is plotted.
  - **Polynomial of 2nd degree**: A polynomial trend line of the second degree is plotted.
  - **Polynomial of 3rd degree**: A polynomial trend line of the third degree is plotted.

- **Polynomial of 4th degree**: A polynomial trend line of the fourth degree is plotted.
- **Exponential**: An exponential trend line is plotted.
  For each option, it is possible to check the **Show Equation** box and the **Show R^2** box.
    - **Show Equation**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the trend line equation expressed as text in the chart.
    - **Show R^2**: If this check box is marked for a specific expression, the expression's trend lines will be complemented by the coefficient of determination expressed as text in the chart.

- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Value Display Settings**:
    - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.
    - **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
    - **Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.
- **Attribute Expression Styles**:
    - **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
        - **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
            - **Number Format**: Choose a number format from the alternatives below.
            - **Default**: Both numbers and text. Numbers are shown in original format.
            - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
            - **Integer**: Shows numeric values as integers.
            - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
            - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.

- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
- **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Position**: Choose **Left** or **Right** position. If **Split Axis** was selected, choose **Top** or **Bottom** position.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Log Scale**: If this box is checked, the scale will be logarithmic.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Center**: Sets a fixed value on the axis which will be positioned in the center of the plot area. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Scatter Chart Properties: Presentation

This section describes **Scatter Chart** properties.

Look

Select one of the available looks in the drop-down.

Symbol Size

Determines the size of symbols, if a symbol representation is specified.

Max Bubble Size

Sets the size of the largest bubble in the chart. Available only for some looks and if **Autosize Symbols** is deselected.

Show Legend

Displays the legend in the chart. Click  to open the popup.

Legend Settings Popup

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.
- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Background

Sets the background of the chart. The following options are available:

- **Color**: Click  to select a color.
- **Image**: Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Background

Sets the background of the plot area. The following options are available:

- **Color**: The plot area will have a colored background. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Style

This control can be used to change the appearance of the plot area background. The following options are available:

- **Frame**: A frame is drawn around the plot area.
  Shadow: This options gives a shadow effect on the plot area background.
  Minimal: The plot area background is removed.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

This section describes **More.../Less...** properties.

General

- Labels on Datapoints: Check this box to display labels.
- Max Labels Shown: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
- Horizontal Position: Select **Left**, **Centered** or **Right** for horizontal orientation of labels on datapoints.
- Vertical Position: Select **Above**, **Centered** or **Below** for vertical orientation of labels on datapoints.
- Show X Label: Displays a label at the end of the x-axis.
- Show Y Label: Displays a label at the end of the y-axis.
- Suppress Zero-Values: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- Suppress Missing: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
- Popup Labels: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.

- Highlight: If this check box is marked hovering with the mouse over a line or symbol in it will result in the line or symbol being highlighted for better overview. The highlighting applies also in the legend where applicable.
- Show Arrows: Display options for arrows on connecting lines Arrows will be directed between scatter points in the sequential order defined by the sort order of the second field dimension. Check this alternative to have arrow heads displayed on the connecting lines.
- Arrow Size: The size of the arrow heads.
- Arrow style: Select from several styles from the drop-down list.
- Calculation Conditions: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. displayed at any one time. Enter the maximum number of values. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Styles

- Legend: To set the color of the legend click . To set the font color click . To set the font type click Aa.
- Chart Title Style: To set the font color of the chart title click . To set the font type click Aa.
- Caption Font: To set the caption font type click Aa.
- Active Caption: To set the background color for the active caption click . To set the text color click .
- Inactive Caption: To set the background color for the inactive caption click . To set the text color click .
- Use Border: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
- Border Width: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- Rounded Corners: Click to open the **Rounded Corners** popup.
    - Rounded Corners Popup: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

      > ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

- Trendline Width: Specify the width of the trendline.

- **Reference Lines**:
  - **Reference Lines**: Add a reference line by clicking  .
  - **Show Label in Chart**: Displays the label next to the reference line.
  - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - **X-Axis**: Select this option if the reference line should originate from the x-axis.
  - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
  - **Line Weight**: Specifies the weight of the reference line.
  - **Line Style**: Specifies the style of the reference line.
  - **Line Color**: Specifies the color of the reference line.
  - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
  - **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Text**:
  - **Text in Chart**: Click  to add text in the chart.
  - **Text**: The text added in **Text in Chart** are displayed here.
  - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
  - **Horizontal Align**: Sets the horizontal alignment.
  - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
  - **Text Style**:
    - To set the background color for the text click  .
    - To set the font color click  . To set the font type click  .
  - **Size Position**: Sets the position and size of the text on the object.

Scatter Chart Properties: Caption

This section describes **Scatter Chart** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects. Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Scatter Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.32 Grid Chart - AJAX/Webview

The grid chart is similar to the scatter chart but plots dimension values on the axes and uses an expression to determine the plot symbol. A special mode makes it possible to show a third dimension in the form of small pie charts as plot symbols.

Grid Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.

Command	Details
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Grid Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Grid Chart Properties

This section describes **Grid Chart Properties**.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click  . Select a dimension in the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more settings, click the **More...** button.

Dimension Tab

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.
- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort Tab

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**:
  - **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions.
  - **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  - **Numeric Value**: Sorts the field values by their numeric values.

    - **Text**: Sorts the field values in alphabetical order.
    - **Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**:
    - **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
    - **Numeric Value**: Sorts the field values by their numeric values.
    - **Text**: Sorts the field values in alphabetical order.
    - **Load Order**: Sorts the field values by the initial load order.
- **Sort by Expression**:
    - Sorts the field values according to the expression entered.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**:
  Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
    - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.
    - The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
    - The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
    - Enter the number of values to display.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
    - Select **Include Boundary Values** to include the dimension value that contains the comparison value.
- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option.
    - Select to display values based on a percentage of the total, or on an exact amount.
    - The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog.

    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option.
    - The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

This section describes **Expression** properties.

Enable

Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.

Conditional

Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.

Label

The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expression

Displays the currently selected expression.

Comment

Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Invisible

Hides the expression.

Show in Percent (Relative)

The chart shows the result in percent instead of absolute numbers.

Show in Legend

When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.

Value Display Settings

Check this box to define how to display values. Click  to open the popup.

Value Display Settings Popup

- **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
- **Attribute Expression Styles**:
    - **Background Color**:Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
        - **Number Format**: Choose a number format from the alternatives below.
        - **Default**: Both numbers and text. Numbers are shown in original format.
        - **Number**: Shows numeric values with the number of digits set in the **Precision** field.

- **Integer**: Shows numeric values as integers.
- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
- **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Grid Chart Properties: Presentation

Presentation Properties

This section describes **Presentation** properties.

Look

Select one of the available looks in the drop-down.

Autosize Symbols

Adjusts the maximum bubble size to the number of values in the chart.

Symbol Size

Determines the size of symbols, if a symbol representation is specified.

Max Bubble Size

Sets the size of the largest bubble in the chart. Available only for some looks and if **Autosize Symbols** is deselected.

Show Legend

Displays the legend in the chart.

Click  to open the popup:

- **Legend Settings Popup**:
  - **Legend Style**: Sets the legend style.
  - **Vertical Placement**: Sets the vertical alignment of the legend.
  - **Line Spacing**: Specifies the distance between items in the legend.
  - **Reverse Order**: To reverse the sort order of the legend mark this check box.
  - **Wrap Cell Text**: Wrap the text of the legend items in two or more lines.

Background

- Sets the background of the chart. The following options are available:
  - **Color**: Click  to select a color.
  - **Image**: Click  to change the image.
- Click  to set the background transparency. Enter a value in the box or drag the slider to set transparency for the chart
- **Dynamic Image**:Click  to set the background transparency and dynamic image.
  - Enter a value in the box or drag the slider to set transparency for the chart.
  - Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Background

Sets the background of the plot area.

The following options are available:

- **Color**: The plot area will have a colored background. Click  to set the plot area style and the background transparency. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to set the background transparency. Click  to change the image.

- **Dynamic Image**: Click  to set the background transparency and dynamic image. Enter a value in the box or drag the slider to set transparency for the chart. Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Style

This control can be used to change the appearance of the plot area background.

- The following options are available:
- **Frame**: A frame is drawn around the plot area.
- **Shadow**: This options gives a shadow effect on the plot area background.
- **Minimal**: The plot area background is removed.

More.../Less...

This section describes several elements in the **More.../Less...** properties.

- **General**:
  - **Labels on Datapoints**: Check this box to display labels
  - **Max Values Shown**: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
  - **Horizontal Position**: Select **Left**, **Centered**or **Right** for horizontal orientation of labels on datapoints.
  - **Vertical Position**: Select **Above**, **Centered**or **Below** for vertical orientation of labels on datapoints.
  - **Show X Label**: Displays a label at the end of the x-axis.
  - **Show Y Label**: Displays a label at the end of the y-axis.
  - **Suppress Zero-Values**:
    - If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation.
    - This option is selected by default.
  - **Suppress Missing**:
    - If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation.
    - This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
  - **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
  - **Highlight**: If this check box is marked hovering with the mouse over a line or symbol in it will result in the line or symbol being highlighted for better overview. The highlighting applies also in the legend where applicable.
  - **Show Arrows**: Display options for arrows on connecting lines Arrows will be directed between scatter points in the sequential order defined by the sort order of the second field dimension. Check this alternative to have arrow heads displayed on the connecting lines.

