

# Qlik NPrinting

Qlik NPrinting®

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# 1 About Qlik NPrinting

Qlik NPrinting is a reporting platform that lets you create reports using your QlikView and Qlik Sense data, and then distribute them automatically in a range of standard formats.



*Qlik NPrinting is an on-premise reporting tool for Qlik Sense Enterprise on Windows and QlikView on Windows.*

## 2 Getting started

Get off to a good start by learning Qlik NPrinting fundamentals. Then, you can create report templates with our tutorials.

### 2.1 What you can do in Qlik NPrinting

Qlik NPrinting has a responsive web interface for administrative tasks and report design.

A centralized distribution system simplifies scheduled report generation and distribution. Users can access and subscribe to a complete set of reports.

#### Features

Qlik NPrinting offers:

- Scheduled and one-time distribution of reports to Qlik Sense hub, folders, email, and NewsStand.
- Server-based client for configuring, scheduling, and distributing reports.
- Online subscription portal for users to view, download, archive, and subscribe to available reports.
- Role-based security at the app level for administrators, developers, and recipients.
- Multi-engine enterprise scalability, and enhanced governance and security.
- Full Microsoft Office integration.

#### Using different versions of Qlik NPrinting

This table compares the main features of Qlik NPrinting 17 and newer with QlikView NPrinting 16.

Version comparison

Product capability	Qlik NPrinting 16	Qlik NPrinting 17 and newer
APIs	No	Yes
Enterprise scalability	No	Yes
Multi-developer environment	No	Yes
Online subscription hub	No	Yes
Roles based security	No	Yes
Section access	No	Yes
Web based architecture	No	Yes
Bookmark filter	Yes	No
FTP Support	Yes	No
Linked fields	Yes	No

Product capability	Qlik NPrinting 16	Qlik NPrinting 17 and newer
Pretty good privacy (PGP) encryption	Yes	No
Recipient import wizard	Yes	No
Send to printer	Yes	No
Test task	Yes	No

## 2.2 Working with apps

Qlik NPrinting apps contain report templates, filters, and connections to Qlik Sense apps or QlikView documents.

This is different from Qlik Sense apps, which contain data, and use visualizations to explore that data.

### Requirements

The Qlik NPrinting Engine configuration must be complete. See: *Qlik NPrinting installation (page 155)*.

### Creating apps

Do the following:

1. Log into the Qlik NPrinting web console.
2. On the main menu, click the **Apps** drop-down, and click **Apps**.
3. Click the **Create app** button.
  - a. Enter a name for this new app.
  - b. Ensure the **Enabled** check box is selected. Otherwise, your app will be ignored by the Qlik NPrinting Engine.
  - c. Click **Create**.

Your app has been created.


### Deleting apps

The user role that you use to delete an app must have the **Delete** permission enabled.



*Deleting an app will remove all associated reports and filters.*

Do the following:

1. On the main menu, click the **Apps** drop-down, and click **Apps**.
2. Locate the app you want to delete. Use the **View** and **Filter** options if there are many apps.
3. Click on the  icon in the **Actions** column for the app that you want to delete.
4. Select **Delete** in the menu that appears.

The app is removed from the Qlik NPrinting Server.

### 2.3 Creating connections

Before you can create report templates, you must first create source connections from Qlik NPrinting to QlikView documents or Qlik Sense apps. Each report, filter, and task is linked to one or more QlikView documents or Qlik Sense apps.



*This section describes how to connect specific QlikView documents or Qlik Sense apps to Qlik NPrinting. If you are installing Qlik NPrinting and trying to connect to a QlikView or Qlik Sense server see: [Connecting Qlik NPrinting with QlikView \(page 178\)](#) and [Connecting Qlik NPrinting with Qlik Sense \(page 172\)](#).*

Connections must be added after the initial creation of a Qlik NPrinting app. You can add new connections, or modify existing connections for each Qlik NPrinting app. There is no limit to the number of connections you can add to an app.

Connections are to the Qlik NPrinting Engine, not to the Qlik NPrinting Server. In a production environment the Qlik NPrinting Engine and Qlik NPrinting Server are installed on separate computers. The firewall rules and DNS resolution must be configured on Qlik NPrinting Engine computers, not on the Qlik NPrinting Server.

### Connecting to QlikView documents

You can connect to any QlikView documents on QlikView servers that you have permission to access.



*This page outlines how to connect specific QlikView documents to Qlik NPrinting. If you are installing Qlik NPrinting and trying to connect to a QlikView server, or install certificates, see: [Connecting Qlik NPrinting with QlikView \(page 178\)](#).*

### Unsupported QlikView objects

The following objects are not supported in Qlik NPrinting:

- Alternate states
- Triggers: sheet, document, and within objects
- **Always one selected** list box and multi box property
- AND-mode (calculated) fields in filters, cycles, levels, pages
- Buttons that contain "actions" work as triggers
- Containers within a container
- Any third party extension objects
- Alternate identities: such as `qvp://<servername>/qwvs/salesdemo.qvw`

- Bundled qmem packages
- WebView mode

If you create connections to QlikView documents that contain these objects, the connection will not work.

For more information on unsupported objects, see *Qlik objects that are not supported* (page 295).

### On-Demand reporting

On-Demand reports cannot connect to multiple QlikView documents.

You cannot create connections to QlikView documents that use the following if you are generating On-Demand reports:

- Variable selections used from input buttons as triggers to select data
- Input boxes
- Calculated dimensions
- Hidden tabs

### Troubleshooting

Qlik NPrinting cannot modify or remove these options. As a result, Qlik NPrinting may not have access to the entire data set of the connected QlikView document during cache and report generation.

If you want to use QlikView documents with unsupported features, create a copy with the features removed:

Do the following:

1. Create a copy of the QlikView document.
2. Remove all unsupported features from the new QlikView document. Make sure that WebView mode is turned off.
3. Use the copied QlikView document for reporting purposes.

### Requirements

Qlik NPrinting Server and at least one Qlik NPrinting Engine must be installed and activated.

Qlik NPrinting QlikView connections requires a QlikView Server deployment that was installed with the "QlikView Administrators" group option.

### Connection rules for QlikView documents

The following rules apply to connections to QlikView documents:

- You can create connections from a single Qlik NPrinting app to multiple QlikView documents.
- Connections are not shared between Qlik NPrinting apps. If you want to connect the same QlikView document to multiple Qlik NPrinting apps, you must create a connection for each.
- To create connections, your QlikView documents must be stored in one of the following locations:

- your local computer
- a shared network folder
- a QlikView server that you have permission to access
- a QlikView cluster



*Section access is not fully supported for local QlikView documents. If you connect to a local QlikView document with section access, report recipients will see all available data, as if section access was not applied. You must use Qlik NPrinting filters or connect to documents via QlikView Server to ensure users only receive permitted data.*

### Types of connection status

The **Cache status** column shows one of the following values for each configured connection:

- **Never generated:** the connection has never been opened.
- **Pending:** Qlik NPrinting is attempting to connect.
- **Generating:** Qlik NPrinting is connected and importing metadata.
- **Generated:** connection successful on all Qlik NPrinting engines.
- **Error:** the connection is failing on all available engines. The Qlik NPrinting scheduler service will try to connect again two minutes after a failure.

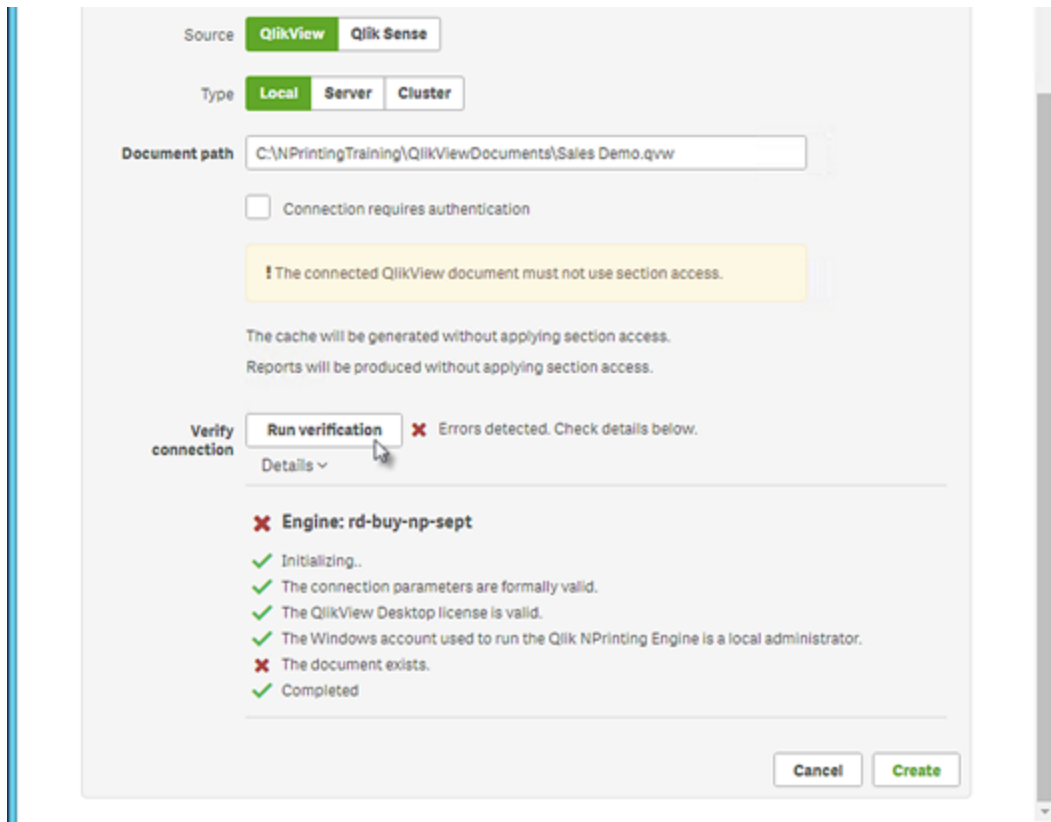
The **Connection status** column shows one of the following values for each configured connection:

- **Connection successful on all NPrinting engines.**
- **Warning: One or more engines are not working.**
- **Connection failed on all NPrinting engines.**

To learn more about connection status and reloading connection metadata, see: *Reloading connection metadata (page 38)*.

### Testing and troubleshooting

There are several ways to resolve a **Warning**, **Error**, or **Connection failed** status. To start, open the connection you want to troubleshoot, and click the **Run verification** button. This will give you a list of possible issues. Here is an example where verification failed because the **Document path** is incorrect:



You can also check the following:

- Connection properties: For example, verify the QlikView document path, username, and password.
- Qlik NPrinting Engine installation and configuration: For example, an engine with QlikView Desktop 12 cannot open a document on a QlikView 11.2 server. Check also that QlikView Desktop has an active license for the Windows user who runs the service.

After resolving any issues, re-launch cache generation, or run a task.

Here are some common causes of connection errors:

- *Verify connection errors when setting up a connection to QlikView documents (page 540)*
- *Connection status error (page 533)*
- *Connection status not shown in Qlik NPrinting web console (page 533)*
- *Connection timeouts and long running tasks (page 533)*

## Connecting to a local QlikView document

Do the following:

1. From the **Apps** menu, click **Connections**.  
The **Connections** page appears.
2. Click **Create connection** to open a new connection window.

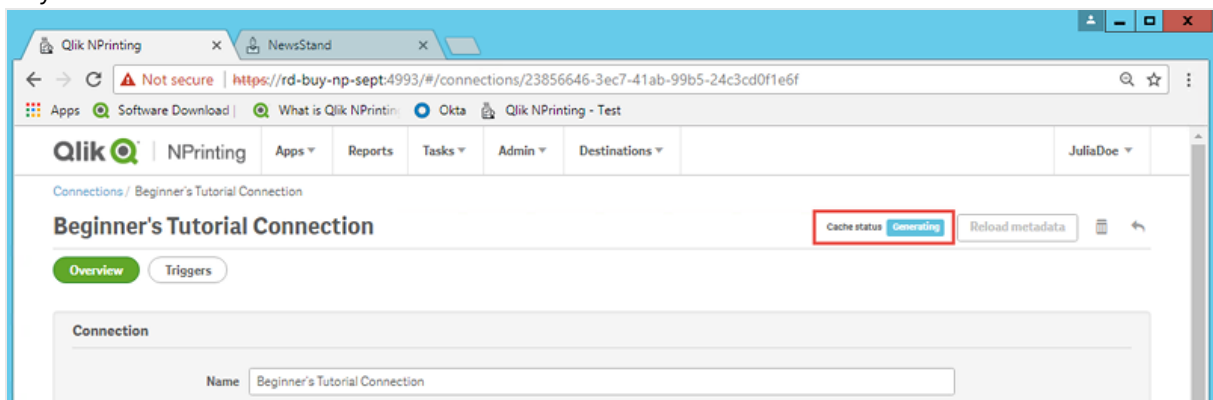


- In the **Name** field, enter a name for the connection.  
For example, enter *Sales Demo*.
- In the **App** drop-down list, select the Qlik NPrinting app that you want create the connection from.
- In the **Document path** field, enter the path to the QlikView document that you want to connect to.  
For example, enter *C:\NPrintingServer\QlikViewDocuments\Samples\Sales Demo.qvw*.  
Use the path on the computer where Qlik NPrinting is installed.

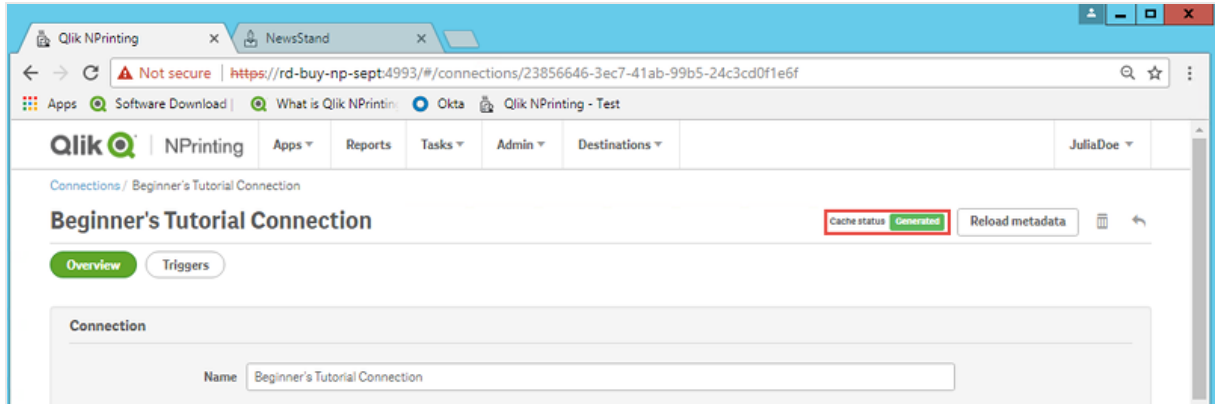


Mapped network drives, like *Z:\NPrintingServer\QlikViewDocuments*, are not supported by Qlik NPrinting. You must use Universal Naming Convention (UNC) paths, such as *\\ServerName\NPrintingServer\QlikViewDocuments*.

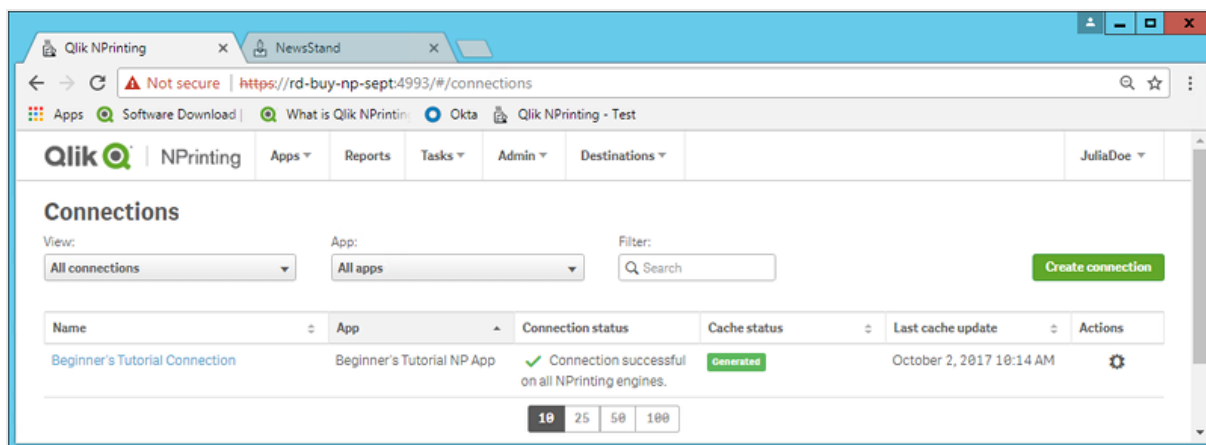
- Ensure that **Type** is set to **Local**.
- If prompted, enter the user name and password for the QlikView document.  
If you are connecting to a local QlikView document with Section Access you must enter the credentials of a user with the ADMIN role, otherwise the cache generation will end with an error. Windows domain users are not supported. Section Access users must be defined in the script. We suggest you use a user without filters so the cache will be complete.
- Click the **Run verification** button. This ensures your connection is valid.  
If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."
- Under **Notifications**, you can select **Send email notification when metadata reload finishes**. An email will be sent to the addresses specified under **Settings > Tasks**. See: *Task execution notifications (page 268)*.
- Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
- Click on your new connection. You will see the status **Cache status - Generating**. This means that Qlik NPrinting is connecting to QlikView and importing metadata. If you have a large QlikView document, this may take several minutes.



- Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.



You will now be able to see your new connection on the **Connections** screen.



### Prerequisites for QlikView Server and QlikView Cluster connections

To generate reports using QlikView Server or QlikView Cluster connections, the following are required:

- Access to at least one QlikView Server.
- The Windows user that runs the Qlik NPrinting Engine Windows service must belong to the QlikView Administrators Windows group on the QlikView Server computer.
- To configure Qlik NPrinting for **NTFS authorization**, it must be configured in the Qlik Management Console. This means that the Windows operating system controls the file (document) access for users and groups through the NTFS security settings.
- To configure Qlik NPrinting for DMS authorization QlikView controlled file access, see *DMS for Qlik NPrinting* (page 225).

If you are using section access as well, the following are also required:

- Connections must be configured to use server authentication.
- A domain account must be configured in user settings, independent of the authentication type enabled in the Qlik NPrinting general settings.

### Connecting to QlikView documents on the QlikView Server



You need a licensed QlikView Server, and access to the target QlikView document to open a .qvw file.



To connect Qlik NPrinting to a cluster of QlikView Servers, authentication in the QlikView installation must be managed using a QlikView Administrators Group.

Do the following:

1. From the **Apps** menu, click **Connections**.  
The **Connections** page appears.
2. Click **Create connection**.
3. In the **Name** field, enter a name for the connection.  
For example, enter *Sales Demo from Server*.
4. In the **App** drop-down list, select the Qlik NPrinting app that you want to create the connection from.  
For example, select *Sales Demo*.
5. Click the **Server** button in the **Type** row.  
The qvp:// form appears.
6. In the qvp:// form, insert the QlikView Server address followed by the .qvw file name.  
For example, *ServerAddress/DocumentName.qvw*.
7. If required, select the **Connection requires authentication** check-box, then select either **Server authentication** or **Document authentication**.
  - **Server authentication:** Enter the domain user credentials that will be used to connect to the server. Use the following format:  
**Domain\ Username**  
Enable the flag for **Apply user section access for reports** if you want to apply specific users' section access when generating reports for them.
  - **Document authentication:** Enter the **Username** and **Password** of a user with administrative privileges on the document.
8. Click the **Run verification** button. This ensures your connection is valid.  
If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."
9. Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
10. Click on your new connection. You will see the status: **Cache status - Generating**. This means that Qlik NPrinting is connecting to QlikView and importing metadata. If you have a large QlikView document, this may take several minutes.
11. Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.

You will now be able to see your new connection on the **Connections** screen.

### Troubleshooting QlikView Server connections

1. Make sure that both QlikView Desktop and QlikView Server are the same version, including SR.
2. In the QlikView Management Console, make sure that the mounted folder is browsable.
3. Using pseudo-URLs in the format `qvp://[[username]][@][hostname[:port];protocol]/docname` is not supported in Qlik NPrinting connections.
4. Check the credentials:
  - a. Make note of the service account used to run the Qlik NPrinting Engine service.
  - b. On the machine running the Qlik NPrinting Engine, browse to the QlikView folder.
  - c. Hold Shift and right-click on `Qv.exe`.
  - d. Select **Run as different user**.
  - e. Enter the service account credentials noted above.
  - f. Make sure QlikView Desktop does not open as Personal Edition.
  - g. Click **File > Open** in QlikView Server. Open your QlikView document.
  - h. Note the path and file name in the QlikView Desktop header and use that in the Qlik NPrinting connection settings.

### Connecting to QlikView documents on the QlikView Cluster

Qlik NPrinting can be connected to clusters of QlikView Servers. This enables report production optimization by balancing the workload between Qlik NPrinting Engines and clusters of QlikView Servers.



*To connect Qlik NPrinting to a cluster of QlikView Servers, authentication in the QlikView installation must be managed using a QlikView Administrators Group.*

### Requirements

To create a connection to a cluster of QlikView Servers you need:

- At least one active cluster of QlikView Servers.  
If you have more than one cluster, you will be able to select the one you want to use.
- QMS and QVS computers that can be reached from Qlik NPrinting Engines.
- Qlik NPrinting Engine services run by a user that is:
  - a domain user
  - part of a QlikView Administrators security group on all nodes of the cluster
  - part of a QlikView Management API security group on the computer where QMS runs.



*QlikView Management API security groups are not created during installation, they must be created and populated manually.*

To configure a QlikView Cluster connection, you need the following information that can be found in the Qlik Management Console:

- Cluster address and ID found under **System > Setup**.
  - The cluster address is on the **Management service > Summary** tab.
  - The cluster ID can be found by selecting the QVWS server under **QlikView Web Servers**. The cluster ID is in the **Name** field of the **General** tab.

You will also need the **Full document path**. This can be found in QlikView Desktop.



*The **Full document path** must be case-sensitive.*

Do the following:

1. Launch QlikView Desktop and open your document by selecting **File > Open in server**. Do not use local path to open the document.
2. Select **Help > Document support info**.
3. Under **Document Info**, find **Document**. You will see text that begins with *qvp://*.
4. Remove *qvp://* and the server name to get the **Full document path**.
  - If it says *qvp://<servername>/SalesDemo2017.qvw*, then the **Full document path** is *SalesDemo2017.qvw*.
  - If your document is inside sub-folders, they must be part of the **Full document path**. For example, if it says *qvp://<servername>/AppDemo/Sales/SalesDemo2017.qvw*, then the **Full document path** is *AppDemo/Sales/SalesDemo2017.qvw*.

Do the following:

1. From the **Apps** menu, click **Connections**.  
The **Connections** page appears.
2. Click **Create connection**.
3. In the **Name** field, enter a name for the connection.
4. Entering a **Description** is optional.
5. In the **App** drop-down list, select the Qlik NPrinting app that you want to create the connection from.
6. Click the **Cluster** button in the **Type** row.  
Related forms appear.
7. Insert the address of the QMS in the **Address** form.
8. Enter the name of the cluster you want to connect to in the **Cluster ID**.
9. Enter the case-sensitive **Full document path**.
10. If required, activate the **Connection requires authentication** flag and enter your **Identity**.
11. Activate the **Apply user section access for reports** flag if you want to apply specific users' section access when generating reports for them.
12. Click the **Run verification** button. This ensures your connection is valid.  
If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."

13. Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
14. Click on your new connection. You will see the status: **Cache status - Generating**. This means that Qlik NPrinting is connecting to QlikView and importing metadata. If you have a large QlikView document, this may take several minutes.
15. Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.


You will now be able to see your new connection on the **Connections** screen.

### Modifying or deleting a connection



*If you try to delete a connection that has associated reports or filters, you will see a warning popup listing the elements that will become invalid upon deletion.*

Do the following:

1. From the **Apps** menu, click **Connections**.
2. Click on the connection that you want to modify or delete.
3.
  - a. To modify, make the desired changes and click **Save**.
  - b. To delete, click .



*This action cannot be undone.*

### Connecting to Qlik Sense apps

You can connect to Qlik Sense apps that are stored on Qlik Sense servers that you have permission to access.

This page shows how to connect specific Qlik Sense apps to Qlik NPrinting. If you are:

- Installing Qlik NPrinting and trying to connect to a Qlik Sense server, see *Connecting Qlik NPrinting with Qlik Sense (page 172)*.
- Trying to publish your reports to the Qlik Sense hub, see *Distributing reports to the Qlik Sense hub (page 487)*

### Unsupported Qlik Sense objects

You should not create connections to Qlik Sense apps that use the following:

- **Always one selected** value for fields
- Calculated dimensions
- Drill-down dimensions

- Alternate states
- Sheet triggers

Qlik NPrinting cannot modify or remove these options. As a result, Qlik NPrinting may not have access to the entire data set of the connected Qlik Sense app during cache and report generation.

If you want to use Qlik Sense app with these unsupported features:

Do the following:

1. Create a copy of the Qlik Sense app.
2. Remove all unsupported features.
3. Use the copied Qlik Sense app for reporting purposes.

For more information on unsupported objects, see: *Qlik objects that are not supported (page 295)*.

### On-Demand reporting

You cannot create connections to Qlik Sense apps that use the following if you are generating On-Demand reports:

- Variable selections used from input buttons as triggers to select data
- Input boxes
- Calculated dimensions
- Hidden tabs

### Requirements

- Qlik NPrinting Server and at least one Qlik NPrinting Engine must be installed and activated.
- Qlik Sense certificates exported from the Qlik Management Console (QMC) and installed on all Qlik NPrinting Engine computers. For more information, see *Validating the connection to Qlik Sense (page 173)*.
- The Qlik NPrinting user creating the connection must have a domain user account that is a member of the same domain as the Qlik NPrinting server and the Qlik Sense server.
- A working connection to Qlik Sense. For more information, see *Connecting Qlik NPrinting with Qlik Sense (page 172)*.

### Connection rules for Qlik Sense apps

The following rules apply to connections to Qlik Sense apps:

- You can create connections from a single Qlik NPrinting app to multiple Qlik Sense apps.
- Connections are not shared between Qlik NPrinting apps. If you want to connect the same Qlik Sense app to multiple Qlik NPrinting apps you must create a connection for each.

### Types of connection status

The **Cache status** column shows one of the following values for each configured connection:

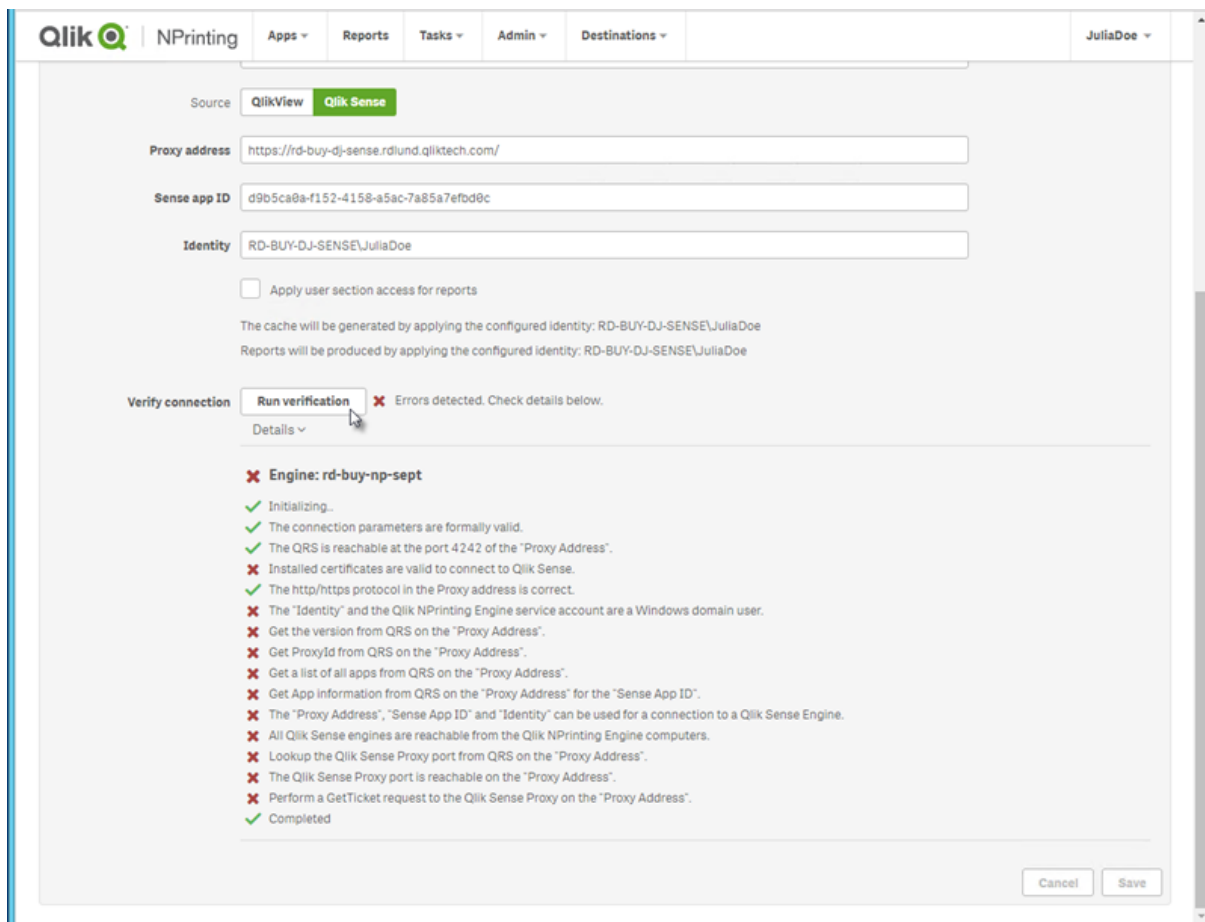
- **Never generated:** the connection has never been opened.
- **Pending:** Qlik NPrinting is attempting to connect.
- **Generating:** Qlik NPrinting is connected and importing metadata.
- **Generated:** connection successful on all Qlik NPrinting engines.
- **Error:** the connection is failing on all available engines. The Qlik NPrinting scheduler service will try to connect again two minutes after a failure.

The **Connection status** column shows one of the following values for each configured connection:

- **Connection successful on all NPrinting engines.**
- **Warning: One or more engines are not working.**
- **Connection failed on all NPrinting engines.**

## Testing and troubleshooting

There are several way to resolve a **Warning**, **Error**, or **Connection failed** status. To start, open the connection you want to troubleshoot, and click the **Run verification** button. This will give you a list of possible issues. Here is an example where verification failed because Qlik Sense certificates were not installed correctly:



You can also check the following:



- **Connection properties:** For example, check if the Qlik Sense certificates are present on the Qlik NPrinting Engine computer. Also, verify the proxy address and app ID.
- **Qlik NPrinting Engine installation and configuration:** For example, check that the Qlik NPrinting Engine is running.

After resolving any issues, re-launch cache generation, or run a task.

Here are some common causes of connection errors:

- *Verify connection errors when setting up a connection to Qlik Sense apps (page 542)*
- *Connection status not shown in Qlik NPrinting web console (page 533)*
- *Connection timeouts and long running tasks (page 533)*

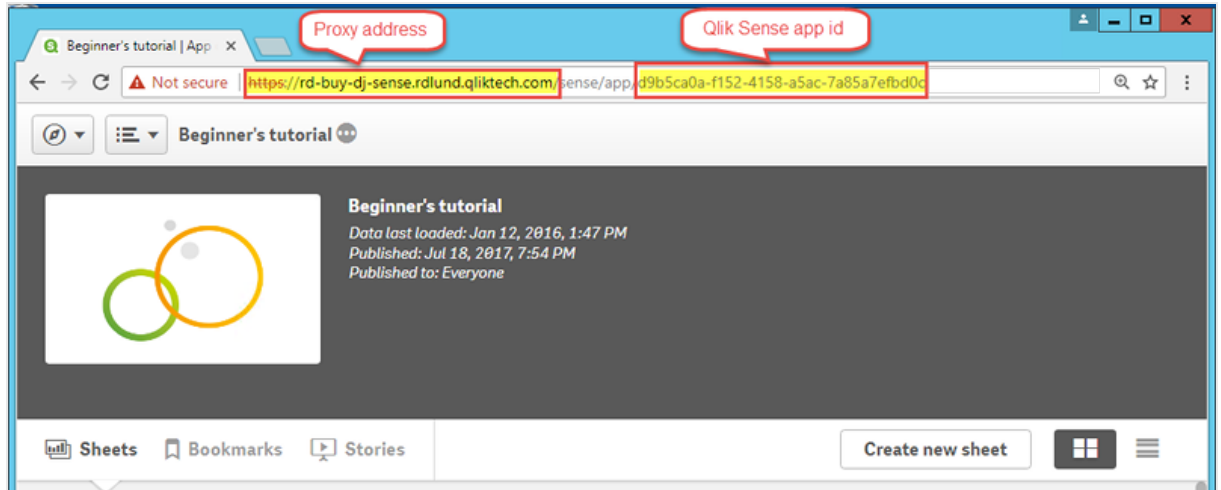
### Connecting to Qlik Sense apps on a Qlik Sense server

Do the following:


1. Log in to Qlik NPrinting as a user with authorization to perform connection tasks.
2. From the **Apps** menu, click **Connections**. The **Connections** page appears.
3. Click **Create connection**.
4. In the **Name** box, enter a name for the connection.
5. In the **App** drop-down list, select the Qlik NPrinting app that you want to connect to.
6. Click **Qlik Sense** as your **Source**.
7. Enter the following information:
  - **Proxy address:** the full computer name of the Qlik Sense server.  
The proxy address must be prefixed with HTTP or HTTPS if it is enabled on the Qlik Sense proxy. HTTPS is the default. You can find this in the Qlik Sense hub, in your browser's address bar, on your app's overview page. The format is: `https://sense_proxy_computer_name.domain_name`.

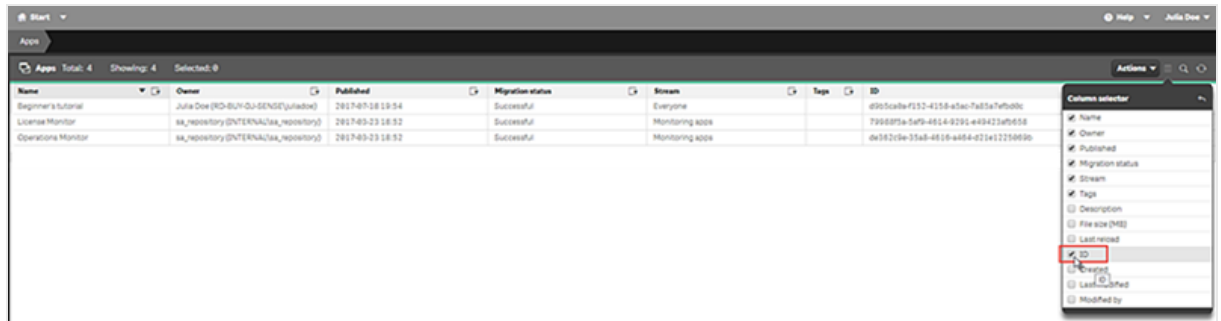


*Your proxy address may have a prefix at the end. In this case, the format is:  
`https://sense_proxy_computer_name.domain_name/prefix`.*



- **Qlik Sense app id:**

This information is available from the Qlik Sense QMC under **Apps**. If you cannot see the app id column, click on the  at the top right and check "ID".



- **Identity:** the <Windows domain name>\<user name> of the Qlik Sense user who has access to the app.

This information is available from the Qlik Sense QMC under **Users**. You will need the information in the **User directory** and **User ID** fields.

Name	User directory	User ID	Admin roles
gil	QTSEL	gil	
Julia Doe	RD-BUY-DJ-SENSE	juliadoe	RootAdmin
juliadoe	RD-BUY-JB-SENSE	juliadoe	RootAdmin
rpc	QTSEL	rpc	RootAdmin
sa_api	INTERNAL	sa_api	
sa_converter	INTERNAL	sa_converter	
sa_engine	INTERNAL	sa_engine	

8. If you want to apply the theme colors from the Sense app to reports created with this connection, click the **Apply Sense app theme** check box.  
If you make any changes to the Sense app theme, you will need to manually reload the connection to apply the updated theme.
9. If you want to apply section access for the selected **Identity**, click the **Apply user section access for reports** check box.
10. Click the **Run verification** button. This ensures your connection is valid.  
If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."

**Qlik** | NPrinting | Apps | Reports | Tasks | Admin | Destinations | JuliaDoe

**Create connection**

Name: Beginner's Tutorial Connection

Description: [Empty text area]

App: Beginner's Tutorial NP App

Source: QlikView Qlik Sense

Proxy address: https://rd-buy-dj-sense.rdlund.qliktech.com/

Sense app ID: d9b5ca8a-f152-4158-a5ac-7a85a7efbd8c

Identity: RD-BUY-DJ-SENSE\JuliaDoe

Apply user section access for reports

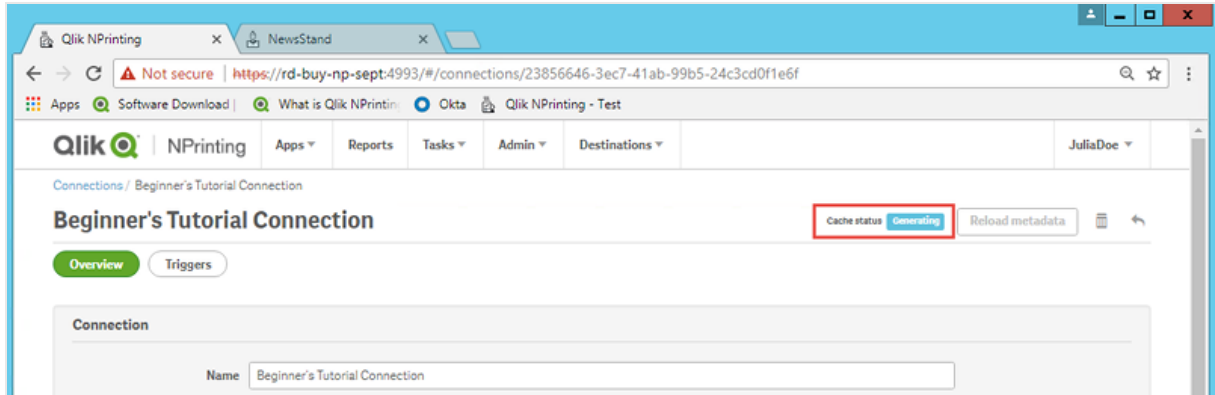
The cache will be generated by applying the configured identity: RD-BUY-DJ-SENSE\JuliaDoe  
 Reports will be produced by applying the configured identity: RD-BUY-DJ-SENSE\JuliaDoe

Verify connection: Run verification ✓ Verification successful. Details

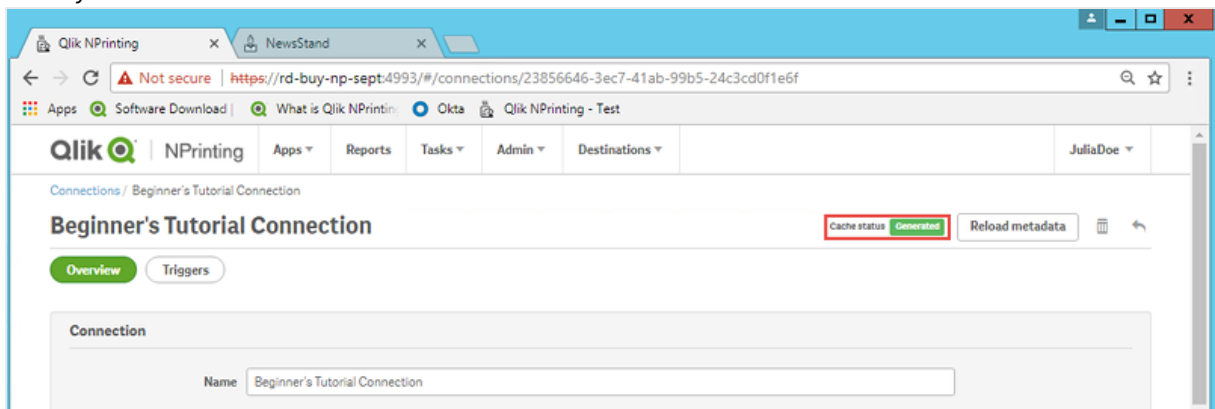
- ✓ Engine: rd-buy-np-sept
- ✓ Initializing..
- ✓ The connection parameters are formally valid.
- ✓ The QRS is reachable at the port 4242 of the "Proxy Address".
- ✓ The http/https protocol in the Proxy address is correct.
- ✓ Installed certificates are valid to connect to Qlik Sense.
- ✓ The "Identity" and the Qlik NPrinting Engine service account are a Windows domain user.
- ✓ Get the version from QRS on the "Proxy Address".
- ✓ Get ProxyId from QRS on the "Proxy Address".
- ✓ Get a list of all apps from QRS on the "Proxy Address".
- ✓ Get App information from QRS on the "Proxy Address" for the "Sense App ID".
- ✓ The "Proxy Address", "Sense App ID" and "Identity" can be used for a connection to a Qlik Sense Engine.
- ✓ All Qlik Sense engines are reachable from the Qlik NPrinting Engine computers.
- ✓ Lookup the Qlik Sense Proxy port from QRS on the "Proxy Address".
- ✓ The Qlik Sense Proxy port is reachable on the "Proxy Address".
- ✓ Perform a GetTicket request to the Qlik Sense Proxy on the "Proxy Address".
- ✓ Completed

Cancel Create

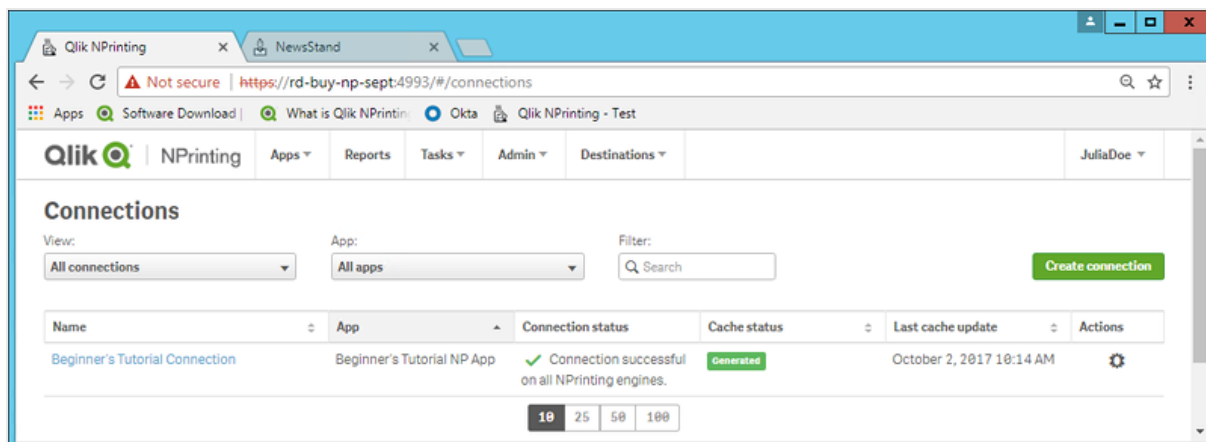
11. Under **Notifications**, you can select **Send email notification when metadata reload finishes**. An email will be sent to the addresses specified under **Settings > Tasks**. See: *Task execution notifications (page 268)*.
12. Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
13. Click on your new connection. You will see the status **Cache status - Generating**. This means that Qlik NPrinting is connecting to Qlik Sense and importing metadata. If you have a large Qlik Sense app, this may take several minutes.



- Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.



You will now be able to see your new connection on the **Connections** screen.




### Modifying or deleting a connection



*If you try to delete a connection that has associated reports or filters, you will see a warning listing the elements that will become invalid upon deletion.*

Do the following:

1. From the **Apps** menu, click **Connections**.
2. Click on the connection that you want to modify or delete.
3.
  - a. To modify, make the desired changes and click **Save**.
  - b. To delete, click .



*This action cannot be undone.*

### Reloading connection metadata

Connection metadata contains information about the data and structures of linked QlikView documents or Qlik Sense apps.

Qlik NPrinting automatically uploads metadata when a new connection is created. Metadata must also be updated whenever you change the data structure or content of QlikView documents or Qlik Sense apps connected to Qlik NPrinting. This ensures that Qlik NPrinting is aware of these changes.

After the metadata is reloaded, all instances of *QV.exe* and *reporting\_web\_renderer.exe* that are running on Qlik NPrinting Engines associated with the connection will automatically stop and restart to update them. Existing reports are not automatically re-run, so they may contain old data. Reports executed after a metadata reload will show the updated data.

**Last cache update** times are displayed relative to the time zone of the logged in user. These may be different than the time zone of the Qlik NPrinting Server. You can change your time zone by clicking on your user name in the top right, and selecting **Settings**.

### Types of connection status

The **Cache status** column shows one of the following values for each configured connection:

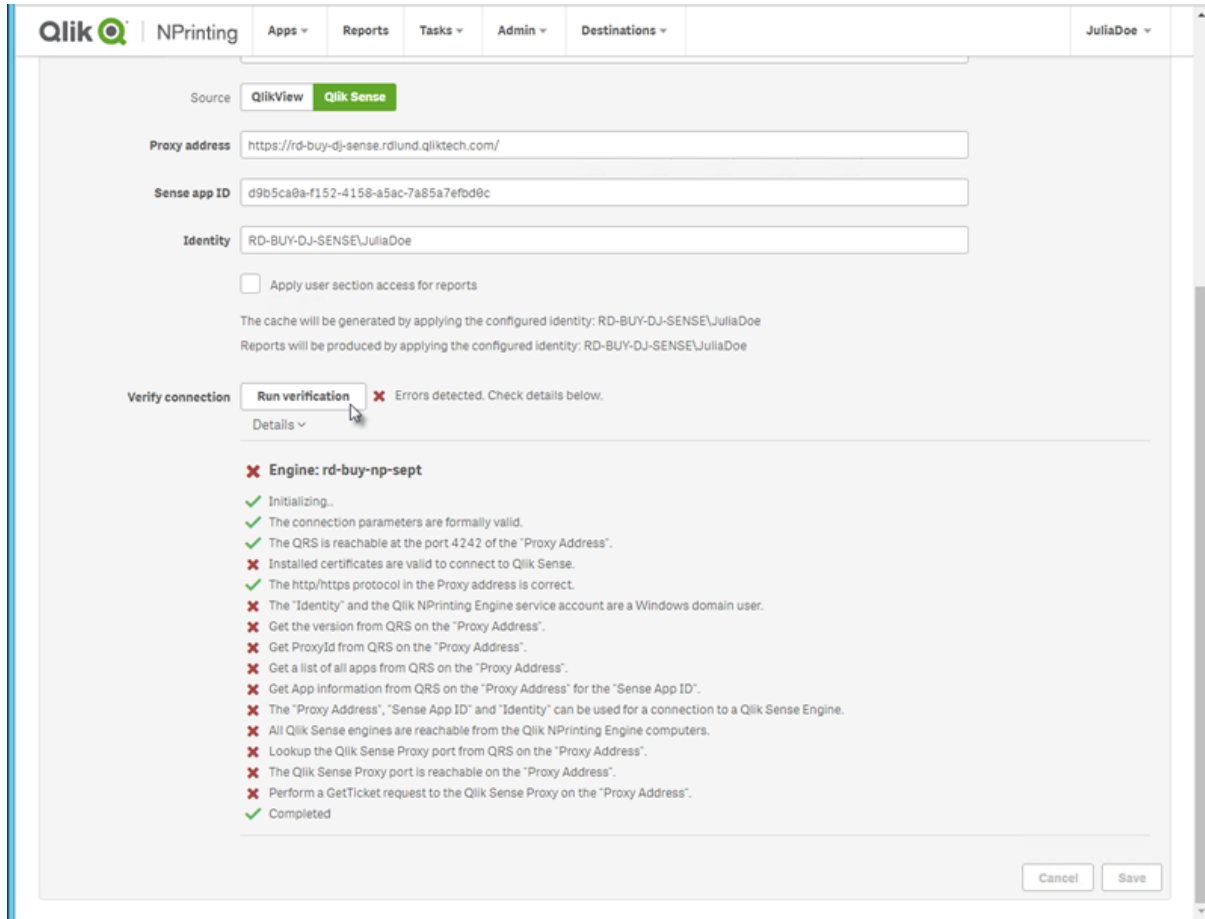
- **Never generated:** the connection has never been opened.
- **Pending:** Qlik NPrinting is attempting to connect.
- **Generating:** Qlik NPrinting is connected and importing metadata.
- **Generated:** connection successful on all Qlik NPrinting engines.
- **Error:** the connection is failing on all available engines. The Qlik NPrinting scheduler service will try to connect again two minutes after a failure.

The **Connection status** column shows one of the following values for each configured connection:

- **Connection successful on all NPrinting engines.**
- **Warning: One or more engines are not working.**
- **Connection failed on all NPrinting engines.**

## Troubleshooting

There are several ways to resolve a **Warning**, **Error**, or **Connection failed** status. To start, open the connection you want to troubleshoot, and click the **Run verification** button. This will give you a list of possible issues. Here is an example where verification failed because Qlik Sense certificates were not installed correctly:



You can also check the following:

- Connection properties: For example, verify the QlikView document path, username, and password. In Qlik Sense, check if the certificates are present on the Qlik NPrinting Engine computer.
- Qlik NPrinting Engine installation and configuration: For example, an engine with QlikView Desktop 12 cannot open a document on a QlikView 11.2 server. Check also that QlikView Desktop has an active license for the Windows user who runs the service.

After resolving any issues, re-launch cache generation, or run a task.

Here are some common causes of connection errors:

- *Verify connection errors when setting up a connection to Qlik Sense apps (page 542)*
- *Verify connection errors when setting up a connection to QlikView documents (page 540)*
- *Connection status error (page 533)*

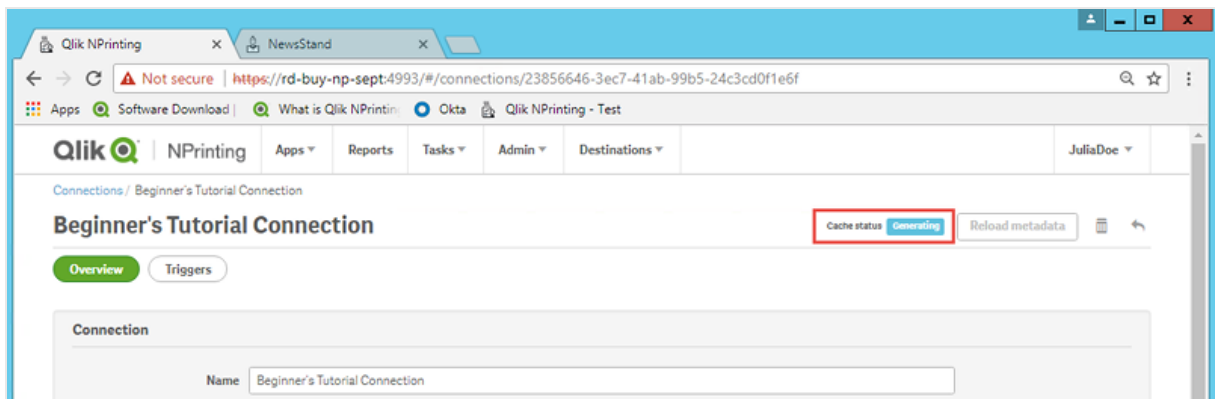
- *Connection status not shown in Qlik NPrinting web console (page 533)*
- *Connection timeouts and long running tasks (page 533)*

### Reloading metadata manually

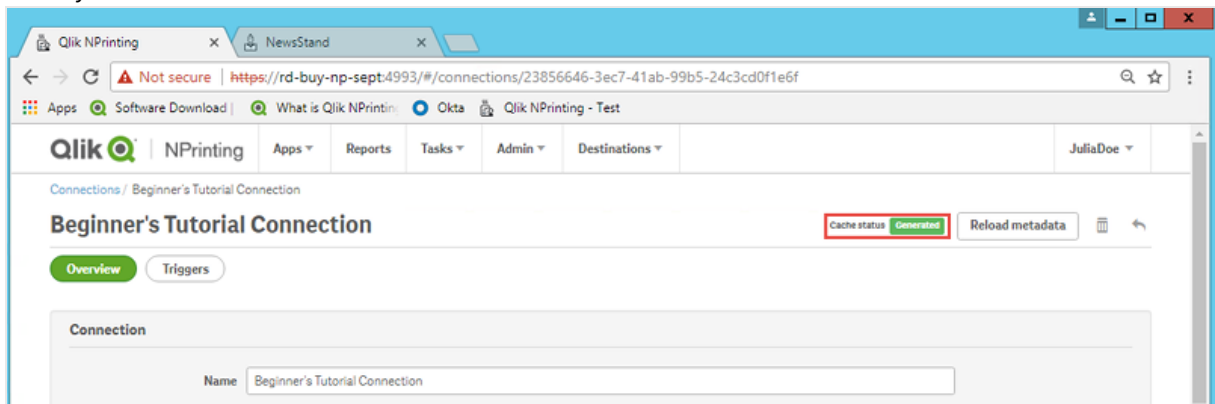
Do the following:

1. From the main menu, click the **Apps** drop-down, and click **Connections**.  
Review the entries in the **Last cache update** column. You should refresh the metadata if the **Last cache update** value is -.
2. Click on the connection name to open the connection.
3. Under **Notifications**, you can select **Send email notification when metadata reload finishes**. An email will be sent to the addresses specified under **Settings > Tasks**. See: *Task execution notifications (page 268)*.
4. Click **Reload metadata**.

You will see the status: **Cache status - Generating**. This means that Qlik NPrinting is connecting to Qlik Sense or QlikView and importing metadata. If you have a large app or document, this may take several minutes.



5. Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.



Your connection metadata has been updated. You can now create or update reports associated with these connections.



### Reloading metadata via scheduled trigger

You can create triggers to schedule regular metadata reloads.

Do the following:

1. From the main menu, click the **Apps** drop-down, and click **Connections**.
2. Click on the connection name to open the connection.
3. Click the **Triggers** button.
4. Click **Create trigger**.
5. Type a name for the trigger.
6. Select a **Schedule type** and **Time**.
7. Set a **Start date** and **Time zone**.
8. Click the **Enabled** button.
9. Click the **Create** button.

Your metadata will now reload automatically, based on your settings.

### Best practices for metadata reload

Metadata must be updated whenever you change the data structure of QlikView documents or Qlik Sense apps connected to Qlik NPrinting. This ensures that changes are correctly propagated in the Qlik NPrinting connection cache and objects available in the cache are up to date with the corresponding QlikView document or Qlik Sense app.

A scheduled or manual reload must be triggered if:

- Objects in the connected document or app are not showing in Qlik NPrinting Designer when editing reports.
- Objects in the connected document or app are not showing in the available objects list when creating QlikEntity reports.
- Filter field values are not showing in suggestions when creating or editing Qlik NPrinting filters.
- Variables from the document or app are not listed when editing variables-related values in Qlik NPrinting. For example: conditions, folder paths, variables embedded in email messages.

Document and app data can be cached in existing connections and not be updated if subsequent tasks are run before and after data reload in the QlikView document or Qlik Sense app. Data push is dependent on specific document configuration.

Reloading metadata allows you to refresh all data connections, ensuring latest version of the data is used during task execution.

Reloading metadata before running publish tasks is recommended if:

- You have frequent data reloads in your QlikView document or Qlik Sense app.
- You frequently run tasks in Qlik NPrinting that may keep data connections active.

You can reload metadata:

- Manually
- Using scheduled using triggers
- Using connection reloads API. For more information, see [POST /connections/{id}/reload](#).

### 2.4 Creating reports

Reports allow you to share Qlik Sense and QlikView visualizations in many formats, such as Excel, Word, Power Point PixelPerfect, HTML, and PDF. Qlik NPrinting lets you use familiar editing tools to showcase your complex Qlik objects.

You can base your reports on existing templates, or create your own. Reports can be filtered, so that specific data is only available to certain users.

Reports can be delivered at scheduled times, or when they are requested by individual users. Final reports are static files that contain the most recent copies of your QlikView and Qlik Sense data at the time the report was generated.

#### Publishing a simple report from a QlikView document

This tutorial will show you how to create and publish a simple Qlik NPrinting PowerPoint report using QlikView data.

Qlik NPrinting has many features. This tutorial is meant to help newer users create their first report. It does not outline every report type, design element, or publishing option. At the end of this tutorial, you will have created, edited, and published a PowerPoint report that is viewable by your selected users.

Other Qlik NPrinting tutorials:

- *Publishing a simple report from a Qlik Sense app (page 65)*
- *Publishing a complex report from a Qlik Sense app (page 85)*



*Microsoft Office must be installed to edit and create reports in Office file formats.*

In this tutorial, you will be:

#### Accessing a QlikView document

Reports need data. Learn how to download and import a sample QlikView document.

#### Connecting Qlik NPrinting to a QlikView document

Qlik NPrinting needs to connect to your QlikView document. Learn how to configure Qlik NPrinting so it can access a sample document, or your existing QlikView data.

### Creating a new Qlik NPrinting report template

Report templates control the layout and output formats of reports. This section will show you how to make a new one.

### Editing the report template

Reports offer many different formatting options. In this section, you will add a title, images, table, chart, and pages to your report.

### Publishing to NewsStand and email

NewsStand is a web console your users can access to view reports. Learn how to publish your report to the NewsStand and by email.

### Accessing a QlikView document

QlikView documents contain the data and visualizations that Qlik NPrinting uses to build reports. There are a few different ways to access a QlikView document.

- You can download a QlikView document from the Qlik help site, and save it to a folder on your computer.
- You can use your own QlikView document. If you are using your own document to complete this tutorial, pick a simple one. Qlik NPrinting experiences longer load times with complex QlikView documents.

### Connecting Qlik NPrinting to a QlikView document

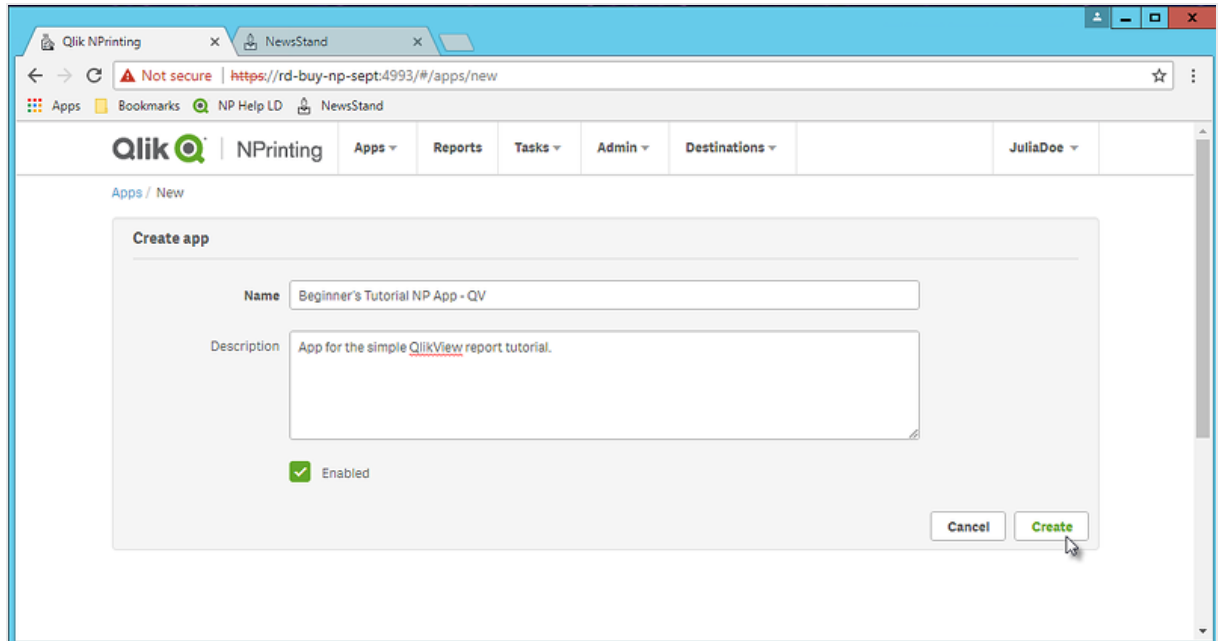
Now we will create a Qlik NPrinting app and connect it to your QlikView document.

Qlik NPrinting apps contains reports, filters, and connections to Qlik Sense apps or QlikView documents. They let the Qlik NPrinting Designer access your data so that it can be used in a report.

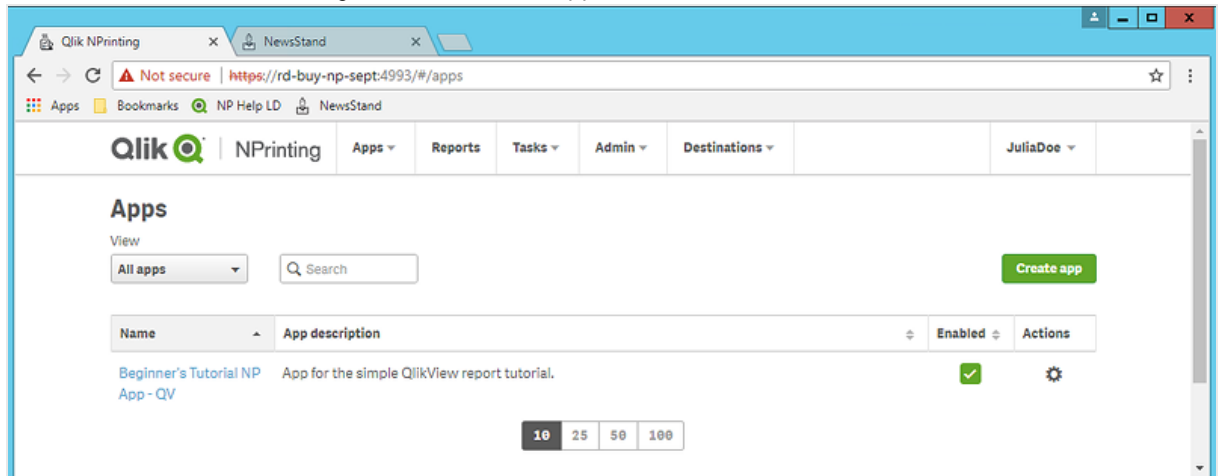
Do the following:

1. Log into the Qlik NPrinting web console.
2. On the main menu, click the **Apps** drop-down, and select **Apps**.
3. Click the **Create app** button.
  - a. Enter a name for this new app. For example: *Beginner's Tutorial NP App - QV*.
  - b. Ensure the **Enabled** check box is selected. Otherwise, your app will be ignored by the Qlik NPrinting Engine.

c. Click **Create**.



You will now be able to see *Beginner's Tutorial NP App - QV* under **Apps**.



4. From the main menu, click the **Apps** drop-down, and select **Connections**.
  - a. Click the **Create connection** button.
  - b. In the **Name** box, enter a name for the connection: *Beginner's Tutorial Connection - QV*.
  - c. In the **App** drop-down list, select the Qlik NPrinting app that you created previously: *Beginner's Tutorial NP App - QV*.
  - d. Under **Source** select **QlikView**.
  - e. Under **Type** select **Local**.
  - f. Under **Document path**, type in the location of the QlikView document you want to connect to. For example: *C:\Program Files\QlikView\Examples\Sales Demo.qvw*



Mapped network drives, like `Z:\NPrintingServer\QlikViewDocuments`, are not supported by Qlik NPrinting. You must use Universal Naming Convention (UNC) paths, such as `\\ServerName\NPrintingServer\QlikViewDocuments`.

- g. If your QlikView document requires authentication, ensure that **Connection requires authentication** is checked.  
See: *Prerequisites for QlikView Server and QlikView Cluster connections* (page 232).
- h. Click the **Run verification** button. This ensures your connection is valid.

If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."

- i. Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
- j. Your new connection will have a **Cache status - Generating** status. This means that Qlik NPrinting is connecting to QlikView and importing metadata. If you have a large QlikView document, this may take several minutes.



Every time you add new objects to your QlikView document, you must reload your connection metadata.

- k. Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.

You will now be able to see your new connection on the **Connections** screen.

If you have trouble connecting to your QlikView document, see:

- [Connecting to QlikView documents \(page 21\)](#)
- [Verify connection errors when setting up a connection to QlikView documents \(page 540\) Troubleshooting \(page 522\)](#)

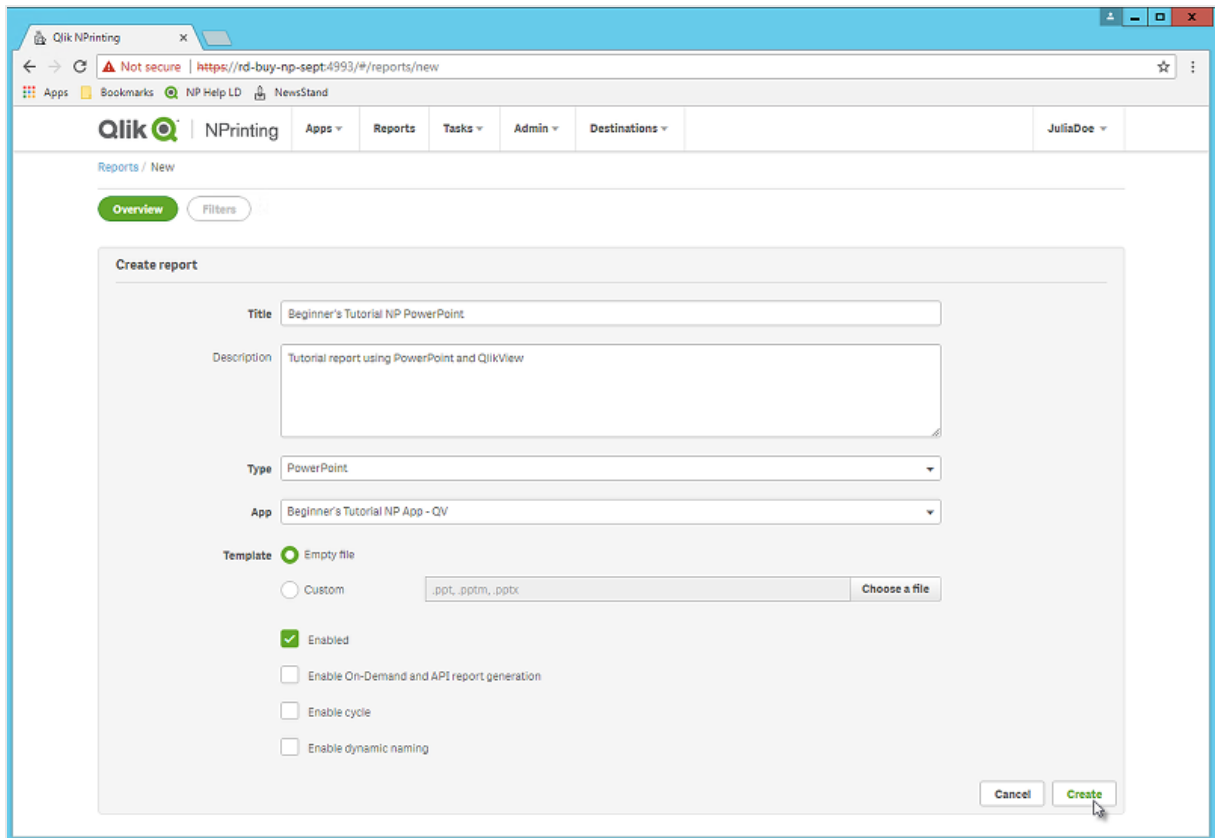
## Creating a new Qlik NPrinting report template

Report templates control the layout and output formats of reports. You can arrange objects and format pages using the standard options of the report type you choose. For example, a PowerPoint report will have the same formatting options and interface as a PowerPoint deck.

Do the following:

1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. Click the **Create report** button.
3. Enter a title in the **Title** field. For example: *Beginner's Tutorial NP PowerPoint*.
4. From the **Type** drop-down list, select **PowerPoint**.
5. From the **App** drop-down list, select *Beginner's Tutorial NP App - QV*.

6. From the **Template** options, click **Empty file**.
7. Ensure the **Enabled** check box is selected. Otherwise, your report will be ignored by the Qlik NPrinting Engine.
8. Click **Create**.



You will now be able to see *Beginner's Tutorial NP PowerPoint* under **Reports**.

## Editing the report template

There are many ways to edit a report template. We will be adding:

- **Titles:** simple text used to organize your report. They can be altered using standard PowerPoint formatting.
- **Tables:** take your QlikView data and present it in tabular form.
- **Images:** take your QlikView data and present it as a .png.
- **Charts:** take your QlikView table data and present it as a PowerPoint chart.
- **Pages:** sub-divide your data by a dimension. They can be applied to tables and images. We will be dividing **Year** and **Category Name**.

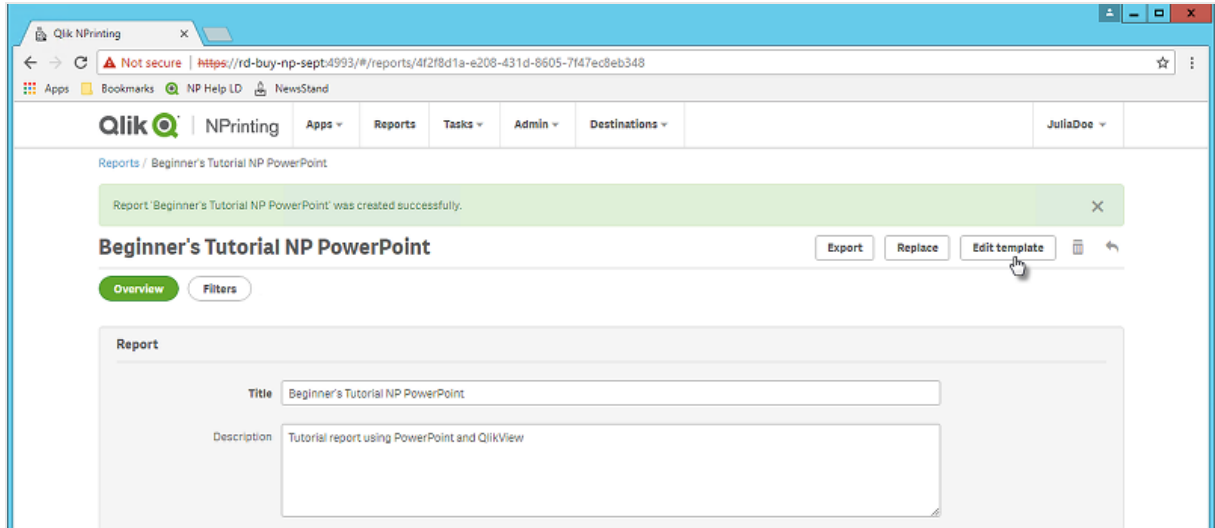
This section does not cover everything you can do in the Qlik NPrinting Designer. If you would like to read about advanced PowerPoint report features, see: *PowerPoint reports (page 403)*.



Your report preview may look different than the image shown below, depending on how you formatted it. Some of the objects may have slightly different names, depending on the order they were selected.

Do the following:

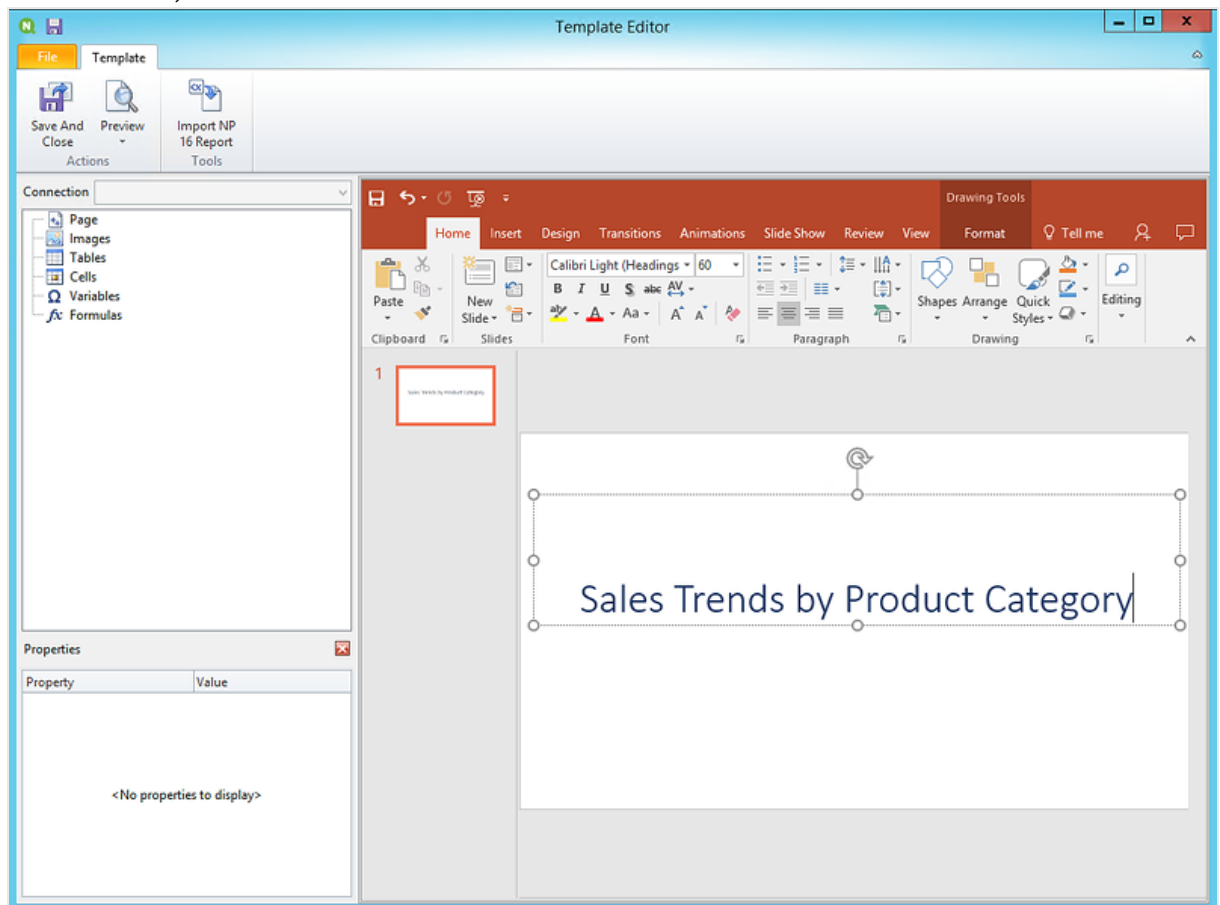
1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. On the **Reports** screen, click on your report.
3. Click the **Edit template** button to open the Qlik NPrinting Designer template editor.



4. The Qlik NPrinting Designer opens. Because you are making a PowerPoint report, you will see the standard PowerPoint interface. Most PowerPoint formatting features can be applied to your report using this interface.

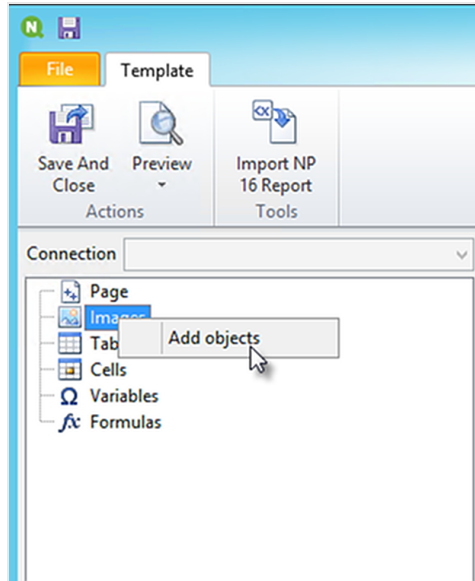


5. Enter a title:
  - a. On the first slide, type in a title: For example, "Sales Trends by Product Category".
  - b. Enter a subtitle, or delete the subtitle text box.

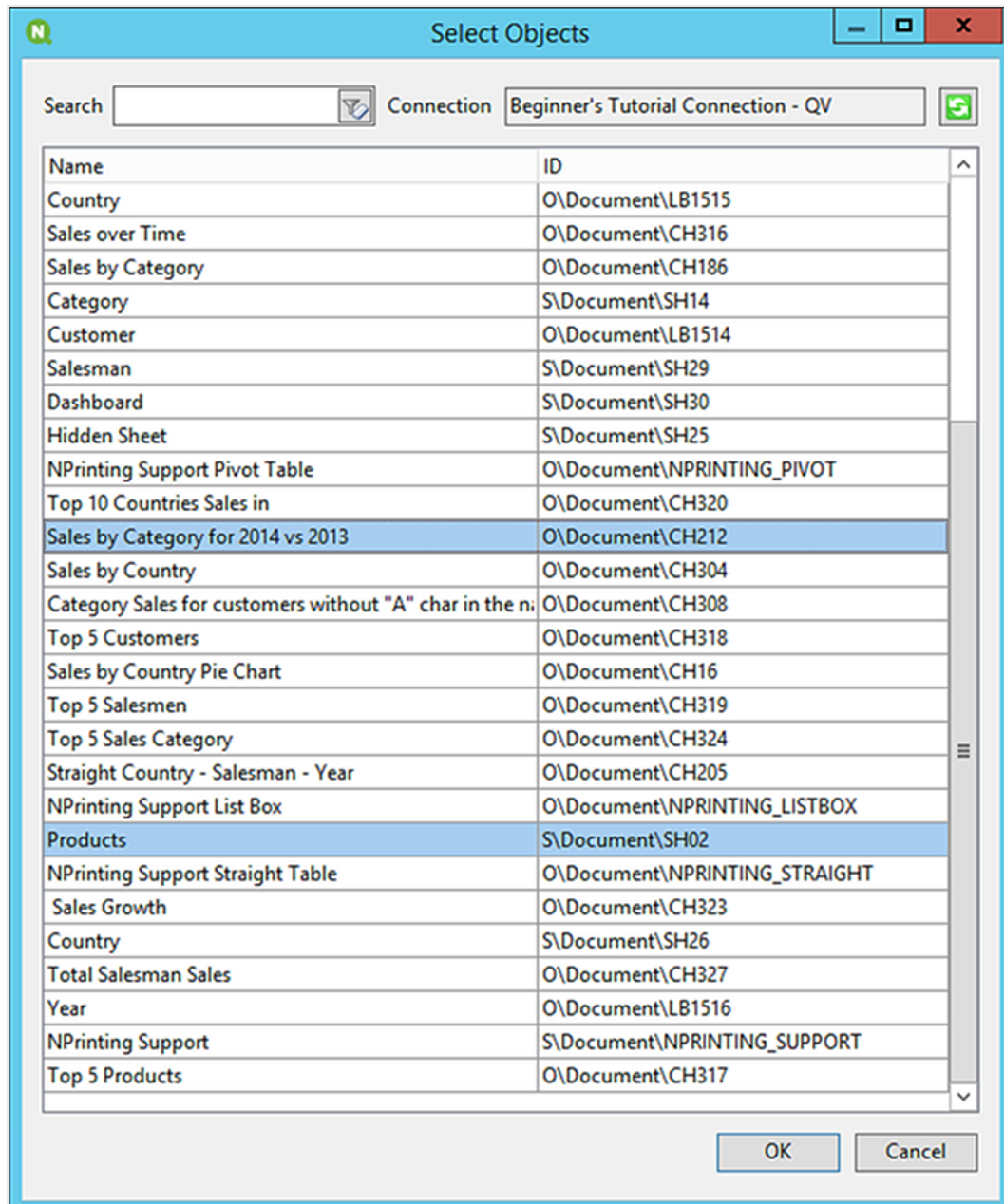


*You can use PowerPoint formatting options to change the look of these titles. For example, you can change the font size and color.*

6. Add images:
  - a. On the PowerPoint toolbar, click the **Insert** tab.
  - b. Click the **New Slide** button.
  - c. Type in a title: for example, "Top Selling Products". Delete the second empty text box.
  - d. On the left pane, right-click on **Images**, and select **Add objects**.

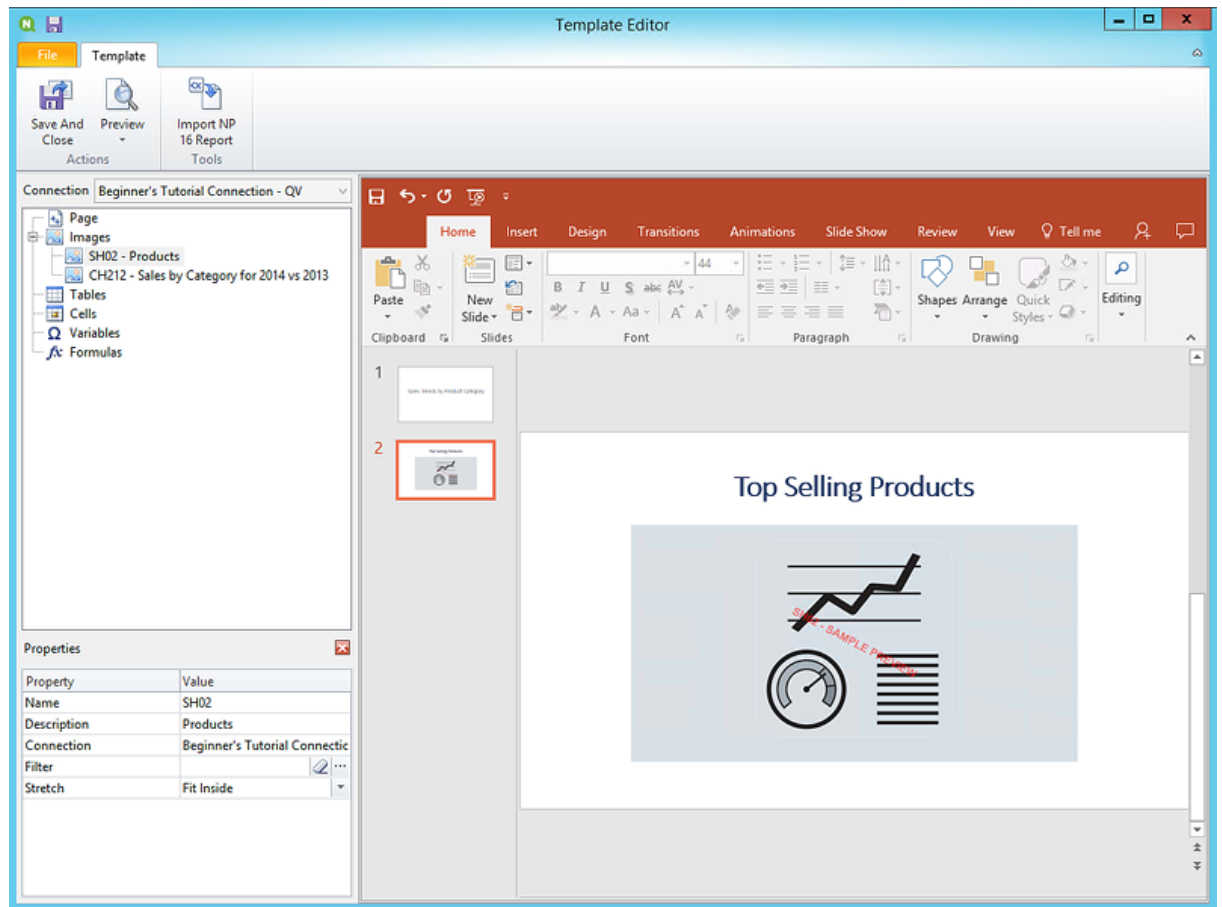


- e. A new window will open. Select **Products** and **Sales by Category for 2014 vs 2013**, and click **OK**. You can select multiple options by holding down the CTRL button.