- **Arrow Size**: The size of the arrow heads.
- **Arrow Style**: Select from several styles from the drop-down list.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. displayed at any one time. Enter the maximum number of values. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Styles**:
  - Legend: To set the color of the legend click . To set the font color click . To set the font type click Aa.
  - Chart Title Style: To set the font color of the chart title click . To set the font type click Aa.
  - Caption Font: To set the caption font type click Aa.
  - Active Caption: To set the background color for the active caption click . To set the text color click .
  - Inactive Caption: To set the background color for the inactive caption click . To set the text color click .
  - Use Border: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
  - Border Width: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
  - Rounded Corners:
    - Click to open the **Rounded Corners** popup.

      > ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

    - Rounded Corners Popup:
      - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected.
      - Select **Squareness** by enterign a value.

- **Reference Lines**:
  - **Reference Lines**: Add a reference line by clicking .
  - **Show Label in Chart**: Displays the label next to the reference line.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **X-Axis**: Select this option if the reference line should originate from the x-axis.
- **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
- **Line Weight**: Specifies the weight of the reference line.
- **Line Style**: Specifies the style of the reference line.
- **Line Color**: Specifies the color of the reference line.
- **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
- **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Text**:
  - **Text in Chart**: Click  to add text in the chart.
  - **Text**: The text added in **Text in Chart** are displayed here.
  - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
  - **Horizontal Align**: Sets the horizontal alignment.
  - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
  - **Text Style**:
    - To set the background color for the text click  .
    - To set the font color click  . To set the font type click  .
  - **Size Position**: Sets the position and size of the text on the object.

Grid Chart Properties: Caption

This section describes **Caption** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.

- **Caption Alignment**: Can be Left, Centered, or Right.

- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes the icons in **Caption** properties.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Grid Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.33 Pie Chart - AJAX/Webview

Pie charts normally show the relation between a single dimension and a single expression, but can sometimes have two dimensions.

Pie Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.

Command	Details
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Pie Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.

- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

Pie Chart Properties: Presentation

This section describes **Pie Chart** properties in **Presentation**.

Look

Select one of the available looks in the drop-down.

Show Legend

Displays the legend in the chart. Click  to open the popup.

Legend Settings Popup

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.

- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Background

Sets the background of the chart. The following options are available:

Color

The plot area will have a colored background. Click  to select a color.

Image

The plot area will have an image background. Click  to change the image.

Dynamic Image

Enter a calculated expression to show dynamic background images that change with the selection.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart. Click  to set the transparency.

More.../Less...

This section describes several properties in **More.../Less...**

General

- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
- **Popup Labels**: By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **Highlight**: This option is not supported for AJAX/Webview.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.

Styles

- **Legend**: To set the color of the legend click  . To set the font color click  . To set the font type click .
- **Caption Font**: To set the caption font type click .

- **Chart Title Style**:To set the font color of the chart title click  . To set the font type click .
- **Active Caption**: To set the background color for the active caption click  . To set the text color click  .
- **Inactive Caption**: To set the background color for the inactive caption click  . To set the text color click  .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the  to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  Rounded Corners *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.

Text

This section describes properties in **Text**.

Text in Chart

Click  to add text in the chart.

Text

The text added in **Text in Chart** are displayed here.

Tilt Angle

Specify an angle between 0 and 360 degrees for the text. The default is 0.

Horizontal Align

Sets the horizontal alignment.

On top

The text currently selected in the list will be forced to the foreground when drawing the chart.

Text Style

To set the background color for the text click  .

To set the font color click  . To set the font type click .

Size Position

Sets the position and size of the text on the object.

Pie Chart Properties: Caption

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

Icons in Caption Properties

This section describes the **More.../Less...** in **Icons in Caption** property.

Menu

Opens the object menu

Clear

Clears all the current selections in the active sheet object.

Print

Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!

Copy Data

Copies the field values in the sheet object. Some clients may not handle this setting!

Copy Image to Clipboard

Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!

Send to Excel

Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 97 or later must be installed on the computer. Some clients may not handle this setting!

Allow Minimize

When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.

Auto Minimize

This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.

Allow Maximize

When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.

Help Text

Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.

Fast Type Change in Caption

Check this box to use Fast Type Change in Caption.

- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Pie Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon

to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.

- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.34 Funnel Chart - AJAX/Webview

The funnel chart is typically used for showing data in flows and processes. From a display standpoint it is related to the pie chart. The chart may be shown with either segment height/width or segment area proportional to data. It is also possible to draw the chart with equal segment heights/widths, disregarding data points.

Funnel Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the ▾ icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Command	Details
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the  icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.

Command	Details
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Funnel Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

This section describes the **Dimensions** property and its elements.

Dimension

Choose dimensions in the drop-down list. To add a dimension, click . Select a dimension in the drop-down. Use the icon to move items in the list. The icon removes items from the list. For more settings, click the **More...** button.

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.

- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**:
  - Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots. The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is

changed.Enter the number of values to display.

- The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- Select **Include Boundary Values** to include the dimension value that contains the comparison value.

- **Show only values that are**:
  - Select this option to display all dimensions values that meet the specified condition for this option.
  - Select to display values based on a percentage of the total, or on an exact amount.
  - The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**:
  - When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option.
  - The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values, based on first, largest or smallest values, to the overall total.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**:
  - The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expressions Tab

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**:
    - The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**:
    - Enter a comment to describe the purpose and function of the expression.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Value Display Settings**: Check this box to define how to display values. Click  to open the popup.
    - **Value Display Settings Popup**:
        - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.
        - **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.

Attribute Expression Styles

- **Background color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.

- **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
    - **Number Format**: Choose a number format from the alternatives below.
    - **Default**: Both numbers and text. Numbers are shown in original format.
    - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
    - **Integer**: Shows numeric values as integers.
    - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
    - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
    - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
    - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
    - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
    - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
    - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
    - **Precision**: The number of digits that will be displayed.
    - **Decimals**: Sets the number of decimals included.
    - **Decimals Separator**: Sets the symbol for decimal separators.
    - **Thousand Separator**: Sets the symbol for thousand separators.
    - **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
    - **Preview**: Shows a preview of the number format specified above.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Funnel Chart Properties: Presentation

This section describes **Presentation** properties.

Color Style

Sets the color style of the chart.

Orientation

Sets the orientation of the chart.

Tip Width (%)

Defines the width of the funnel tip as a percentage of the funnel mouth width.

Reverse Orientation

Enable this check box if you want to make the funnel point to the left or upwards.

Show Legend

Displays the legend in the chart. Click  to open the popup.

Legend Settings Popup

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.
- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Background

Sets the background of the chart.

The following sections describe the options are available.

Color

The plot area will have a colored background. Click  to select a color.

Image

The plot area will have an image background. Click  to change the image.

Dynamic Image

Enter a calculated expression to show dynamic background images that change with the selection.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

This section settings the **More.../Less...** property.

Popup Labels

By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.

Data Proportionality

This setting controls the degree to which the segments are proportional to the underlying data.

- **Equal Segment Heights**: No proportionality to data. Each segment is drawn with the same height (width for horizontal funnels) as all others. Typically only makes sense with numbers displayed in the chart.
- **Segment Height Proportional to Data**: Each segment is drawn with the a height (width for horizontal funnels) proportional to underlying data.
- **Segment Area Proportional to Data**: Each segment is drawn with the total area proportional to underlying data.

Calculation Conditions

The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart.

The value may be entered as a calculated formula.

Click fx to open the **Edit Expression** dialog.

Styles

- **Legend**: To set the color of the legend click . To set the font color click . To set the font type click Aa.
- **Chart Title Style**: To set the font color of the chart title click . To set the font type click Aa.
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.

- **Rounded Corners**: Click  to open the **Rounded Corners** popup.

  >  ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected.
  - Select **Squareness** by entering a value.

Text

- **Text in Chart**: Click  to add text in the chart.
- **Text**: The text added in **Text in Chart** are displayed here.
- **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
- **Horizontal Align**: Sets the horizontal alignment.
- **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
- **Text Style**:
  - To set the background color for the text click  .
  - To set the font color click  . To set the font type click  .
- **Text Position**: Sets the position and size of the text on the object.

Funnel Chart Properties: Caption

This section describes **Caption** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes the **More.../Less...** property, which contains several options for **Icons in Caption**.

Some options may not be available for all objects.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Funnel Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.35 Mekko Chart - AJAX/Webview

Mekko charts present data using variable width bars. They can display up to three levels of data in a two-dimensional chart. Mekko charts are useful in such areas as market analysis.

Mekko Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.

Command	Details
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the » icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the – icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the □ icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Mekko Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click . Select a dimension in the drop-down. Use the icon to move items in the list. The icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the *fx* button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Limit Axis Label Characters**: Mark this check box to limit the length of the dimension value strings to be shown on axes and in the chart legend. Specify the number of characters in the input field, or drag

the slider to the desired value. Truncated values will be followed by ... in the chart. This option can be used independently to the other options in this group.

- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.
- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **`State`** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**:
  Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
    - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.
    - The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while

interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.

- The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
- Enter the number of values to display.

The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Select **Include Boundary Values** to include the dimension value that contains the comparison value.

- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.

  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.