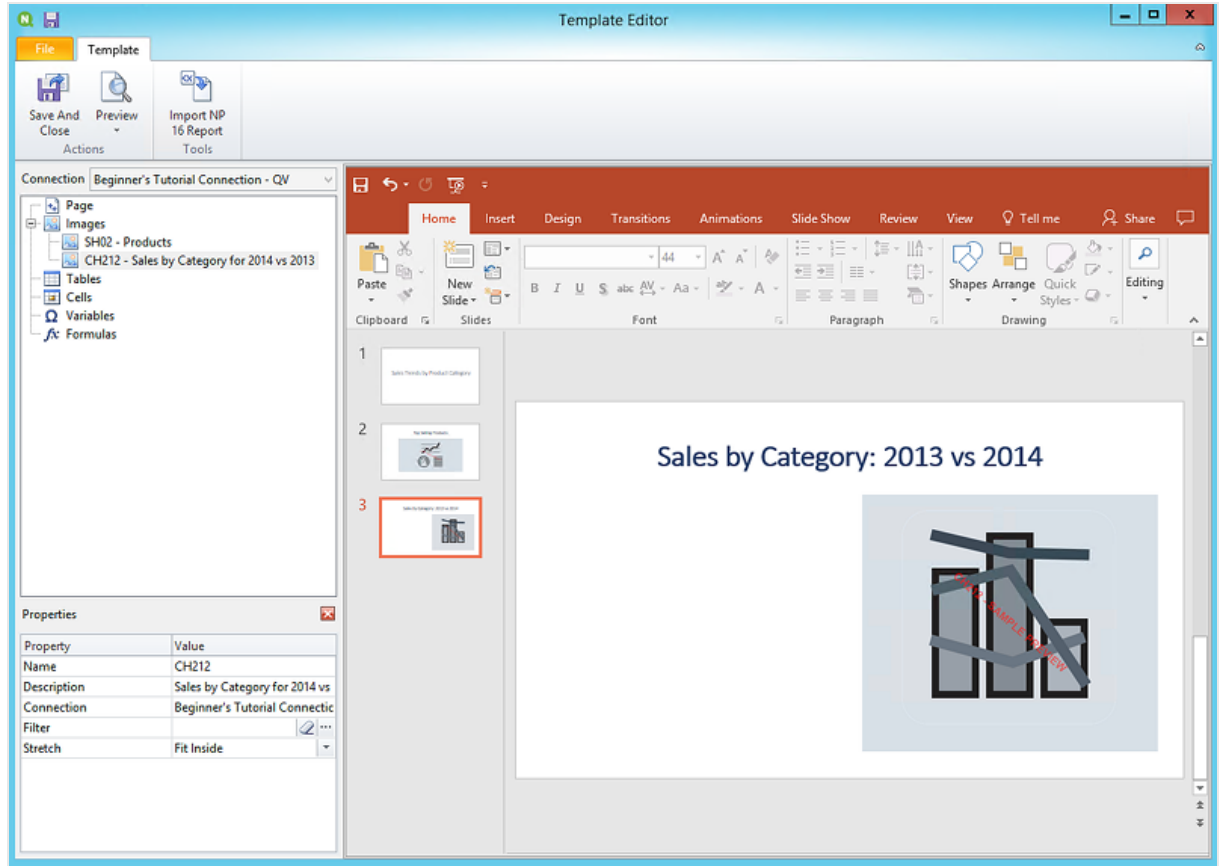


f. Drag **SH02 - Products** onto the slide.

## 2 Getting started



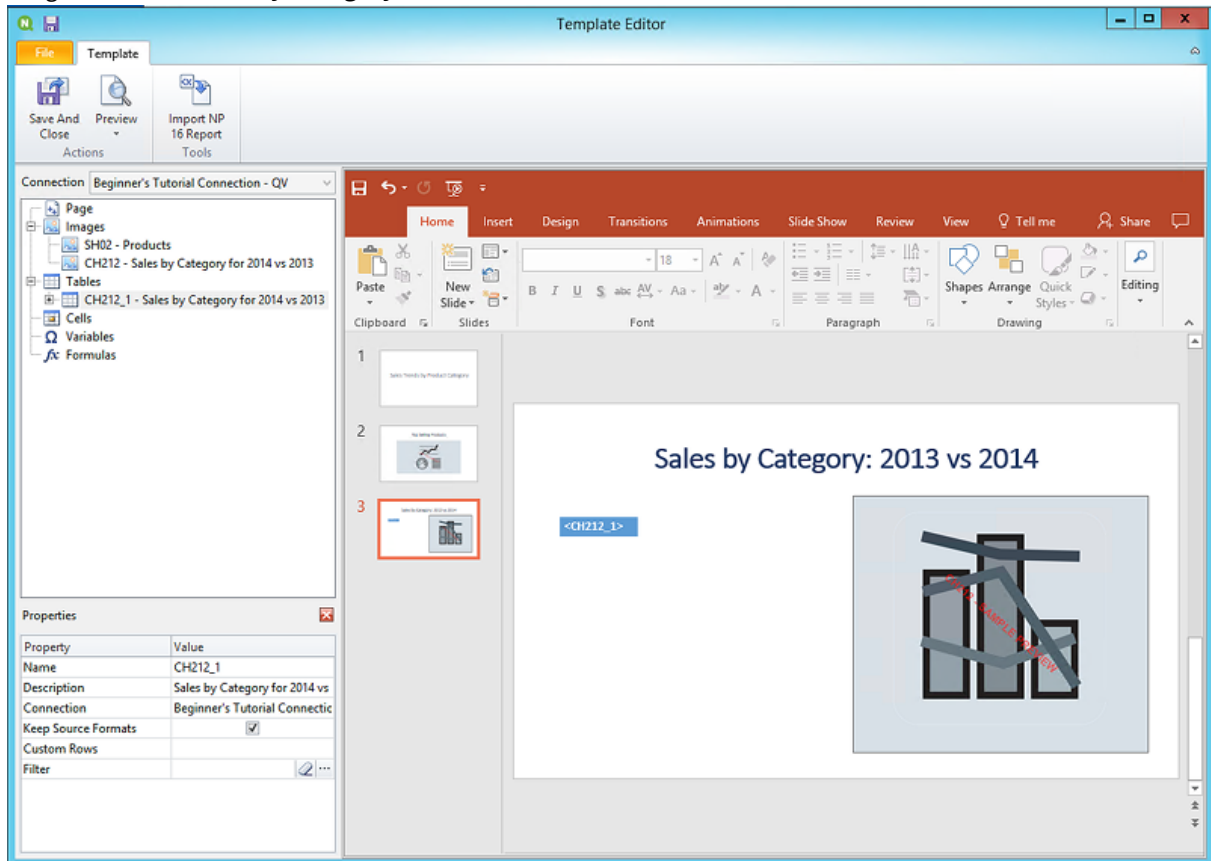
- g. On the PowerPoint toolbar, click the **Insert** tab.
- h. Click the **New Slide** button.
- i. Type in a title: for example, "Sales by Category: 2013 vs 2014". Delete the second empty text box.
- j. Drag **CH212 - Sales by Category for 2014 vs 2013** onto the slide.



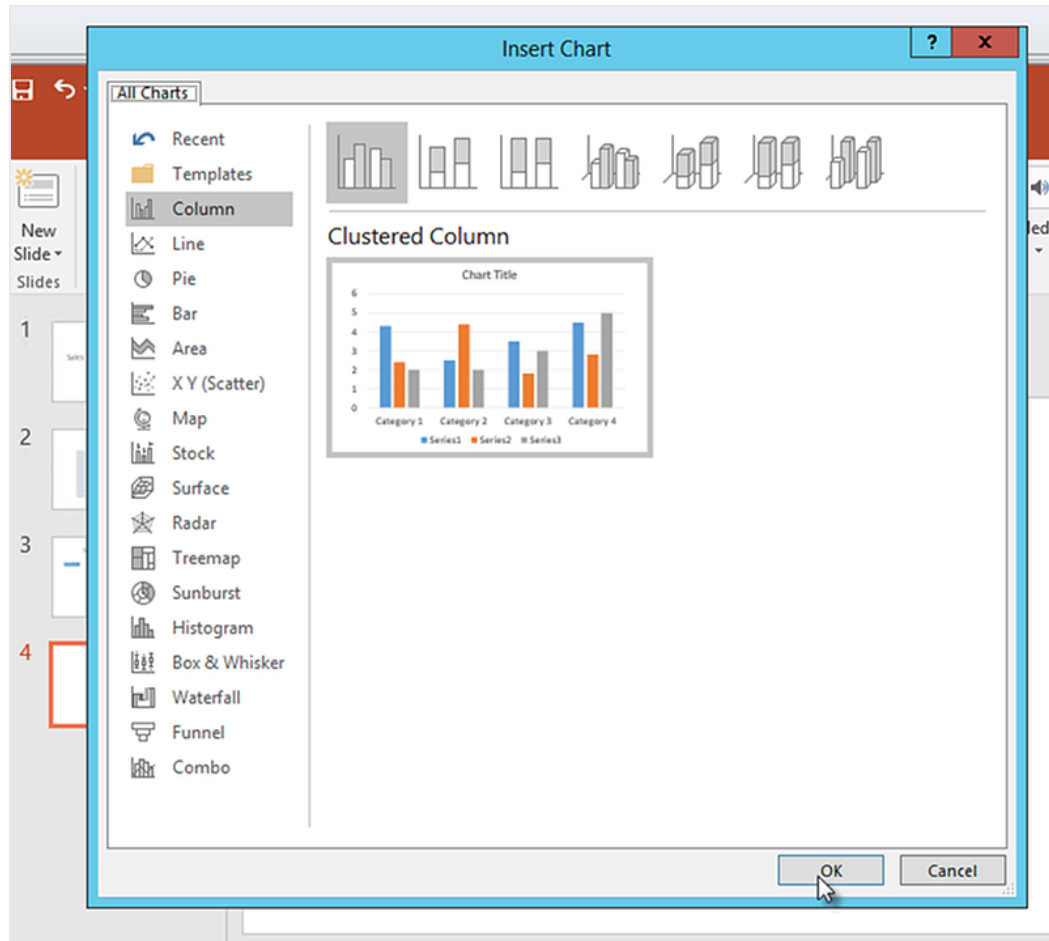
7. Add a table:

- a. On the left pane, right-click on **Tables**, and select **Add objects**.
- b. A new window will open. Select **Sales by Category: 2013 vs 2014**. Click **OK**.

- c. Drag **CH212\_1 - Sales by Category for 2014 vs 2013** onto the slide.

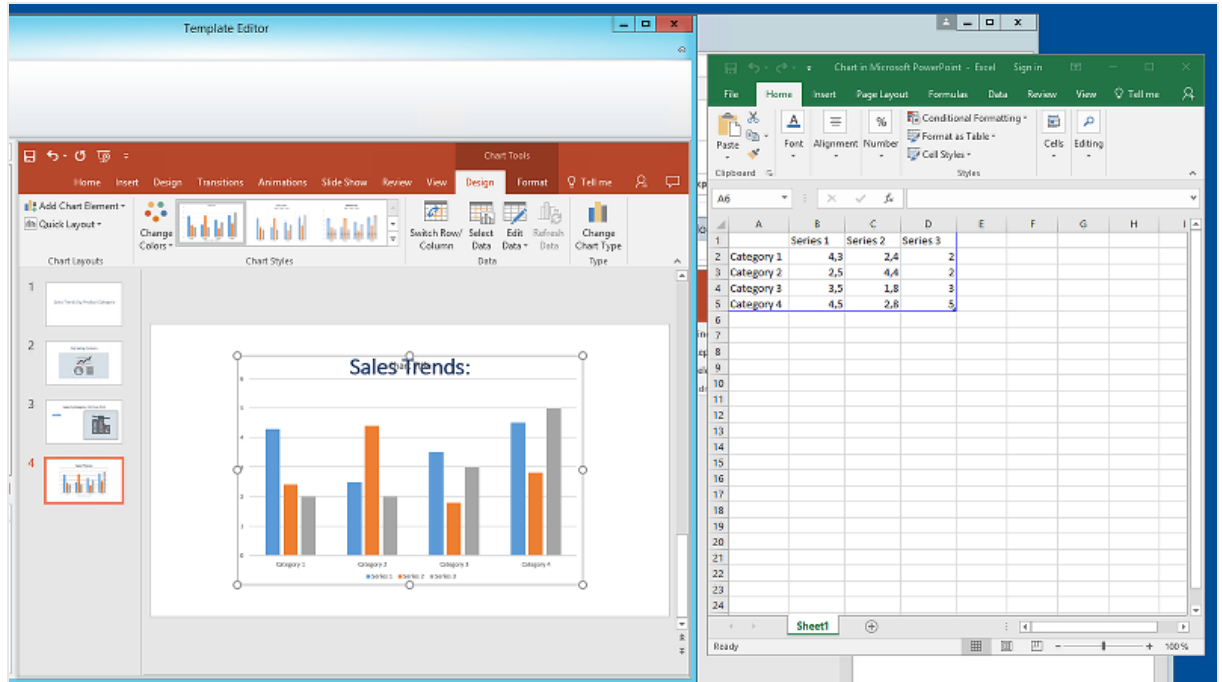


8. Add a PowerPoint native chart:
  - a. On the PowerPoint toolbar, click the **Insert** tab.
  - b. Click the **New Slide** button.
  - c. Type in a title: for example, "Sales Trends:". Delete the second empty text box.
  - d. On the left pane, right-click on **Tables**, and select **Add objects**.
  - e. A new window will open. Select **CH326 - Sales by YearMonthNum**. Click **OK**.
  - f. On the PowerPoint toolbar, select the **Insert** tab.
  - g. In the **Illustrations** section, click on **Chart**.
  - h. A new window will open. Under **Column**, select the first bar chart, and then click **OK**.

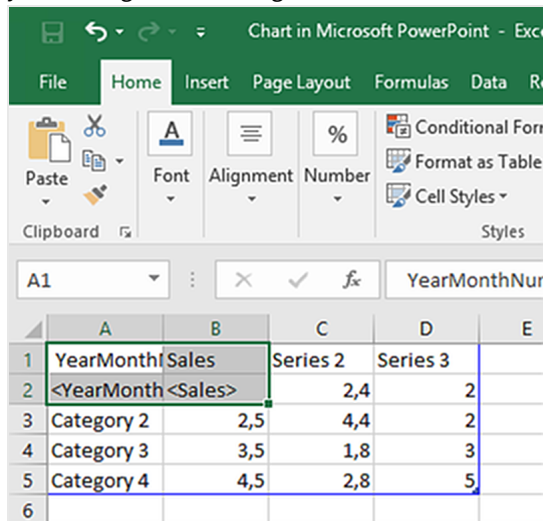


- i. An Excel worksheet will open. This is the data source for your chart.  
We will need to insert Qlik NPrinting tags onto this sheet and remove some unnecessary data.

## 2 Getting started

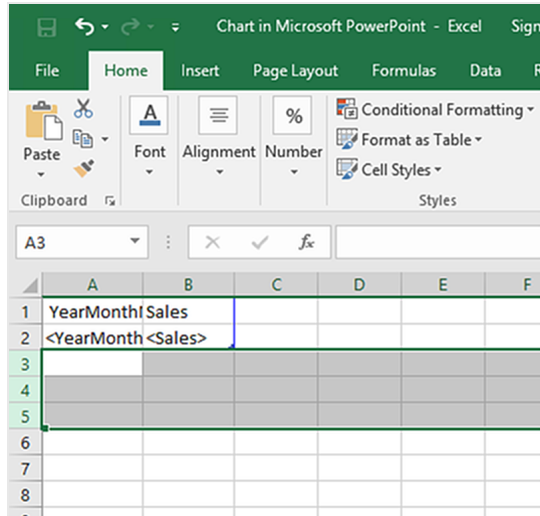


- j. On the left pane of the PowerPoint interface, expand the **CH326 - Sales by YearMonthNum** node.
- k. Select the **YearMonthNum** and **Sales** tags.  
You can select multiple options by holding down the CTRL button.
- l. Drag and drop the **Year MonthNum** tag into the Excel worksheet, into cell **A1**. This will make it the y-axis. Drag the **Sales** tags into cell **B1**. This will make it the x-axis.

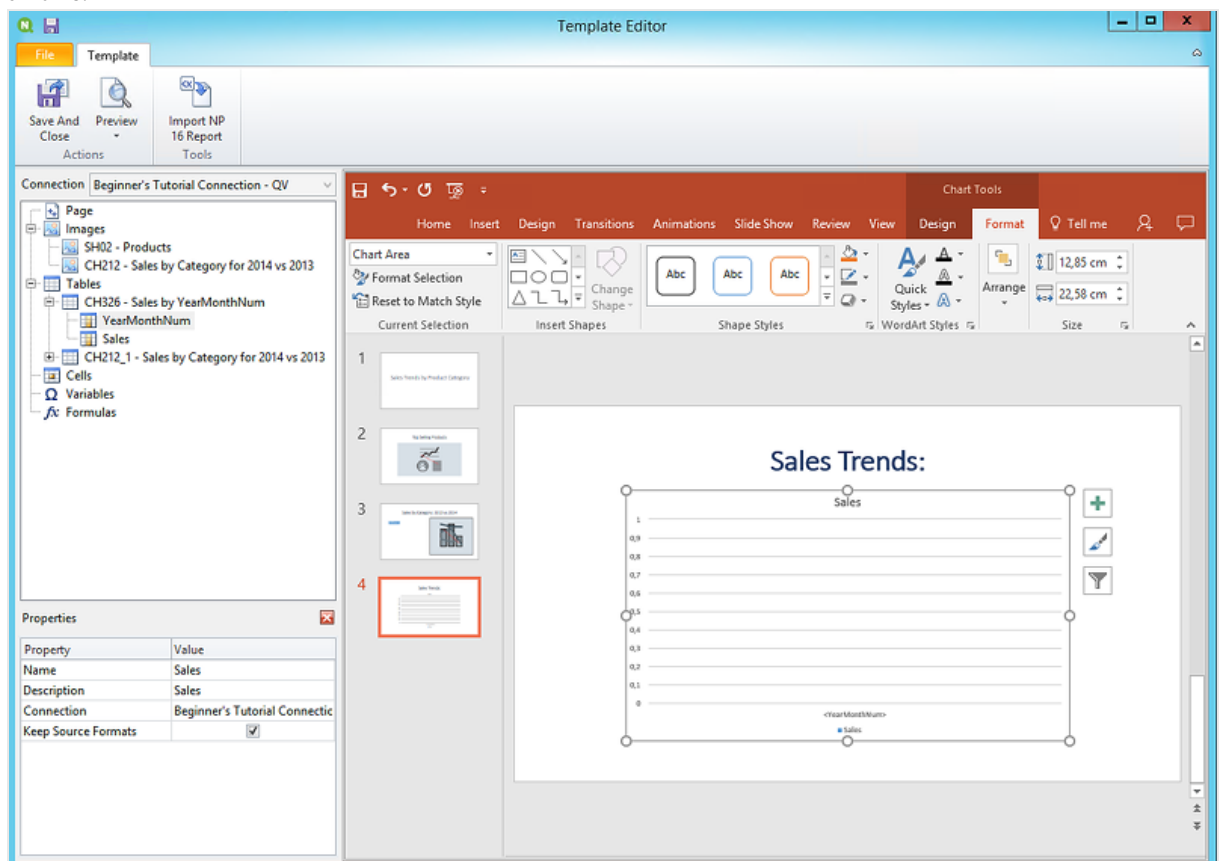


- m. Select and delete columns **C** and **D**.  
The actual numbers are unnecessary, because Qlik NPrinting will use the tags to build the chart.
- n. Select and delete rows **3**, **4**, and **5**.



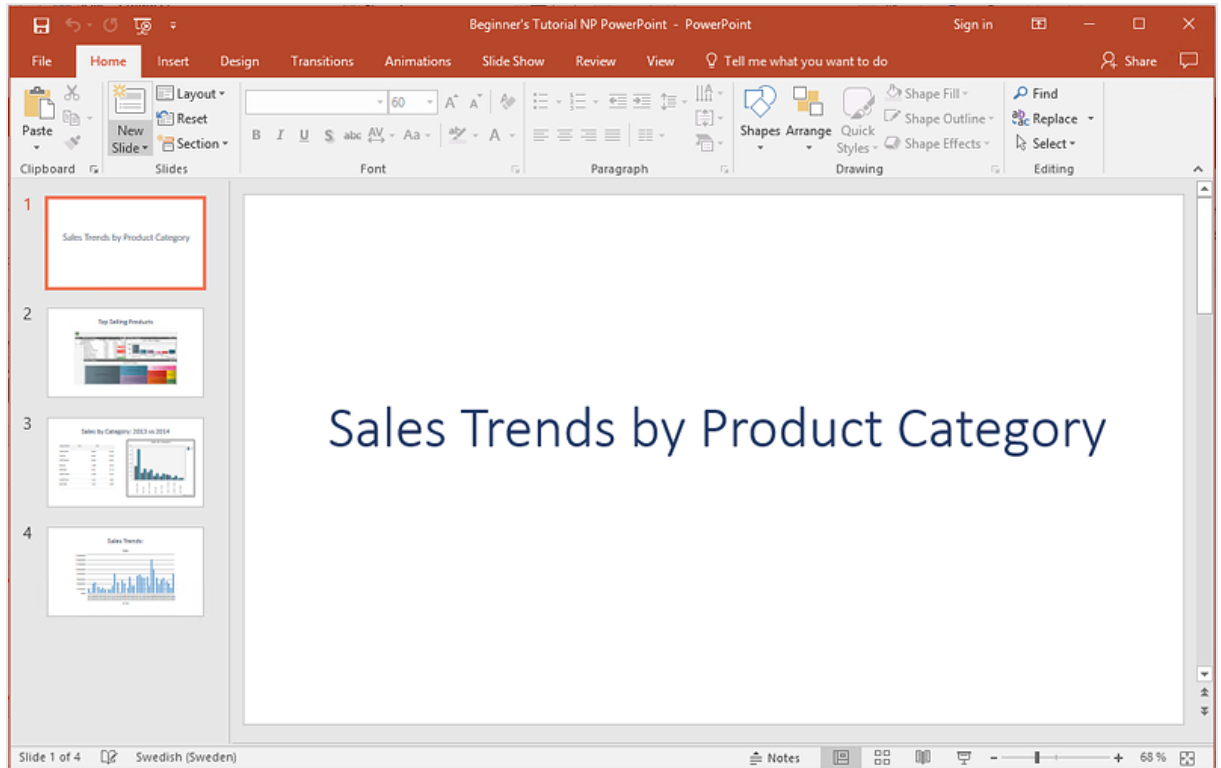


- o. Close Excel.  
Your changes will save automatically.
- p. You may need to adjust the size of your chart to make it fit on the slide. You can use the sizing arrows.



- q. On the Qlik NPrinting template editor menu, click the **File** tab. Click **Save**.
- r. Click the **Template** tab, and click the **Preview** button to preview your report.

Your slide show has four slides at the moment.



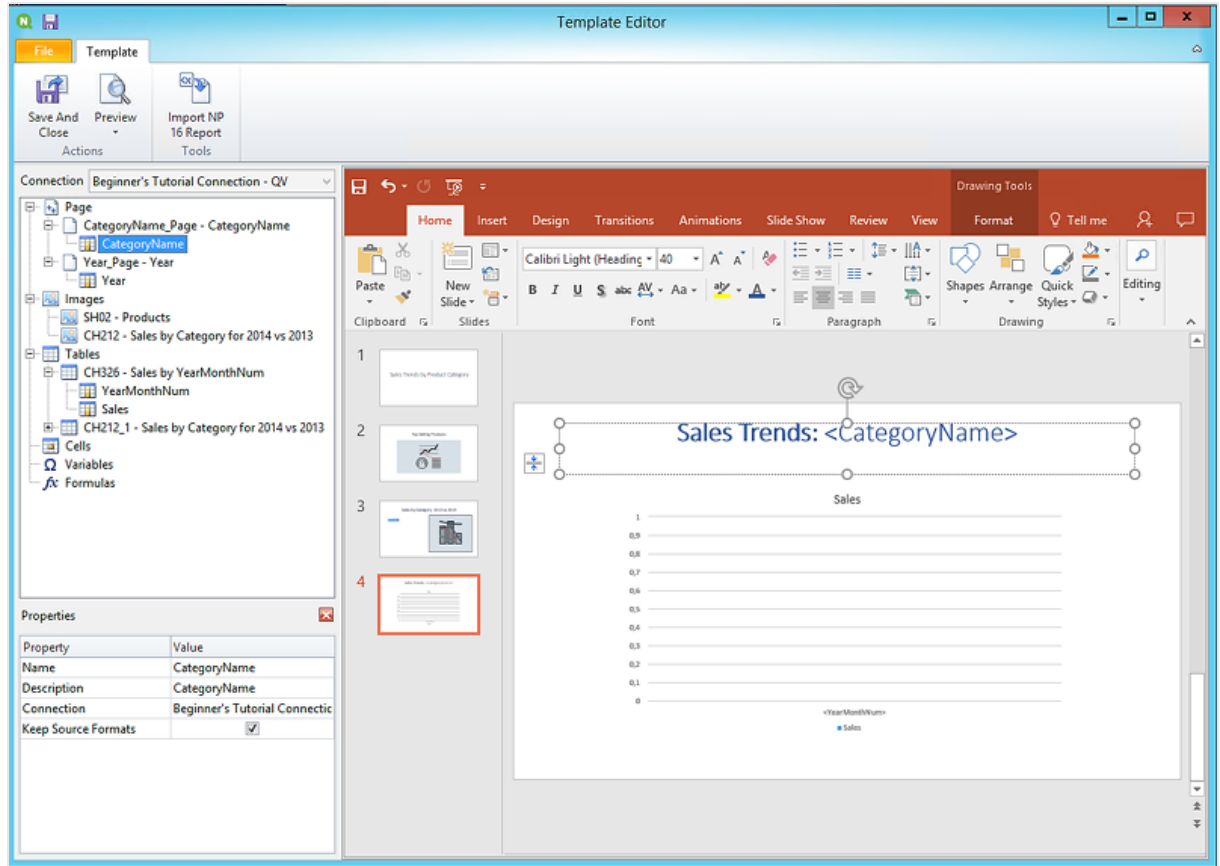
9. Add pages:

- a. Go to the slide where you want to add the page. In this case, the fourth slide. Pages are only applied to the current slide.
- b. On the left pane, right-click on **Page**, and select **Add page to current sheet**.
- c. A new window will open. Select **CategoryName**. Click **OK**.

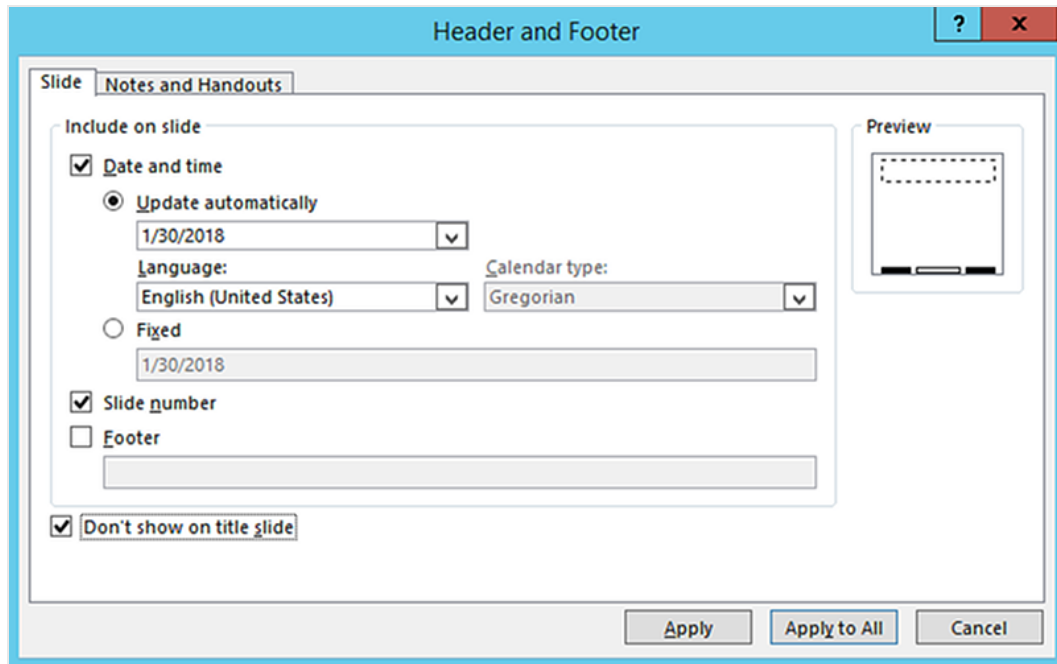


*Note: If you add a second page to a slide, the previous page will be overwritten.*

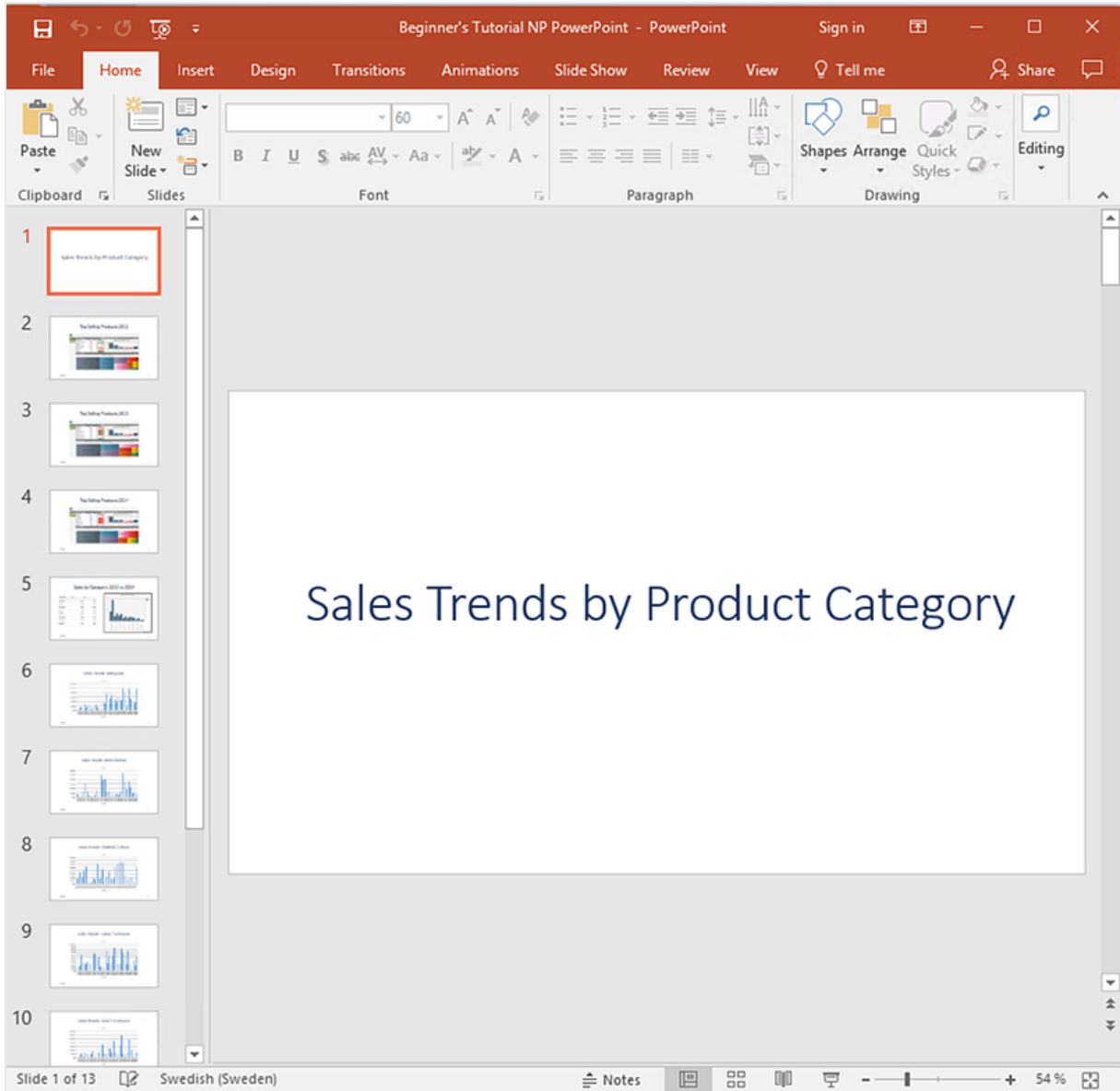
- d. Expand the **CategoryName\_Page - CategoryName** node. Drag the **CategoryName** tag onto the slide.  
This tag will divide your data by category, with each category going on a separate slide. The `<CategoryName>` text will change to match the category of each slide. Instead of one slide that says "Sales Trends:", you will have several slides with unique titles: "Sales Trends: Baby Clothes", "Sales Trends: Women's Shoes".  
The `<CategoryName>` tag will appear as a new text box. If you cut and paste this new text into the title text box, you can format it to match the title more easily.



- a. Go to the second slide, "Top Selling Products".
  - b. On the left pane, right-click on **Page**, and select **Add page to current sheet**.
  - c. A new window will open. Select **Year**. Click **OK**.
  - d. Expand the **Year\_Page - Year** node. Drag the **Year** tag onto the slide.  
It will appear as a new text box. If you cut and paste this new text into the title text box, you can format it to match the title more easily.
- a. On the PowerPoint toolbar, click the **Insert** tab.
  - b. Click the **Slide Number** button.
  - c. A new window will open. Click the **Date and time**, **Slide number**, and **Don't show on title slide** check boxes. Click **Apply to All**.



10. On the Qlik NPrinting template editor menu, click the **File** tab. Click **Save**.
11. Click the **Template** tab, and click the **Preview** button to preview your report.  
It may take several minutes for your preview to load, depending on the size of your report.  
You now have a report with 13 slides. The slides with pages applied have expanded to new pages with information divided by the page categories you applied.  
In this example, slides 2-4 show data filtered by **Year**, and slides 6-13 show data filtered by **CategoryName**.



*Edits done in preview mode will not be saved.*

12. If you would like to continue editing, close the preview window, and format your report in the template editor.
13. When you are finished editing, click **Save And Close**.

The report template is now saved and ready to be shared with users.

### Publishing to NewsStand and email

Reports need to be published in order for users to access them. We will be publishing to NewsStand and by email.

NewsStand is a web portal that allows users to preview and download reports, and subscribe to automatic updates. See: *NewsStand overview (page 476)*

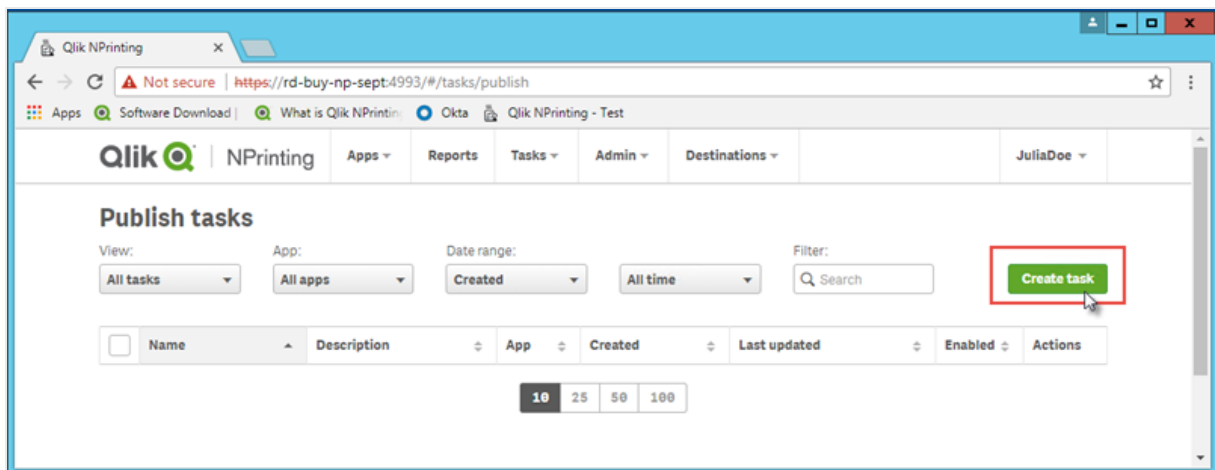
Emails contain your reports as attachments. Their contents can be customized by adding text and images. See: *Distributing reports by email (page 479)*.



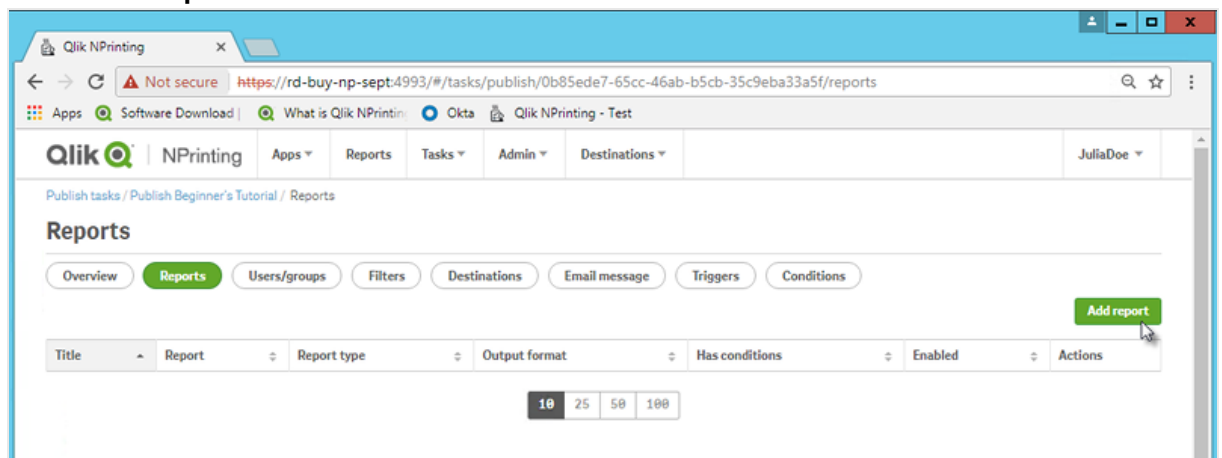
You must configure your SMTP mail server in order to send email from Qlik NPrinting. See: *Configuring SMTP server (page 268)*.

Do the following:

1. In the Qlik NPrinting web console, click **Tasks** on the main menu, and select **Publish task**.
2. Click the **Create task** button.



- a. Enter a name. For example: *Publish Beginner's Tutorial NP PowerPoint*.
  - b. Select your app from the drop-down list: *Beginner's Tutorial NP App - QV*.
  - c. Leave the default values for the other options. Click **Create**.
3. Click on the **Reports** tab.
    - a. Click the **Add report** button.