- **Major Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the major labels.
- **Minor Label**: Select **Horizontal**, **Vertical** or **Tilted** display of the minor labels.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Stagger Labels**: Select this option to stagger x-axis labels when they become to many to show side by side.
- **Reverse Stagger**: X-axis labels are normally staggered bottom-up from left to right. When marking this check box, the stagger will be reversed to top-down.
- **Continuous X**: Sets the x-axis to be continuous, i.e. it will be interpreted numerically and shown with numerically correct intervals.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.
- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Backcast**: By entering an integer in the edit field, you force the x-axis to be extended to the left of the actual data points plotted. This is useful when using trend lines. The backcast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Forecast**: By entering an integer in the edit field, you force the x-axis to be extended to the right of the actual data points plotted. This is useful when using trendlines. The forecast line will be dotted. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.

- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.

  - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
    - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.
    - **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
    - **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
    - **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.
- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Value Display Settings**:
  - **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.
  - **Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.
  - **Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.
- **Attribute Expression Styles**:
  - **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:

- **Number Format**: Choose a number format from the alternatives below.
- **Default**: Both numbers and text. Numbers are shown in original format.
- **Number**: Shows numeric values with the number of digits set in the **Precision** field.
- **Integer**: Shows numeric values as integers.
- **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
- **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
- **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
- **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
- **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
- **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
- **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

Axis

- **Show Axis**: Check this box to show the axis.
- **Axis Width**: Enter the width of the axis and its tick marks, or drag the slider to the desired value.
- **Split Axis**: Check this box to split the y-axis into two parts, thus creating an impression of two charts sharing a common x-axis.
- **Position**: Choose **Left** or **Right** position.
- **Show Grid**: Check this box to show a grid in the chart originating from the tick marks of the x-axis. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Show Minor Grid**: Check this box to show minor lines in-between the grid lines. Only available if **Show Grid** is selected. The grid lines can be formatted using the **Grid Style** and **Grid Color** settings.
- **Log Scale**: If this box is checked, the scale will be logarithmic.
- **Force 0**: Fixes the lower edge of the chart to zero on the y-axis. This option is not available when a logarithmic axis is used.

- **Static Min**: Sets a fixed minimum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Max**: Sets a fixed maximum value for the axis. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Step**: Sets a fixed interval for tick marks on the axis. If this setting results in more than 100 tick marks, the value used will be modified. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Static Center**: Sets a fixed value on the axis which will be positioned in the center of the plot area. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Mekko Chart Properties: Presentation

Look

Select one of the available looks in the drop-down.

Orientation

Sets the orientation of the chart.

Color Style

Defines the color style on all plot colors in the chart. Click  to open the popup.

Color Properties Popup

- **Persistent Colors**: Locks the colors assigned to each data point even if selections reduce the total number of data points. In this mode color representation will never change for a given data point, but there is a risk of having two adjacent bars or slices with the same color for different data points.
- **Repeat Last Color**: Select this check box to assign the last (18th) color to field values loaded as number 18 and forward. If this check box is left unselected, the 19th value (according to the original load order) will get the first color, the 20th value the second color, etc.

Show Legend

Displays the legend in the chart. Click  to open the popup.

Legend Settings Popup

- **Legend Style**: Sets the legend style.
- **Vertical**: Sets the vertical alignment of the legend.
- **Line Spacing**: Specifies the distance between items in the legend.
- **Reverse Order**: To reverse the sort order of the legend mark this check box.
- **Wrap Cell Text**: If this check box is marked, the text of the legend items will be wrapped in two or more lines.

Background

Sets the background of the chart. The following options are available:

- **Color**: Click  to select a color.
- **Image**: Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Background

Sets the background of the plot area. The following options are available:

- **Color**: The plot area will have a colored background. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to change the image.
- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Plot Area Style

This control can be used to change the appearance of the plot area background. The following options are available:

- **Frame**: A frame is drawn around the plot area.
- **Shadow**: This options gives a shadow effect on the plot area background.
- **Minimal**: The plot area background is removed.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Les...

This section describes the elements in **More.../Less...**.

General

- **Reverse Direction**: When this check box is marked, the values shown in the chart will be reversed, i.e. if the 10 highest values are shown and the box is checked the chart will then show the 10 lowest values.
- **Max Values Shown**: In this box, specify an upper limit for how many data points to show values for in the chart. If no limit is specified, values will be shown for all data points, which may affect the readability of the chart.
- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
- **Synchronize Zero for Expression Axes**: Synchronizes the zero level of the two y-axes (left/right or top/bottom).
- **Vertical Numbers**: Shows the values vertically.
- **Plot Numbers on Segments**: Marking this check box will plot values on data points inside the segments instead of on top of them.
- **Popup Labels**: By selecting this check box the values of the dimensions and expressions will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Styles

- **Legend**: To set the font type of the legend click Aa.
- **Chart Title Style**: To set the font color of the chart title click A. To set the font type click Aa.
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click A.
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click A.
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.

- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- **Rounded Corners**: Click to open the **Rounded Corners** popup.

  > ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

- **Rounded Corners Popup**:
  - Select **Fixed** or **Relative** roundness of corners, and which corners to be affected.
  - Set a **Squareness** value by entering a value.
    - **Reference Lines**:
      - **Reference Lines**: Add a reference line by clicking .
      - **Show Label in Chart**: Displays the label next to the reference line.
      - **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected. The value may be entered as a calculated formula. Click to open the **Edit Expression** dialog.
      - **X-Axis**: Select this option if the reference line should originate from the x-axis.
      - **Expression**: The value at which the reference line should be drawn. Enter an expression you wish to use as start point.
      - **Line Weight**: Specifies the weight of the reference line.
      - **Line Style**: Specifies the style of the reference line.
      - **Line Color**: Specifies the color of the reference line.
      - **Use Show Condition**: The reference line will be shown or hidden depending on a conditional expression which will be evaluated each time the chart is to be drawn. The reference line will only be hidden when the expression returns FALSE.
      - **Condition**: Enter the conditional expression. The value may be entered as a calculated formula. Click to open the **Edit Expression** dialog.
    - **Text**:
      - **Text in Chart**: Click to add text in the chart.
      - **Text**: The text added in **Text in Chart** are displayed here.
      - **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
      - **Horizontal Align**: Sets the horizontal alignment.
      - **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.

- **Text Style**:
  - To set the background color for the text click  .
  - To set the font color click  . To set the font type click  .
- **Size Position**: Sets the position and size of the text on the object.

Mekko Chart Properties: Caption

This section describes **Caption** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes the **More.../Less...** property and the elements inside its **Icons in Caption** element.

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!

- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Mekko Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.

- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
    - **Owner**: Domain and User Id of the owner.
    - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
    - **Share with**: Choose either **Share with everyone** or **Share by username**.
    - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.36 Block Chart - AJAX/Webview

The Block chart shows the relation between expression values as blocks of varying area. From a display standpoint it is related to the pie chart. The chart may be shown with either segment height/width or segment area proportional to data. It is also possible to draw the chart with equal segment heights/widths, disregarding data points.

Block Chart: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Menu commands

Command	Details
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.

Command	Details
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Set Reference	This option sets a chart reference, such as a fixed plot of the chart with the current selections. When further selections are made in the document the reference plot remains, dimmed in the background. Chart axes will be adjusted to always include the maximum of the background data set and the current data set. The current data set is always plotted on top of the reference plot. Some portions of the reference plot may be obscured by the current data set plot. The display of reference chart plots is only possible in some chart types, such as bar charts, line charts, combo charts, radar charts, scatter charts, grid charts and gauge charts with needles. It is not possible to set a reference for a chart that contains a drill-down or a cyclic group. The reference will be lost when closing the document or when reloading data. The maximum number of objects that can be included when using the **Set Reference** option is 500.
Clear Reference	This command is replaced with the **Set Reference** command when a reference is set. By choosing it the previously set reference will be cleared and the chart will revert to normal plot mode.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the ›› icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.

Command	Details
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Block Chart Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click . Select a dimension in the drop-down. Use the icon to move items in the list. The icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Show Label**: Mark this check box to show a dimension label (the field name) on the x-axis.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Show Axis Labels**: Mark this check box to show legend (names of field values) on the x-axis for the selected dimension field.
- **Trellis Setting First Dimension**: Marking this check box will enable the trellis chart, where an array of charts that are based on the chart's first dimension are displayed.
- **Fixed Number of Columns**: Enter the number of columns you want the trellis chart to display. Specify the number of columns in the input field, or drag the slider to the desired value.
- **Fixed Number of Rows**: Enter the number of rows you want the trellis chart to display. Specify the number of rows in the input field, or drag the slider to the desired value.

- **Second Dimension**: Enables the second dimension in the trellis chart. If a secondary dimension is used, the first dimension values will be displayed as columns in the trellis matrix, whereas the secondary dimension values will be displayed as rows in the trellis matrix.

Limits

- **Restrict which values are displayed using the first expression**: These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.
- **Show only**:
  Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
  - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.
  - The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
  - The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
  - Enter the number of values to display.

  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  Select **Include Boundary Values** to include the dimension value that contains the comparison value.
- **Show only values that are**: Select this option to display all dimensions values that meet the specified condition for this option. Select to display values based on a percentage of the total, or on an exact amount. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**: When this option is selected, all rows up to the current row are accumulated, and the result is compared to the value set in the option. The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**: Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. If

there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.