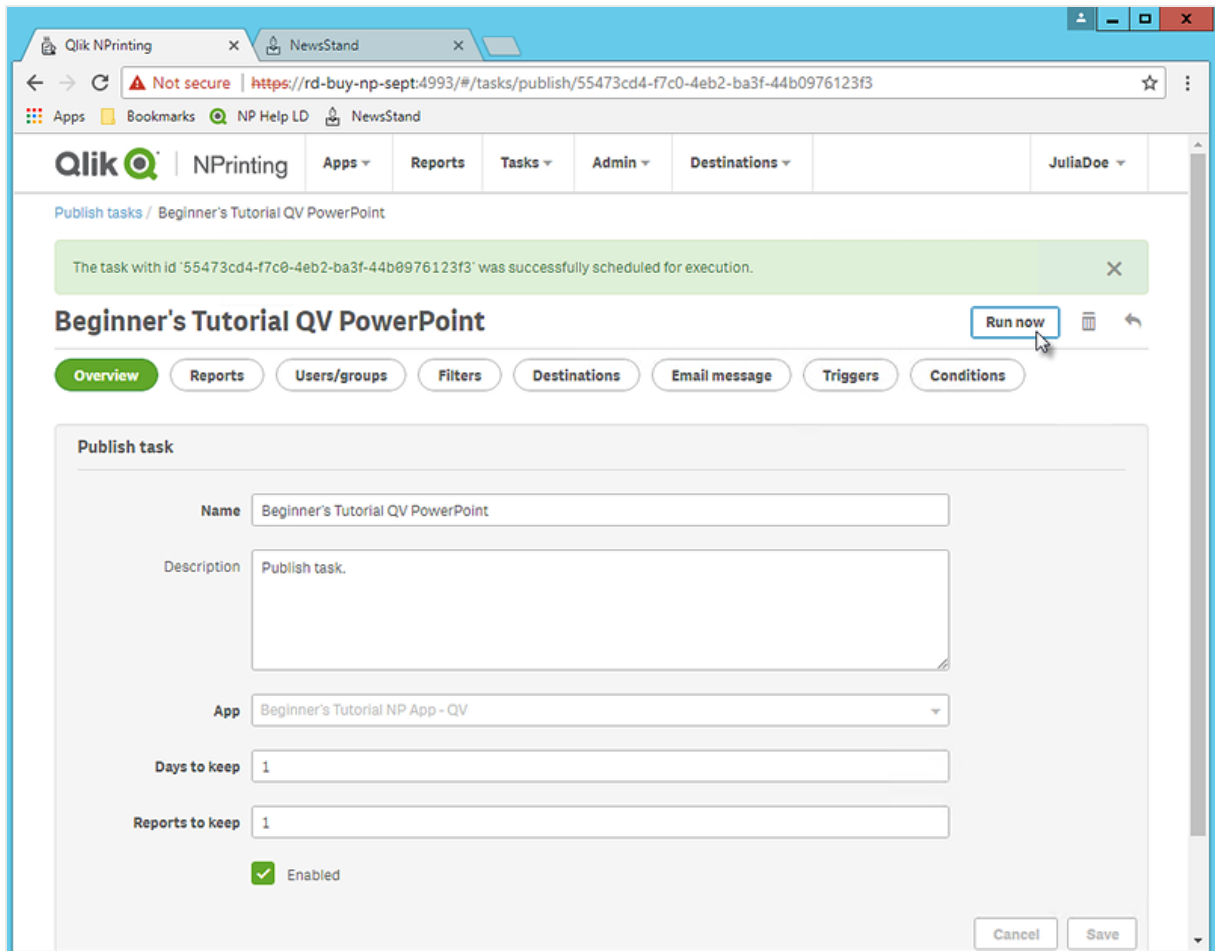
- b. Select *Beginner's Tutorial - NP PowerPoint* from the **Choose report** drop-down list.
- c. Select **PPTX** from the **Output format** drop-down list.
- d. Ensure that the **Attach to email** and **Enabled** check boxes are selected.
- e. Click **Add report**.

The screenshot shows the 'Add report' configuration page in Qlik NPrinting. The browser address bar shows the URL: <https://rd-buy-np-sept:4993/#/tasks/publish/55473cd4-f7c0-4eb2-ba3f-44b0976123f3/reports/new>. The page title is 'Publish tasks / Beginner's Tutorial QV PowerPoint / Reports / New'. The 'Reports' tab is selected in the navigation bar. The 'Add report' form contains the following fields and options:

- Choose report:** Beginner's Tutorial QV PowerPoint
- Friendly name:** Beginner's Tutorial QV PowerPoint
- Report type:** PowerPoint
- Output format:** PPTX
- Quality:** Normal
- Attach to email
- Enabled

At the bottom of the form, there is an 'Add condition' button and 'Cancel' and 'Add report' buttons.

4. Click on the **Users/groups** tab.
  - a. Click the **Add user or group** button.
  - b. Select a user or group from the **Choose recipient** drop-down list.  
If you would like to learn how to create new users, see: *Creating users (page 240)*.
  - c. Select the **Enabled**, **NewsStand destination**, and **Email destination** check boxes.
  - d. Click **Add recipient**.
5. Click on the **Destinations** tab.
  - a. In the **NewsStand** column, click the **Publish for all** check box.
  - b. In the **Email** column, click the **Publish for all** check box.
  - c. Click **Save**.
6. You will be sent back to the **Overview** tab.
7. Click the **Run now** button.  
Once the task is completed, a confirmation message will appear at the top of the page.

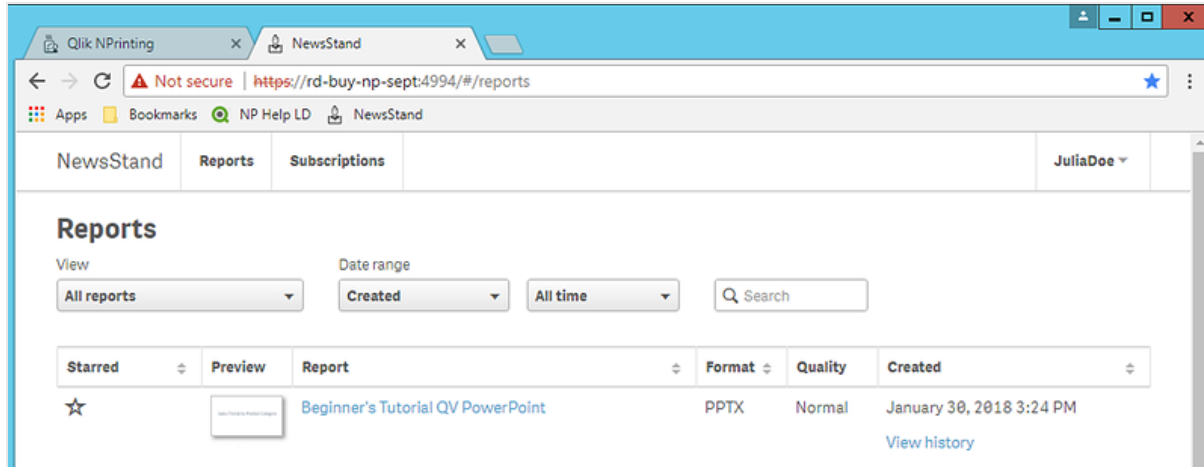


Your recipients can now go to the NewsStand in their browsers and view your report. They will also receive a copy in their email.



*In standard installations, you can switch from the Qlik NPrinting web console to your NewsStand by changing port 4993 to 4994 in your browser bar. For example, if your web console is `https://YourServerName:4993`, then your NewsStand is `https://YourServerName:4994`.*





## Publishing a simple report from a Qlik Sense app

This tutorial will show you how to create and publish a simple Qlik NPrinting Excel report using Qlik Sense data.

Qlik NPrinting has many features. This tutorial is meant to help newer users create their first report. It does not outline every report type, design element, or publishing option. At the end of this tutorial, you will have created, edited, and published an Excel report that is viewable by your selected users.

Other Qlik NPrinting tutorials:

- *Publishing a simple report from a QlikView document (page 42)*
- *Publishing a complex report from a Qlik Sense app (page 85)*



Microsoft Office must be installed to edit and create reports in Office file formats.

In this tutorial, you will be:

### Accessing a Qlik Sense app

Reports need data. Learn how to download and import a sample Qlik Sense app.

### Connecting Qlik NPrinting to a Qlik Sense app

Qlik NPrinting needs to connect to your Qlik Sense app. Learn how to configure Qlik NPrinting so it can access the sample app, or your existing Qlik Sense data.

### Creating a new Qlik NPrinting report template

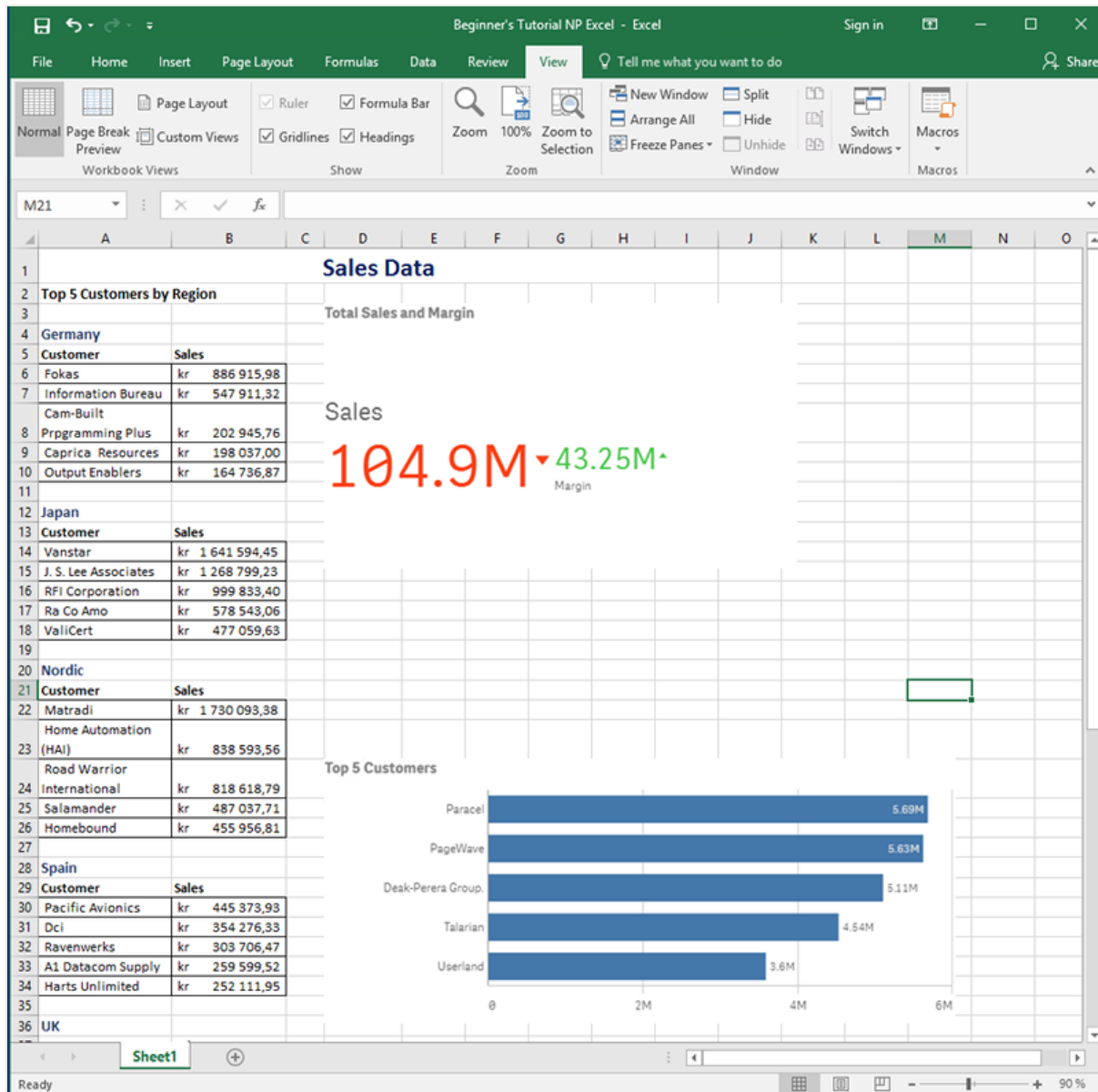
Report templates control the layout and output formats of reports. This section will show you how to make a new one.

### Editing the report template

Reports offer many different formatting options. In this section, you will add a title, image, table, and level to your report.

### Publishing to NewsStand and email

NewsStand is a web console your users can access to view reports. Learn how to publish your report to the NewsStand and by email.



### Accessing a Qlik Sense app

Qlik Sense apps contain the data and visualizations that Qlik NPrinting uses to build reports. There are a few different ways to access a Qlik Sense app.

- You can download a Qlik Sense app from the Qlik help site, and upload it to your Qlik Sense *Apps* folder.
- You can use your own Qlik Sense app. If you are using your own app to complete this tutorial, pick a simple one. Qlik NPrinting experiences longer load times with complex Qlik Sense apps.

### Connecting Qlik NPrinting to a Qlik Sense app

Now we will create a Qlik NPrinting app and connect it to your Qlik Sense app.

A Qlik Sense app and a Qlik NPrinting app are very different:

- Qlik Sense app: contains data, and uses visualizations to explore that data.
- Qlik NPrinting app: contains reports, filters, and the connection to a Qlik Sense app or QlikView document.

Qlik NPrinting apps let the Qlik NPrinting Designer access your Qlik Sense data so that information can be used in a report.

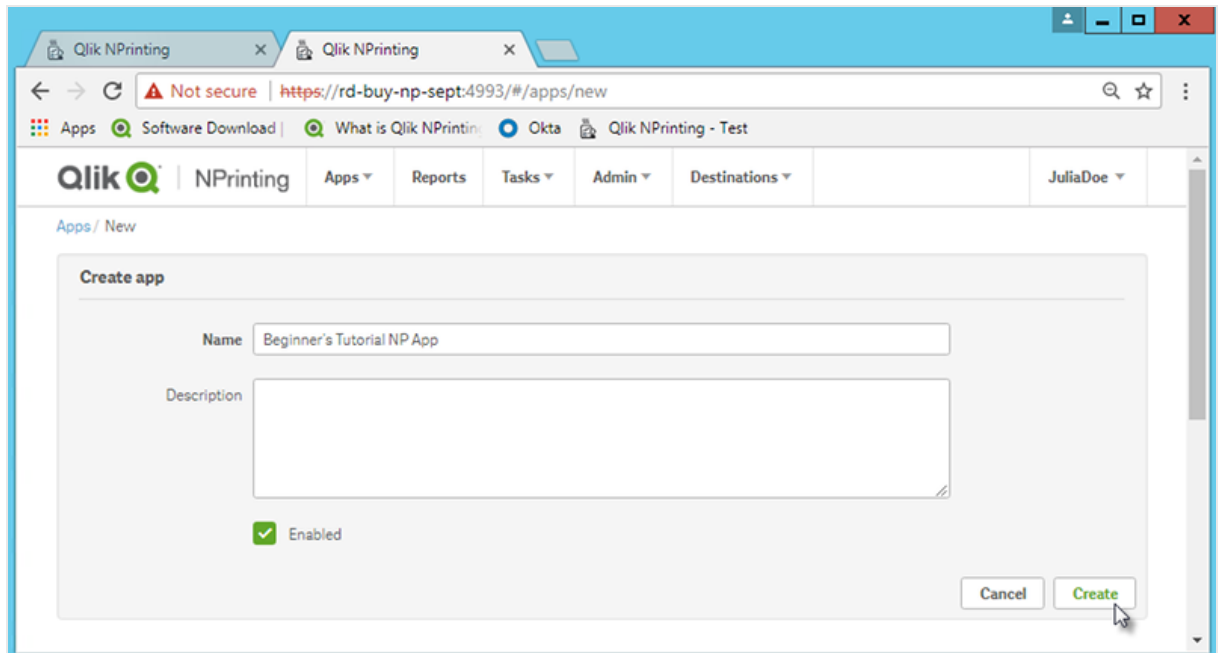


*In order to connect Qlik NPrinting to your Qlik Sense apps, Qlik Sense certificates must be installed on all Qlik NPrinting Engine computers. See: [Installing Qlik NPrinting certificates \(page 206\)](#).*

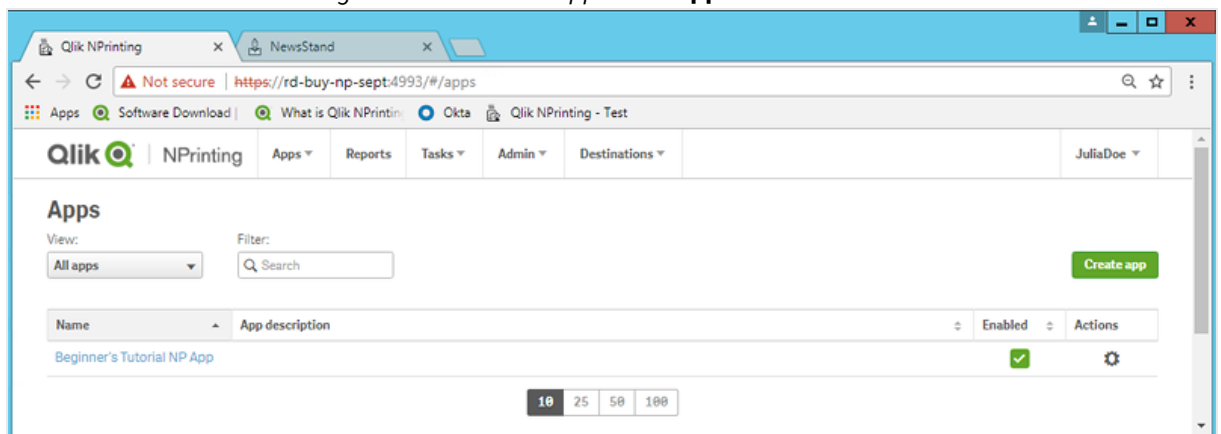
Do the following:

1. Log into the Qlik NPrinting web console.
2. On the main menu, click the **Apps** drop-down, and click **Apps**.
3. Click the **Create app** button.
  - a. Enter a name for this new app. For example: *Beginner's Tutorial NP App*.
  - b. Ensure the **Enabled** check box is selected. Otherwise, your app will be ignored by the Qlik NPrinting Engine.

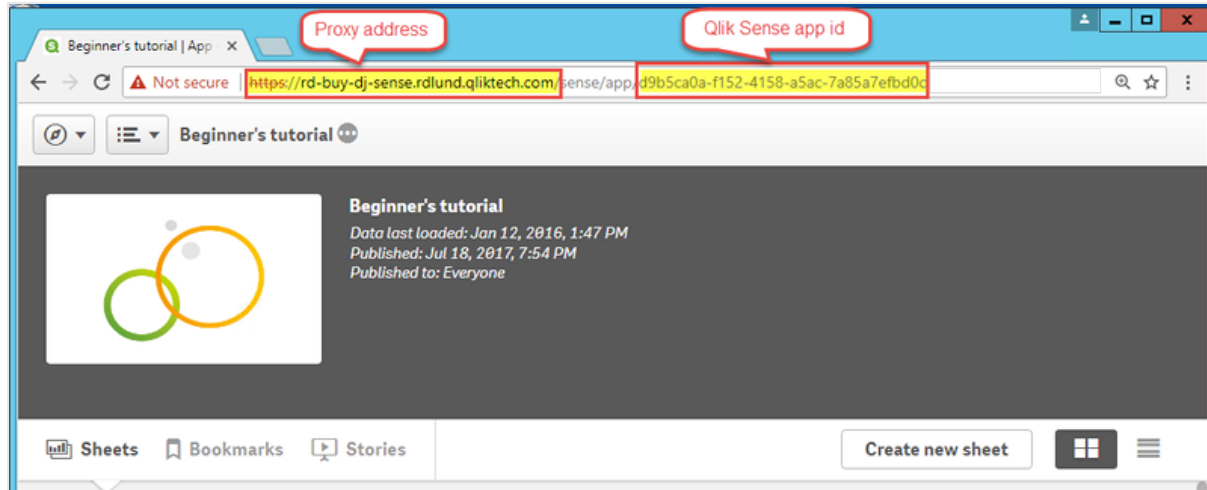
- c. Click **Create**.



You will now be able to see *Beginner's Tutorial NP App* under **Apps**.



4. From the main menu, click the **Apps** drop-down, and click **Connections**.
  - a. Click the **Create connection** button.
  - b. In the **Name** box, enter a name for the connection: *Beginner's Tutorial Connection*.
  - c. In the **App** drop-down list, select the Qlik NPrinting app that you created previously: *Beginner's Tutorial NP App*.
  - d. Select **Qlik Sense** as your **Source**.
  - e. Enter the following information:
    - **Proxy address:** the full computer name of the Qlik Sense server. You can find this in the Qlik Sense hub, in your browser's address bar. The format is: *https://sense\_proxy\_computer\_name.domain\_name*.
    - **Qlik Sense app id:** This information is available in the Qlik Sense hub, in your browser's address bar, on your app's overview page.



- **Identity:** the `<Windows domain name>\<user name>` of the Qlik Sense user who has access to the app.
- f. Click the **Run verification** button. This ensures your connection is valid. If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."

**Qlik** | NPrinting | Apps ▾ | Reports | Tasks ▾ | Admin ▾ | Destinations ▾ | JuliaDoe ▾

**Create connection**

Name: Beginner's Tutorial Connection

Description:

App: Beginner's Tutorial NP App ▾

Source:

Proxy address:

Sense app ID:

Identity:

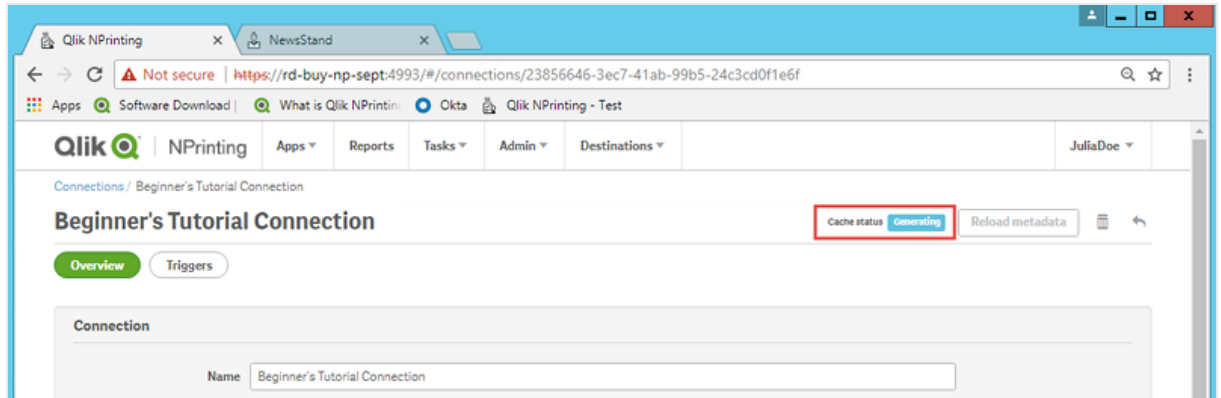
Apply user section access for reports

The cache will be generated by applying the configured identity: RD-BUY-DJ-SENSE\JuliaDoe  
 Reports will be produced by applying the configured identity: RD-BUY-DJ-SENSE\JuliaDoe

Verify connection:  ✓ Verification successful.

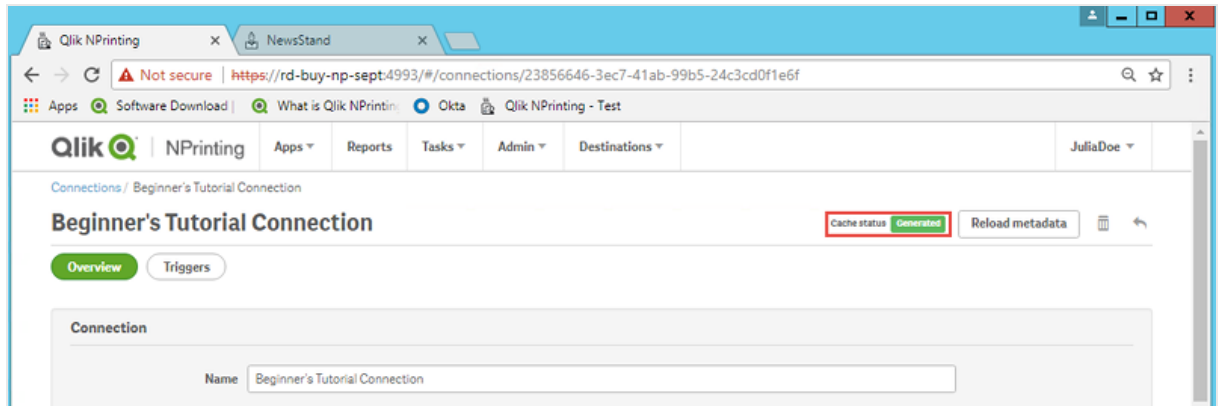
- ✓ Engine: rd-buy-np-sept
- ✓ Initializing...
- ✓ The connection parameters are formally valid.
- ✓ The QRS is reachable at the port 4242 of the "Proxy Address".
- ✓ The http/https protocol in the Proxy address is correct.
- ✓ Installed certificates are valid to connect to Qlik Sense.
- ✓ The "Identity" and the Qlik NPrinting Engine service account are a Windows domain user.
- ✓ Get the version from QRS on the "Proxy Address".
- ✓ Get ProxyId from QRS on the "Proxy Address".
- ✓ Get a list of all apps from QRS on the "Proxy Address".
- ✓ Get App information from QRS on the "Proxy Address" for the "Sense App ID".
- ✓ The "Proxy Address", "Sense App ID" and "Identity" can be used for a connection to a Qlik Sense Engine.
- ✓ All Qlik Sense engines are reachable from the Qlik NPrinting Engine computers.
- ✓ Lookup the Qlik Sense Proxy port from QRS on the "Proxy Address".
- ✓ The Qlik Sense Proxy port is reachable on the "Proxy Address".
- ✓ Perform a GetTicket request to the Qlik Sense Proxy on the "Proxy Address".
- ✓ Completed

- g. Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
- h. Click on your new connection. You will see the status: **Cache status - Generating**. This means that Qlik NPrinting is connecting to Qlik Sense and importing metadata. If you have a large Qlik Sense app, this may take several minutes.

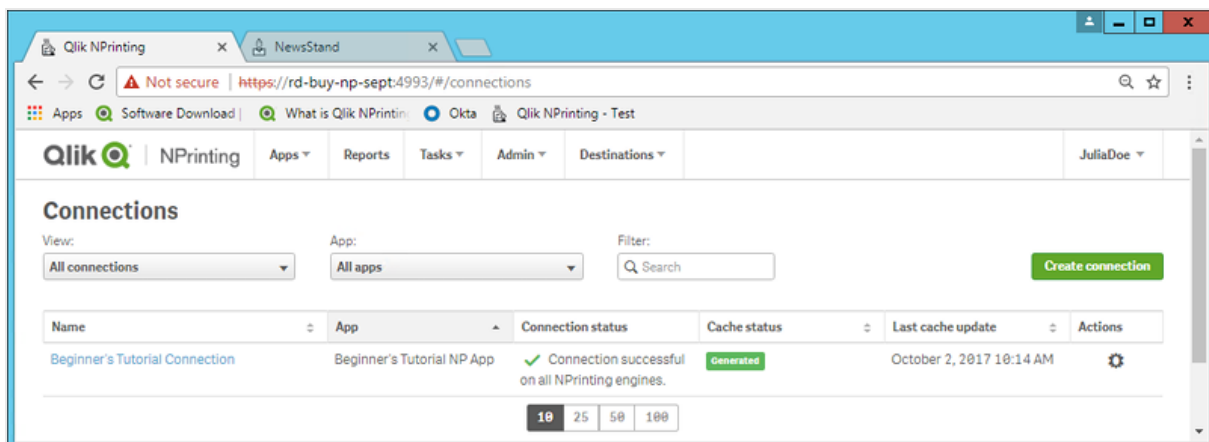


*Every time you add new objects to your Qlik Sense app, you must reload your connection metadata.*

- i. Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.



You will now be able to see your new connection on the **Connections** screen.



If you have trouble connecting to your Qlik Sense app, see:

- *Creating connections (page 21)*
- *Troubleshooting (page 522)*

### Creating a new Qlik NPrinting report template

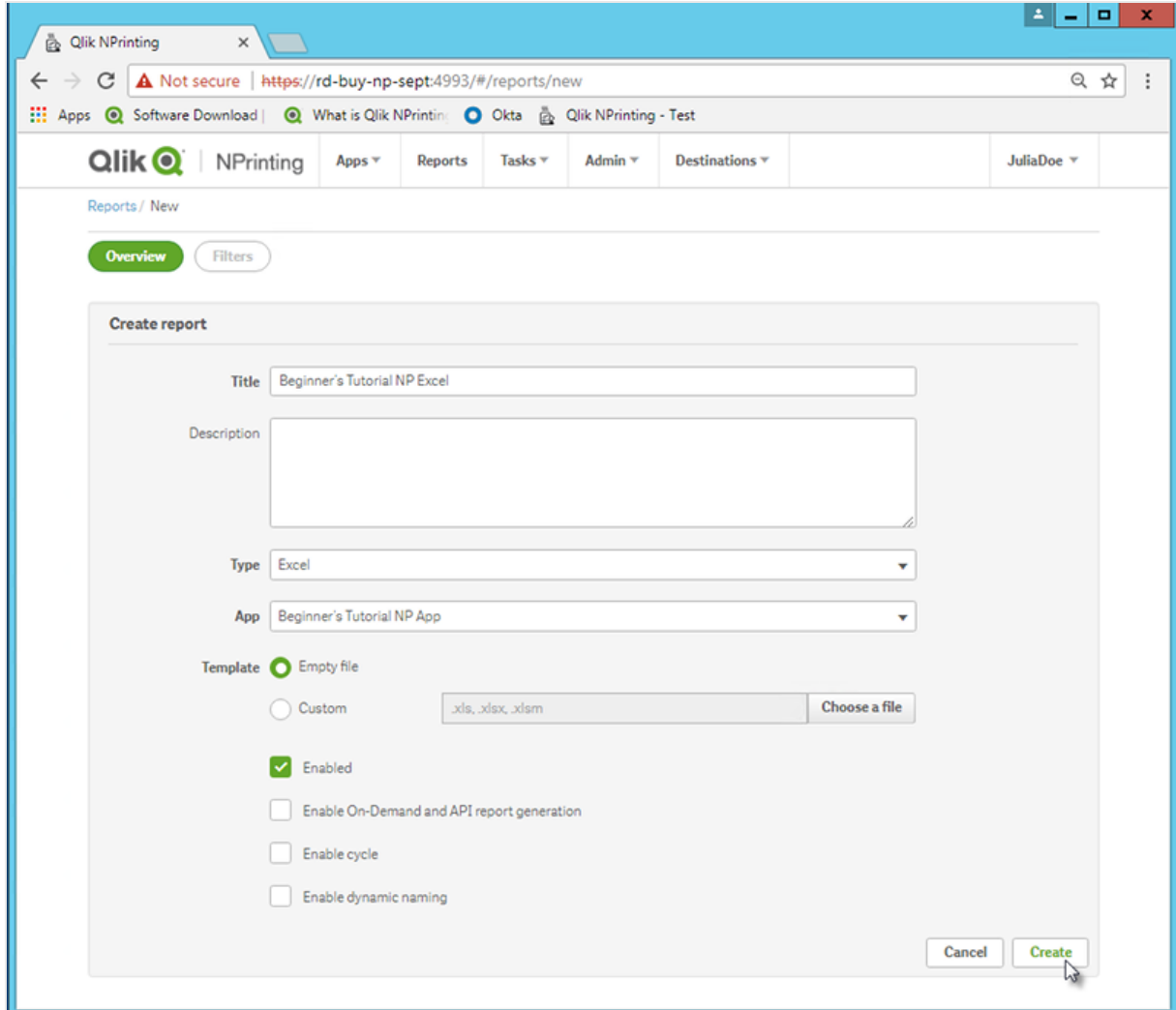
Report templates control the layout and output formats of reports. You can arrange objects and format pages using the standard options of the report type you choose. For example, an Excel report will have the same formatting options and interface as an Excel worksheet.

Do the following:

1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. Click the **Create report** button.
3. Enter a title in the **Title** field. For example: *Beginner's Tutorial NP Excel*.
- 4. From the Type drop-down list, select Excel.**
5. From the **App** drop-down list, select *Beginner's Tutorial NP App*.
6. From the **Template** options, click **Empty file**.
7. Ensure the **Enabled** check box is selected. Otherwise, your report will be ignored by the Qlik NPrinting Engine.



8. Click **Create**.

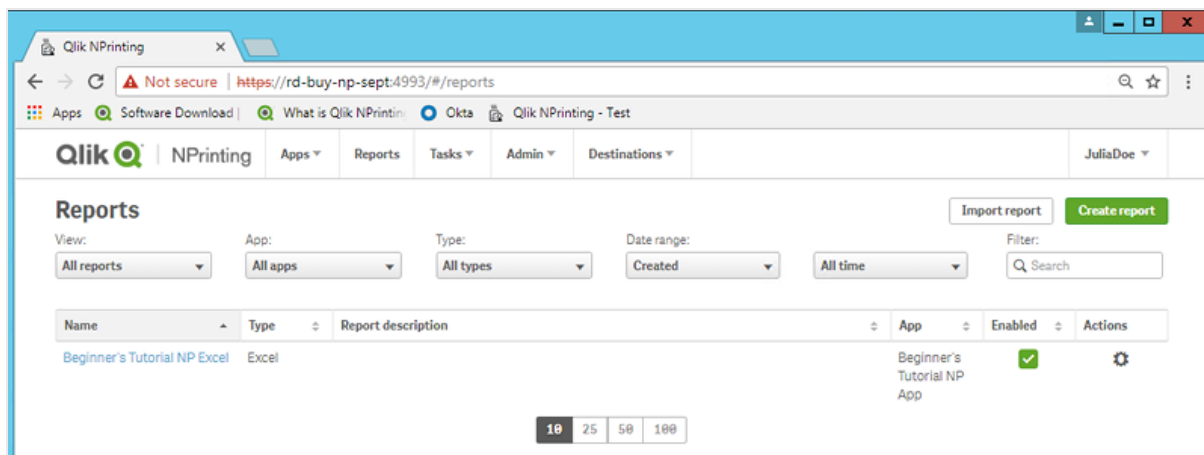


The screenshot shows the 'Create report' form in the Qlik NPrinting interface. The form is titled 'Create report' and contains the following fields and options:

- Title:** Beginner's Tutorial NP Excel
- Description:** (Empty text area)
- Type:** Excel
- App:** Beginner's Tutorial NP App
- Template:**  Empty file,  Custom (with a file selection button labeled 'Choose a file')
- Enabled:**  Enabled
- Enable On-Demand and API report generation:**
- Enable cycle:**
- Enable dynamic naming:**

At the bottom right of the form, there are two buttons: 'Cancel' and 'Create'. A mouse cursor is pointing at the 'Create' button.

You will now be able to see *Beginner's Tutorial NP Excel* under **Reports**.



The screenshot shows the 'Reports' page in the Qlik NPrinting interface. The page displays a list of reports with the following columns: Name, Type, Report description, App, Enabled, and Actions. The report 'Beginner's Tutorial NP Excel' is listed with the following details:

Name	Type	Report description	App	Enabled	Actions
Beginner's Tutorial NP Excel	Excel		Beginner's Tutorial NP App	<input checked="" type="checkbox"/>	

At the bottom of the table, there are pagination controls showing '10' selected, with options for 25, 50, and 100 items per page.

### Editing the report template

There are many ways to edit a report template. We will be adding:

- Titles: simple text used to organize your report. They can be altered using standard Excel formatting.
- Levels: sub-divide your data by a dimension. They can be applied to tables and images. We will be dividing **Top 5 Customers** by **Region**.
- Tables: take your Qlik Sense data and present it in tabular form.
- Images: take your Qlik Sense data and present it as a .png.

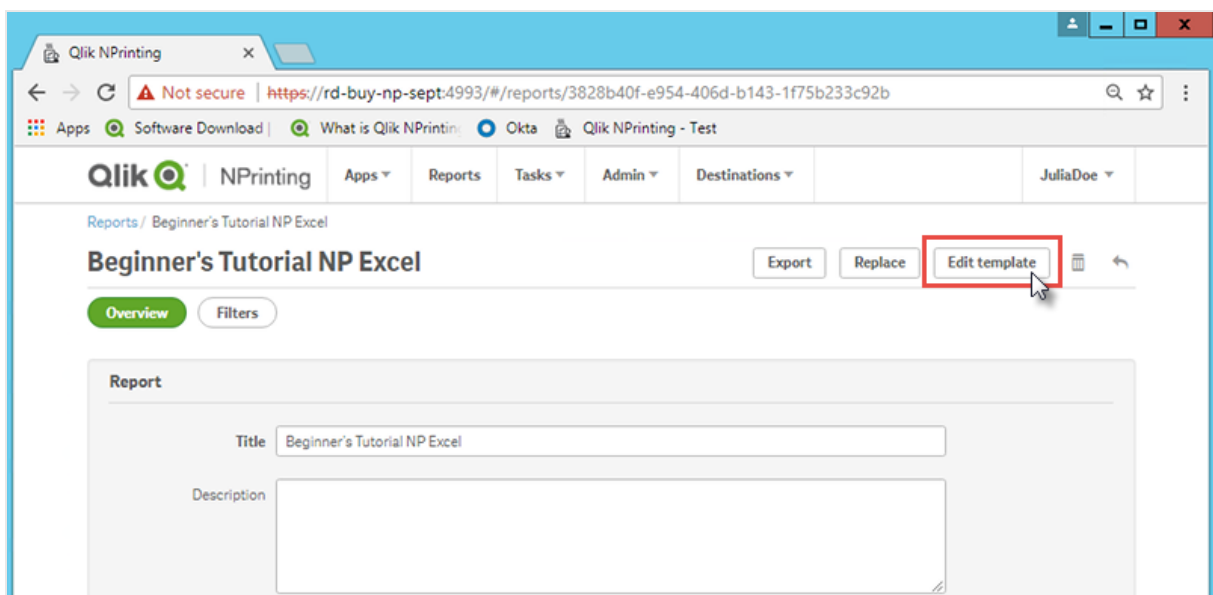
This section does not cover everything you can do in the Qlik NPrinting Designer. If you would like to read about advanced Excel report features, see: **Excel reports**.



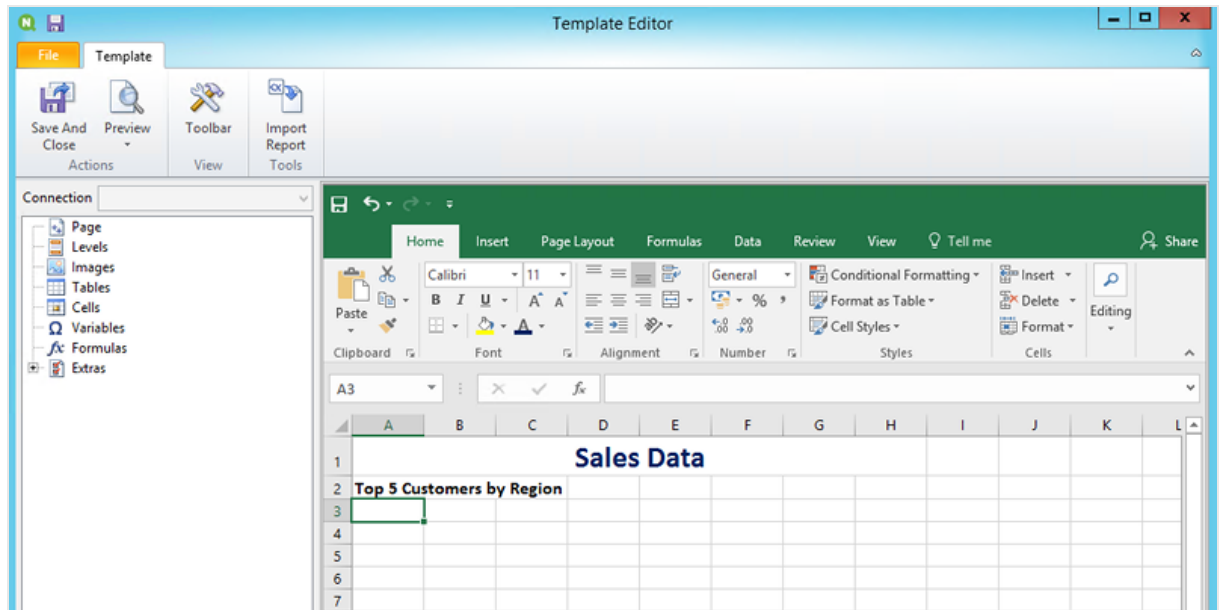
*Your report preview may look different than the image shown below, depending on how you formatted it. Some of the objects may have slightly different names, depending on the order they were selected.*

Do the following:

1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. On the **Reports** screen, click on your report.
3. Click the **Edit template** button to open the Qlik NPrinting Designer template editor.

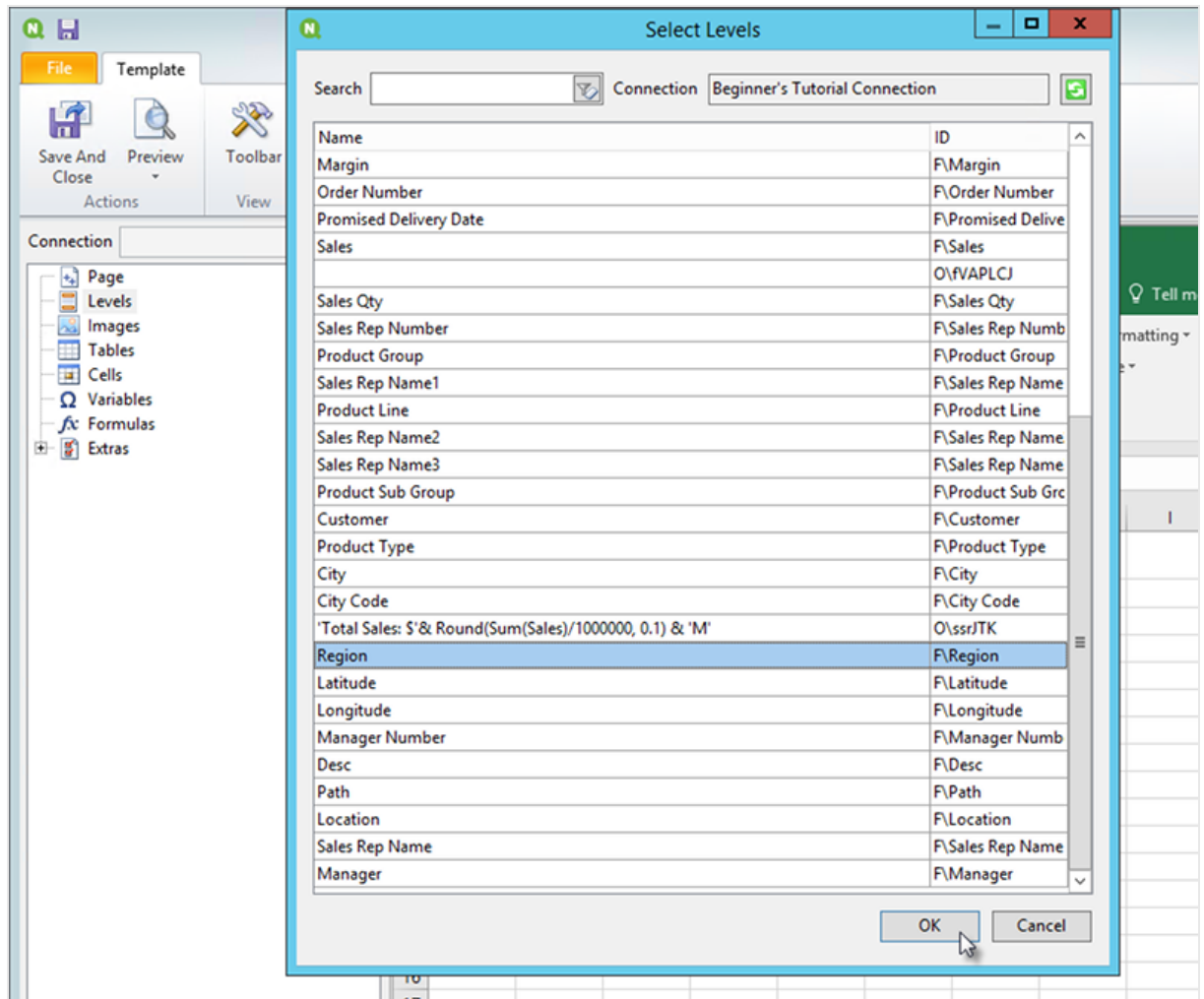


4. Enter a title:
  - a. In cell A1, type in a title: For example, "Sales Data".
  - b. In cell A2, type in a subtitle: "Top 5 Customers by Region".

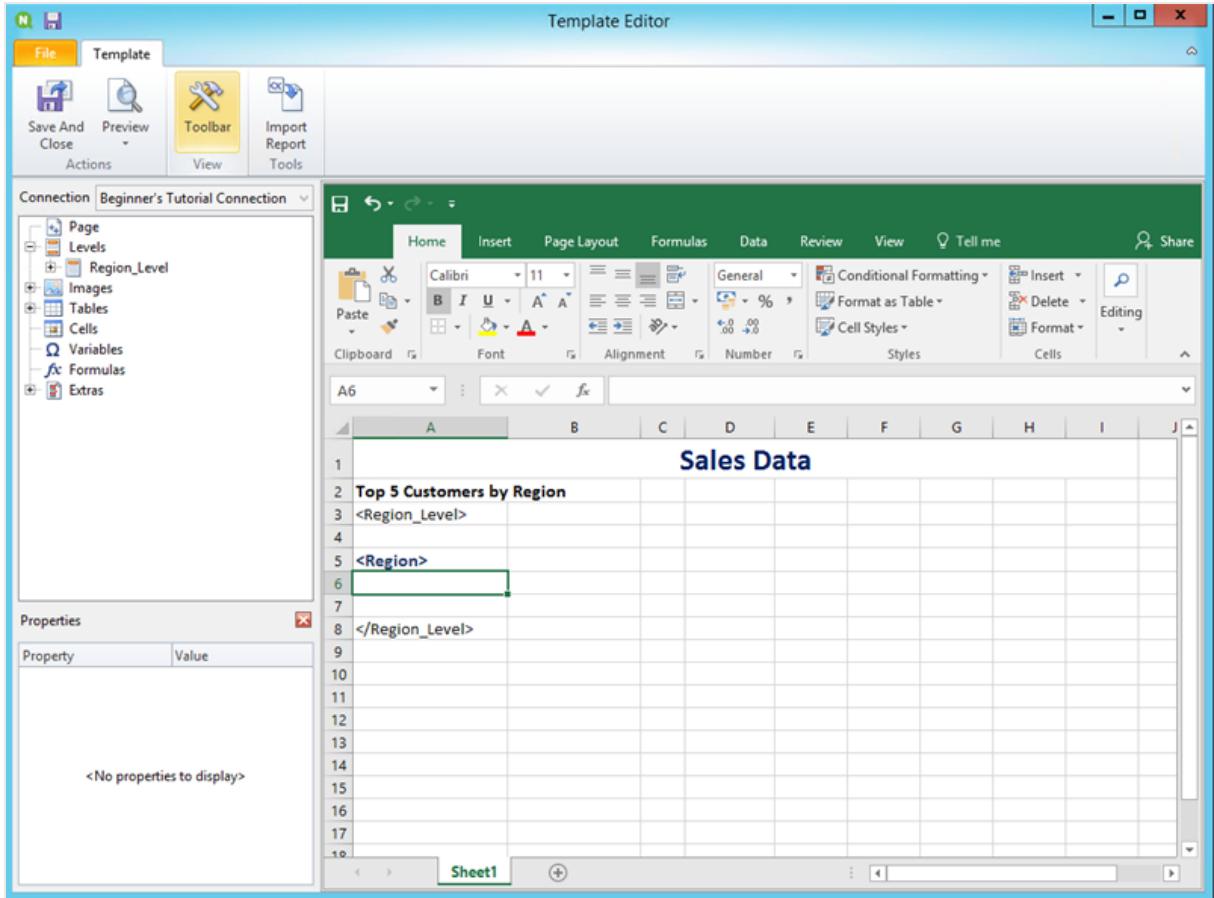


*You can use Excel formatting options to change the look of these titles. For example, you can change the font size and color. You can also merge several cells together so that the title is centered with the rest of the report.*

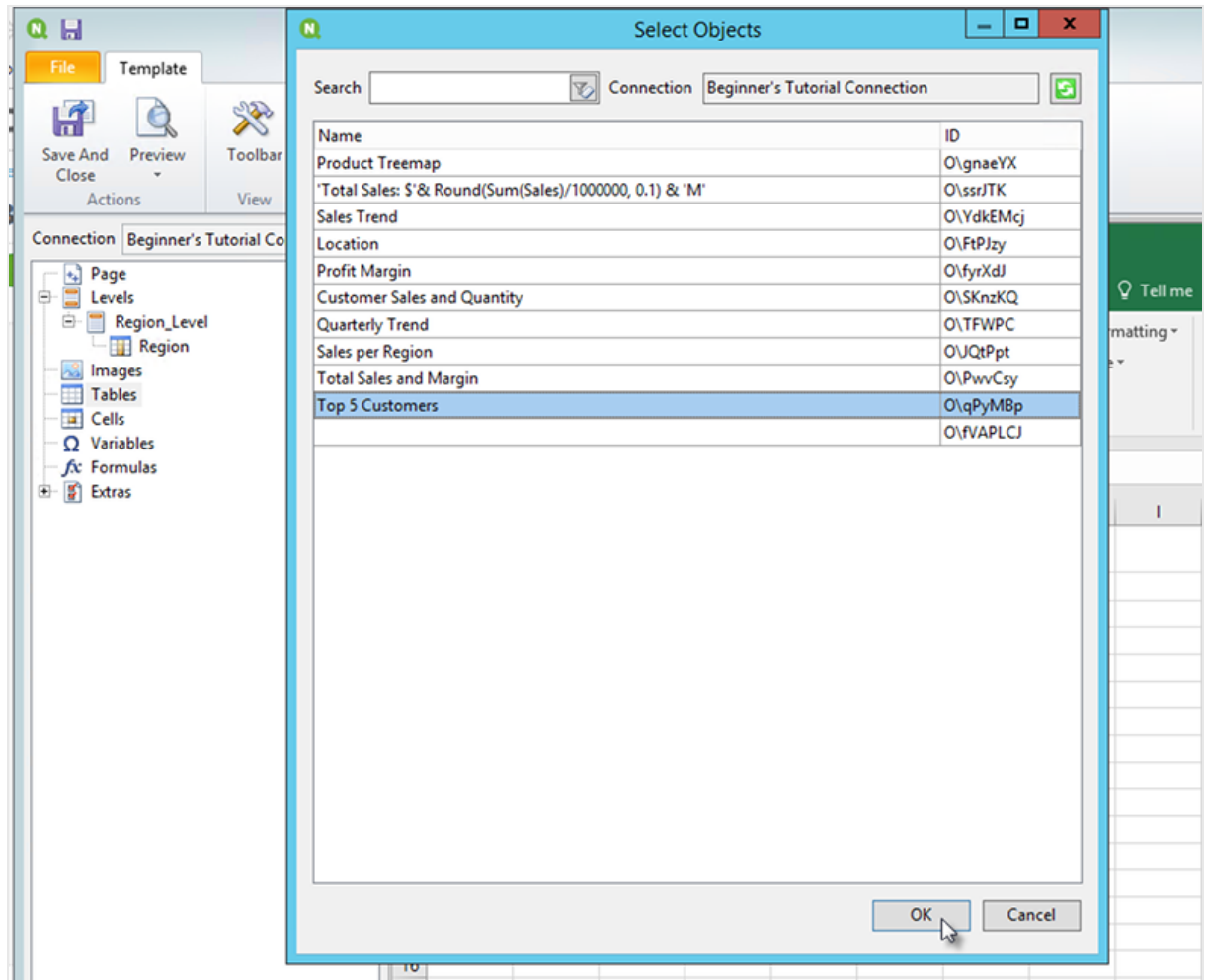
5. Add a level:
  - a. On the left pane, right-click on **Levels**, and select **Add levels**.
  - b. A new window will open. Select **Region**. Click **OK**.



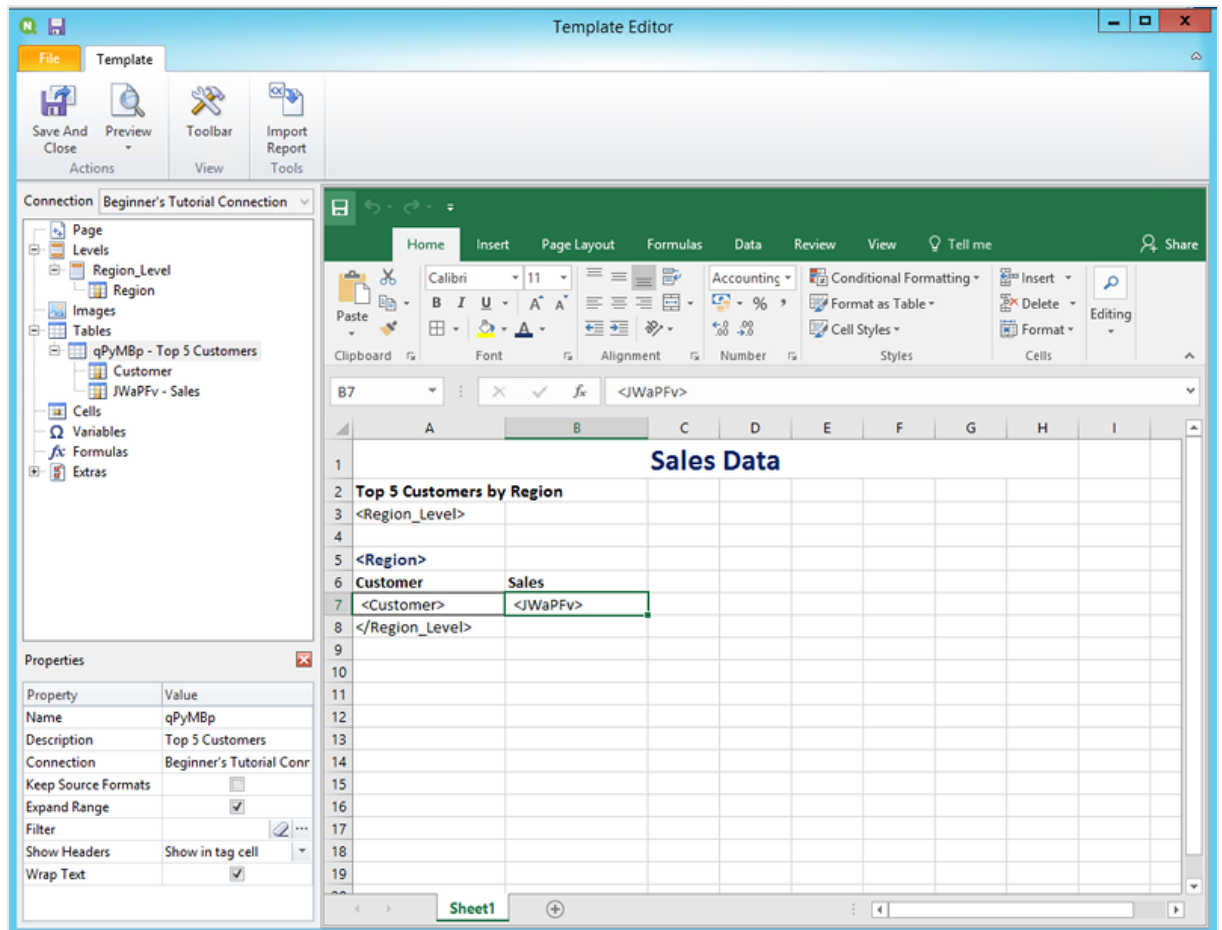
- c. Drag **Region\_Level** to cell A3.
- d. Insert three rows beneath A3 to ensure you have four empty cells between the **<Region\_Level>** and **</Region\_Level>** tags.
- e. Expand **Region\_Level** in the left pane.
- f. Drag and drop **Region** onto cell A5.  
This ensures that each level has a heading.



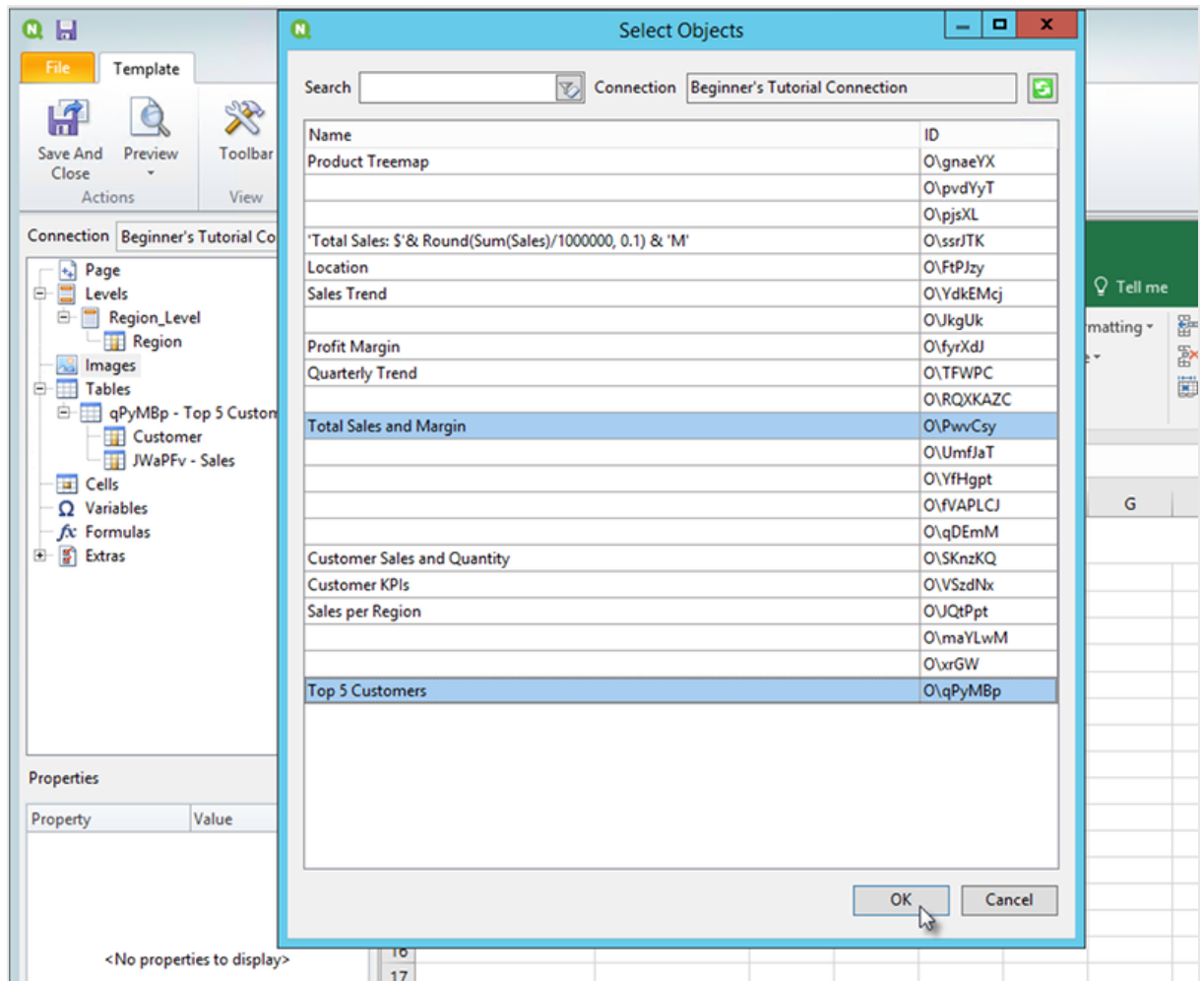
6. Add a table:
  - a. On the left pane, right-click on **Tables**, and select **Add objects**.
  - b. A new window will open. Select **Top 5 Customers**. Click **OK**.



- c. Right-click on the new node labeled **qPyMBp - Top 5 Customers**. Click **Properties**.
- d. On the **Properties** pane, ensure that **Keep Source Formats** is not selected.
- e. Expand **qPyMBp - Top 5 Customers**. Drag **Customer** to cell A6, and drag **JWaPFv\_1 - Sales** to B6. These two table objects should be inside the two levels tags. You can format them the same as a table by adding a border or background color.
- f. Click on cell B6. On the **Home** tab, go to **Number**, and select the **Accounting Number Format** icon. This ensures that the data from **JWaPFv\_1 - Sales** displays as currency.

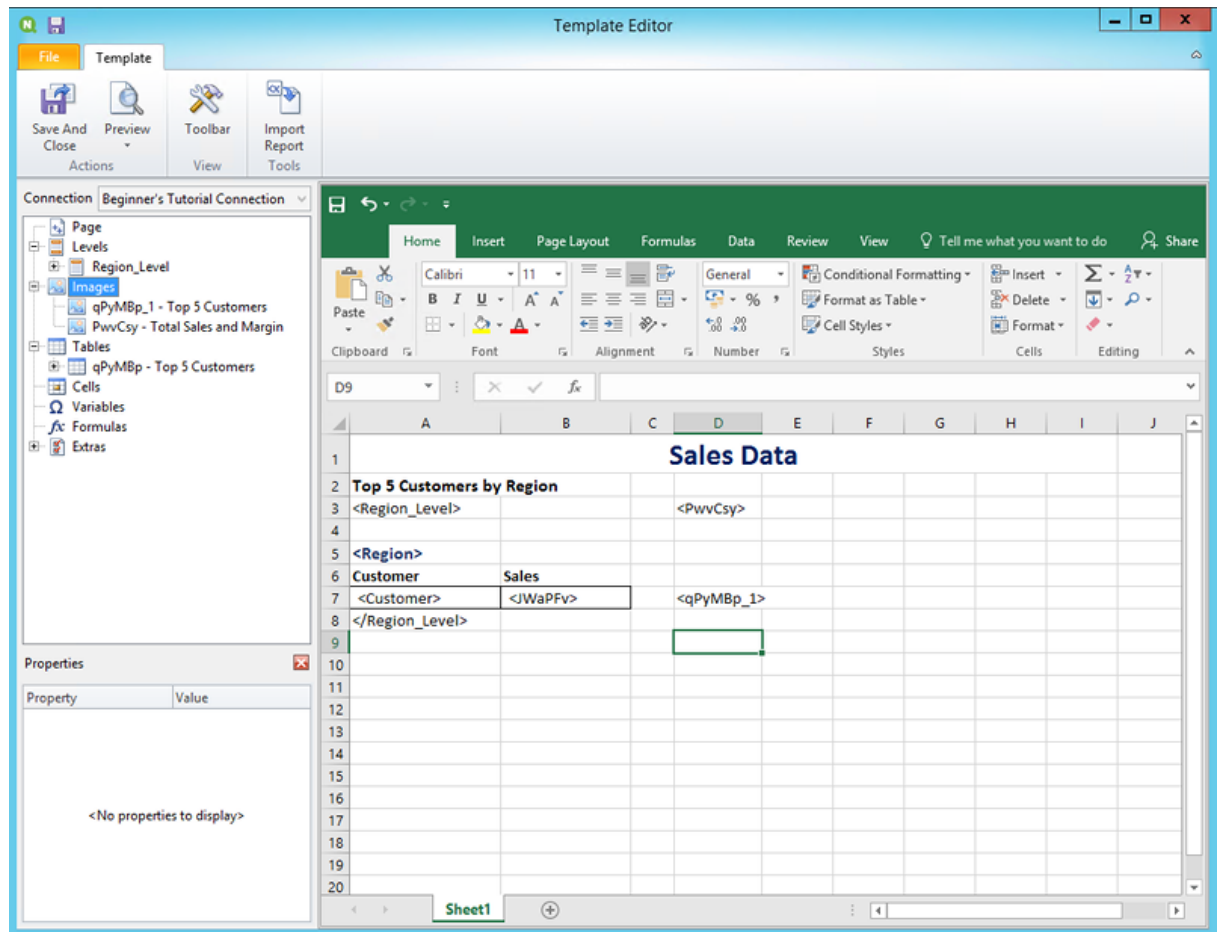


7. Add images:
  - a. On the left pane, right-click on **Images**, and select **Add objects**.
  - b. A new window will open. Select **Top 5 Customers** and **Total Sales and Margin**, and click **OK**. You can select multiple options by holding down the CTRL button.

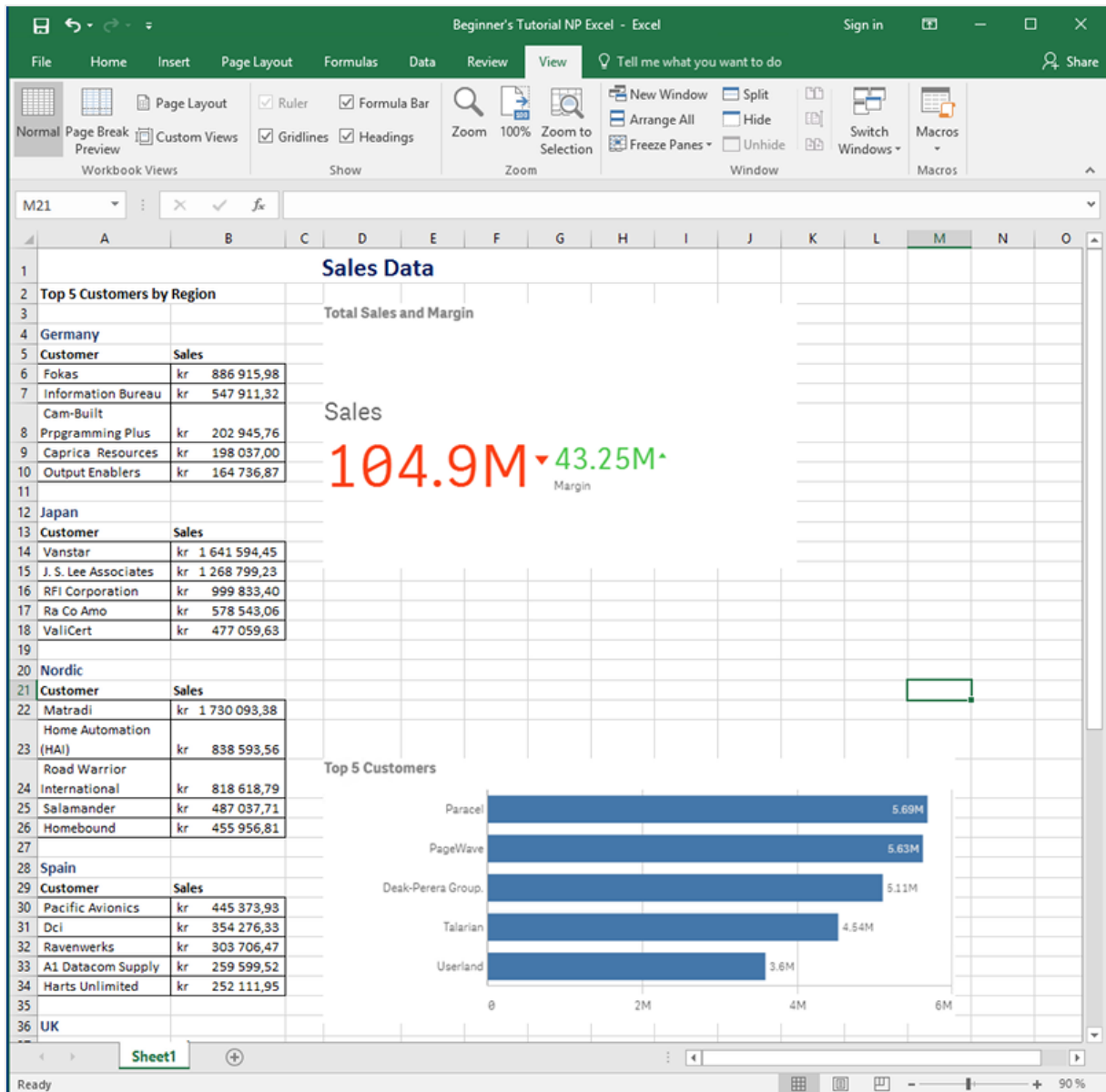


- c. Click on the new node labeled **PwvCsy - Total Sales and Margin** and drag it to cell D3. Click on **qPyMBp\_1 - Top 5 Customers** and drag it to cell D7. Because these are images, trying to format them using Excel formatting options will have no effect.





8. On the Excel toolbar, click the **Page Layout** tab.
9. Click the **Orientation** drop-down, and select **Landscape**.  
Report types with many tables that span length-wise will display more clearly in landscape.
10. On the Qlik NPrinting template editor menu, click the **File** tab. Click **Save**.
11. Click the **Template** tab, and click the **Preview** button to preview your report.  
It may take several minutes for your preview to load, depending on the size of your report.



*Edits done in preview mode will not be saved.*

12. If you would like to continue editing, close the preview window, and format your report in the template editor.
13. When you are finished editing, click **Save And Close**.

The report template is now saved and ready to be shared with users.

### Publishing to NewsStand and email

Reports need to be published in order for users to access them. We will be publishing to NewsStand and by email.

NewsStand is a web portal that allows users to preview and download reports, and subscribe to automatic updates. See: *NewsStand overview (page 476)*

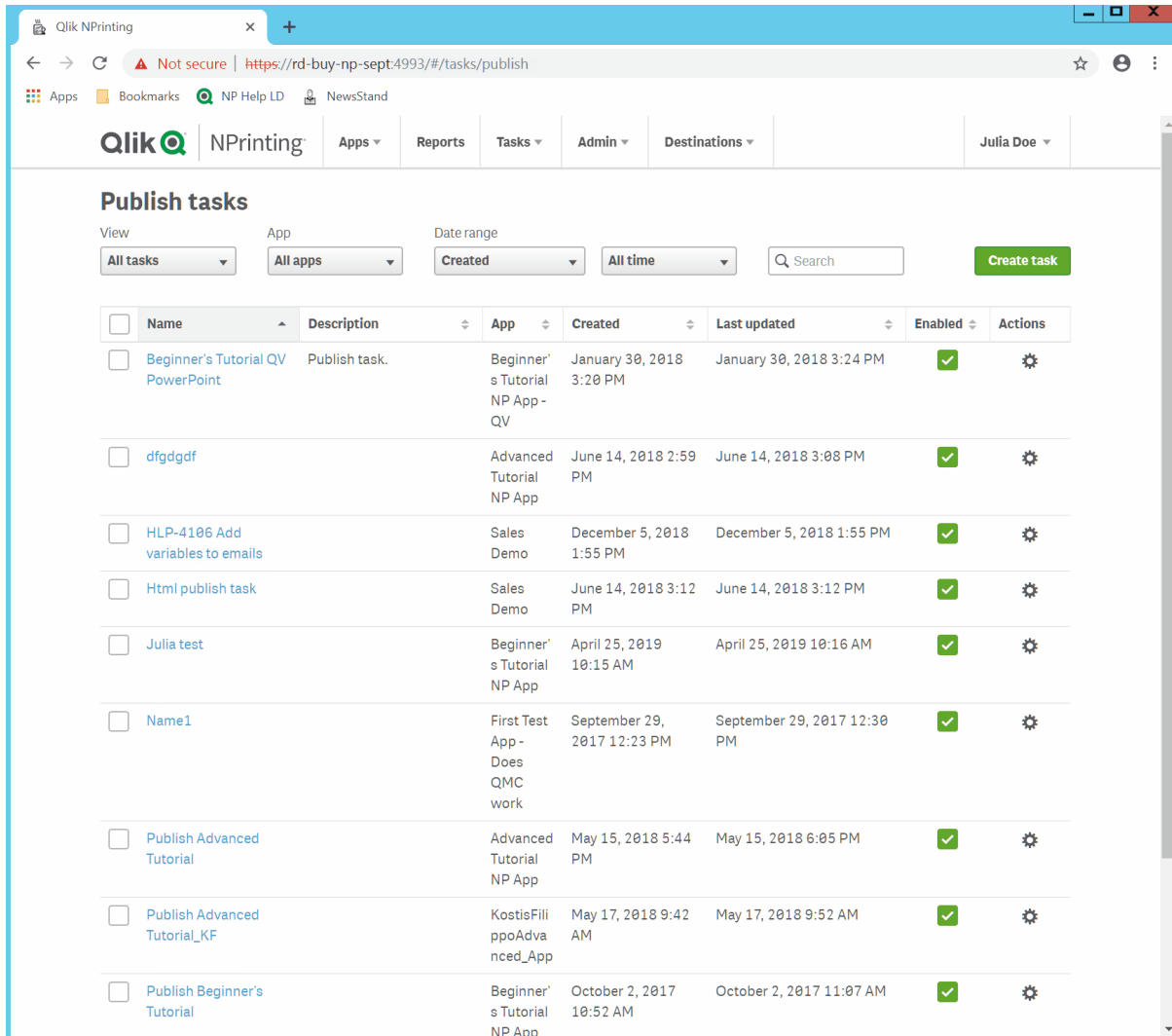
Emails contain your reports as attachments. Their contents can be customized by adding text and images. See: *Distributing reports by email (page 479)*.



You must configure your SMTP mail server in order to send email from Qlik NPrinting. See: *Configuring SMTP server (page 268)*.

Do the following:

1. In the Qlik NPrinting web console, click **Tasks** on the main menu, and select **Publish task**.
2. Click the **Create task** button.
  - a. Enter a name.
  - b. Select your app from the drop-down list: *Beginner's Tutorial NP App*.
  - c. Leave the default values for the other options. Click **Create**.
3. Click on the **Reports** tab.
  - a. Click the **Add report** button.
  - b. Select *Beginner's Tutorial - NP Excel* from the **Choose report** drop-down list.
  - c. Select **XLS** from the **Output format** drop-down list.
  - d. Make sure that the **Attach to email** and **Enabled** check boxes selected.
  - e. Click **Add report**.
4. Click on the **Users/groups** tab.
  - a. Click the **Add user or group** button.
  - b. Select a user or group from the **Choose recipient** drop-down list.  
If you would like to learn how to create new users, see: *Creating users (page 240)*.
  - c. Select the **Enabled**, **NewsStand destination**, and **Email destination** check boxes.
  - d. Click **Add recipient**.
5. Click on the **Destinations** tab.
  - a. In the **NewsStand** column, click the **Publish for all** check box.
  - b. In the **Email** column, click the **Publish for all** check box.
  - c. Click **Save**.
6. You will be sent back to the **Overview** tab.
7. Click the **Run now** button.  
A confirmation message will appear at the top of the page.



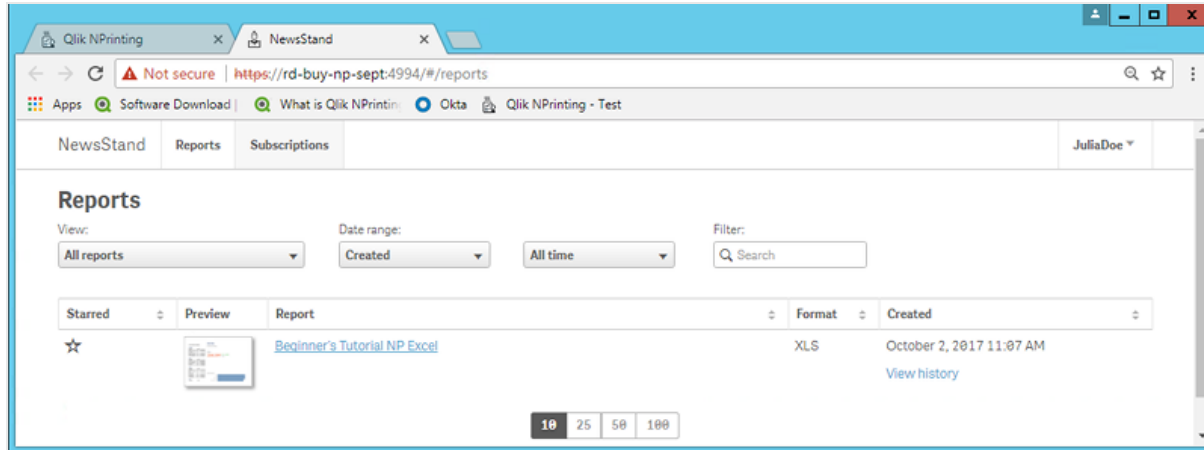
The screenshot shows the Qlik NPrinting web console interface. The browser address bar displays `https://rd-buy-np-sept:4993/#/tasks/publish`. The navigation menu includes 'Apps', 'Reports', 'Tasks', 'Admin', and 'Destinations'. The user 'Julia Doe' is logged in. The main section is titled 'Publish tasks' and features filters for 'View' (All tasks), 'App' (All apps), and 'Date range' (Created, All time). A 'Create task' button is visible. Below the filters is a table listing published tasks.

<input type="checkbox"/>	Name	Description	App	Created	Last updated	Enabled	Actions
<input type="checkbox"/>	Beginner's Tutorial QV PowerPoint	Publish task.	Beginner's Tutorial NP App - QV	January 30, 2018 3:20 PM	January 30, 2018 3:24 PM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	dfgdgdf		Advanced Tutorial NP App	June 14, 2018 2:59 PM	June 14, 2018 3:08 PM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	HLP-4106 Add variables to emails		Sales Demo	December 5, 2018 1:55 PM	December 5, 2018 1:55 PM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Html publish task		Sales Demo	June 14, 2018 3:12 PM	June 14, 2018 3:12 PM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Julia test		Beginner's Tutorial NP App	April 25, 2019 10:15 AM	April 25, 2019 10:16 AM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Name1		First Test App - Does QMC work	September 29, 2017 12:23 PM	September 29, 2017 12:30 PM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Publish Advanced Tutorial		Advanced Tutorial NP App	May 15, 2018 5:44 PM	May 15, 2018 6:05 PM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Publish Advanced Tutorial_KF		KostisFilippoAdvanced_App	May 17, 2018 9:42 AM	May 17, 2018 9:52 AM	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	Publish Beginner's Tutorial		Beginner's Tutorial NP App	October 2, 2017 10:52 AM	October 2, 2017 11:07 AM	<input checked="" type="checkbox"/>	

Your recipients can now go to the NewsStand in their browsers and view your report. They will also receive a copy in their email.



*In standard installations, you can switch from the Qlik NPrinting web console to your NewsStand by changing port 4993 to 4994 in your browser bar. For example, if your web console is `https://YourServerName:4993`, then your NewsStand is `https://YourServerName:4994`.*



## Publishing a complex report from a Qlik Sense app

This tutorial will show you how to create and publish a complex Qlik NPrinting Excel report using Qlik Sense data.

Qlik NPrinting has many features. This tutorial is meant to help experienced users create a report. It does not outline every report type, design element, or publishing option. At the end of this tutorial, you will have created, edited, and published an Excel report that is viewable by your selected users.

Other Qlik NPrinting tutorials:

- *Publishing a simple report from a Qlik Sense app (page 65)*
- *Publishing a simple report from a QlikView document (page 42)*



*Microsoft Office must be installed to edit and create reports in Office file formats.*

In this tutorial, you will be:

### Accessing a Qlik Sense app

Reports need data. Learn how to download and import a sample Qlik Sense app.

### Connecting Qlik NPrinting to a Qlik Sense app

Qlik NPrinting needs to connect to a Qlik Sense app. Learn how to configure Qlik NPrinting so it can access a sample app, or your existing Qlik Sense data.

### Creating a new filter

Filters let you refine your data. Create a filter to control the data your users see.

### Creating a new Qlik NPrinting report template

Report templates control the layout and output formats of reports. This section will show you how to make a new one.

### Editing the report template

Reports offer many different formatting options. You will add titles, Excel tables, tables with subtotals, and levels to your report.

### Publishing to NewsStand and email

NewsStand is a web console your users can access to view reports. Learn how to automate publishing your report to the NewsStand and by email.

### Accessing a Qlik Sense app

Qlik Sense apps contain the data and visualizations that Qlik NPrinting uses to build reports. There are a few different ways to access a Qlik Sense app:

- You can download a Qlik Sense app from the Qlik help site, and upload it to your Qlik Sense *Apps* folder. This tutorial references many values and fields found in this sample app. If this is your first time performing this tutorial, you may want to use the app provided, not a custom app.
- You can use your own Qlik Sense app. If you are using your own app to complete this tutorial, pick a simple one. Qlik NPrinting experiences longer load times with complex Qlik Sense apps.

### Connecting Qlik NPrinting to a Qlik Sense app

Now we will create a Qlik NPrinting app and connect it to your Qlik Sense app.

A Qlik Sense app and a Qlik NPrinting app are very different:

- Qlik Sense app: contains data, and uses visualizations to explore that data.
- Qlik NPrinting app: contains reports, filters, and the connection to a Qlik Sense app or QlikView document.

Qlik NPrinting apps let the Qlik NPrinting Designer access your Qlik Sense data so that information can be used in a report.