- **Show Total**: The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Show in Legend**: When several expressions are used, this option displays a legend showing the expressions and their corresponding colors next to the chart.
- **Value Display Settings**: **Show Values on Datapoints**: Mark this check box to display the result of the expression as text on top of the data points.**Text as Popup**: Mark this check box to have the result of the expression shown in the popup balloon messages appearing when hovering over a data point in a chart in the layout. This option can be used with or without any of the other display options. It is thus possible to have an expression that does not appear in the chart itself, but only in hover popups.**Text on Axis**: Plots the result of the expression at each x-axis value, the axis and the axis labels.
- **Attribute Expression Styles**:
    - **Background Color**: Define an attribute expression for calculating the basic plot color of the data point. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically

achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.

- **Text Color**: Define an attribute expression for calculating the text color of text associated with the data point.
  The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.

- **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
  - **Number Format**: Choose a number format from the alternatives below.
  - **Default**: Both numbers and text. Numbers are shown in original format.
  - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
  - **Integer**: Shows numeric values as integers.
  - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
  - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
  - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
  - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
  - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
  - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
  - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
  - **Precision**: The number of digits that will be displayed.
  - **Decimals**: Sets the number of decimals included.
  - **Decimals Separator**: Sets the symbol for decimal separators.
  - **Thousand Separator**: Sets the symbol for thousand separators.
  - **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
  - **Preview**: Shows a preview of the number format specified above.

Show Title

By default, the label of the first expression defined is set as chart title. Clear the check box if you do not wish to have a chart title. The title may be defined as a calculated formula for dynamic update. Click fx to open the **Edit Expression** dialog.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Block Chart Properties: Presentation

Look

Select one of the available looks in the drop-down.

Color Style

Defines the color style on all plot colors in the chart. Click  to open the popup.

Color Properties Popup

- **Persistent Colors**: Locks the colors assigned to each data point even if selections reduce the total number of data points. In this mode color representation will never change for a given data point, but there is a risk of having two adjacent bars or slices with the same color for different data points.
- **Repeat Last Color**: Select this check box to assign the last (18th) color to field values loaded as number 18 and forward. If this check box is left unselected, the 19th value (according to the original load order) will get the first color, the 20th value the second color, etc.

Visible Levels

A block chart can display a maximum of three levels of blocks, equivalent to the three dimensions allowed. By selecting **1**, **2** or **3** you set the number of levels actually displayed.

Intermediate Level Captions

Select this check box to have captions drawn on the intermediate dimension level in three-dimensional block charts.

Show Dimension Labels

Check this alternative to include labels in the chart.

Background

Sets the background of the plot area. Possible options are:

- **Color**: The plot area will have a colored background. Click  to select a color.
- **Image**: The plot area will have an image background. Click  to change the image.

- **Dynamic Image**: Enter a calculated expression to show dynamic background images that change with the selection.

Background Transparency

Enter a value in the box or drag the slider to set transparency for the chart.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

General

- **Popup Labels**: By selecting this check box the values of the dimension(s) and expression(s) will appear as a pop-up balloon when hovering with the cursor over data point in the chart.
- **1st Dimension Relative Total**: With this option, the percentage of the indicated 1st dimension value relative to the total is included in the pop-up.
- **2nd Dimension Relative Total**: The percentage of the indicated 2nd dimension value as defined within the indicated 1st dimension value relative to the total.
- **3rd Dimension Relative Total**: As above, but for the 3rd dimension level.
- **Value Relative First Dimension**: The percentage of the indicated block relative to the total of the indicated 1st dimension value.
- **Value Relative Second Dimension**: The percentage of the indicated block relative to the total of the indicated 2nd dimension value.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Styles

- **Dimension Labels**: To set the font color click A. To set the font type click Aa.
- **Block Caption**: To set the background color for the block caption click . To set the font color click A. To set the font type click Aa.
- **Chart Title Style**: To set the font color click A. To set the font type click Aa.
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the font color click A.
- **Inactive Caption**: To set the background color for the inactive caption click . To set the font color click A.

- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the  to set the color of the border.
- **Border Width**: Specify the width of the border in the input field. The width is specified in pixels.
- **Rounded Corners**: Click  to open the **Rounded Corners** popup.
  Rounded Corners is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.
- **Rounded Corners Popup**: Select **Fixed**or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness**by entering a value.

Text

- **Text in Chart**: Click  to add text in the chart.
- **Text**: The text added in **Text in Chart** are displayed here.
- **Tilt Angle**: Specify an angle between 0 and 360 degrees for the text. The default is 0.
- **Horizontal Align**: Sets the horizontal alignment.
- **On Top**: The text currently selected in the list will be forced to the foreground when drawing the chart.
- **Text Style**: To set the background color for the text click  . To set the font color click  . To set the font type click .
- **Size Position**: Sets the position and size of the text on the object.

Block Chart Properties: Caption

This section describes **Block Chart** properties.

Caption

This section describes **Caption** settings.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.
  The value may be entered as a calculated formula.

  Click  to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

Icons in Caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Block Chart Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.

- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.37 Pivot Table - AJAX/Webview

The pivot table is one of the most powerful tools for analyzing data. It offers substantial functionality but is still easy to use. Pivot tables show dimensions and expressions in rows and columns, for example in cross tables. The data in pivot tables may be grouped. Pivot tables can show partial sums.

After a reload, any expanded columns in a pivot table will be collapsed.

Pivot Table: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Pivot Table: Object Menu commands

Command	**Details**
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text "(Detached)" and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Expand All	Expands all expandable cells.
Collapse All	Collapses all collapsible cells.
Collapse Dimension Rows	Collapses all dimension rows.
Collapse Dimension Columns	Collapses all dimension columns.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.

Command	Details
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Delete	Removes the selected object from the sheet.

Pivot Table Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click  . Select a dimension in the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more settings, click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Label**: The label of the dimension. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Suppress Null Values**: If this check box is marked, the field selected as **Dimension** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Mark this check box to show all the dimension field values in the chart, including logically excluded values.
- **Dropdown Select**: If this check box is selected for a field column, a drop-down icon will appear to the left in the column header. By clicking the icon, a list box showing all field values of the field will be opened over the table. It is then possible to make selections and searches in the same manner as if the field had been a row in a multi box.
- **Show Partial Sums**: Displays partial sums in the sheet object.

- **Column Alignment**: Click  to open the popup.
    - **Column Alignment Popup**:
        - **Label**: Sets the alignment for the label to **Left** , **Centered** or **Right**.
        - **Data (Numeric)**: Sets the alignment for the horizontal label to **Left** , **Centered** or **Right**.
        - **Data (Text)**: Sets the alignment for text data to **Left** , **Centered** or **Right**.
- **Attribute Expression Styles**:
    - **Background Color**: Define an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Text Color**: Define an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Text Format**: Define an attribute expression for calculation of the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **`State`** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**: **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions. **Frequency**: Sorts the field values by frequency (number of concurrences in the table).**Numeric Value**: Sorts the field values by their numeric values.**Text**: Sorts the field values in alphabetical order.**Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected values on top.

Expressions

Choose expressions in the drop-down list. To add an expression, click  . Select an expression from the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Expression**: Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Representation**:
  Choose a representation in the drop-down list. Depending on which representation is chosen different settings are shown.
    - **Text**: No other settings
    - **Image**: Click  to open the popup.
        - **Image Settings Popup**:
            - **Image Stretch**:**No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
              Fill: The image is stretched to fit the object area without keeping the aspect ratio of the image.
              Keep Aspect: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
              Fill with Aspect: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
              Hide Text When Image is Missing: No text will be displayed if QlikView cannot interpret the image reference.
            - **Gauge**: Settings for the different Gauge alternatives:
                - **Gauge Min**: Specifies the minimum value of the gauge. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
                - **Gauge Max**: Specifies the maximum value of the gauge. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Mini Chart Field**: Choose the field for which the expression should be plotted. Click  to open the popup.
- **Mini Chart Mode Settings Popup**: Mini Chart Mode Settings Popup provides several settings for you to modify.
- **Mode**: Set the mini chart as sparklines, lines, dots, bars or whiskers.
- **Color**: Opens the Color dialog, where you can set the plot color of the mini chart.
- **Max Value Color**: Enable this setting and click  to open the Color dialog. You can set a color for the maximum value.
- **Min Value Color**: Enable this setting and click  to open the Color dialog. You can set a color for the minimum value.

   *This setting is only available when Mode is set to Sparkline.*

- **Start Value Color**: Enable this setting and click  to open the Color dialog. You can set a color for the start values.

   *This setting is not available for bars and whiskers.*

- **End Value Color**: Enable this setting and click  to open the Color dialog. You can set a color for the end values.

   *This setting is not available for bars and whiskers.*

- **Force 0**: Fixes the lower edge of the chart to zero on the axis.

   *Not available for whiskers.*

- **Shared Y-Axis Scale**: Forces all cells in the column to use the same y-axis scale.
- **Link**: No other settings.

- **Column Alignment**: Click  to open the popup.
  - The popup contains the following items:
    - Label: Sets the alignment for the label to **Left**, **Centered** , or **Right**.
    - Data (Numeric): Sets the alignment for the horizontal label to **Left** , **Centered** or **Right**.
    - Data (Text): Sets the alignment for text data to **Left** , **Centered** , or **Right** .
- **Visual Cues**: Click  to open the popup.
  - **Visual Cues Popup**:
    - **Upper Limit**: Settings for the upper numeric interval value category. The numeric value above which the upper interval of numeric values begins is stated in the edit box. If this

box is left empty no upper interval is defined.

- **Normal**: Settings for the normal numeric interval value category. This interval is defined as all values between the upper limits and lower limits. By default, all numeric values fall within the normal interval.
- **Lower Limit**: Settings for the lower numeric interval value category. The numeric value below which the lower interval of numeric values begins is stated in the edit box. If this box is left empty no lower interval is defined.

- **Attribute Expression Styles**:
  - **Background Color**: Define an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
  - **Text Color**: Define an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
  - **Text Format**: Define an attribute expression for calculation of the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text.
    - **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
      - **Number Format**: Choose a number format from the alternatives below.
      - **Default**: Both numbers and text. Numbers are shown in original format.
      - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
      - **Integer**: Shows numeric values as integers.
      - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
      - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
      - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
      - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
      - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
      - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).

- **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
- **Precision**: The number of digits that will be displayed.
- **Decimals**: Sets the number of decimals included.
- **Decimals Separator**: Sets the symbol for decimal separators.
- **Thousand Separator**: Sets the symbol for thousand separators.
- **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
- **Preview**: Shows a preview of the number format specified above.

- **More.../Less...**: Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Pivot Table Properties: Presentation

This section describes **Pivot Table** properties.

Indent Mode

If this check box is marked, the pivot table's left (column) dimensions will be displayed in indent mode. This means that the dimension values will replace the "Total" label, allowing for a compact display with just small indents between dimensions.

Use Only First Dimension Label

This setting is only meaningful when a pivot table is in indent mode. By marking this check box the dimension label for the first dimension will occupy the entire label row. Dimension labels for subsequent dimensions will not be shown.

Always Fully Expanded

If this check box is selected, all the dimensions are always fully expanded, and the expand/collapse functionality is turned off.

Suppress Expansion Icons in Print

Select this check box if you do not want the '+' and '-' icons for partial expand and collapse to be visible when printing the pivot table.

Selection Indicators

Displays selection indicators (beacons) in the table columns containing fields with selections.

Populate Missing Cells

When this check box is marked, cells in cross tables representing missing combinations of dimensions will be mapped to a regular null value. Thereby it becomes possible to apply expressions testing for null and for attribute expressions and style formats to be applied.

Total Position

Settings for display of totals in the pivot table.

Allow Move Column and Pivoting

Deselect this check box to disable the drag-and-drop pivoting.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

No Stretch: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.**Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.**Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.**Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.**Horizontal**: **Left**, **Centered** or **Right** alignment.**Vertical**: **Top**, **Centered** or **Bottom** alignment.**Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

This section describes the **More.../Less...** property, which contains the **General** property.

General

This section describes the properties in **General**.

- Style: Choose an appropriate style from the drop-down list.
- Cell Borders: Click  to open the popup.
    - Cell Border Settings Popup:
        - **Vertical Dimension Cell Borders**: If this check box is deselected all vertical cell borders in dimension cells of the current style will be removed.
        - **Border Above Spacing**: If this check box is marked dimension spacing rows will be preceded by the same horizontal borders as those below. Furthermore all vertical borders will be removed within the spacing area.
        - **Vertical Expression Cell Borders**: If this check box is deselected all vertical cell borders in expression cells of the current style will be removed.
- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.

- **Selection Indicators**: Displays selection indicators (beacons) in the table columns containing fields with selections.
- **Vertical Labels**: Displays the column titles vertically.
- **Null Symbol**: The symbol entered here will be used for displaying NULL values in the table.
- **Missing Symbol**: The symbol entered here will be used for displaying missing values in the table.
- **Wrap Header**: The contents of the header will be wrapped in two or more lines.
- **Wrap Cell Text**: The contents of the data cells will be wrapped in two or more lines.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

Styles

- **Font**: To set the font type click Aa .
- **Caption Font**: To set the caption font type click Aa.
- **Active Caption**: To set the background color for the active caption click . To set the text color click .
- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- **Rounded Corners**: Click to open the **Rounded Corners** popup.

  ***Rounded Corners** is only available if you have selected **Advanced Styling Mode** in **Document Properties: General**.*

  - **Rounded Corners Popup**:
    - Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected.
    - Select **Squareness** by entering a value.
- **Scrollbar Width**: Specify a value or drag the slider to set the width of the scroll bar. This control affects both the width and the relative size of the scroll bar symbols.

Pivot Table Properties: Caption

This section describes **Pivot Table** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.

- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

More.../Less... has one property, **Icons in Caption**.

Icon in Caption properties

This section describes properties in **Icons in Caption**.

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.
- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will

make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.

- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Pivot Table Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.
- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.

- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

11.38 Straight Table - AJAX/Webview

In opposition to the pivot table, the straight table cannot display subtotals or serve as a cross table. On the other hand, any of its columns can be sorted and each of its rows contains one combination of dimension (s)+expression(s).

Straight Table: Object Menu

The object menu can be opened as a context menu by right-clicking on a sheet object, or by clicking the icon in the object caption (if shown).

The commands in the menu may vary depending on whether WebView is used from inside QlikView or opening the document in a web browser. The menu contains the following commands:

Object Menu properties

Property	Description
Properties...	Opens the **Properties** dialog for the active sheet object.
Notes	Allows creating and sharing notes about the current object.
Detach	The chart title is appended with the text “(Detached)” and the chart is no longer updated with selections made in the document (though selections may actually still be made from the chart). The command is available only if the chart is attached. By making a copy of a chart and detaching it, you may make direct comparisons between the copy and the original.
Attach	Attaches a detached chart. The chart becomes dynamically linked to the data. The command is available only if the chart is detached.
Clear All Selections	Clears all the current selections in the active sheet object. Clicking on the  icon in the object caption (if shown) produces the same result.
Copy	Copies the selected sheet object(s) to the clipboard. This function only copies sheet objects, not data or images.

Property	Description
Copy cell value to clipboard	Copies the selected cell value to the clipboard.
Print...	Opens the selected sheet object(s) in tabular format in another browser window. Clicking on the  icon in the object caption (if shown) produces the same result.
Send to Excel	Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Clicking on the  icon in the object caption (if shown) produces the same result.
Export...	Opens the **Save as** dialog where path, file name and (table) file type for the exported data content can be specified.
Fast Change	Makes it possible to change the current chart into another chart type. Clicking on the icon in the object caption (if shown) produces the same result. Only available if **Fast Type Change in Chart** has been enabled on the **Caption** tab of the **Properties** dialog.
Minimize	Iconizes the object. Clicking on the icon in the object caption (if shown) produces the same result. This command is available only if minimizing is allowed in the object's **Properties** dialog on the **Caption** page.
Restore	Restores a minimized or maximized object to its previous size and location. Double-clicking the icon of a minimized object or clicking the  icon in the object caption (if shown) of a maximized object produces the same result. This command is available only for minimized or maximized objects.
Maximize	Enlarges the object to fill the sheet. Clicking on the  icon in the object caption (if shown) produces the same result. This command is available only if maximizing is allowed in the object's **Properties** dialog on the **Caption** page.
Remove	Removes the selected object from the sheet.

Straight Table Properties

The **Properties** dialog is opened by selecting **Properties** from the **Object** menu. If the **Properties** command is dimmed, you probably do not have the privileges necessary to perform property changes.

Dimensions

Choose dimensions in the drop-down list. To add a dimension, click  . Select a dimension in the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Dimension

- **Enable Conditional**: Marking this check box hides or shows the dimension dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Dimension**: Displays the currently selected dimension.
- **Label**: The label of the dimension. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Suppress Null Values**: If this check box is marked, the field selected in the **Used Dimensions** above will not be displayed in the chart if its value is NULL.
- **Show All Values**: Select this box to show all the dimension field values in the chart, including logically excluded values.
- **Dropdown Select**: If this check box is selected for a field column, a drop-down icon will appear to the left in the column header. By clicking the icon, a list box showing all field values of the field will be opened over the table. It is then possible to make selections and searches in the same manner as if the field had been a row in a multi box.
- **Show Column**: When the check box is enabled, the column will be visible.
- **Conditional**: Enable the check box to show or hide the column depending on a condition expression which will be evaluated each time the table is drawn. The column will only be hidden when the condition returns FALSE. Enter the conditional expression in the box below. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Column Alignment**: Click  to open the popup.
    - **Column Alignment Popup**:
        - **Label**: Sets the alignment for the label to **Left**, **Centered**, or **Right**.
        - **Data (Numeric)**: Sets the alignment for the horizontal label to **Left**, **Centered**, or **Right**.
        - **Data (Text)**: Sets the alignment for text data to **Left**, **Centered**, or **Right**.
- **Attribute Expression Styles**:
    - **Background Color**: Define an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Text Color**: Define an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
    - **Text Format**: Define an attribute expression for calculation of the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text.

Sort

Here the sort order of the values in the sheet object, is set. Some sort options may not be available for some sheet objects.

If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order.

- **Primary Sort**:
    - **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions.
    - **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
    - **Numeric Value**: Sorts the field values by their numeric values.
    - **Text**: Sorts the field values in alphabetical order.
    - **Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**: Sorts the field values according to the expression entered.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Keep Selected on Top**: Enable this to keep the selected on top.

Limits

Restrict which values are displayed using the first expression

These properties are used to determine how many dimension values are displayed in the chart, according to settings made below.