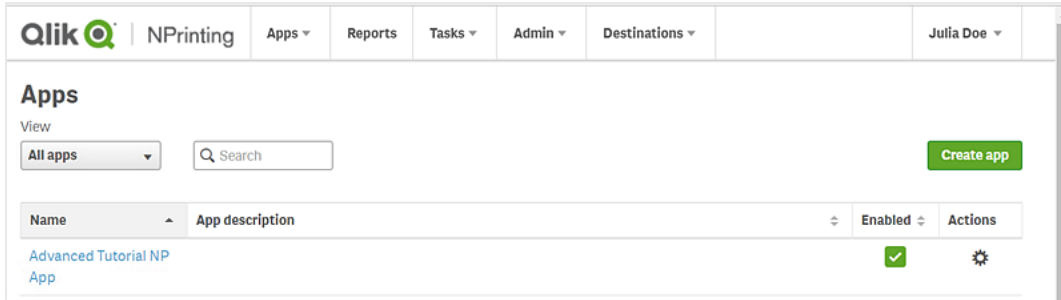


*In order to connect Qlik NPrinting to your Qlik Sense apps, Qlik Sense certificates must be installed on all Qlik NPrinting Engine computers. See: [Installing Qlik NPrinting certificates \(page 206\)](#).*

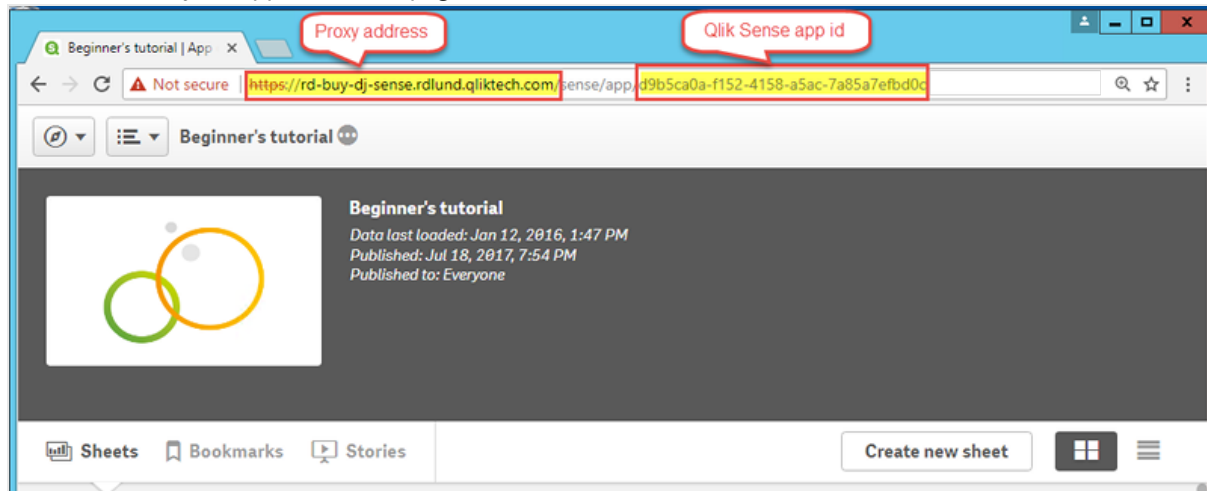
Do the following:

1. Log into the Qlik NPrinting web console.
2. On the main menu, click the **Apps** drop-down, and click **Apps**.
3. Click the **Create app** button.
  - a. Enter a name for this new app. For example: *Advanced Tutorial NP App*.
  - b. Ensure the **Enabled** check box is selected. Otherwise, your app will be ignored by the Qlik NPrinting Engine.
  - c. Click **Create**.

You will now be able to see *Advanced Tutorial NP App* under **Apps**.



4. From the main menu, click the **Apps** drop-down, and click **Connections**.
  - a. Click the **Create connection** button.
  - b. In the **Name** box, enter a name for the connection: *Advanced Tutorial Connection*.
  - c. In the **App** drop-down list, select the Qlik NPrinting app that you created previously: *Advanced Tutorial NP App*.
  - d. Select **Qlik Sense** as your **Source**.
  - e. Enter the following information:
    - **Proxy address:** the full computer name of the Qlik Sense server. You can find this in the Qlik Sense hub, in your browser's address bar. The format is: *https://sense\_proxy\_computer\_name.domain\_name*.
    - **Qlik Sense app id:** This information is available in the Qlik Sense hub, in your browser's address bar, on your app's overview page.



- **Identity:** the `<Windows domain name>\<user name>` of the Qlik Sense user who has access to the app.
- f. Click the **Run verification** button. This ensures your connection is valid. If the connection is valid, you will see a "Verification successful" message. If not, you will see the following message: "Errors detected. Check details below."

- g. Once your connection settings have been verified, click **Create**. You will be automatically moved back to the **Connections** menu.
- h. Click on your new connection. You will see the status: **Cache status - Generating**. This means that Qlik NPrinting is connecting to Qlik Sense and importing metadata. If you have a large Qlik Sense app, this may take several minutes.



*Every time you add new objects to your Qlik Sense app, you must reload your connection metadata.*

- i. Once the cache status shows **Generated**, you can create a new report template. If you get an **Error** status, check your connection information.

You will now be able to see your new connection on the **Connections** screen.



Name	App	Connection status	Cache status	Last cache update	Actions
Advanced Tutorial Connection	Advanced Tutorial NP App	✓ Connection successful on all NPrinting engines.	Generated	May 15, 2018 11:30 AM	⚙️

If you have trouble connecting to your Qlik Sense app, see:

- *Creating connections (page 21)*
- *Troubleshooting (page 522)*

## Creating a new filter

Static filters let you refine your data according to fields from your Qlik Sense app. In this case, we are going to create a filter called *Wine & Beer* from the *Product Group* field. A table or image with this filter applied will only display results related to wine and beer, and would ignore all other product types.

Do the following:

1. From the main menu, click the **Apps** drop-down, and then select **Filters**.
2. Click **Create filter**.
3. Enter a **Name** for your filter. For example: *Wine & Beer*.
4. Under **App**, select *Advanced Tutorial NP App*.
5. Click **Create**.

Filters / New

Overview Fields

Create filter

Name: Wine & Beer

Description: [Empty text area]

App: Advanced Tutorial NP App

Enabled

Cancel Create

6. Click **Fields** in the filters menu.
7. Click **Add field**.

8. Under **Connection**, select your connection.
9. Under **Name**, select **Product Group**.  
Leave **Override values** unchecked.
10. Leave **Value is** in the **Values** area. This option forces Qlik NPrinting to select the list of values that you specify.
11. Start to type the value you want. A list of possible values will appear. In this case, choose **Alcoholic Beverages**.
12. Click **Create**.

The screenshot shows the 'Create field' dialog in the Qlik NPrinting interface. The 'Connection' is 'Advanced Tutorial Connection'. The 'Name' is 'Product Group', which is 'Fully cached'. The 'Override values' checkbox is unchecked. Under the 'Values' section, the 'Value is' dropdown is set to 'Value is' and the text input field contains 'Alcoholic Beverages'. There is an 'Add value' button below the input field. At the bottom right, there are 'Cancel' and 'Create' buttons.

## Creating a new Qlik NPrinting report template

Report templates control the layout and output formats of reports. You can arrange objects and format pages using the standard options of the report type you choose. For example, an Excel report will have the same formatting options and interface as an Excel worksheet.

Do the following:

1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. Click the **Create report** button.
3. Enter a title in the **Title** field. For example: *Advanced Tutorial Excel*.
4. From the **Type** drop-down list, select **Excel**.
5. From the **App** drop-down list, select *Advanced Tutorial NP App*.
6. From the **Template** options, click **Empty file**.
7. Ensure the **Enabled** check box is selected. Otherwise, your report will be ignored by the Qlik NPrinting Engine.
8. Click the **Enable dynamic naming** check box. This will let you add variables to your report names. These field elements can be reordered using the sort-handles on the right.

9. You must have at least one variable. Choose **Report name**.
10. Click **Add variable**. Choose **User department**.
11. Click **Add variable**. Choose **Custom**. Add a hyphen or underscore in the text box that appears.
12. Click **Add variable**. Choose **Date**. Select a date format.
13. The **Preview** box shows your dynamic report name.
14. Click **Create**.

**Qlik** | NPrinting | Apps ▾ | Reports | Tasks ▾ | Admin ▾ | Destinations ▾ | JuliaDoe ▾

Reports / New

**Overview** | Filters

**Create report**

**Title**

**Description**

**Type**

**App**

**Template**  Empty file  
 Custom

Enabled  
 Enable On-Demand and API report generation  
 Enable cycle  
 Enable dynamic naming

**Dynamic name**

**Preview**

**Error handling**

**When Qlik NPrinting cannot validate charts or tables:**

Generate report. Invalid content will be replaced with placeholder images.  
 Do not generate report. Report generation will fail until issue is resolved.

You will now be able to see *Advanced Tutorial Excel* under **Reports**.

### Editing the report template

There are many ways to edit a report template. We will be adding:

- **Titles:** simple text used to organize your report. They can be altered using standard Excel formatting.
- **Levels:** sub-divide your data by a dimension. They can be applied to tables and images.
- **Tables:** take your Qlik Sense data and present it in tabular form. You can create Excel tables, or import Qlik Sense tables.
- **Object filters:** refine the data that is displayed in an object, such as a chart or table.

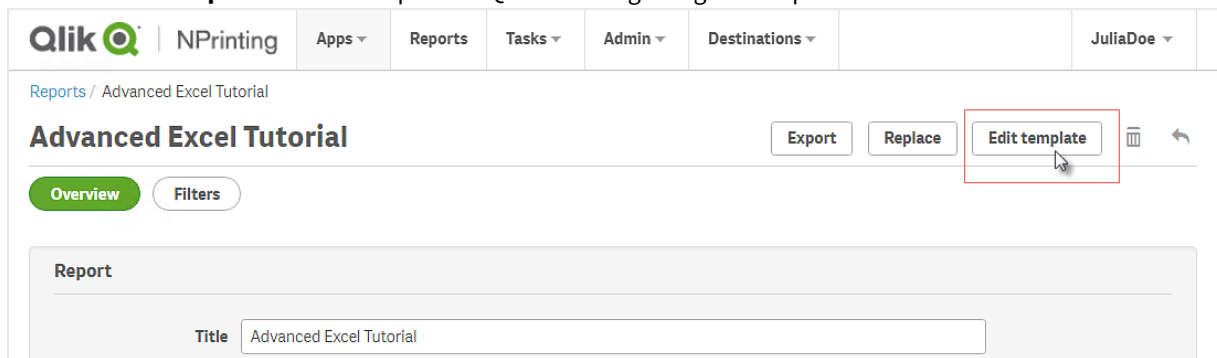
This section does not cover everything you can do in the Qlik NPrinting Designer. If you would like to read about other Excel report features, see: **Excel reports**.



*Your report preview may look different than the images shown below, depending on how you formatted it. Some of the objects may have slightly different names, depending on the order they were selected.*

Do the following:

1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. On the **Reports** screen, click on your report.
3. Click the **Edit template** button to open the Qlik NPrinting Designer template editor.

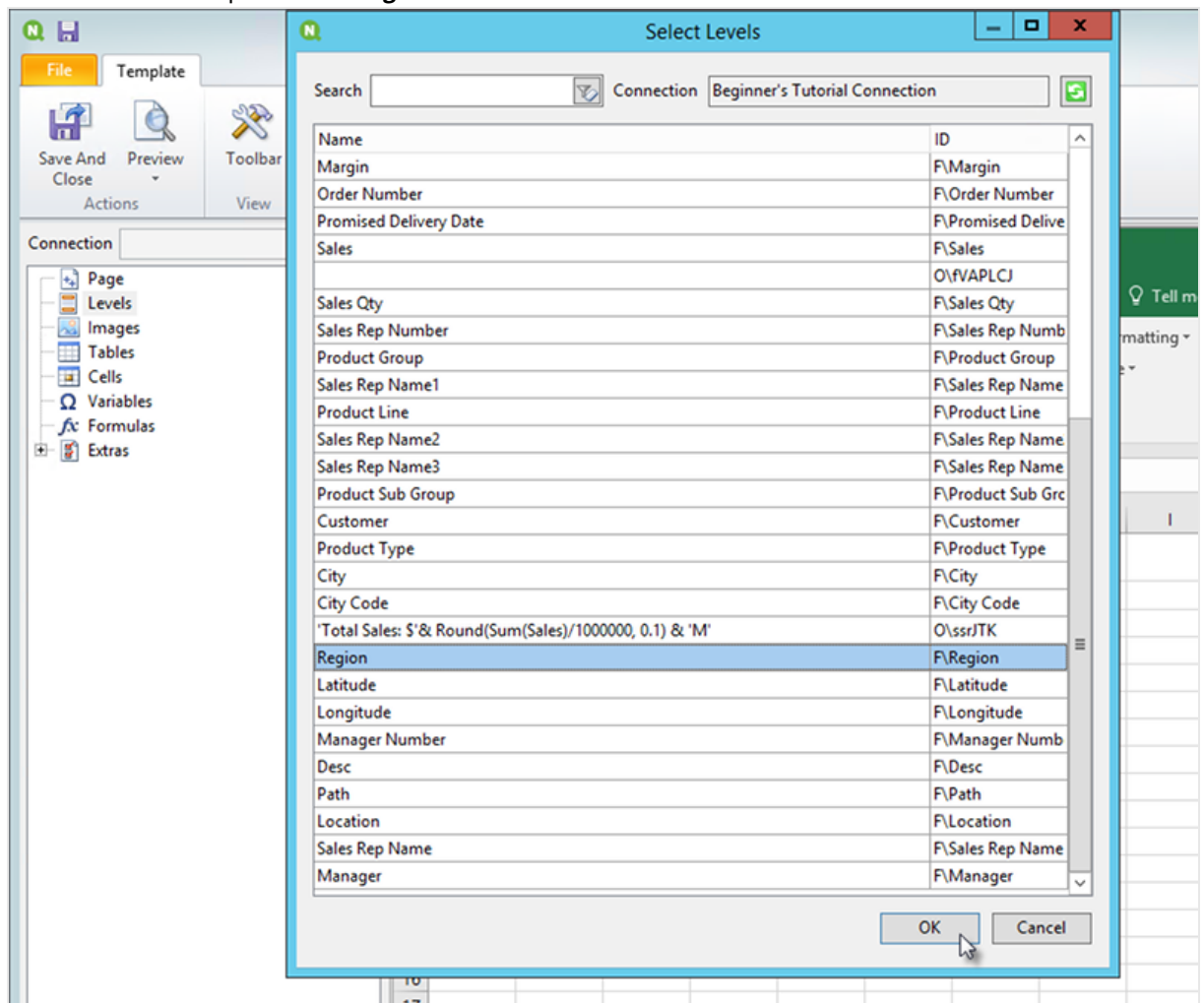


4. In cell A1, type in a title: For example, *Quarterly trends and customer sales by region*.




*You can use Excel formatting options to change the look of these titles. For example, you can change the font size and color. You can also merge several cells together so that the title is centered with the rest of the report.*

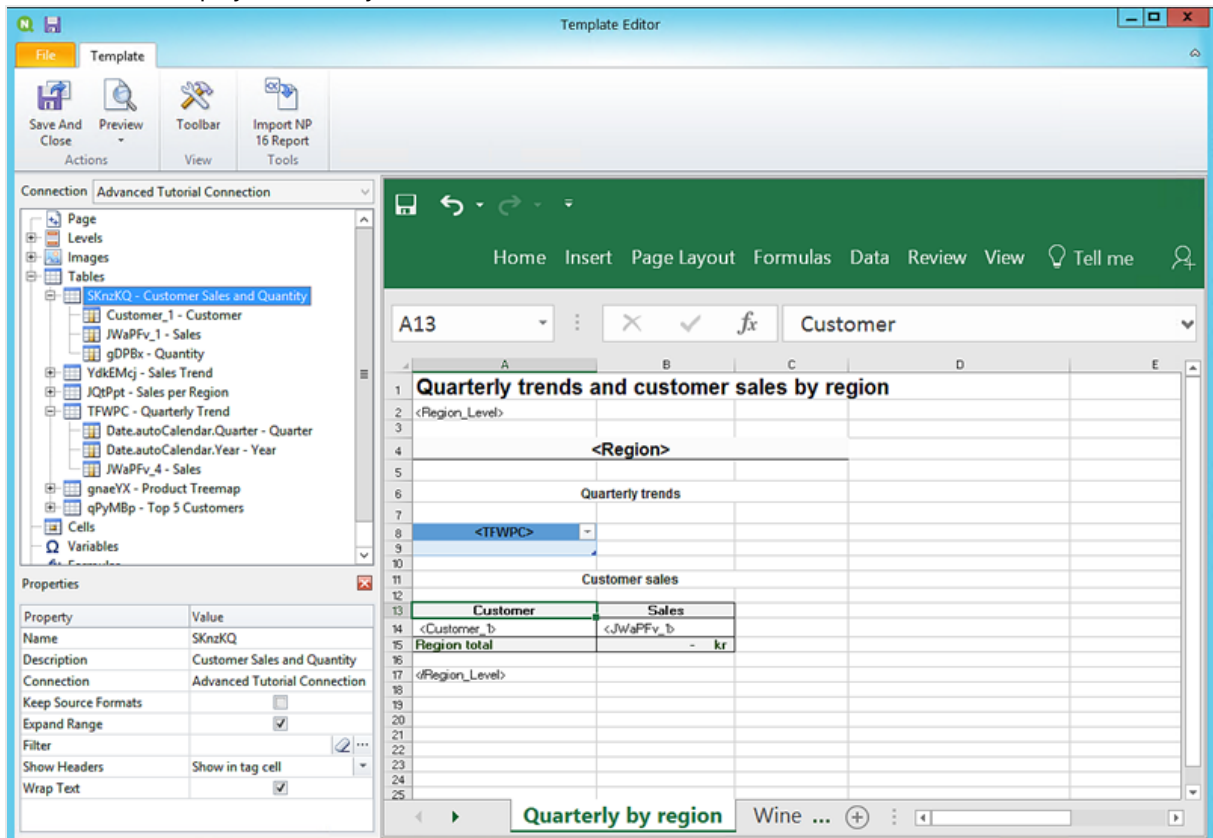
5. Add a level:
  - a. On the left pane, right-click on **Levels**, and select **Add levels**.
  - b. A new window will open. Select **Region**. Click **OK**.



- c. Drag **Region\_Level** to cell A2.
  - d. Cut and paste the **</Region\_Level>** tag to A17.  
Objects placed inside these tags will be organized by region.
  - e. Expand **Region\_Level** in the left pane.
  - f. Drag and drop **Region** onto cell A4.  
This ensures that each level has a heading.
6. Add an Excel table:
  - a. In cell A6, add a subtitle: *Quarterly trends*.
  - b. On the left pane, right-click on **Tables**, and select **Add objects**.
  - c. A new window will open. Select **Quarterly Trend**. Click **OK**.
  - d. On the left-hand pane, select **TFWPC - Quarterly Trend**. This will open the **Properties** pane, below.

- e. Clear the **Keep Source Formats** check box.  
This removes Qlik Sense formatting from the table, so you can customize it.
  - f. Set **Show Headers** to **Show in tag cell**.  
Column headers will be inserted in the tag cells and data will start in the row below. Formulas and variables in original Qlik Sense headers will not be replaced.
  - g. Drag **TFWPC - Quarterly Trend** into cell **A8**. Select the cell containing the **TFWPC** tag, if it is not already selected.
  - h. Click the **Insert** tab on the Excel toolbar.
  - i. Click the **Table** icon in the **Tables** group. Click **OK**.
  - j. Go to **Table Tools > Design** to apply table formatting.
    - Font and alignment formatting applied to the heading cell will be applied to all table cells in the heading row.
    - Font and alignment formatting applied to the content cell will be applied to all table cells in the content rows.
    - Number formatting will have no effect.
  - k. Click **Preview** on the Qlik NPrinting Designer toolbar to preview the table.  
You now have an Excel table that can be sorted and filtered. However, you cannot format numbers.
7. Add a table with subtotals:
- a. In cell A11, add a subtitle: *Customer sales*.
  - b. On the left pane, right-click on **Tables**, and select **Add objects**.
  - c. A new window will open. Select **Customer Sales and Quantity**. Click **OK**.
  - d. On the left-hand pane, select **Customer Sales and Quantity**. This will open the **Properties** pane, below.
  - e. Clear the **Keep Source Formats** check box.
  - f. Expand the new **Customer Sales and Quantity** node.
-  *You can only expand the node to reveal column nodes if the object is a straight table or table box. If you do not see the +, you added a pivot table or a straight table with calculated columns.*
- g. Drag **Customer - Customer** to A13 and **JWaPFv - Sales** to B13.
  - h. In cell A15, type: *Region total*. In cell B15, add a formula: =SUM(B14).

Format B15 to display as currency.



8. Add table with subtotals and a filter:
  - a. Add a new sheet to the Excel workbook.
  - b. Go to the new sheet. In cell A1, add a subtitle: *Wine and beer sales by region*.
  - c. On the left pane, right-click on **Levels**, and select **Add levels**.
  - d. A new window will open. Select **Region**. Click **OK**.
  - e. Drag **Region\_Level** to cell A2.
  - f. Cut and paste the **</Region\_Level>** tag to A17.
  - g. Expand **Region\_Level** in the left pane.
  - h. Drag and drop **Region** onto cell A4.  
This ensures that each level has a heading.
  - i. On the left pane, right-click on **Tables**, and select **Add objects**.
  - j. A new window will open. Select **Product Treemap**. Click **OK**.
  - k. Click on the **Product Treemap** node. Under **Properties > Filter**, click the **...**. Select the **Beer and Wine** filter.  
This will ensure that this new table only shows data related to beer and wine products.  
Clear the **Keep Source Formats** check box.
  - l. Expand the **Product Treemap** node.
  - m. Drag **Product Type** to B5 , **Item Desc** to C5, and **Sales** to D5.

- n. In cell C7 , type: *Region total*. In cell D7, add a formula: =SUM(D6).
- o. In cell C10 , type: *Total sales*. In cell D10, add a formula: =SUM(D6:D8)/2.
- p. Select both D7 and D10, and format them to display as currency.

The screenshot shows the Qlik NPrinting template editor interface. The main window displays a spreadsheet with the following content:

	A	B	C	D	E
4	<Region>				
5		Product Type	Item Desc	Sales	
6		<Product Type>	<Item Desc>	<JWaPFv 3>	
7			Region Total	kr	-
8	</Region_Level>				
9					
10			Total Sales	kr	-
11					
12					
13					
14					
15					
16					

The interface includes a 'File' tab, a 'Template' tab, and a 'Properties' panel on the left. The 'Properties' panel shows details for the selected table 'gnaeYX', including its name, description, connection, and various display options like 'Expand Range', 'Filter', 'Show Headers', and 'Wrap Text'.

9. On the Qlik NPrinting template editor menu, click the **File** tab. Click **Save**.
10. Click the **Template** tab, and click the **Preview** button to preview your report. It may take several minutes for your preview to load, depending on the size of your report. You can stop preview generation by clicking the **Abort** button.



**Quarterly trends and customer sales by region**

**Germany**

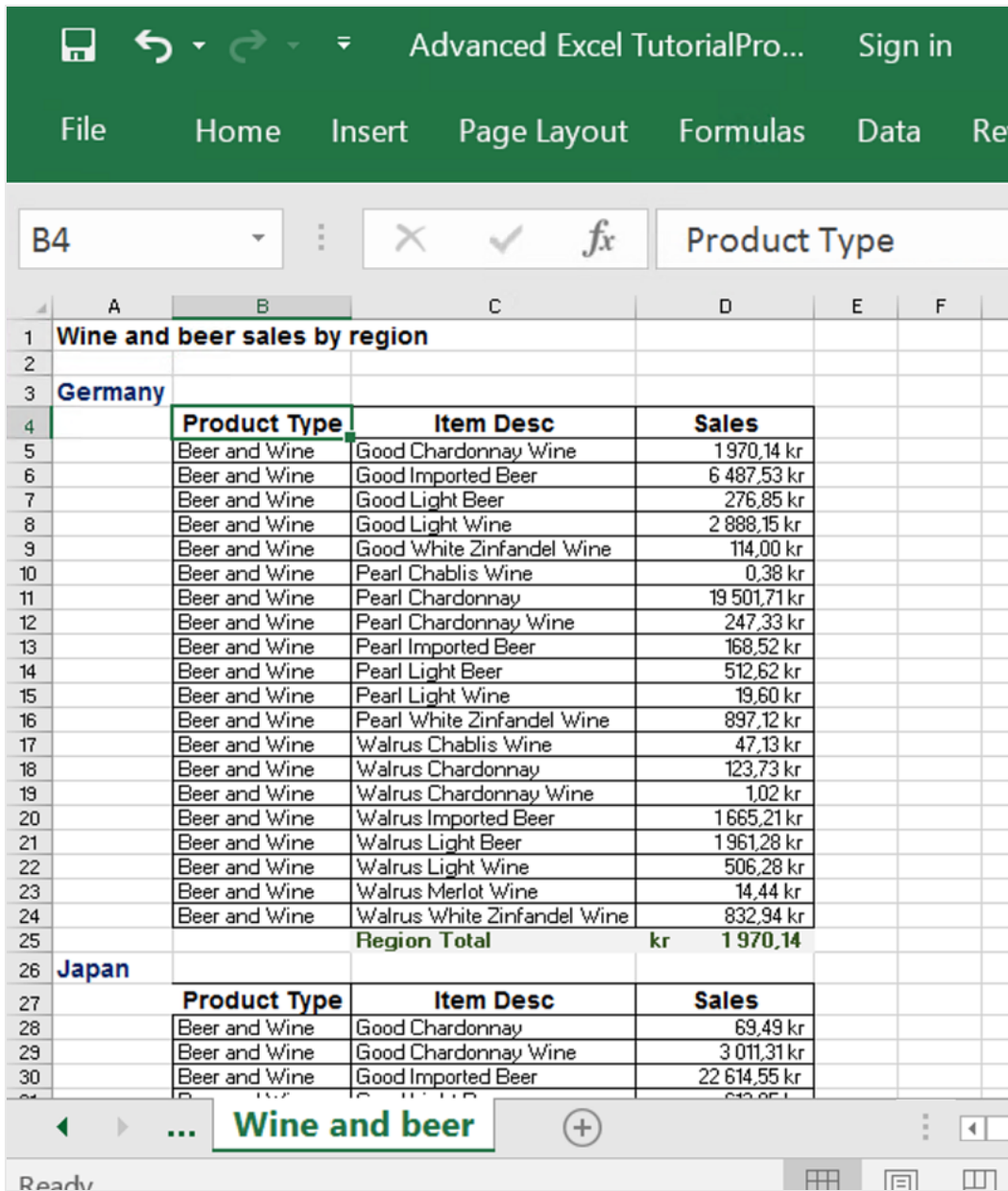
**Quarterly trends**

Quarter	Year	Sales
Q1	2012	221922,32
Q1	2013	462752,46
Q1	2014	463127,36
Q2	2012	276887,48
Q2	2013	222202,78
Q2	2014	253847,73
Q3	2012	313225,01
Q3	2013	395568,52
Q4	2012	236005,48
Q4	2013	478397,78

**Customer sales**

Customer	Sales
Information Bureau	547 911,32 kr
Fokas	886 915,98 kr
Caprica Resources	198 037,00 kr
Papyrus Consultants	70 240,30 kr
Cam-Built Prpgramming Plus	202 945,76 kr
activeDesign	62 554,81 kr
Rave Association	10 648,59 kr
Output Enablers	164 736,87 kr
ediSys	129 874,73 kr
Kaim Associates	111 451,20 kr
Canter	93 037,50 kr
CAPTA	135 527,29 kr
Fibronics	87 558,75 kr
HBD & Company	34 522,36 kr
Pinnacle Trading	27 400,49 kr
ZipLip.Com	76 814,24 kr
TargetedListings	99 676,79 kr
U.S. Robotics	26 696,76 kr
UNIS LUMIN	48 070,99 kr
e-MDs	32 524,42 kr
Siemens Nixdorf	59 657,01 kr

Ready | Quarterly by region | Wine ... | 50 %



Advanced Excel TutorialPro... Sign in


File Home Insert Page Layout Formulas Data Rev

B4 Product Type

Wine and beer sales by region			
Germany			
	Product Type	Item Desc	Sales
5	Beer and Wine	Good Chardonnay Wine	1 970,14 kr
6	Beer and Wine	Good Imported Beer	6 487,53 kr
7	Beer and Wine	Good Light Beer	276,85 kr
8	Beer and Wine	Good Light Wine	2 888,15 kr
9	Beer and Wine	Good White Zinfandel Wine	114,00 kr
10	Beer and Wine	Pearl Chablis Wine	0,38 kr
11	Beer and Wine	Pearl Chardonnay	19 501,71 kr
12	Beer and Wine	Pearl Chardonnay Wine	247,33 kr
13	Beer and Wine	Pearl Imported Beer	168,52 kr
14	Beer and Wine	Pearl Light Beer	512,62 kr
15	Beer and Wine	Pearl Light Wine	19,60 kr
16	Beer and Wine	Pearl White Zinfandel Wine	897,12 kr
17	Beer and Wine	Walrus Chablis Wine	47,13 kr
18	Beer and Wine	Walrus Chardonnay	123,73 kr
19	Beer and Wine	Walrus Chardonnay Wine	1,02 kr
20	Beer and Wine	Walrus Imported Beer	1 665,21 kr
21	Beer and Wine	Walrus Light Beer	1 961,28 kr
22	Beer and Wine	Walrus Light Wine	506,28 kr
23	Beer and Wine	Walrus Merlot Wine	14,44 kr
24	Beer and Wine	Walrus White Zinfandel Wine	832,94 kr
25		<b>Region Total</b>	<b>kr 1 970,14</b>
Japan			
	Product Type	Item Desc	Sales
28	Beer and Wine	Good Chardonnay	69,49 kr
29	Beer and Wine	Good Chardonnay Wine	3 011,31 kr
30	Beer and Wine	Good Imported Beer	22 614,55 kr

Wine and beer

Ready

 Edits done in preview mode will not be saved.

11. If you would like to continue editing, close the preview window, and format your report in the template editor.
12. When you are finished editing, click **Save And Close**.

The report template is now saved and ready to be shared with users.

## Publishing to NewsStand and email

Reports need to be published in order for users to access them. We will be publishing to NewsStand and by email.

NewsStand is a web portal that allows users to preview and download reports, and subscribe to automatic updates. See: *NewsStand overview (page 476)*

Emails contain your reports as attachments. Their contents can be customized by adding text and images. See: *Distributing reports by email (page 479)*.

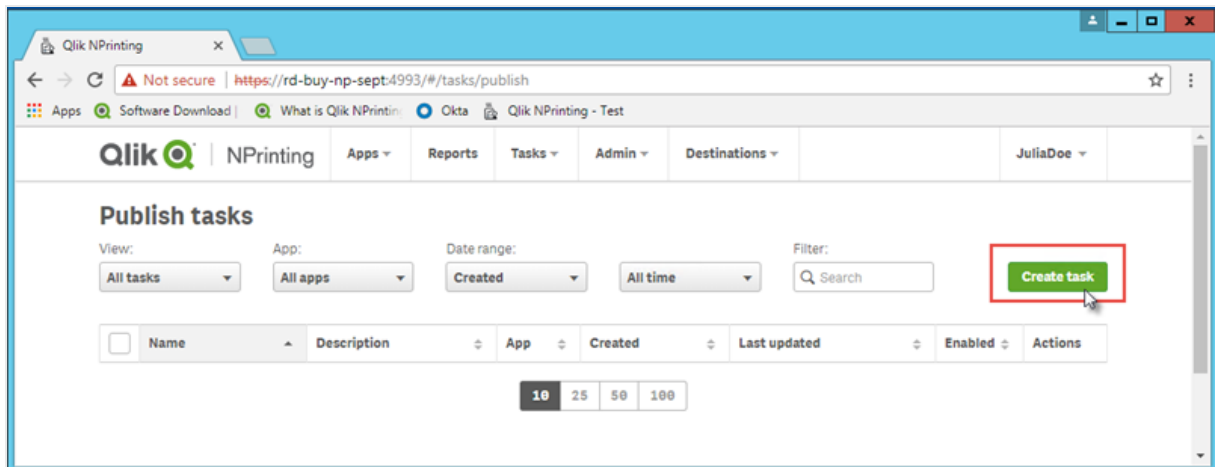
We will also create a trigger, which will automatically publish your reports according to a schedule.



You must configure your SMTP mail server in order to send email from Qlik NPrinting. See: *Configuring SMTP server (page 268)*.

Do the following:

1. In the Qlik NPrinting web console, click **Tasks** on the main menu, and select **Publish task**.
2. Click the **Create task** button.



- a. Enter a name. For example: *Publish Advanced Tutorial*.
- b. Select your app from the drop-down list: *Advanced Tutorial NP App*.

- c. Leave the default values for the other options. Click **Create**.

The screenshot shows the 'Create publish task' form in the Qlik NPrinting interface. The form is titled 'Create publish task' and is located under the 'Publish tasks / New' section. The form includes the following fields and options:

- Name:** Publish Advanced Tutorial
- Description:** (Empty text area)
- App:** Advanced Tutorial NP App
- Days to keep:** 1
- Reports to keep:** 1
- Enabled:**  Enabled

At the bottom right of the form, there are two buttons: 'Cancel' and 'Create'. The 'Create' button is highlighted in green, indicating it is the next step to click.

3. Click on the **Reports** tab.

- Click the **Add report** button.
- Select *Advanced Tutorial Excel* from the **Choose report** drop-down list.
- Select **XLS** from the **Output format** drop-down list.
- Ensure that the **Attach to email** and **Enabled** check boxes selected.
- Click **Add report**.

The screenshot shows the 'Add report' form in the Qlik NPrinting interface. The form is titled 'Add report' and is located under the 'Publish tasks / Publish Advanced Tutorial / Reports / New' section. The form includes the following fields and options:

- Choose report:** Advanced Excel Tutorial
- Friendly name:** Advanced Excel Tutorial
- Report type:** Excel
- Output format:** XLSX
- Quality:** Normal
- Attach to email:**  Attach to email
- Enabled:**  Enabled

At the bottom right of the form, there are two buttons: 'Cancel' and 'Add report'. The 'Add report' button is highlighted in green, indicating it is the next step to click.

4. Click on the **Users/groups** tab.
  - a. Click the **Add user or group** button.
  - b. Select a user or group from the **Choose recipient** drop-down list.  
If you would like to learn how to create new users, see: *Creating users (page 240)*.
  - c. Select the **Enabled**, **NewsStand destination**, and **Email destination** check boxes.
  - d. Click **Add recipient**.
5. Click on the **Destinations** tab.
  - a. In the **NewsStand** column, click the **Publish for all** check box.
  - b. In the **Email** column, click the **Publish for all** check box.
  - c. Click **Save**.
6. Customize the email template:
  - a. Click **Email message** in the main task menu.
  - b. In **From**, select one of the following:
    - **User**: Select the sender email from the drop-down list. You can also use the search form to filter the list.
    - **Custom**: Enter a valid email address.
  - c. In the **To** drop-down list, choose **Selected users**.
  - d. Enter a **Subject**.
  - e. Select the email **Format** by clicking on **HTML**, which supports formatted and dynamic text.
  - f. Add text to the email body. You can customize it using the formatting buttons.
  - g. Click **Users**, and then select tags from the list. They will be replaced with the appropriate value during email generation.  
For example, `%%User_Company%%` will be replaced with the name of the recipient's company. In this example, we have added `%%User_FullName%%`, `%%User_Department%%`, and `%%User_Company%%`.  
If your user profiles do not contain this information, the message will contain empty strings. See: *Creating users (page 240)*.
  - h. In the **Attachments** drop-down list, select **All reports attached**.

i. Click **Save**.

Qlik | NPrinting | Apps | Reports | Tasks | Admin | Destinations | Julia Doe

Publish tasks / Publish Advanced Tutorial / Email message

### Email message

Overview | Reports | Users/groups | Filters | Destinations | **Email message** | Triggers | Conditions

**Email message**

**From**  Default sender admin@qlik.com  
 User -- Choose user --  
 Custom Please enter a valid email address.

**To** Selected users

**Subject** Advanced report now available

**Format** **HTML** Text

**Body** H1 H2 H3 H4 H5 H6 P pre **B** I U

Words: 15 Characters: 118

**To:**  
 %%User\_FullName%%  
 %%User\_Department%%  
 %%User\_Company%%  
 Your report is now available.  
 Thank you,  
 Marketing and Media Team

**Attachments** All reports attached  
 All reports will be attached to email.

Cancel Save

## 7. Create a trigger:

- Click **Triggers** in the main task menu.
- Click **Create trigger**.
- Enter a **Name**: *Tutorial Trigger*.
- In the **Schedule** section, select the **Schedule type**. For this tutorial, choose: **Weekly**.  
The task will be executed automatically on the specified days of the week.
- Under **Daily frequency**, click **Once**. Leave the default time.
- In the **Start** section, you can set the **Start date** and **Time zone** of the hours specified in the trigger. The default start date is the day the trigger is created.

- g. Click **Create** to save the new trigger in the repository.

Publish tasks / Publish Advanced Tutorial / Triggers / new

## New trigger

Overview Reports Users/groups Filters Destinations Email message **Triggers** Conditions

Create trigger for task Publish Advanced Tutorial Enabled Disabled

Name: Tutorial Trigger

Description:

**Schedule**

Schedule type: Once Daily **Weekly**

Repeat every: 1 weeks

Monday  
 Tuesday  
 Wednesday  
 Thursday  
 Friday  
 Saturday  
 Sunday

**Daily frequency**

Occurs: **Once** Multiple times

Once at: 17:55

**Start**

Start date: 5/15/18

Time zone: Canada/Eastern

**End**

Event count:

End date: 5/15/18

End time: 23:59

Cancel Create

8. Go back to the **Overview** page.
9. Click the **Run now** button.  
A confirmation message will appear at the top of the page.

Your recipients can now go to the NewsStand in their browsers and view your report. They will also receive a copy in their email. Since you created a trigger, users will also receive an updated report once a week, according to the schedule you set.




*In standard installations, you can switch from the Qlik NPrinting web console to your NewsStand by changing port 4993 to 4994 in your browser bar. For example, if your web console is `https://YourServerName:4993`, then your NewsStand is `https://YourServerName:4994`.*

NewsStand   Reports   Subscriptions   Julia Doe ▾

### Reports

View: All reports ▾   Date range: Created ▾   All time ▾  

Starred	Preview	Report	Format	Quality	Created
★		<a href="#">Advanced Excel Tutorial</a>	XLSX	Normal	May 15, 2018 11:45 PM <a href="#">View history</a>



## 2 Migrating

You can use the migration tool to import your QlikView NPrinting 16 entities into Qlik NPrinting November 2019 or newer.

### 2.5 Planning your migration

You must verify that your QlikView NPrinting 16 projects work correctly, and that you have properly configured your Qlik NPrinting November 2019 or newer installation.

#### Requirements

- Qlik NPrinting November 2019 (first version with migration tool), or newer.
- QlikView NPrinting 16.3 (first version with project export tool), or newer. See table below.

#### Upgrading QlikView NPrinting 16 before migration

The migration tool relies on project export functionality that was introduced in QlikView NPrinting 16.3. However, the required QlikView NPrinting 16 version also depends on the version of QlikView you are running.

QlikView and QlikView NPrinting 16 compatibility

QlikView version	Current QlikView NPrinting 16 version	Need to upgrade to
11.20	16.2 or older	QlikView NPrinting 16.3 or newer
11.20	16.3 or newer	none
12.10	16.2 or older	QlikView NPrinting 16.3 or newer
12.10	16.3 or newer	none
12.20	16.6 or older	QlikView NPrinting 16.7 or newer
12.20	16.7 or newer	none
12.30	16.8 or older	QlikView NPrinting 16.9 or newer
12.30	16.9 or newer	none

#### Upgrading QlikView after migration

After you successfully migrate to Qlik NPrinting November 2019 or newer, you may want to upgrade to a newer version of QlikView. See: *QlikView compatibility (page 127)*.



*As a best practice, you should migrate your QlikView NPrinting 16 projects successfully into Qlik NPrinting, before upgrading QlikView.*

### Limitations

#### Unsupported features

There are features available in QlikView NPrinting 16 that are not supported in Qlik NPrinting November 2019. These features are not migrated:

- FTP destinations
- Pretty good privacy (PGP) encryption
- Send to printer
- Test tasks
- Attach external files to email
- Unsupported output formats (.docm, .pptm)
- Compressed generated reports
- Importing external HTML files into email bodies
- Linked fields

These features are partially migrated:

- Bookmark filters

#### Email tags

The following email tags are not supported in Qlik NPrinting November 2019 or newer:

- %%Recipient\_Custom1%%
- %%Recipient\_Custom2%%
- %%Recipient\_Custom3%%
- %%Link\_FTP\_Destination%%
- %%Link\_FTP\_Output\_Folder%%
- %%Link\_HTTP\_URL%%
- %%Link\_HTTP\_Output\_Folder%%
- %%Link\_Path\_Output\_Folder%%
- %%Execution\_Time%%
- %%Execution\_Date%%
- %%Zip\_Password%%
- %%Link\_FTP\_.+?%%
- %%Link\_File\_.+?%%
- %%Link\_HTTP\_.+?%%
- %%EmbedHTTP\_.+?%%

They will not be replaced with correspondent values in new email messages. You need to remove them from email bodies and subjects.

---

## Checking your QlikView NPrinting 16 projects and entities

You must verify that the projects you wish to migrate work correctly in your QlikView NPrinting 16 installation. For example, make sure that all report template files are present and work properly. Verify that filters used in objects, reports, tasks, and users have not been deleted. Any features that are not supported in Qlik NPrinting November 2019 or newer will not be imported.

### Connections

QlikView documents are not included in the project export .zip file. For local connections, you must make sure the Qlik NPrinting Server can access them. You may need to move them to the correct folder before proceeding. You can create local connections to QlikView documents or network shared folders, but you must use UNC paths. For example: `\\ServerName\FolderName\QlikViewDocument.qvw`.

Connections to QlikView servers using the QVP protocol are imported correctly.

The QlikView NPrinting 16 connection option “Clear all selections” is the default behavior in Qlik NPrinting 2019. It cannot be modified.

If your QlikView NPrinting 16 connections use environment variables, they are replaced by their values, and the connections are imported correctly.

### Section access

QlikView NPrinting 16 supports section access. You must define users in the section access table of the script. Qlik NPrinting November 2019 or newer only supports section access with NT security. Qlik NPrinting can open local .qvw files with a section access table, but it is ignored. You must replace it with filters. Before importing .qvw files with section access, please read: *Prerequisites for QlikView Server and QlikView Cluster connections (page 232)*.