- **Show only**:
  Select this option if you want to show the **First**, **Largest** or **Smallest** x number of values. If this option is set to 5, there will be five values displayed. If the dimension has **Show Others** enabled, the Others segment will take up one of the five display slots.
    - The **First** option will return the rows based on the options selected on the **Sort** tab of the property dialog. If the chart is a Straight Table, the rows will be returned based on the primary sort at the time. In other words, a user can change the values display by double-clicking on any column header and making that column the primary sort.
    - The **Largest** option returns the rows in descending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
    - The **Smallest** option returns the rows in ascending order based on the first expression in the chart. When used in a Straight Table, the dimension values shown will remain

consistent while interactively sorting the expressions. The dimensions values will (may) change when the order of the expressions is changed.
    - Enter the number of values to display.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - Select **Include Boundary Values** to include the dimension value that contains the comparison value.
- **Show only values that are**:
  - Select this option to display all dimensions values that meet the specified condition for this option.
  - Select to display values based on a percentage of the total, or on an exact amount.
  - The **relative to the total** option enables a relative mode which is similar to the **Relative** option on the **Expressions** tab of the property dialog.
    - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show only values that accumulate to**:
  - When this option is selected,all rows up to the current row are accumulated, and the result is compared to the value set in the option.
  - The **relative to the total** option enables a relative mode which is similar to the **Relative** optino on the **Expressions** tab of the property dialog, and compares the accumulated values (based on first, largest or smallest values) to the overall total.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Others**:
  - Enabling this option will produce an **Others** segment in the chart. All dimension values that do not meet the comparison criteria for the display restrictions will be grouped into the **Others** segment. If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart. In the **Label** field, enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - If there are dimensions after the selected dimension, **Collapse Inner Dimensions** will control whether individual values for the subsequent / inner dimensions display on the chart.
- **Show Total**:
  - The chart will display a total for the selected dimension when this option is enabled. This total behaves differently than the expression total, which is still configured on the **Expressions** tab of the property dialog. **Label**: Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
  - The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.

- **Use Global Grouping Mode**: The option only applies to inner dimensions. When this option is enabled the restrictions will be calculated on the selected dimension only. All previous dimensions will be ignored. If this is disabled, the restrictions are calculated based on all preceding dimensions.

Expressions

Choose expressions in the drop-down list. To add a dimension, click  . Select an expression the drop-down. Use the  icon to move items in the list. The  icon removes items from the list. For more information click the **More...** button.

Expression

- **Enable**: Marking this check box will enable the selected expression. If the box is not marked, the expression will not be used at all.
- **Conditional**: Marking this check box hides or shows the expression dynamically, depending on the value of a condition expression entered, by clicking the fx button in the edit box below.
- **Label**: The label of the expression. Enter the name you wish to display in the chart. If no text is entered, the label will be automatically set to the expression text.
- **Expression**: The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog. Displays the currently selected expression.
- **Comment**: Enter a comment to describe the purpose and function of the expression. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Show Column**: When the check box is selected, the column is visible.
- **Conditional**: Enable the check box to show or hide the column depending on a condition expression which will be evaluated each time the table is drawn. The column will only be hidden when the condition returns FALSE. Enter the conditional expression in the box below. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Invisible**: Hides the expression.
- **Show in Percent (Relative)**: The chart shows the result in percent instead of absolute numbers.
- **Representation**:

  Choose a representation in the drop-down list. Depending on which representation is chosen different settings are shown.

  - **Text**: No other settings
  - **Image**: Click  to open the popup.
    - **Image Settings Popup**:
      - **Image Stretch**:**No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
        Fill: The image is stretched to fit the object area without keeping the aspect ratio of the image.
        Keep Aspect: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
        Fill with Aspect: The image is stretched to fill the object area in both directions

while keeping the aspect ratio.
Hide Text When Image is Missing: No text will be displayed if QlikView cannot interpret the image reference.

- **Gauge**: Settings for the different Gauge alternatives:
  - **Gauge Min**: Specifies the minimum value of the gauge. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  - **Gauge Max**: Specifies the maximum value of the gauge. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Mini Chart Field**: Choose the field for which the expression should be plotted. Click to open the popup.
- **Mini Chart Mode Settings Popup**: Mini Chart Mode Settings Popup provides several settings for you to modify.
- **Mode**: Set the mini chart as sparklines, lines, dots, bars or whiskers.
- **Color**: Opens the Color dialog, where you can set the plot color of the mini chart.
- **Max Value Color**: Enable this setting and click to open the Color dialog. You can set a color for the maximum value.
- **Min Value Color**: Enable this setting and click to open the Color dialog. You can set a color for the minimum value.

  This setting is only available when Mode is set to Sparkline.

- **Start Value Color**: Enable this setting and click to open the Color dialog. You can set a color for the start values.

  This setting is not available for bars and whiskers.

- **End Value Color**: Enable this setting and click to open the Color dialog. You can set a color for the end values.

  This setting is not available for bars and whiskers.

- **Force 0**: Fixes the lower edge of the chart to zero on the axis.

  Not available for whiskers.

- **Shared Y-Axis Scale**: Forces all cells in the column to use the same y-axis scale.
- **Link**: No other settings.

- **Column Alignment**: Click  to open the popup.
    - Column Alignment Popup: **Label** sets the alignment for the label to **Left**, **Centered**, or **Right**.
    - Data (Numeric): Sets the alignment for the horizontal label to **Left**, **Centered**, or **Right**.
    - Data (Text): Sets the alignment for text data to **Left**, **Centered**, or **Right**.
- **Visual Cues**: Click  to open the popup.
    - Visual Cues Popup:
        - Upper Limit: Settings for the upper numeric interval value category. The numeric value above which the upper interval of numeric values begins is stated in the edit box. If this box is left empty no upper interval is defined.
        - Normal: Settings for the normal numeric interval value category. This interval is defined as all values between the upper limits and lower limits. By default, all numeric values fall within the normal interval.
        - Lower Limit: Settings for the lower numeric interval value category. The numeric value below which the lower interval of numeric values begins is stated in the edit box. If this box is left empty no lower interval is defined.
- **Use Expression Total**:

  Check this box to use expression total. Click  to open the popup.

  Total Popup

  Total Mode

  Select one of the options in the drop-down list to decide how the total of the selected expression is to be calculated.

  No Totals

  No total will be calculated for the expression.

  Expression Totals

  The expression total will be calculated using all the values of the field. If, e.g., the selected column contains the average salaries for different business categories, choosing the **Expression Totals** option will result in the average salary for all the business categories.

  Aggregation of Rows

  The individual values of each data point (each bar in a bar chart, each row in a straight table etc.) for the selected expression will be summed up, aggregated, using the selected aggregation function (typically summed up). Choose an aggregation function in the edit box.

- **Accumulate Expression**:

  Check this box to accumulate expressions. Click  to open the popup.

    - **Accumulation Popup**: Select one of the options to decide whether the values in the sheet object should be accumulated or not.
        - **Accumulate**: In an accumulated chart, each y-value is added to the y-value of the following x-value.

- **No Accumulation**: The y-values of the selected chart expression will not be accumulated.
- **Full Accumulation**: Each y-value accumulating all previous y-values of the expression. Full accumulation does not work if the chart trellis is enabled.
- **Accumulation Steps**: Enter a number in the box or drag the slider to set the number of y-values in the expression to be accumulated.

- **Attribute Expression Styles**:
  - **Background Color**: Define an attribute expression for calculating the cell background color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
  - **Text Color**: Define an attribute expression for calculating the cell text color of the dimension cell. The expression used should return a valid color representation (a number representing the Red, Green and Blue components as defined in Visual Basic) which is typically achieved by using one of the special chart color functions. If the result of the expression is not a valid color representation, black will be used.
  - **Text Format**: Define an attribute expression for calculation of the font style of text in the table cell for each dimension cell. The expression used as text format expression should return a string containing a '<B>' for bold text, '<I>' for italic text and/or '<U>' for underlined text.

Sort

Sets the sort order of the values in the sheet object. Some sort options may not be available for all sheet objects.
If more than one sort order is specified, the sort order will be state, expression, frequency, numeric, text, load order. **State** refers to the logical state (selected, optional, or excluded).

- **Primary Sort**:
  - **Y-Value**: Sets whether the dimension values should be sorted according to the numeric value of the y-axis. This option is not available for calculated dimensions.
  - **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  - **Numeric Value**: Sorts the field values by their numeric values.
  - **Text**: Sorts the field values in alphabetical order.
  - **Load Order**: Sorts the field values by the initial load order.
- **Secondary Sort**: **Frequency**: Sorts the field values by frequency (number of concurrences in the table).
  Numeric Value: Sorts the field values by their numeric values.
  Text: Sorts the field values in alphabetical order.
  Load Order: Sorts the field values by the initial load order.
- **Sort by Expression**:

Sort by Expression
Sorts the field values according to the expression entered.
The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
Keep Selected on Top: Enable this to keep the selected on top.

- **Number Format Tab**: Each field has a default number format which can be set in the Document Properties: Number page. It is however possible to use a separate number format for an individual sheet object. This property page applies to the active object and contains the following controls for formatting values:
    - **Number Format**: Choose a number format from the alternatives below.
    - **Default**: Both numbers and text. Numbers are shown in original format.
    - **Number**: Shows numeric values with the number of digits set in the **Precision** field.
    - **Integer**: Shows numeric values as integers.
    - **Fixed to**: Shows numeric values as decimal values with the number of decimal digits set in the **Decimals** field.
    - **Money**: Shows values in the format set in the **Format Pattern** field. The default format is the Windows Currency setting.
    - **Date**: Shows values that can be interpreted as dates in the format set in the **Format Pattern** field.
    - **Time**: Shows values that can be interpreted as time in the format set in the **Format Pattern** field.
    - **Timestamp**: Shows values that can be interpreted as date + time in the format set in the **Format Pattern** field.
    - **Interval**: Shows time as sequential time increments (e.g. format = mm shows the value as the number of minutes since calendar start (1899:12:30:24:00).
    - **Format Pattern**: The format code that further specifies the display format of the field. **ISO** sets the format to the ISO standard. Only valid for **Date**, **Time**, **Timestamp** and **Interval**. **Sys** sets the format to the system settings.
    - **Precision**: The number of digits that will be displayed.
    - **Decimals**: Sets the number of decimals included.
    - **Decimals Separator**: Sets the symbol for decimal separators.
    - **Thousand Separator**: Sets the symbol for thousand separators.
    - **In Percent**: Shows formatting in percentage instead of absolute numbers. The setting is only available for **Number**, **Integer** and **Fixed to**.
    - **Preview**: Shows a preview of the number format specified above.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs. Depending on if the **Dimensions** or **Expressions** field is active, different tabs are displayed.

Straight Table Properties: Presentation

This section describes **Straight Table** properties.

Allow Interactive Sort

Deselecting this check box will disable the **Sort** command of the object menu.

Max Number

Enter a number or drag the slider to set the maximum number of rows to display. Rows displaying sums are not counted; however, sums will still be calculated using all the rows of the table.

Suppress Header Row

If this check box is marked the table will be shown without header (label) row.

Sort Indicators

If this check box is selected, a sort indicator icon (arrow) will be shown in the header of the column, which is at the top of the current column sort order. The direction of the icon indicates whether the column is sorted ascending or descending.

Selection Indicators

Displays selection indicators (beacons) in the table columns containing fields with selections.

Total Position

Settings for display of totals in the straight table.

Allow Move Column

Deselect this check box to disable moving columns.

Background Color

Sets the background to a color, either a solid color or a gradient. Click  to choose the color.

Background Image

Sets an image as background. Click  to browse for an image. Click  to open the **Image** popup.

Image Popup

- **No Stretch**: Displays the image without stretching. This may cause parts of the picture to be invisible or only part of the object to be filled.
- **Fill**: The image is stretched to fit the object area without keeping the aspect ratio of the image.
- **Keep Aspect**: The image is stretched as far as possible to fill the object area while keeping the aspect ratio.
- **Fill with Aspect**: The image is stretched to fill the object area in both directions while keeping the aspect ratio.
- **Horizontal**: **Left**, **Centered** or **Right** alignment.
- **Vertical**: **Top**, **Centered** or **Bottom** alignment.
- **Transparency**: Set the level of transparency by entering a value or by dragging the slider. At 100% the background will be completely transparent.

More.../Less...

Click this button to expand/collapse the foldout that contains additional tabs.

General

- **Style**: Choose an appropriate style from the drop-down list.
- **Stripes Every**: Specify if and how long intervals in rows, shaded stripes should appear.
- **Cell Borders**: Click  to open the popup.
    - **Cell Border Settings Popup**:
        - **Vertical Dimension Cell Borders**: If this check box is deselected all vertical cell borders in dimension cells of the current style will be removed.
        - **Vertical Expression Cell Borders**: If this check box is deselected all vertical cell borders in expression cells of the current style will be removed.
        - Border Above Spacing: If this check box is marked dimension spacing rows will be preceded by the same horizontal borders as those below. Furthermore all vertical borders will be removed within the spacing area.
- **Suppress Zero-Values**: If this check box is marked, all combinations of the dimension fields returning zero or null from all expressions will be disregarded in the calculation. This option is selected by default.
- **Suppress Missing**: If this check box is marked, all combinations of the dimension fields associated with only null values in all fields in all expressions will be disregarded in the calculation. This option is selected by default. Turning it off can be useful only in special cases, e.g. if null values is to be counted in a chart.
- **Horizontal Label**: Mark this checkbox to display the straight table transposed 90 degrees, so that labels from a left column and each table record becomes a column of data. Some clients may not handle this setting!
- **Vertical Labels**: Displays the column titles vertically.
- **Null Symbol**: The symbol entered here will be used for displaying NULL values in the table.
- **Missing Symbol**: The symbol entered here will be used for displaying missing values in the table.
- **Wrap Header**: The contents of the header will be wrapped in two or more lines.
- **Wrap Cell Text**: If this check box is marked, the contents of the data cells will be wrapped in two or more lines.
- **Calculation Conditions**: The expression entered here sets a condition to be fulfilled for the chart to be calculated. If the condition is not fulfilled, the text 'Calculation condition unfulfilled' will be displayed in the chart. The value may be entered as a calculated formula. Click  to open the **Edit Expression** dialog.

Styles

- **Font**: To set the font type click  .
- **Caption Font**: To set the caption font type click  .
- **Active Caption**: To set the background color for the active caption click  . To set the text color click  .

- **Inactive Caption**: To set the background color for the inactive caption click . To set the text color click .
- **Use Border**: Mark this check box in order to use a border around the sheet object. Click the to set the color of the border.
- **Border Width**: Specify a value or drag the slider to set the width of the border. The width is specified in pixels.
- **Rounded Corners**: Click to open the **Rounded Corners** popup.

  > ***Rounded Corners*** *is only available if you have selected* ***Advanced Styling Mode*** *in* ***Document Properties: General****.*

  - Rounded Corners Popup: Select **Fixed** or **Relative** roundness of the corners, and which corners to be affected. Also select **Squareness** by entering a value.
- **Scroll Bar Width**: Specify a value or drag the slider to set the width of the scroll bar. This control affects both the width and the relative size of the scroll bar symbols.

Straight Table Properties: Caption

This section describes **Straight Table** properties.

- **Label**: In the text box you can enter a title to be shown in the caption of the sheet object. If no **Label** is set, the name of the field will be used if **Show Caption** is selected.

  The value may be entered as a calculated formula.

  Click fx to open the **Edit Expression** dialog.
- **Show Caption**: When this option has been checked a caption will be drawn at the top of the sheet object. List boxes and other "box objects" will have the option switched on by default whereas buttons, text objects and line/arrow objects will not.
- **Caption Alignment**: Can be Left, Centered, or Right.
- **Multi Line Caption (Word Wrap)**: If this option is checked, the text will be displayed in two or more rows.
- **Number of Rows**: If multiple lines are allowed for the caption, specify the number of rows in the input field, or drag the slider to the desired number.
- **Caption Alignment**: Can be Top, Centered, or Bottom.

More.../Less...

This section describes **More.../Less...** properties.

Icons in caption

- **Menu**: Opens the object menu.
- **Clear**: Clears all the current selections in the active sheet object.

- **Print**: Opens the selected sheet object(s) in tabular format in another browser window. Some clients may not handle this setting!
- **Copy Data**: Copies the field values in the sheet object. Some clients may not handle this setting!
- **Copy Image to Clipboard**: Copies the sheet object as an image to the Clipboard. Some clients may not handle this setting!
- **Send to Excel**: Exports possible (including selected) values to Microsoft Excel, which is automatically launched if not already running. The exported values will appear as one column in a new Excel worksheet. For this functionality to work Microsoft Excel 2007 or later must be installed on the computer. Some clients may not handle this setting!
- **Allow Minimize**: When this option has been checked a minimize icon will be displayed in the window caption of the sheet object, providing that it is possible to minimize the object. Furthermore, this will make it possible to minimize the object by double-clicking the caption.
- **Auto Minimize**: This option becomes available when **Allow Minimize** is checked. When **Auto Minimize** is checked for several sheet objects on the same sheet, all but one will be automatically minimized at any time. This is useful e.g. for alternately displaying several graphs in the same sheet area.
- **Allow Minimize**: When this option has been checked a maximize icon will be displayed in the window caption of the sheet object, providing that it is possible to maximize the object. Furthermore, this will make it possible to maximizing the object by double-clicking the caption. If both **Allow Minimize** and **Allow Maximize** are checked, double-clicking will effect minimizing of the object.
- **Help Text**: Here you may enter a help text to be displayed in a pop-up window. This option is not available at document level. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
  It is possible to enter e.g. a description of the sheet object. A help icon will be added to the window caption of the object. When the mouse pointer is over the icon, the text will be displayed in a pop-up window.
- **Fast Type Change**: Here you can enable toggling between chart types. Not available for all objects.
  Click  to open the popup.
- **Fast Type Settings Popup**: Check the boxes for the chart types you want to toggle between using fast type change.

Straight Table Properties: Options

Options

Some options may not be available for all objects.

- **Read Only**: Makes the chart read only, that is selections cannot be made by clicking or painting with the mouse in the chart.
- **Allow Move/Size**: If this option has been deselected it will be impossible to move or resize the sheet object.
- **Allow Copy/Clone**: If this option has been deselected it will be impossible to make a copy of the sheet object. This setting may not be handled by all clients.