### Reports

QlikView NPrinting 16 reports are converted to the Qlik NPrinting format and stored in the repository.

In QlikView NPrinting 16, macros are supported in all Microsoft Office reports (Excel, Word and PowerPoint). Qlik NPrinting November 2019 or newer only supports macros in Excel templates (.xlsm). In both cases, macros are never executed during report generation. The VBA code is copied from the template to the generated report.

### Filters

QlikView NPrinting 16 field-based filters are imported and converted. However, QlikView NPrinting 16 field-based filters work differently in Qlik NPrinting November 2019 or newer. We suggest that you check the results. For example, in QlikView NPrinting 16, **Verify filter** is a box that can be unchecked. In Qlik NPrinting November 2019 or newer, it is the default behavior.

Advanced search, variables, and select excluded are supported in both.

Bookmark-based filters are not supported in Qlik NPrinting November 2019 or newer. The filter will be migrated, but it will contain no fields.

### Linked fields

Linked fields are not supported in Qlik NPrinting November 2019 or newer.

If you are only using QlikView NPrinting 16 linked fields to filter data, you can manually re-create these filters in Qlik NPrinting November 2019 or newer, using fields from multiple connections. If you are using QlikView NPrinting 16 linked fields in cycles, levels or pages, you will need to merge the source .qvw files into a unique .qvw used for reporting. Then use the fields from the merged .qvw in cycles and levels.

### Tasks

The migration tool will only import QlikView NPrinting 16 publish tasks. The following tasks are not supported in Qlik NPrinting November 2019 or newer:

- Reload
- Partial Reload
- Reduce
- Macro

Reloads should be centrally managed using your existing QlikView server. Recipient import tasks are not migrated, but a new import user task can be manually created in Qlik NPrinting November 2019 or newer.


Schedules are not migrated into triggers. You need to manually recreate them in the migrated publish tasks. See: *Creating publish tasks (page 471)*.

### Recipients and users

QlikView NPrinting 16 recipients are not migrated into Qlik NPrinting November 2019 or newer as users.

Recipients in QlikView NPrinting 16 are only recipients of reports. For example, a recipient can only contain a destination folder. In Qlik NPrinting November 2019 or newer, there are users that have access to the repository based on security roles.

In QlikView NPrinting 16, each project file has recipients that can be either the same or different in other projects in the same installation. In Qlik NPrinting November 2019 or newer, users are shared across the entire installation. They are common for all apps.

In QlikView NPrinting 16, each recipient has a unique ID. You can create multiple recipients with the same email address and different filters. In Qlik NPrinting, the email address is the primary key of each user. Therefore, you cannot create more than one user per email, or add more than one email address to a single user. There is a workaround using the Qlik NPrinting APIs and the Qlik REST connector:  [Send out multiple emails for a single Publish Task in NPrinting 17+](#).

In Qlik NPrinting November 2019 or newer, you need to create users manually, or import them from LDAP or Excel files. These, along with the APIs, are the only supported methods of user import. Other previous import methods, such as a QlikView table, are no longer supported. You should import users after successfully importing your QlikView NPrinting 16 projects. This way, you can associate users with their authorized apps all at once. A best practice is to use groups. This way, you can safely delete, update, or add users with import tasks or APIs. But the group associated with a publish task stays the same.

## Jobs

Qlik NPrinting November 2019 or newer does not have job entities that let you chain tasks. Jobs are not imported. You can create a sequence of tasks in Qlik NPrinting November 2019 or newer by using APIs: [How To Use NPrinting APIs In A Qlik Load Script](#).

## Conditions

In QlikView NPrinting 16, conditions are associated with reports. In Qlik NPrinting November 2019 or newer, conditions must be attached to reports in tasks. They are migrated attached to reports in tasks. Conditions can also be applied at the task level, which can be done manually following the migration.

## Exporting your QlikView NPrinting 16 projects

Each QlikView NPrinting 16 project will be exported into a single .zip file that contains the original .nsq file and the report templates. The migration tool uses the exported .zip file of each project, not the .nsq files directly. A single QlikView NPrinting 16 project is completely stored in a single .nsq file and related templates. You do not need to extract the .zip file.

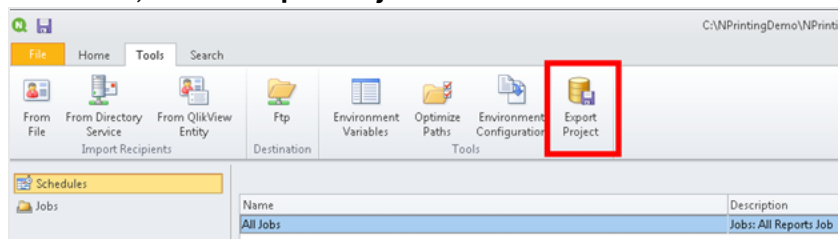
If there is content from the QlikView NPrinting 16 project that you do not want to migrate, remove that content using the QlikView NPrinting 16 Designer before you export the project.



*You should backup your .nsq files before starting the export.*

Do the following:

1. Log into the QlikView NPrinting 16 machine.
2. Open the project you want to export.
3. Go to **Tools**, and click **Export Project**.



The .nsq file will be exported as a .zip file.

4. Repeat this process for each project you want to migrate.

## Checking your Qlik NPrinting November 2019 or newer installation

Make sure you have a properly sized and configured Qlik NPrinting November 2019 or newer installation. See: [Deploying \(page 122\)](#)



*If you have an existing Qlik NPrinting installation, you should create a backup before starting the migration. See: [Backing up Qlik NPrinting \(page 193\)](#).*

## 2.6 Using the migration tool

The migration tool will migrate your QlikView NPrinting 16 projects to your new environment. Project files (.nsq) are exported and imported as .zip files.



*This process is for migrating project files from QlikView NPrinting 16 to Qlik NPrinting November 2019 or later. To move reports between different environments using the same version of Qlik NPrinting, see: [Moving reports between environments \(page 278\)](#).*

You can import QlikView NPrinting 16 projects into Qlik NPrinting November 2019 one project at a time. Each QlikView NPrinting 16 project will be imported into a new Qlik NPrinting app. See: [Working with apps \(page 20\)](#). The app name will contain the import date and time. Importing the same QlikView NPrinting 16 project multiple times will result in many different apps, one for each import. Apps created from the same project are not overwritten.



*If you have an existing Qlik NPrinting installation, you should create a backup before starting the migration. See: [Backing up Qlik NPrinting \(page 193\)](#).*

### Requirements

- A QlikView NPrinting 16 project file (.nsq), exported as a .zip file. See: [Planning your migration \(page 105\)](#).
- A Qlik NPrinting user with an **Administrator** role assigned to them. You can also assign **Import NPrinting 16 projects** rights to a different role. See: [Setting app permissions \(page 230\)](#).



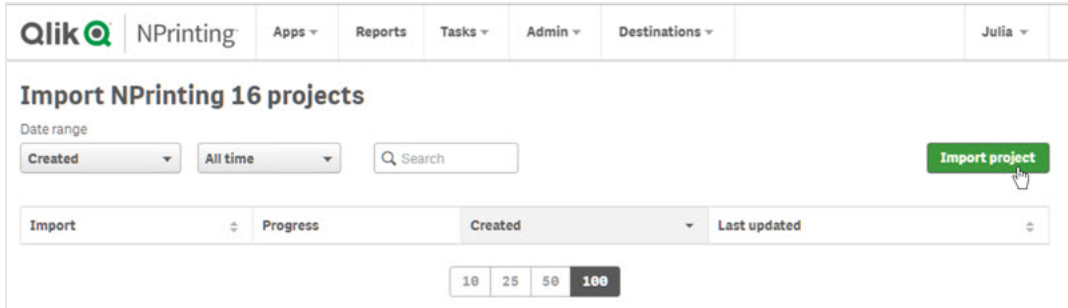
*If you enable this permission, that role gains full control of all apps and task executions. This is done in order for the user performing the migration to have access and edit rights to the new Qlik NPrinting app that will be created as a result of this task.*

### Running the migration tool

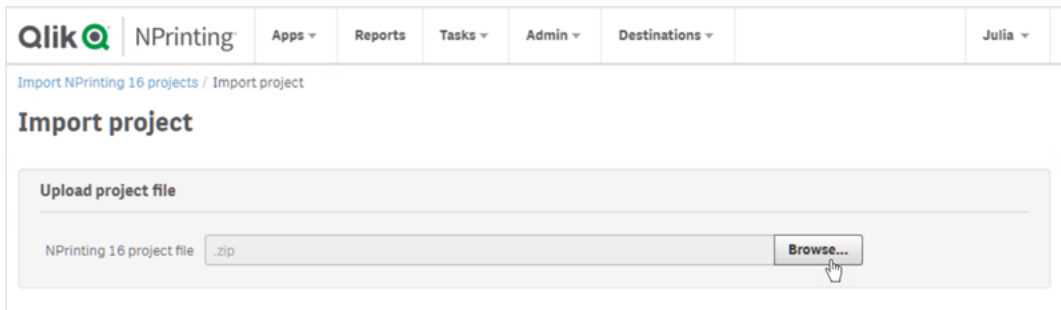
The import job will run as a single job until completed. You cannot select individual entities to import. The entire QlikView NPrinting 16 project will be imported.

Do the following:

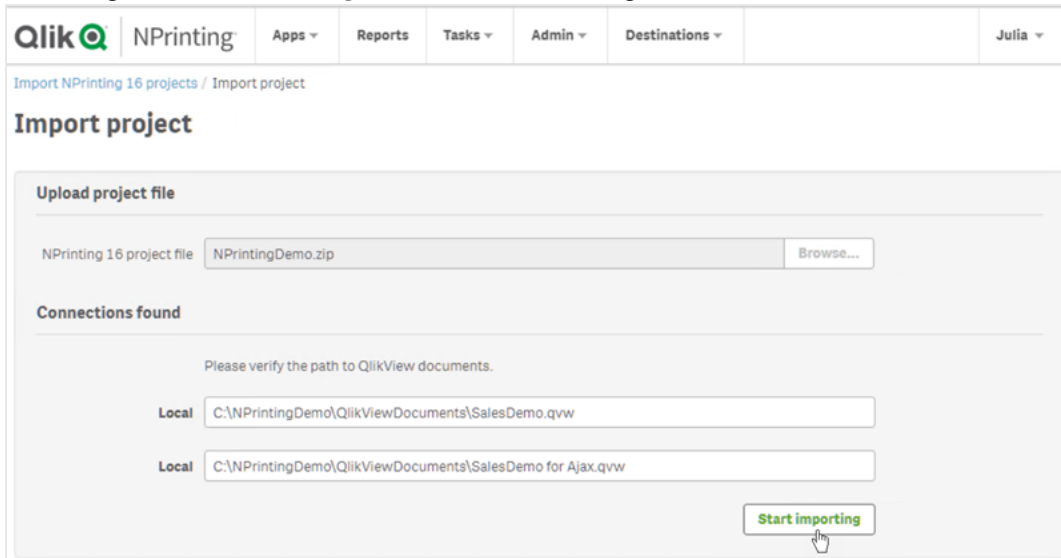
1. Log into Qlik NPrinting November 2019 or newer as an **Administrator**, or a role with **Import NPrinting 16 projects** rights.
2. In the main menu, go to **Admin** and, click on **Import NPrinting 16 projects**.
3. In the top right corner, click on the green **Import Project** button.



4. Click on **Browse...** and select the QlikView NPrinting 16 exported .zip file. You can import one project at a time.



5. Under **Connections found**, verify your connection paths. The imported paths to your QlikView documents may need to be updated. Paths are related to the Qlik NPrinting November 2019 or newer server. Relative paths are not supported and must be updated before proceeding. In case of connection errors or warnings, open the connection in the Qlik NPrinting web console and troubleshoot as usual. For example, you can click the **Verify connection** button.
6. Click the green **Start Importing** button on the bottom right.


















7. Wait until all connection caches are generated. In case of errors, open the specific connection, correct the error, and re-generate the cache as usual. See: *Connecting to QlikView documents (page 21)*.

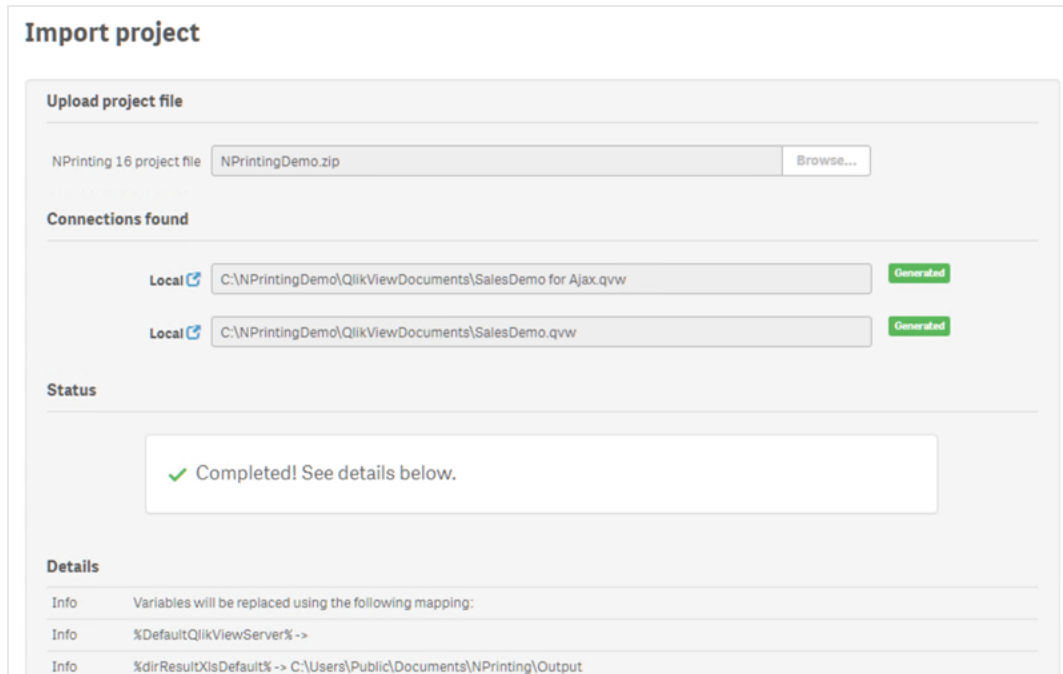
The screenshot displays the Qlik NPrinting web interface for importing a project. At the top, there is a navigation bar with the Qlik logo, 'NPrinting', and several menu items: 'Apps', 'Reports', 'Tasks', 'Admin', 'Destinations', and a user profile 'Julia'. Below the navigation bar, the page title is 'Import NPrinting 16 projects / 54c37cf6-6ff8-44f2-a5e1-a40ceb9da68b'. The main heading is 'Import project'. Underneath, there are three sections: 'Upload project file' with a text input 'NPrinting 16 project file' containing 'NPrintingDemo.zip' and a 'Browse...' button; 'Connections found' with two rows, each showing a 'Local' connection to a file path 'C:\NPrintingDemo\QlikViewDocuments\SalesDemo for Ajax.qvw' and 'C:\NPrintingDemo\QlikViewDocuments\SalesDemo.qvw' respectively, with a 'Generating' button to the right of each; and 'Status' with a message box that says 'In progress...' and 'You can exit this page without aborting the import.' At the bottom, the 'Details' section shows two lines of information: 'Info Variables will be replaced using the following mapping:' and 'Info %DefaultQlikViewServer% ->'. The interface is clean and modern, with a light gray background and blue accents.

8. As the migration tool runs, the result of each completed step is displayed. Some rows will have blue icons that link to the related migrated entity. You can click these to review import status.



Info	 Report 'QlikView Sheet Report': Imported
Info	 Report 'HTML Report': Imported
Info	 Report 'PixelPerfect Report': Imported
Info	 Report 'PowerPoint Report': Imported
Info	 Report 'Excel Report Demo': Imported
Info	 Report 'Excel Report with Object Filters': Imported
Info	 Report 'Simple Excel Report': Imported
Info	 Report 'Advanced Search': Imported
Info	--- Importing tasks ---
Warn	Publish task 'All report': The NP16 'Output folder' property is set to 'Custom folder'. Please check the task
Warn	Publish task 'All report': Create an archive containing the compressed reports' option is not supported
Info	 Publish task 'All report': Imported
Warn	Publish task 'Import Recipients': The task type 'UserImports' is not supported
Warn	Publish task 'Send Word Report': The NP16 'Output folder' property is set to 'Custom folder'. Please check the task
Warn	Publish task 'Send Word Report': Create an archive containing the compressed reports' option is not supported
Info	 Publish task 'Send Word Report': Imported
Warn	Publish task 'Send Excel Report': The NP16 'Output folder' property is set to 'Task output folder'. Please check the task
Info	 Publish task 'Send Excel Report': Imported
Warn	Publish task 'Send PixelPerfect Report': The NP16 'Output folder' property is set to 'Task output folder'. Please check the task
Info	 Publish task 'Send PixelPerfect Report': Imported
Warn	Publish task 'Send PowerPoint Report': The NP16 'Output folder' property is set to 'Task output folder'. Please check the task
Info	 Publish task 'Send PowerPoint Report': Imported
Warn	Publish task 'Send HTML Report Embedded': The NP16 'Output folder' property is set to 'Task output folder'. Please check the task
Info	 Publish task 'Send HTML Report Embedded': Imported
Info	 --- Generating report templates ---
Info	--- Import completed ---
Info	Imported connections: 2
Info	Imported filters: 15
Info	Imported conditions: 0

- Each migrated entity with a **Warn** or **Error** status has a detailed list describing the issue. You can edit the entity to solve any issues and mark it as **OK**.
- Once the migration tool stops running, review all messages to ensure your import was successful.



## Logs and troubleshooting

Log messages are visible on the import page. Once the migration has completed, click the **Download logs** button to quickly view logs.

To review old logs, go to **Admin > Import NPrinting 16 projects** and click on the import you want to check.

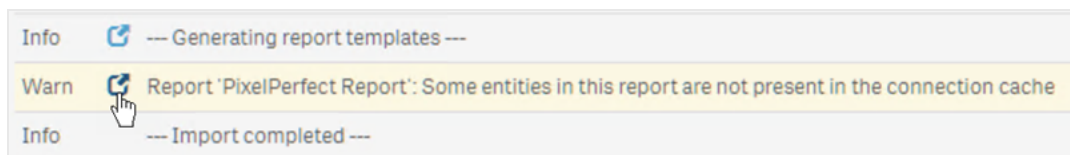
If you try to import unsupported features, they will be logged as not imported. If your migration has warnings or errors, see: *Troubleshooting your migration (page 114)*.

## 2.7 Troubleshooting your migration

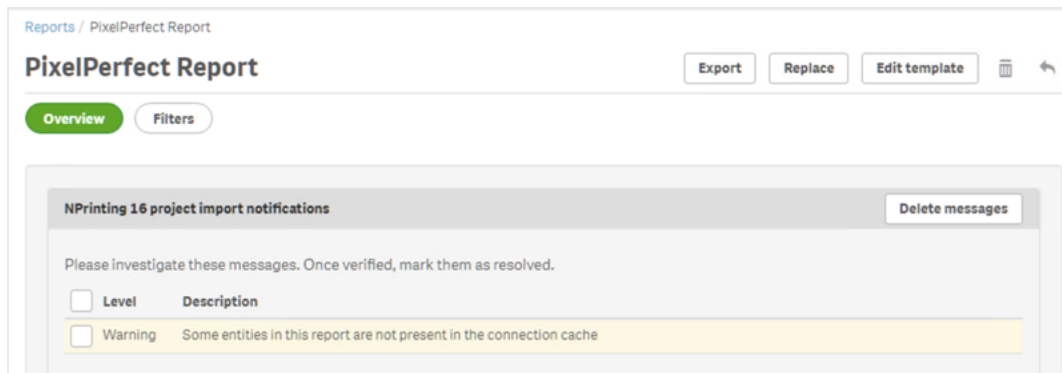
This section lists solutions to error messages that may display during migration.

Any text below that is inside curly brackets {} will be replaced with the exact value or name of your entities.

On the main import page, you can click the blue icons to review an entity in a new tab.



If an entity has error or warning messages, solve them, and go back to the import page.



## Main import page

The following messages are only displayed on the main migration page.

Unsupported NSQ file version. Please open the NSQ project with NPrinting 16, then save and export it again. You are trying to import a QlikView NPrinting 16 project with the .nsq file saved in an old format.

To solve:

1. Open the original .nsq file in a recent QlikView NPrinting 16 version.
2. Save it, even if you did not modify anything, to force the conversion to a supported format
3. Export the project again.

The NPrinting 16 project does not contain any connections.

You are trying to import a QlikView NPrinting 16 project without any connections.

To solve: Check the connections in QlikView NPrinting 16, and export the project again.

The uploaded file is not a valid NPrinting 16 exported project

You are uploading an exported project file (.zip) that does not contain an .nsq file.

To solve: Export the project again in QlikView NPrinting 16.

## Filters

Filter variable import failed: {name}

The import of a variable filter failed. Check that the variable {name} exists in the related .qvw.

To solve, try one or more of the following:

- Create the variable in the .qvw and refresh the connection cache.
- Modify the filter, in order to avoid using the variable.
- Delete the filter.

Filter field import failed because linked fields are not supported: {name}

Linked fields are not supported in Qlik NPrinting November 2019 or newer.

To solve: Manually modify the filter to use the original fields from different connections. The filter will work as expected, but can not be applied as a level, page, or cycle.

Filter bookmark import failed because QlikView bookmarks are not supported: {name}  
Bookmark filters are not supported by Qlik NPrinting November 2019 or newer.

To solve: Manually modify the filter to recreate the bookmark using the original fields.

Fields with 'Lock' applied are not supported. This filter may behave differently than the original: {name}  
The QlikView lock field option is not supported in Qlik NPrinting November 2019 or newer.

To solve: Manually update the created filter.

Cannot import field: {name}. This QlikView field is used in multiple fields: {qvId}  
QlikView NPrinting 16 filters that use the same field more than once are not supported in Qlik NPrinting November 2019 or newer.

To solve: Manually update the generated filter.

Cannot import filter variable: {name}. This QlikView variable is used in another filter: {qvId}  
QlikView NPrinting 16 filters that use the same variable more than once are not supported in Qlik NPrinting November 2019 or newer.

To solve: Manually update the generated filter.

Field skipped because it has no values: {name}  
You are trying to import a filter without field values, which does not have the **Clear all selections** option flagged.

To solve: Manually add the field in the newly created filter.

Filter field import failed: {name}  
The connection to the field {name} does not exist in the imported QlikView NPrinting 16 project.

To solve, try one or more of the following:

- Manually update the imported filter.
- Delete the filter.
- Update the QlikView NPrinting 16 project, export it, and import it again.

## Reports

Report filter import failed: {name}  
The import of the filter {name} associated with the report failed because the filter was not found.

To solve: Manually create the missing filter.

Report object filter import failed: {name}  
The import of the filter {name}, used in the report as an object filter, failed.

To solve: Manually create the missing filter, and add it as an object filter.

Report condition import failed: {name}

The import of the condition {name} associated with the report failed.

To solve: Manually create the missing condition, and add it to the report.

Customizing 'Field to add report name' when cycling is not supported: {name}

In Qlik NPrinting 19 November or newer, you cannot add the value of a field to the report file name if it is different than the field used in the cycle.

To solve: Manually modify how the report file name is created using supported dynamic naming features.

See: *Cycling your reports (page 324)* and *Dynamic report names (page 322)*.

Filter needs to be verified: {name}

An entity is using the filter {name} that has errors or warning messages.

To solve: Resolve the errors or warning in the filter {name}.

Connection not found: {name}. It is related to the cycle field: {field}

The connection {name} of the field {field} used in a cycle is missing.

To solve: Manually add the cycled field.

Connection not found: {name}. It is related to a variable used in dynamic naming: {variable}

The connection {name} to the variable {variable} used in dynamic naming is missing.

To solve: Manually update the dynamic naming configuration by adding the variable.

QlikView variable used in dynamic naming not found: {name}

The QlikView variable {name} used in dynamic naming is missing.

To solve: Manually update the dynamic naming configuration.

Unsupported variable type: {name}

The type of the variable {name} used in the imported dynamic naming configuration is not supported.

To solve: Open the report and edit the dynamic naming configuration.

QlikView object not found: {name}

The QlikView object {name} used in the report template is missing.

To solve: Recreate the object in the source .qvw and regenerate the connection cache.

Error reading QlikView entity

A generic error occurred while reading a QlikView entity. The error exists the imported QlikView NPrinting 16 project.

To solve:

1. Open the entity that generates the error.
2. Update the entity and make sure it is working properly.

No template file was found for this report  
The report template file is missing.

To solve:

- Check that the template file is present in the source QlikView NPrinting 16 project. It is a file-based system, so the template may have been deleted from the original templates folder. In this case, you must retrieve it from a backup or recreate it in the Qlik NPrinting installation.
- Check that the QlikView NPrinting 16 report contains the correct path to the template included the filename. The syntax could have been modified to an incorrect value.
- If you find the file in the QlikView NPrinting 16 templates folder, you can manually create the report in your Qlik NPrinting installation and use it as custom template. Then:
  - Open it in the Qlik NPrinting Designer and add the needed QlikView entities in the treeview, or
  - Export and import the QlikView NPrinting 16 project again, and verify the template is correct.

Template conversion failed  
The report template conversion failed.

To solve:

1. Open the template in Qlik NPrinting Designer.
2. Solve the error messages that appear.
3. Click on **Save and Close**. This will force the conversion to run again.

Some entities in this report are not present in the connection cache  
Some entities used in the template are missing from the connection cache.

To solve:

1. Open the template in Qlik NPrinting Designer to get a detailed list of the missing entities.
2. Solve the list by creating the missing entities in the source .qvw document. Or remove them from the template.
3. Regenerate the connection cache.

These errors may also appear in the QlikView NPrinting 16 project. For example, if the entities were deleted from the .qvw, but still used in the template. In this case:

1. Solve the errors in the QlikView NPrinting 16 installation.
2. Export and import it again.

## Conditions

Condition needs to be verified: {name}

The imported condition {name} used in a report in a task has warning or error messages.

To solve: Verify and correct the listed errors.

Connection not found: {name}

The connection {name} used in the imported condition is missing.

To solve: Manually update the condition.

Operator not found: {name}

The imported condition operator {name} is missing.

To solve: Update the condition by setting a supported operator.

Values option not found: {name}

The values option {name} used in the imported condition is missing.

To solve: Open the condition and update it.

QlikView variable not found: {name}

The QlikView variable {name} used in the imported condition is missing.

To solve:

- Change the condition by using an existing variable.
- Create the variable in the source .qvw and refresh the connection cache.

QlikView chart not found: {name}

The QlikView chart {name} used by the imported condition is missing.

To solve: Create the chart in the source .qvw and refresh the connection cache.

## Task

Task filter import failed: {name}

The filter {name} used in the imported task is missing.

To solve: Manually create the filter and associate it to the task.

Filter needs to be verified: {name}

An entity is using the filter {name}, which has errors or warning messages.

To solve: Resolve the errors or warnings in the filter.

Report needs to be verified: {name}

You are trying to use the report {name}, which has warning or error messages, in a task.

To solve: Open the report {name} and correct the errors.

Task report import failed: {name}

The report {name} used in the imported task is missing.

To solve:

1. Check the import logs to see if there was an error during the import of the report.
2. Create the report in your Qlik NPrinting November 2019 installation from scratch. Or use the QlikView NPrinting 16 template as custom template.

Task report was skipped: {name}. Another report exists with the same settings and output format: {format}  
In Qlik NPrinting November 2019 or newer, you cannot add the same report with the same output format and the same quality more than one time for each task. Only the first report is imported and the rest will be skipped.

Task report import failed: {name}. The output format is not supported: {format}  
Some output formats (like Word documents with macros .docm and PixelPerfect reports as .csv) are not supported by Qlik NPrinting November 2019 or newer.

To solve: Add the report to the task and select one of the supported output formats. See: *Report output formats (page 469)*.

Task report import failed: {name}. The output format {format} is not supported with {type} reports  
You are trying to import the report {name} in a task with an unsupported output format {format}.

To solve: Add the report to the task and select one of the supported output formats. See: *Report output formats (page 469)*.

The coloration type {type} is not supported for this task report: {name}  
Color is the only supported mode in Qlik NPrinting November 2019 or newer.

Multi page advanced setting is not supported for this task report: {name}  
Report multi-paging is not supported for the report {name}.

Custom separator is not supported. Comma will be used instead for task report: {name}  
The use of custom separators is not supported in Qlik NPrinting November 2019 or newer. They will be replaced by commas.

Custom page range is not supported for this task report: {name}  
Custom page ranges are not supported for the report {name} in the task.

This tag is not supported for the task email: {name}  
Qlik NPrinting November 2019 or newer does not support certain email body tags.

To solve: Update the email body accordingly. See: *Planning your migration (page 105)*.

Using an external HTML file as email body is not supported: {name}  
You cannot use an external HTML file as an email body.

To solve: Copy the content of the HTML file and paste it in the email body editor.

Attaching external files to the task email is not supported: {name}  
External email attachments are not supported.

Email footer image is not supported: {name}  
Email footer images are not supported. You cannot add them manually.



To solve, try one of the following:

- Edit the email body by embedding the image
- Create an HTML body text with the image.

'Create an archive containing the compressed reports' option is not supported  
You cannot create an archive containing the compressed reports.

To solve: Send reports uncompressed.

'Low' and 'Medium' report quality are not supported. 'Normal' will be used instead for this task report: {name}  
'Low' and 'Medium' report quality are not supported.

To solve: Manually update the quality setting. See: *Image quality (page 302)*.

'Printer configuration for hard copies' option is not supported  
Qlik NPrinting November 2019 or newer cannot send generated reports directly to printers.

The NPrinting 16 task output folder was set to 'Task output folder'  
QlikView NPrinting 16 destinations are not imported, you must add them manually to the imported tasks.

The NPrinting 16 task output folder was set to 'Recipient folder'  
QlikView NPrinting 16 destinations are not imported, you must add them manually to the imported tasks.

The NPrinting 16 task output folder was set to 'Task folder with recipient subfolder'  
QlikView NPrinting 16 destinations are not imported, you must add them manually to the imported tasks.

The NPrinting 16 task output folder was set to 'Custom folder'  
QlikView NPrinting 16 destinations are not imported, you must add them manually to the imported tasks.

## 3 Deploying

Qlik NPrinting has three components to deploy: Qlik NPrinting Server, Qlik NPrinting Engine, and Qlik NPrinting Designer.

Qlik NPrinting Server is the central node in your reporting system. It manages user administration, security, and all other server-side tasks. Qlik NPrinting Engine creates reports based on information from the scheduler. Qlik NPrinting Designer is Windows-based software that is installed on the computers of developers who create and modify reports.



*Qlik NPrinting is an on-premise reporting add-on product for Qlik Sense on Windows or QlikView on Windows.*

### Licensing Qlik NPrinting

Learn the licensing requirements and procedures for connecting Qlik NPrinting to QlikView or Qlik Sense.

### Planning your deployment

Plan your Qlik NPrinting deployment by finding out what is required in terms of architecture, deployment scenarios, and security.

### Qlik NPrinting installation

Install Qlik NPrinting components and activate licenses.

### Security

Qlik NPrinting leverages internal and external resources to manage access, authentication, authorization, and data governance.

### Backup and restore Qlik NPrinting

Create a complete backup of your Qlik NPrinting installation.

### Upgrading Qlik NPrinting

Upgrade Qlik NPrinting to the latest release.

## 3.1 Planning your deployment

To successfully plan and prepare for your Qlik NPrinting deployment, review the following topics:

#### System requirements

Check that your environment fulfills the system requirements.  
*System requirements for Qlik NPrinting Server (page 123)*

*System requirements for Qlik NPrinting Engine (page 125)*

*System requirements for Qlik NPrinting Designer (page 128)*

*Ports (page 133)*

Check that the required ports are available on your system.

*Supported browsers and apps (page 130)*

Check that your browsers are supported.

*Supported languages (page 130)*

Check that your language is supported.

*Architecture (page 131)*

Understand the Qlik NPrinting architecture.

*User accounts (page 136)*

Understand and set up the various user accounts required to install and run the Qlik NPrinting services.

*Connecting Qlik NPrinting with Qlik Sense (page 172)*

Understand how Qlik NPrinting works with Qlik Sense.

*Connecting Qlik NPrinting with QlikView (page 178)*

Understand how Qlik NPrinting works with QlikView.

*Configuring server certificate validation for Qlik Sense connections (page 175)*

Understand how Qlik NPrinting uses Qlik Sense certificates for security when connecting to Qlik Sense, and how to export and install those certificates.

*Licensing Qlik NPrinting (page 145)*

Ensure that you have your Qlik NPrinting license key available.

*Qlik NPrinting installation (page 155)*

Once you have reviewed and completed these tasks, you are ready to install Qlik NPrinting.

## System requirements for Qlik NPrinting Server

This section lists the minimum hardware and software requirements for Qlik NPrinting Server.

Qlik NPrinting will work on both physical and virtual machines. However, virtualized applications are not supported. For example, Qlik NPrinting Engine will not work if it is installed on a computer with virtualized versions of QlikView Desktop and Microsoft Office distributed from a different computer. QlikView Desktop and Microsoft Office must be installed locally on the same physical or virtual machine where the Qlik NPrinting components are installed.

### Requirements

The hardware requirements listed on this page are for configurations where each Qlik NPrinting component is installed on a different computer. If you install more than one component on the same computer, the minimum hardware requirements increase.

- Platforms:
  - 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 with a minimum of two cores.
- Memory: 8 GB minimum
- Qlik NPrinting can only be installed on C drives.
- Disk space: 500 MB minimum if audit trail is turned off, or 2.5 GB if audit trail is enabled.



*The actual disk space required depends on multiple factors. The size of your database, reports, and cached files will affect your space requirements. For larger apps and reports, you will need more than 500 MB of disk space.*

- Storage: Only Windows, local or shared, storage is supported.
- Microsoft Internet Explorer is not supported by Qlik NPrinting. However, if Microsoft Internet Explorer Enhanced Security Configuration is turned on, it may cause errors. For more information, see *Microsoft Internet Explorer Enhanced Security Configuration is blocking QV.exe (QlikView) and reporting\_web\_renderer.exe (Qlik Sense) (page 550)*.
- Server clocks:

Qlik NPrinting Server and Qlik NPrinting EngineWindows server clocks must be synchronized within a tolerance of 2 seconds. A Windows server synchronizes its clock with the domain controller clock, so, if Qlik NPrinting Server and Qlik NPrinting Engine are in the same domain, clocks will be in sync. You should not manually remove this option. If you install Qlik NPrinting Server and Qlik NPrinting Engine on different Windows server domains, you must ensure that clocks are synchronized within a tolerance of 2 seconds.
- Platform security: TLS 1.2 must be enabled.



*License activations request access to the Qlik Licensing Service. Open port 443 and allow outbound calls to [license.qlikcloud.com](https://license.qlikcloud.com). Use of a proxy is supported. For more information about setting up a proxy service in Windows, see *Licensing service proxy Setup (page 147)**

### Additional software installed

During the Qlik NPrinting Server installation, third-party software is installed if not already present. The following table notes the installed software and version for each Qlik NPrinting Server version.

Additional software installed with Qlik NPrinting Server

Version	Version number	PostgreSQL	RabbitMQ	Erlang	.Net framework
IR	23.20.1	13.8-1	3.11.7	25.2.1	4.8.0
SR 1	23.20.3	13.11-2	3.11.7	25.2.1	4.8.0
SR 2	23.20.5	13.11-2	3.11.7	25.2.1	4.8.0
SR 3	23.20.9	12.11-2	3.12.10	25.2.1	4.8.0
SR 4	23.20.11	13.14-1	3.12.10	25.2.1	4.8.0
SR 5	23.20.13	13.14-1	3.12.10	25.2.1	4.8.0
SR 6	23.20.16	13.16-1	3.12.10	25.2.1	4.8.0
SR 7	23.20.21	13.18-1	3.12.10	25.2.1	4.8.0

The following software is installed during the Qlik NPrinting Server setup, and is unchanged with new service releases or Qlik NPrinting version upgrades:

- Microsoft Visual C++ 2013 Redistributable x64 (12.0.30501)
- Microsoft Visual C++ 2015-2022 Redistributable x86 (14.36.32532)
- Microsoft Visual C++ 2015-2022 Redistributable x64 (14.36.32532)
- .NET framework: 4.8.0



*.NET framework is installed when you install Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer. The installation of .NET framework requires an internet connection. If .NET framework is not already installed on a computer without an internet connection, the installation stops. Before you begin the installation of Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer, you must install the .NET framework on computers without an internet connection. If an internet connection is not available on a computer with .NET framework already installed, the installer will skip this part of the installation.*

## System requirements for Qlik NPrinting Engine

This section lists the minimum hardware and software requirements for Qlik NPrinting Engine.

Qlik NPrinting will work on both physical and virtual machines. However, virtualized applications are not supported. For example, Qlik NPrinting Engine will not work if it is installed on a computer with virtualized versions of QlikView Desktop and Microsoft Office distributed from a different computer. QlikView Desktop and Microsoft Office must be installed locally on the same physical or virtual machine where the Qlik NPrinting components are installed.

By default, only one Qlik NPrinting Engine is available for each Qlik NPrinting Server license. If you want to add additional engines to your Qlik NPrinting environment, you need to purchase them.

## Requirements

These Qlik NPrinting Engine requirements are for configurations where each Qlik NPrinting component is installed on a different computer. If you install more than one component (for example, the server and the engine) on the same computer, the minimum hardware requirements increase.

- Platforms:
  - Microsoft Windows Server 2012
  - Microsoft Windows Server 2012 R2
  - Microsoft Windows Server 2016
  - Microsoft Windows Server 2019
  - Microsoft Windows Server 2022 (as of May 2022 SR1)
- Processors (CPUs): Multi-core x64 compatible processors with a minimum of two cores.
- Memory: 2 GB is required for each core with a minimum of 4 GB of RAM in total.
  - QlikView Desktop must have enough memory to manage the QlikView documents that you use as reporting data sources.
  - A MultiDoc report is a report with data from many QlikView documents. If you create MultiDoc reports, all QlikView documents used as data sources will be opened at the same time.
  - Connecting additional Qlik Sense servers will have an impact on Qlik NPrinting Server system resources. You may need to increase the RAM and CPU usage on Qlik Qlik NPrinting Engine and Qlik NPrinting Server computers if you connect to multiple Qlik Sense.
- Qlik NPrinting can only be installed on C drives.
- Disk space: 300 MB minimum



*The actual disk space required depends on multiple factors. The size of your reports and cached files will affect your space requirements. For larger apps and reports, you will need more than 300 MB of disk space.*

- Storage: Only Windows, local or shared, storage is supported.
- Microsoft Internet Explorer is not supported by Qlik NPrinting. However, if Microsoft Internet Explorer Enhanced Security Configuration is turned on, it may cause errors. For more information, see *Microsoft Internet Explorer Enhanced Security Configuration is blocking QV.exe (QlikView) and reporting\_web\_renderer.exe (Qlik Sense)* (page 550).
- Server clocks:

Qlik NPrinting Server and Qlik NPrinting Engine Windows server clocks must be synchronized within a tolerance of 2 seconds. A Windows server synchronizes its clock with the domain controller clock, so, if Qlik NPrinting Server and Qlik NPrinting Engine are in the same domain, clocks will be in sync. You should not manually remove this option. If you install Qlik NPrinting Server and Qlik NPrinting Engine on different Windows server domains, you must ensure that clocks are synchronized within a tolerance of 2 seconds.
- Platform security: TLS 1.2 must be enabled.



*License activations request access to the Qlik Licensing Service. Open port 443 and allow outbound calls to [license.qlikcloud.com](https://license.qlikcloud.com). Use of a proxy is supported. For more information about setting up a proxy service in Windows, see [Licensing service proxy Setup \(page 147\)](#)*

### QlikView compatibility

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.

Qlik NPrinting May 2023 is compatible with the following QlikView versions (initial release and all service releases supported unless noted):

- QlikView May 2023 (12.80)
- QlikView May 2024 (12.90)

QlikView Desktop Personal Edition is not supported.

QlikView in Qlik Cloud is not supported.

If you are migrating from QlikView NPrinting 16 to Qlik NPrinting November 2019 or newer, you may need to upgrade your QlikView version. See: [Upgrading QlikView NPrinting 16 before migration \(page 105\)](#).

### Qlik Sense compatibility

Qlik NPrinting May 2023 is compatible with the following Qlik Sense versions (initial release and all patches supported unless noted):

- Minimum supported version is Qlik Sense Enterprise on Windows August 2022.
- Maximum supported version is Qlik Sense Enterprise on Windows May 2024.

No client software is required for connecting Qlik Sense with Qlik NPrinting.



*Qlik Cloud is not supported.*

### Additional software installed

The following software is installed during the Qlik NPrinting Engine setup, unless it is already installed. It must not be removed:

- PDF-XChange 5.0.269
- .NET framework: 4.8.0



*.NET framework is installed when you install Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer. The installation of .NET framework requires an internet connection. If .NET framework is not already installed on a computer without an internet connection, the installation stops. Before you begin the installation of Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer, you must install the .NET framework on computers without an internet connection. If an internet connection is not available on a computer with .NET framework already installed, the installer will skip this part of the installation.*

## System requirements for Qlik NPrinting Designer

This section lists the minimum hardware and software requirements for Qlik NPrinting Designer.