- **Size Object to Data**: Normally the borders around all table sheet objects in QlikView will shrink when selections cause the size of the table to be less than allocated size for the sheet object. By deselecting this check box this automatic adjustment of size will be turned off leaving any surplus space blank.
- **Allow Show Info in Caption**: When the Info function is in use an info icon will be displayed in the window caption whenever a field value has information associated to it. If you don't want the info icon to be displayed in the caption, you can uncheck this option. Only available for list box, statistics box, multi box and input box.
- **Preserve Scroll Position**: When marking this check box and the corresponding one in the **User Preferences**, **Objects** dialog, QlikView will preserve the vertical scroll position when a selection in table objects has been made.
- **Use Show Condition**: The sheet object will be shown or hidden depending on a conditional expression which will be evaluated continuously depending on e.g. selections etc. The sheet object will only be hidden when the condition returns **false**. The value may be entered as a calculated formula. Click fx to open the **Edit Expression** dialog.
- **Normal**: Specify the position of the object by setting **Left** and **Top** margins, and **Width** and **Height** of the object.
- **Minimized**: Specify the position of the minimized sheet object by setting **Left** and **Top** margins, and **Width** and **Height** of the minimized object.
- **More.../Less...**: The following options are available:
  - **Owner**: Domain and User Id of the owner.
  - **Share Object**: Enable to share objects with other users. Enabling this selection will enable the settings below.
  - **Share with**: Choose either **Share with everyone** or **Share by username**.
  - **Users (Domain\UserID)**: If **Share by username** is chosen a list with added users will be shown. To add users click  , a row is added, highlight the row to unlock it and edit the user information. To remove users click  after each user to be removed.

12 Frequently Asked Questions

12.1 Installation

Q: What are the requirements for installing QlikView?

For information, see the QlikView online help.

12.2 QlikView Documents

Q: How much RAM do I need? Is there a simple way to relate RAM requirements to data volume?

A: No, it depends on the data structure and the type of data. The more rows of data and the wider each record is in terms of number of fields the more RAM is needed. If a field contains many different distinct values more RAM is required than if the number of distinct values is low. Certain charts may demand a large portion of RAM while being calculated.

Q: What is the theoretical limit of document size in QlikView?

A: It is impossible to translate this limit to a certain number of records (see question above). Typically QlikView uses 3-4 times as much memory during script execution as when working in the layout.

Q: I have 2 GB of RAM available but my 1 GB document gives me an “Out of memory“ error message when opening. What is wrong?

A: Each table in a QlikView document requires allocation of a contiguous chunk of memory. If memory is fragmented, e.g. by loaded dll’s, the allocation will fail and a correct error message will be shown. This behavior may vary between different computers.

Q: How large can documents be that are actually run in QlikView by real users?

A: When QlikView is run on a PC with say 512MB of RAM a few million rows of typical transaction data can be handled. In large servers with QlikView and several Gigabytes of RAM up to one billion rows (full transaction detail level without aggregation) are handled in customer applications at the time of writing (this information from May 2008 is 7 years old).

12.3 Scripts and Loading Data

Q: Is it possible to use more than one Binary statement in a QlikView script?

A: No, unfortunately not. Binary load uses very special logic to read the data already processed once into QlikView in another QlikView document. The "unpacking" used requires a "clean slate" in memory which is the reason why a Binary statement must be the very first statement in the script. Therefore it is also impossible to use Binary more than once in a script. However you can use QVD files to consolidate data from multiple QlikView documents at the same speed as with Binary.

Q: Is the only requirement for an automatic join that the field names are the same?

A: Yes! Such a join is called an association.

Q: Can I achieve an automatic join between two fields with different field names?

A: Yes, but you must rename one of the fields in the script using an ALIAS statement or an AS clause.

Renaming fields (page 154)

Q: Can I use Where clauses, Group by clauses and other SQL-like syntax on text files?

A: QlikView offers you a rich script language for text files including large parts of SQL syntax and a number of additional features.

Q: Can I use Where clauses, Group By clauses and other SQL-like syntax on binary QlikView files?

A: No.

Q: What is the difference between an association between internal tables, a load or select statement preceded by a join qualifier, and a join within a select statement?

A: An association is a join between internal tables which is evaluated when you click on a field value in your document. QlikView makes this association automatically when two different tables have a field in common. The two latter joins are made during script execution and result in new logical tables. In these cases, QlikView does not load the original tables as logical tables.

Furthermore, a join within a select statement will usually only load those records whose key field value is found in both tables (inner join), whereas the two former joins also include records whose key field value is found in only one of the tables (full outer join).

Q: How do I load data from fix-record text files?

A: Use the table file wizard in QlikView.

File Wizard: Type (page 99) and *File Wizard: Type - Fixed Record (page 100)*

Q: Can I update a QlikView document by loading only the data that have changed?

A: Yes, using incremental reloads.

QVD files (page 168)

Q: Can I read tables from web pages into QlikView?

A: Yes, the table file wizard makes it possible to extract tables when they are coded as tables in HTML. If the HTML page does not contain nicely formatted table tags it is still usually quite possible to extract data using e.g. the subfield and textbetween script functions.

File Wizard: Type - HTML (page 102)

12.4 QlikView Logic

Q: Why is it impossible to show frequency in certain list boxes?

A: The list box in which this problem occurs contains a field which is common to more than one internal table. It is therefore impossible for QlikView to know how to calculate frequency and other statistical entities for the field. It is also possible to solve the problem by loading the field an extra time from its main table (the one for which you want to show frequency), but under a new name, and show frequency for that field within the list box instead. By using the label feature, the end user does not have to notice the trick.

Q: Why does my statistics box come up with just a lot of n/a?

A: The statistics box contains a field which is common to more than one internal table. See the answer to the previous question.

Q: Why doesn't QlikView allow me to use a certain field in an expression in a chart?

A: The field is common to more than one internal table. See the answer to the two previous questions.

Q: How can I display the number of distinct values in a statistics box?

A: Use the distinct clause in your load / select statements.

Q: When is the AND mode option in the List Box Properties dialog enabled?

A: The AND mode option is only allowed under very strict conditions, imposed by the theory behind the QlikView logic. In order to enable the AND mode, the field must:

- exist in only one internal table,
- be the second field of only two fields in that table and
- contain no duplicate records.
- it must be proceeded by a distinct qualifier.

Q: Can I mix AND and OR logic for value selections within a list box?

A: No, the QlikView logic prohibits this.

Q: Can I have OR logic between list boxes?

A: Only indirectly. An advanced alternative is to use semantic links to transfer selections made in a list box to another field. Then change the selections in the original box and Ctrl-click on the semantic link to achieve OR between the two selections. The final result can be transferred by means of reversing the semantic link.

Q: Is it possible to link more than one info file to a value, e.g. a picture and a text file?

A: Yes, but only when duplicates of the field are used. Each field in QlikView can only be linked to one info file.

Q: Why are for instance '002', '02' and '2' sometimes interpreted as the same value by QlikView?

A: All the values in the example share the same numeric value in QlikView. As a rule, QlikView will try a numeric interpretation of any data. If a numeric interpretation is possible, it will be used for the association. If you use the interpretation function text() on a field in the script, however, the values will be treated strictly as text values. The values in the example above will then be interpreted as three different values.

Q: What is a "loop" or circular table structure?

A: When it is possible to follow the field associations in a never ending circle through the table structure, this is called a loop. Another way of describing the phenomenon is that there are two or more different routes through the table structure between two specific fields. Loops should be avoided as far as possible since they may cause ambiguities in the way data is interpreted. In many cases loops are a result of poor database design, but in other cases they may be unavoidable. QlikView will issue a warning if it finds a loop while executing the script and force you to resolve the problem with the help of loosely coupled tables.

Understanding circular references (page 150)

12.5 Layout

Q: Why can't sheet objects without caption be sized at its upper end?

A: When you turn off the caption for a sheet object the upper border can only be used for moving the sheet object around, so instead use the upper corners of a sheet object to size.

Q: Why can't I expand my table to the right when I try to drag the border?

A: There are two handles on the right border of a table. If you drag the border of a table, you size the outer limits of what can be shown in the table. However, you can never make the outer frame larger than the sum of the widths of all columns in the table. The sizing of the rightmost column is made by putting the cursor just to the left of the outer border. Make sure that the outer frame does not fall in the middle of the column. If that is the case, use the scroll bar to position the column's right border at the outer frame. Use the design grid to see the actual outer frame of a sheet object.

Q: Can I change the name of a field in sheet objects in a QlikView document?

A: Yes, you can set a label for each field in each sheet object.

Q: Which sheet objects can be minimized?

A: All types of sheet objects can be minimized, but the option is set to off by default for sheet objects such as buttons, text objects and line/arrow objects.

Q: Can I move minimized objects on the sheet?

A: Yes, they can be moved freely and placed anywhere on the sheet and also sized within certain limits.

12.6 Sharing QlikView Documents with Other People

Q: Can I put my QlikView document on a server and share it with other people?

A: Yes, as long as the receivers have a registered QlikView license and access to the server directory.

Q: Can I use QlikView in real client/server mode?

A: Yes, you need a QlikView Server.

Q: Can I put my document as a link on a web page and let others access it over the net?

A: Yes, as long as the receivers have a registered QlikView license and access to the web page.

Q: Can I e-mail my document to other people?

A: Yes, as long as the receivers have a registered QlikView license.

Q: Can I prevent certain people from using my document?

A: Yes, using "Section Access" to define who may use the document.

Section (page 941) and *Access Restriction Table Wizard (page 96)*

Q: Can I prevent other people from seeing/changing the script?

A: Yes, the "Section Access" can give some people ADMIN access level while keeping other people off the script in USER access level.

Security (page 1536)

Q: Where do I store information on access rights?

A: Information can be stored as a text file in a protected unit, or as a table in a database. It is also possible to store it as an inline statement in the script.

Inline Data Wizard (page 96)

Q: Is there an automated way to create personalized copies to a large group of users?

A: Yes, you need a QlikView Publisher which is an add-on module to QlikView Server.