The hardware requirements listed on this page are for configurations where each Qlik NPrinting component is installed on a different computer. If you install more than one component (for example, the server and the engine) on the same computer, the minimum hardware requirements increase.

Qlik NPrinting will work on both physical and virtual machines. However, virtualized applications are not supported. For example, Qlik NPrinting Engine will not work if it is installed on a computer with virtualized versions of QlikView Desktop and Microsoft Office distributed from a different computer. QlikView Desktop and Microsoft Office must be installed locally on the same physical or virtual machine where the Qlik NPrinting components are installed.

### Requirements

These Qlik NPrinting Designer requirements are for configurations where each Qlik NPrinting component is installed on a different computer. If you install more than one component (for example, the server and the engine) on the same computer, the minimum hardware requirements increase.

- Qlik NPrinting Designer must be the same version as Qlik NPrinting Server.
- Platforms: Both 32-bit and 64-bit architectures are supported for these operating systems.
  - These operating systems are supported by Qlik NPrinting. Third-party software may require service packs to be installed:
    - Microsoft Windows 8.1
    - Microsoft Windows 10 build 1607 or later
    - Microsoft Windows 11 (as of May 2022 SR1)
  - These server operating systems are supported, but we recommend that you install Qlik NPrinting Designer on client computers and not on servers. Server capacity is not needed when developing report templates:
    - Microsoft Windows Server 2012
    - Microsoft Windows Server 2012 R2
    - Microsoft Windows Server 2016



- Microsoft Windows Server 2019
- Microsoft Windows Server 2022 (as of May 2022 SR1)
- Processors (CPUs): No specific needs for Qlik NPrinting Designer. When creating Microsoft Office based templates, Microsoft Office requirements apply.
- Memory: 1 GB is required. When creating Microsoft Office based templates, Microsoft Office requirements apply.
- Qlik NPrinting can only be installed on C drives.
- Disk space: 200 MB for installation
- Storage: Only Windows, local or shared, storage is supported.
- Microsoft Office: A valid Microsoft Office license is required. Microsoft Office must be installed locally on computers where Qlik NPrinting Designer is installed if you plan to create Excel, PowerPoint, or Word report templates. Both 32-bit and 64-bit architectures are supported:
  - Excel 2016, 2019, 2021
  - PowerPoint 2016, 2019, 2021
  - Word 2016, 2019, 2021
  - Microsoft Office 365 Desktop



*Local installations and Click to Run are supported for use with Qlik NPrinting Designer. However, Microsoft Office 365 web and mobile versions are not supported.*

You do not need Microsoft Office to manage QlikEntity, HTML, and PixelPerfect report templates.



*License activations request access to the Qlik Licensing Service. Open port 443 and allow outbound calls to [license.qlikcloud.com](https://license.qlikcloud.com). Use of a proxy is supported. For more information about setting up a proxy service in Windows, see [Licensing service proxy Setup \(page 147\)](#)*

### Additional software installed

The following software is installed during the Qlik NPrinting Designer setup, unless it is already installed and it must not be removed:

- .NET framework: 4.8.0  
.NET framework is installed when you install Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer. The installation of .NET framework requires an internet connection. If .NET framework is not already installed on a computer without an internet connection, the installation stops. Before you begin the installation of Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer, you must install the .NET framework on computers without an internet connection. If an internet connection is not available on a computer with .NET framework already installed, the installer will skip this part of the installation.

## Troubleshooting

### Qlik NPrinting Designer crashes sometimes

#### Possible cause

Your Windows display is zoomed in. When settings of 125% or 150% are selected, Qlik NPrinting Designer may crash.

#### Proposed action

Open your Windows **Display Settings** in the Control Panel. Set zoom to **Smaller – 100%** (default).

## Supported browsers and apps

Each Qlik NPrinting release is tested for compatibility with the latest publicly available browser versions. Due to the frequency of browser version updates, Qlik does not include specific browser version numbers in the system requirements.

Qlik NPrinting Designer, Qlik NPrinting web console, and NewsStand are supported on the following web browsers:

- Microsoft Edge (Chromium engine only)
- Google Chrome
- Mozilla Firefox (requires hardware acceleration, not supported in virtual environments)



*Qlik NPrinting Designer does not run as a stand-alone application. Qlik NPrinting Designer is launched from the Qlik NPrinting web console.*



*To launch Qlik NPrinting Designer, you need to be browsing on a Windows machine that already has Qlik NPrinting Designer installed on it.*



*For Qlik NPrinting web console and NewsStand, a minimum screen resolution of 1024x768 is required on desktops and laptops. Mobile and small screen support is not currently available.*

## Troubleshooting

Microsoft Internet Explorer is not supported by Qlik NPrinting. However, if Microsoft Internet Explorer Enhanced Security Configuration is turned on, it may cause errors. For more information, see *Microsoft Internet Explorer Enhanced Security Configuration is blocking QV.exe (QlikView) and reporting\_web\_renderer.exe (Qlik Sense) (page 550)*.

## Supported languages

Qlik NPrinting is available in the following languages:

- English
- French
- German
- Spanish
- Brazilian Portuguese
- Japanese
- Italian
- Simplified Chinese

Report generation is fully supported for content in these languages. Other languages are not officially supported. Issues may occur during report generation if content in unsupported languages, particularly those with right to left script and non-Roman alphabets, is used.

The user interfaces are translated in supported languages for the following:

- Qlik NPrinting web console
- NewsStand
- Qlik NPrinting Designer

The language displayed in the user interface is determined by locale settings, which both users and an administrators can set. To change the user interface language, see *Changing user language (page 258)*.

Changing the locale settings affects the Qlik NPrinting user interface. Users can also change their browser language, and report developers can create templates for different languages.

## Architecture

Qlik NPrinting is the enterprise class solution for report distribution in QlikView and Qlik Sense environments.

Qlik NPrinting creates and distributes reports using QlikView documents or Qlik Sense apps as data sources.

### Qlik NPrinting Server

The Qlik NPrinting Server consists of the following components services:

- Qlik NPrinting scheduler service
- Qlik NPrinting repository
- Qlik NPrinting web engine
- Qlik NPrinting messaging service
- Qlik NPrinting audit service

All of these services are installed automatically on a single server when you install Qlik NPrinting Server.

#### Qlik NPrinting scheduler service

The Qlik NPrinting scheduler service does the following:

- distributes jobs among available engines
- prioritizes jobs
- delivers reports
- schedules jobs

If the Qlik NPrinting scheduler service is restarted, jobs restart from the point where they were stopped.

### Qlik NPrinting repository

The Qlik NPrinting repository service stores all the data necessary for Qlik NPrinting to work properly. This includes: users and their roles, report metadata, connections, and filters. The Qlik NPrinting repository realizes the persistence of data by using a database server in the background.

### Qlik NPrinting web engine

The Qlik NPrinting web engine service manages user authentication and authorization based on user roles. See: *Creating users (page 240)*

### Qlik NPrinting messaging service

The Qlik NPrinting messaging service manages communication between the Qlik NPrinting Server and Qlik NPrinting Engines.

### Qlik NPrinting audit service

The Qlik NPrinting audit service writes audit logs to the Qlik NPrinting audit database.

### Qlik NPrinting Engine

Qlik NPrinting Engines produce reports based on information received from the Qlik NPrinting scheduler service. Each Qlik NPrinting Engine is multi-threaded to benefit from multi-channel CPUs. You can install multiple Qlik NPrinting Engines on different computers to distribute the workload and create a high-availability reporting system. You can only install one Qlik NPrinting Engine per computer.

### Qlik NPrinting front end

The Qlik NPrinting front end consists of the following components:

- Web-based user interface
- On-Demand
- NewsStand
- Qlik NPrinting Designer

#### Web-based user interface

The web-based user interface is used by administrators and users. It can be accessed via any supported web browser. For information about which browsers are supported, see *Supported browsers and apps (page 130)*.

#### On-Demand

On-Demand report generation allows users to request reports without waiting for the next scheduled generation. See: *On-Demand reports (page 490)*

## NewsStand

NewsStand is a web portal that allows authorized users to view, download, and subscribe to reports.

## Qlik NPrinting Designer

Qlik NPrinting Designer is a desktop application that allows developers to create and manage report templates. It is launched from the web console.

## Ports

Qlik NPrinting uses the following Transmission Control Protocol (TCP) port numbers.

## Security

- QlikView ports are not encrypted. They are standard QlikView ports.
- Database connections are configured to be local connections only. For example, you can only connect to the PostgreSQL instance that is running on the same computer. You should not change the PostgreSQL configuration.
- Firewall rules require that external access to the webengine is closed.
- Connection for certificate exchange is in plain text, but the message itself is encrypted.

## Default ports



*Additional ports used by RabbitMQ may be in use in your Qlik NPrinting system. For more information, see [Networking and RabbitMQ](#).*

Default ports

TCP Port	Security	Description
443	TLS	Qlik Sense Hub listen port. Also used for used for Qlik NPrinting licensing service back end.
2727	TLS	Websocket proxy for reporting web renderer.
4242	TLS	Qlik Sense Repository Service (QRS) REST API listen port..
4243	TLS	Qlik Sense Proxy Service (QPS) REST API listen port. .
4730	Plain text	QlikView DSC service port, always open on QlikView Server (QVS).
4747	TLS	Qlik Sense Engine Service (QES) listen port and QlikView Server (QVS).
4799	Plain text	QlikView Management Service (only for cluster).

<b>TCP Port</b>	<b>Security</b>	<b>Description</b>
4992	Plain text, local connections only	Repository service.
4993	TLS	Qlik NPrinting web console proxy. Uses HTTPS protocol.
4994	TLS	NewsStand proxy. Uses HTTPS protocol.
4995	Plain text, local connections only	Windows authentication service. This port does not need to be open on the end-user's computer.
4996	Plain text	Web engine service.
4997	Plain text	Engine TLS certificates exchange server.
4998	TLS	Qlik NPrinting licensing service.
5672	TLS	Qlik NPrinting messaging service.
15672	Plain text	Qlik NPrinting messaging service management plugin. This is disabled by default and requires manual intervention for the listener to be activated. This service should only be enabled for debugging or support.

## Firewall rules

### Minimum firewall rules

<b>TCP Port</b>	<b>Qlik NPrinting Server</b>	<b>Qlik NPrinting Engines</b>	<b>Notes</b>
4993	Inbound	-	-
4994	Inbound	-	-
4996	Block inbound, loopback allowed	-	Only allow listening on loopback interface.
4997	Outbound	Inbound	-
4998	Loopback allowed	-	Must allow traffic on the loopback interface on Qlik NPrinting Server.
5672	Loopback allowed	-	Must allow traffic on the loopback interface on Qlik NPrinting Server.
5672	Inbound	Outbound	If Qlik NPrinting scheduler service and Qlik NPrinting Engine are installed on different machines.

QlikView connection rules

TCP Port	Qlik NPrinting Engines	QlikView Server	QlikView Management Server	Notes
4730	Outbound	Inbound	-	-
4747	Outbound	Inbound	-	-
4799	Outbound	-	Inbound	Only if a cluster is used.

Qlik Sense connection rules

TCP Port	Qlik NPrinting Engines	Qlik Sense Server
443	Outbound	Inbound
4242	Outbound	Inbound
4243	Outbound	Inbound
4747	Outbound	Inbound

Publish reports to Qlik Sense hub connection rules

TCP Port	Qlik NPrinting Server	Qlik Sense Server
443	Outbound	Inbound
4242	Outbound	Inbound
4243	Outbound	Inbound
4747	Outbound	Inbound

### Changing the default ports

By default, the Qlik NPrinting web console is set to port 4993. The NewsStand is set to port 4994. These can be changed by editing the *webengine.config* file. This file is typically located under: *C:\Program files\NPrintingServer\NPrinting\Webengine\webengine.config*.

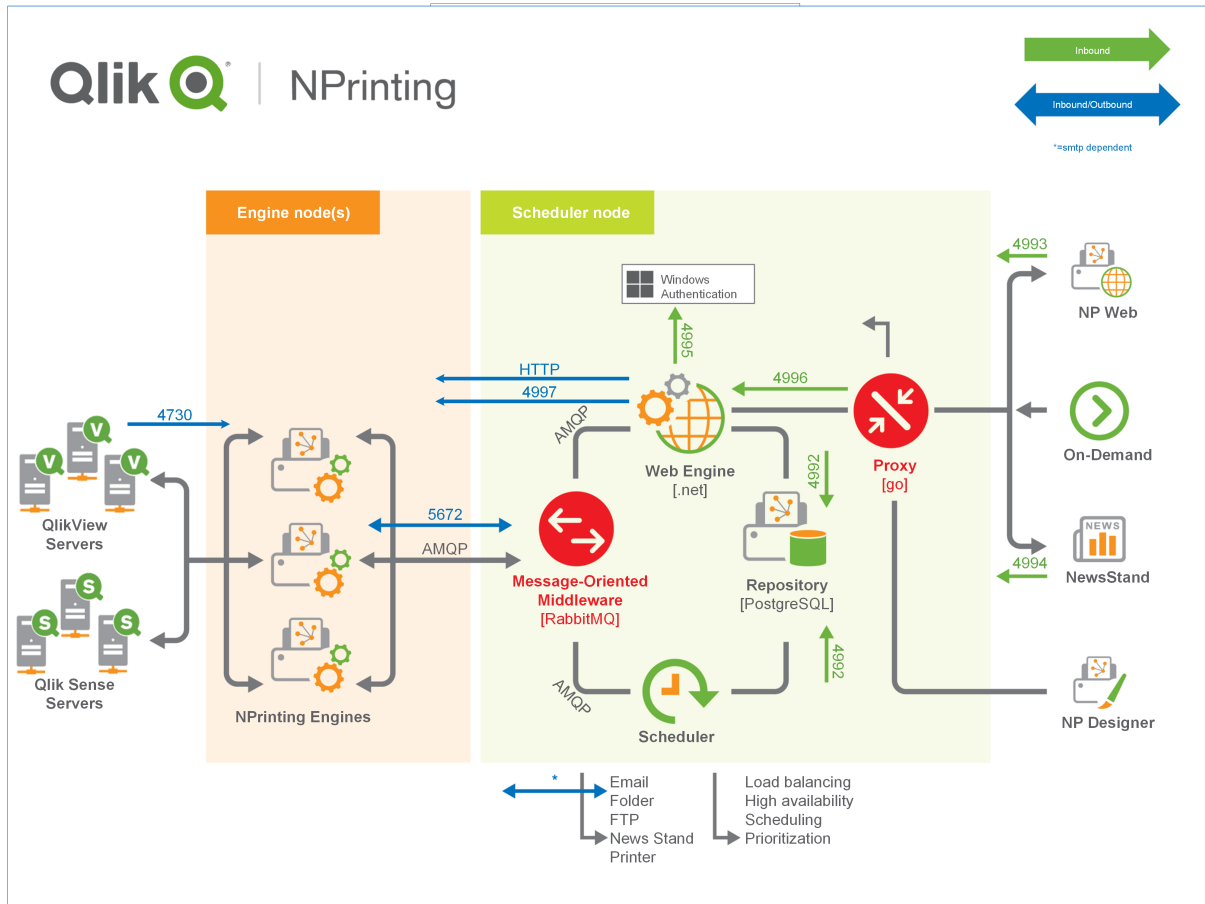


*You should always backup your Qlik NPrinting repository before editing a .config file. For more information, see [Backing up Qlik NPrinting \(page 193\)](#).*

Do the following:

1. Stop the Qlik NPrinting web engine service.
2. Open the *webengine.config* file in a text editor.
3. Update these strings with your preferred port values:
  - `<add key="webconsole-proxy-port" value="4993" />`
  - `<add key="newsstand-proxy-port" value="4994" />`

4. Save the file.
5. Start the Qlik NPrinting web engine service.



For more information about managing ports, see the Microsoft Windows help.

## User accounts

You must set up several user accounts in order to successfully install Qlik NPrinting. Windows user accounts are created and managed with your Windows server administration tools.

You must create these Windows user accounts before you install Qlik NPrinting:

- Windows Qlik NPrinting Server services administrator
- Windows Qlik NPrinting Engine service administrator
- Qlik NPrinting repository database superuser
- Qlik NPrinting repository database administrator





Each Windows user account must have a password. These passwords may expire in accordance with the Windows domain security rules settings. If you do not update the passwords for each Windows service setting, the services will stop working. To avoid this, you can select the **Password never expires** check box in the Windows user profile, if your security protocol allows it.



The Qlik NPrinting service account used must be able to authenticate seamlessly in the background without being prompted for a user name and password. Access will be denied if there are separate domains and standalone servers.

### Windows Qlik NPrinting Server services administrator

The Qlik NPrinting Server services administrator runs the following services:

- Qlik NPrinting scheduler service
- Qlik NPrinting web engine

You should create a dedicated Windows user account to install Qlik NPrinting Server and run the associated services. This ensures that there are no conflicts with other Windows services on the same computer. If you are only installing one instance of Qlik NPrinting Engine on the same computer as the Qlik NPrinting Server, you can use the same Windows user account for all Qlik NPrinting services on that computer. However, it is a good practice to have different users for different services. Some processes opened by Qlik NPrinting are also opened by Qlik Sense. It is easier to troubleshoot issues if you can quickly see which user or program caused the error.

You are prompted to enter these credentials on the **Service logon credentials** screen during the Qlik NPrinting Server installation. You must also use these credentials when prompted during the activation of Qlik NPrinting scheduler service and Qlik NPrinting web engine.

### Requirements

The Qlik NPrinting Server services administrator must:

- Be a member of the local Administrators group.
- Have Log on as a service rights.

### Changing the Qlik NPrinting Server services administrator

Do the following:

1. Stop the Qlik NPrinting scheduler service.
2. Stop the Qlik NPrinting web engine service.
3. Change the user account on Qlik NPrinting scheduler service and Qlik NPrinting web engine. These two services must be run by the same user.
4. Start the two services.

### Windows Qlik NPrinting Engine service administrator

The Qlik NPrinting Engine service administrator runs the Qlik NPrinting Engine service.

You should create a dedicated Windows user account to install Qlik NPrinting Engine and run the associated services. This ensures that there are no conflicts with other Windows services on the same computer. If you are only installing one instance of Qlik NPrinting Engine on the same computer as the Qlik NPrinting Server, you can use the same Windows user account for all Qlik NPrinting services on that computer. However, it is a good practice to have different users for different services. Some processes opened by Qlik NPrinting are also opened by Qlik Sense. It is easier to troubleshoot issues if you can quickly see which user or program caused the error.

You are prompted to enter these credentials on the **Service logon credentials** screen during the Qlik NPrinting Engine installation.

### Requirements

The Windows service administrator must:

- Be a member of the local Windows **Administrators** group.
- Be a domain user.
- Have Log on as a service rights.

### Limitations

You can only install one instance of Qlik NPrinting Engine on each computer.

### Additional Qlik Sense requirements

To connect Qlik NPrinting to Qlik Sense apps:

- Add Qlik Sense server certificates to the Qlik NPrinting Engine. See: *Configuring server certificate validation for Qlik Sense connections (page 175)*
- The same Windows user account can be used for all Qlik NPrinting Engine installations if you are only connecting to Qlik Sense.
- The Windows user account that runs the Qlik NPrinting Engine service must have:
  - **RootAdmin** authorization configured in the QMC.
  - A domain user account that is a member of the same domain as the Qlik NPrinting server and the Qlik Sense server.

### Additional QlikView requirements

To connect Qlik NPrinting to QlikView documents:

- You must use a different Windows user account for each Qlik NPrinting Engine instance if you are connecting to QlikView.
- The Windows user account must belong to the local QlikView Administrator group on all QVS servers used by Qlik NPrinting.
- The Windows user account that runs the Qlik NPrinting Engine service must have one of the following:
  - A named user Client Access License (CAL) that is manually assigned to the Qlik NPrinting Engine service user active directory account, on the QlikView Server.
  - An active license for QlikView Desktop, which must be installed on the Qlik NPrinting Engine computer.



*QlikView Desktop Personal Edition is not supported. See: Licensing Qlik NPrinting (page 145)*

### Additional QlikView Cluster requirements

To create a connection to a QlikView Cluster:

- You must use a different Windows user account for each Qlik NPrinting Engine instance if you are connecting to QlikView.
- The Windows user account that runs the Qlik NPrinting Engine service must have:
  - Be part of QlikView Administrators security group in all the nodes of the cluster.
  - Be part of QlikView Management API security group on the computer where QMS runs. This group must be added manually. See the QlikView Server Reference Manual for more information.



*Users connecting through the API must be members of the QlikView Management API security group. The group is not created during the installation. It must be added and populated manually (for example, with the members of the QlikView Administrators group).*

### Changing the Qlik NPrinting Engine services administrator

You can change the services user account on all releases, except for:

- November 2018
- February 2019
- April 2019
- June 2019

If you have one of these versions, you will need to upgrade to Qlik NPrinting September 2019 or higher to change services user accounts.

Do the following:

1. Stop the Qlik NPrinting Engine service.
2. Change the service user account.
3. Start the Qlik NPrinting Engine.

The engine status may not immediately switch online if you have recently upgraded from one of the versions listed above that do not support the service account change.

Do the following:

1. In the Qlik NPrinting web console, go to **Admin > Engine manager**.
2. Remove and recreate the related engine entry.
3. Fill out the certificate form to send the new certificates to the engine.

### Qlik NPrinting repository database superuser

The Qlik NPrinting repository database superuser is a role that bypasses all permission checks in the PostgreSQL database, except the right to log in. It is not a Windows, or Qlik NPrinting user, it is a PostgreSQL user configured during the installation of the Qlik NPrinting repository.

The Qlik NPrinting repository is installed with Qlik NPrinting Server. You are prompted to enter a password for the superuser on the **Repository database superuser password** screen during the Qlik NPrinting Server installation.



*You must save the database superuser password, as you will need it to administer your PostgreSQL installation.*


### Qlik NPrinting repository database administrator

The Qlik NPrinting repository database administrator is a role that has administrative privileges in the Qlik NPrinting repository. It is not a Windows, or Qlik NPrinting user, it is a PostgreSQL user configured in the repository database. This user is used the first time you log into Qlik NPrinting.

These credentials do not provide access to QlikView documents or Qlik Sense apps. The Qlik NPrinting repository only contains information about the structure of the reporting system.

You are prompted to enter an **Administrator username**, **Email address**, and **Password** to create the Qlik NPrinting Server administrator on the **Administrator credentials** screen during the Qlik NPrinting Server installation.

#### Requirements

The email address must be compliant with the HTML specification explained by the  [W3C](#). You cannot use comments, quoted strings and special characters: []/() ; : ' " < >



*You must save the database administrator credentials, as you cannot retrieve them later.*

### Troubleshooting

#### User access is denied with message "Your credentials did not work"

##### Possible cause

You receive a Windows dialogue that says "Your credentials did not work". You are trying to log into Qlik NPrinting using the incorrect domain. Your access is denied because your system has separate domains and standalone servers.

##### Proposed action

All supported configurations must be implemented within a single Active Directory domain. This includes:

- Qlik NPrinting Server
- Qlik NPrinting Engine

- QlikView Server
- Windows Qlik NPrinting Server services administrator
- Windows Qlik NPrinting Engine service administrator
- Qlik NPrinting repository database superuser
- Qlik NPrinting repository database administrator

If you are using JWT or SAML, user accounts do not need to be in the same domain, but must be within a domain that Qlik NPrinting can authenticate within the same Active Directory Forest. For more information, see: *JWT authentication (page 222)* and *Security Assertion Markup Language (SAML) is an XML-based, open-standard data format for exchanging authentication and authorization data between parties (for example, between an identity provider and a service provider). SAML is typically used for web browser single sign-on (SSO). (page 218).*

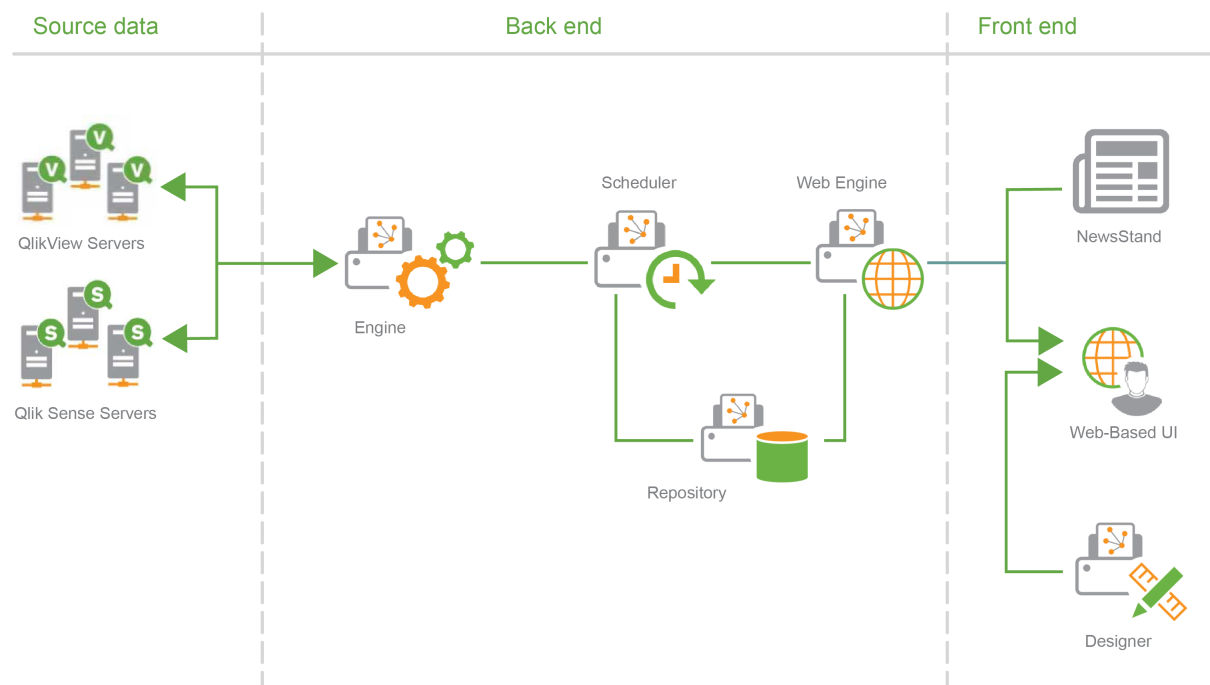
### Single engine deployment

In a single engine installation, one engine creates all the requested reports. There is no load balancing as all requests are managed by one engine. The reporting system stops if the engine fails. When the system is working again, report creation and distribution starts from the point where it stopped.

You connect to both a QlikView Cluster and a Qlik Sense cluster at the same time from a single Qlik NPrinting Engine.



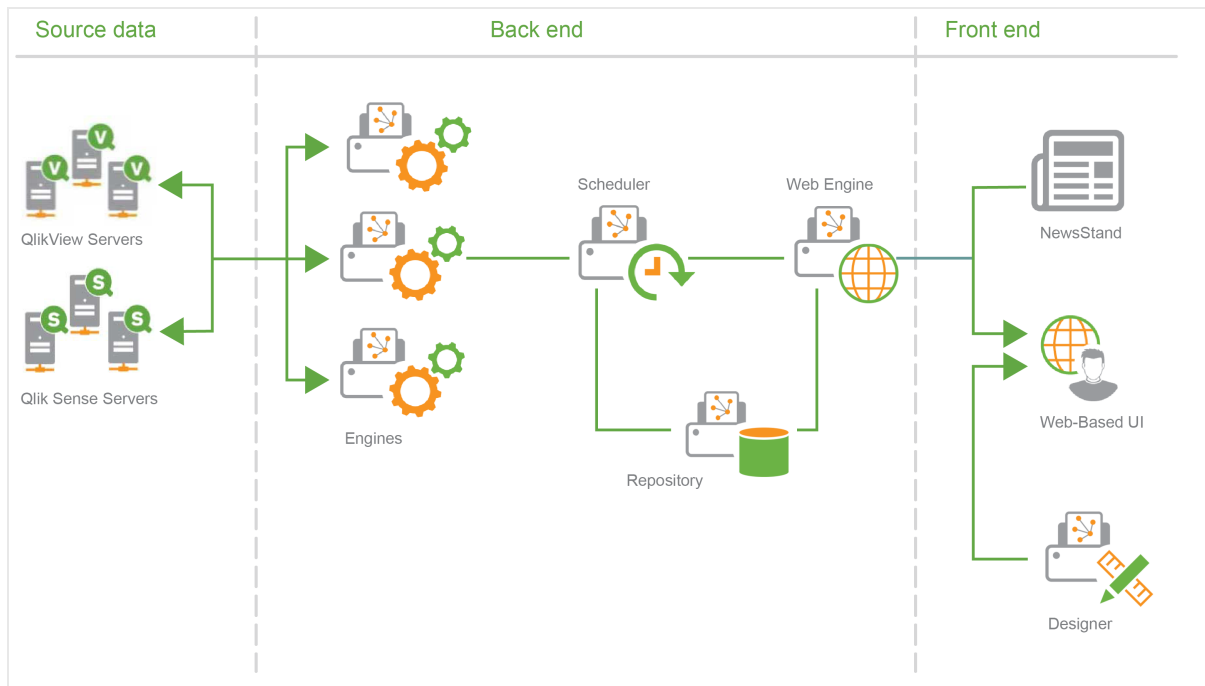
You can install Qlik NPrinting Server, Qlik NPrinting Engine, and Qlik NPrinting Designer on the same computer, or several different computers.



## Multi-engine deployment

In a multi-engine installation, at least two engines are installed on separate computers. The scheduler distributes the workload among available engines.

For example, a large report, composed of many different entities, would be split into many different parts that are sent to different engines. Each engine creates a part, and then the scheduler coordinates the assembly of the whole report.



### Multi-engine deployment example: Large volume deployment of Excel reports from QlikView

In a multi-engine installation where a large report must be generated in Excel format for a high volume of users, the performance of the Qlik NPrinting Engines is important.



*If you are connecting to QlikView, each Qlik NPrinting Engine windows service requires a separate dedicated domain service account. For more information, see User accounts (page 136).*

In this example, the reports are based on a single QlikView document of approximately 230 MB stored on disk, and 20 GB of RAM consumption. The QlikView document contains a single large table. Reports must be delivered to 700 Qlik NPrinting users, each with a single, dedicated filter. The Excel template contains a single table composed of a set of QlikView document columns filtered by user.

Deployed solution:

- 2 QlikView Server 12.10 SR1 both installed on computers with 20 CPU cores and 256 GB of RAM
- 1 Qlik NPrinting server installed on a computer with 8 CPU cores and 32 GB of RAM

- 3 Qlik NPrinting Engines installed on computers with 12 CPU cores and 32 GB of RAM
- To minimize generation time, the Excel template does not contain any other type of entity such as a level or chart.
- Reports are delivered to folders so that email server delivery time is not a bottleneck.

Due to anti-spam settings, some SMTP servers may refuse to deliver a high number of emails a short time. If you want to use your SMTP server to deliver Qlik NPrinting reports, verify its configuration and test its performance.

In this example, the creation and delivery of 700 Excel reports takes approximately 15 minutes.

You can use the information in this page as a guideline to size your installation, but consider them only as guidelines. A different installation could perform differently.

### Supported and unsupported configurations

This section outlines supported and unsupported Qlik NPrinting installation configurations.

#### Supported configurations

For complete details on supported configurations, see the system requirements pages:

- *System requirements for Qlik NPrinting Server (page 123)*
- *System requirements for Qlik NPrinting Engine (page 125)*
- *System requirements for Qlik NPrinting Designer (page 128)*

#### Installation

- Qlik NPrinting can only be installed on C drives.
- You can install Qlik NPrinting Server, Qlik NPrinting Engine, and Qlik NPrinting Designer on the same computer, or several different computers.
- You can import Qlik NPrinting 16 reports into Qlik NPrinting 17 or higher environments. You cannot import entire projects (.nsq files). For more information, see *Using the migration tool (page 110)*.
- Reporting will work on both physical and virtual machines. In both configurations, virtualized applications are not supported. For example Qlik NPrinting Engine will not work if it is installed on one computer with a virtualized QlikView Desktop distributed from a different computer.

#### Connections

- You can connect a Qlik NPrinting deployment to multiple QlikView and Qlik Sense environments.
- You can only connect to a QlikView Server that was initially configured using the QlikView Administrators group.

#### Domains

All supported configurations must be implemented within a single Active Directory domain. This includes:

- Qlik NPrinting Server
- Qlik NPrinting Engine
- QlikView Server
- Qlik Sense Server

- Windows Qlik NPrinting Server services administrator
- Windows Qlik NPrinting Engine service administrator
- Qlik NPrinting repository database superuser
- Qlik NPrinting repository database administrator

### Unsupported configurations

#### Operating systems

- Microsoft Windows is the only supported operating system. For example, you cannot install Qlik NPrinting Server on a Linux computer.
- Qlik NPrinting cannot be installed on standalone Windows server computers. This is because a standalone server is one that does not belong to or is not governed by a Windows domain.

#### Installation

- Qlik NPrinting Engine and Server and Qlik Sense Server should not be installed on the same computer. There are no known incompatibilities between these two products, but in a production environment, Qlik NPrinting should be installed on a separate computer (virtual or physical) from Qlik Sense because Qlik NPrinting Engine and Server will consume all the available resources of the computer they are installed on. This may lead to Qlik Sense crashing because of a lack of resources.
- Qlik NPrinting Engine and Server should not be installed on the same computer where QlikView Server or QlikView Publisher are installed. There are no known incompatibilities between these two products, but in a production environment, Qlik NPrinting should be installed on a separate computer (virtual or physical) from QlikView Server or QlikView Publisher because Qlik NPrinting Engine and Server will consume all the available resources of the computer they are installed on. This may lead to QlikView Server or QlikView Publisher crashing because of lack of resources.
- QlikView Desktop and Microsoft Office cannot be distributed as virtualized applications. They must be installed locally on the same physical or virtual machine where you install the Qlik NPrinting components.
- You can only install one instance of Qlik NPrinting Server, Engine, or Designer on a computer.
- Qlik NPrinting does not support QlikView Server installations which use "Certificates" during the installation process. The QlikView Administrators group option must be used during QlikView Server installation in order to connect to Qlik NPrinting.

#### Domains

- Domain trusts, multiple domains, and cross-domain implementations are not supported. For example, where Qlik NPrinting Server is deployed on one domain, the Windows user accounts mapped to Qlik NPrinting users cannot be domain accounts from a different domain that Qlik NPrinting Server is not a member of.

#### QlikView NPrinting 16 (Not supported since March 31, 2020)

- QlikView NPrinting 16 and Qlik NPrinting Designer June 2017 or later cannot be installed on the same computer.
- QlikView NPrinting 16 Server and Qlik NPrinting June 2017 (or later) Server or Engine cannot be installed on the same computer.



- Qlik NPrinting Designer June 2017 or later cannot manage Qlik NPrinting 16 projects (.nsq files), but you can import individual Qlik NPrinting 16 reports. For more information, see *Using the migration tool* (page 110).

For more information about the end-of-life of QlikView NPrinting 16, see [NPrinting 16 reaching EOL](#).

## Licensing Qlik NPrinting

Qlik NPrinting can be installed and configured to connect to QlikView documents or Qlik Sense apps. The licensing requirements and procedures are different depending on if you connect Qlik NPrinting to QlikView or Qlik Sense.



*Qlik NPrinting is an on-premise reporting add-on product for Qlik Sense on Windows or QlikView on Windows.*

You do not need to activate licenses for Qlik NPrinting Designer or Qlik NPrinting Engine. They are activated automatically based on license information from the Qlik NPrinting Server. See: *Licensing Qlik NPrinting Server* (page 146).

Contact [Customer Support](#) for more information about customer license codes.

## Qlik NPrinting with QlikView

To start the Qlik NPrinting service and connect to QlikView, you must have one of the following:

- A named user Client Access License (CAL) that is manually assigned to the Qlik NPrinting Engine service user active directory account, on the QlikView Server.



*A valid named user CAL from a production QlikView Server must be used for the Qlik NPrinting Engine service user account. If the CAL from a test QlikView Server is used, it will cause **personal edition** to appear in the QlikView Desktop title bar, and it will not work with Qlik NPrinting.*

- A local QlikView Desktop license.

To connect Qlik NPrinting Server to QlikView a fully licensed version of QlikView Desktop is required. You can activate QlikView Desktop by inserting a license code and control number, or by manually assigning a named user CAL from a QlikView Server.

Dynamically leased licenses and Personal Edition are not supported. We do not recommend using dynamically assigned leased licenses, because when a dynamic leased license expires the Qlik NPrinting service stops working.

A user account with a leased license needs administrative privileges and permission to **run as a service**. The user account must be specific to the Qlik NPrinting service. Do not use the same account for other purposes such as remote desktop connections or server login. See: *Activating a QlikView Desktop license* (page 150).

If you are configuring multiple Qlik NPrinting Servers you must create a Windows account for each one.

### QlikView Desktop licenses for Qlik NPrinting Engine

You can use a license code and control number (local license) or assign a Named CAL from your QlikView server. You must use a different Windows user for each instance of the Qlik NPrinting Engine service.

A Named CAL license, taken from a QlikView Server, is valid only for a single QlikView Desktop user. In the case of a multiple Qlik NPrinting Engine installation, you must set a different Windows user and a different QlikView Desktop Named CAL license for each Qlik NPrinting Engine. If you use the same QlikView Desktop Named CAL license two or more times, the QlikView Server will disconnect all QlikView Desktops but one, and report generation will fail.

We do not recommend using shared licenses (also called dynamically-assigned CALs) because when Qlik NPrinting opens the local QlikView Desktop, the license must be active or the report generation process stops. If you use assigned CALs, you need to connect the QlikView Desktop to the QlikView Server at least one time, at the beginning, using the same Windows user and computer as the Qlik NPrinting Engine service.

### Qlik NPrinting with Qlik Sense

To start the Qlik NPrinting service and connect to Qlik Sense, you must have the following:

- Qlik Sense certificates exported without password information
- User account with RootAdmin privileges in Qlik Sense

To connect Qlik NPrinting to Qlik Sense you must have Qlik NPrinting Server and at least one Qlik NPrinting Engine installed and activated.

Qlik Sense certificates must be installed on each computer where a Qlik NPrinting Engine is installed. See: *Connecting Qlik NPrinting with Qlik Sense (page 172)*.

The Qlik NPrinting user that creates the connection to Qlik Sense must have RootAdmin authorization in Qlik Sense.

### Licensing Qlik NPrinting Server

You will be prompted to activate your license the first time you open Qlik NPrinting Server.

You do not need to activate licenses for Qlik NPrinting Designer or Qlik NPrinting Engine. They are activated automatically based on license information from the Qlik NPrinting Server.

By default, only one Qlik NPrinting Engine is available for each Qlik NPrinting Server license. If you want to add additional engines to your Qlik NPrinting environment, you need to purchase them.

### Licensing Qlik NPrinting Server with a LEF (License Enabler File)

Do the following:

1. Open your browser and point it to your Qlik NPrinting Server by opening the URL `https://YourServerName:4993`.



Use the *https* protocol and the port 4993 for the standard installation. For example:  
*https://localhost:4993*

2. Select **License key and control number**.
3. Insert the **License key**.
4. Insert the **Control number**.
5. Enter your **User name**.
6. Enter your **Organization**.

The **Activate** button becomes active once the mandatory fields are completed.

1. Click **Activate** to activate the license.

You will see a message indicating that the activation was successful, and the License Enabler File (LEF) information appears at the bottom.

### Licensing Qlik NPrinting Server with a signed key

Do the following:

1. Open your browser and point it to your Qlik NPrinting Server by opening the URL  
*https://YourServerName:4993*.



Use the *https* protocol and the port 4993 for the standard installation. For example:  
*https://localhost:4993*

2. Select **Signed license key**.
3. Insert the **Signed license key**.

The **Activate** button becomes active once the mandatory fields are completed.

1. Click **Activate** to activate the license.

You will see a message indicating that the activation was successful, and the signed license key information appears.

### Licensing service proxy Setup

You can handle the communication between the Qlik NPrinting licensing service and the license back-end with a proxy .

The Qlik NPrinting licensing service is included in Qlik NPrinting February 2020 and later releases and is used when Qlik NPrinting is activated using a signed key license. The Qlik NPrinting licensing service stores the information about the license, and communicates with a license back-end service, hosted by Qlik, for product activations and entitlement management. Port 443 is used for accessing the license back-end service and retrieving license information.

With Qlik NPrinting February 2020 or later you can configure the communication between Qlik NPrinting licensing service and the Qlik license back-end to be handled by a proxy.

In Qlik NPrinting, configuration of a proxy for the Qlik NPrinting licensing service is done using command line parameters. Both HTTP and HTTPS scheme are supported.

With Qlik NPrinting June 2020 or later NTLM and basic authentication capabilities to the licenses service when communicating over a HTTP tunnel are available. This allows you to require authentication on tunneling proxies and configure a more secure environment.

### Anonymous authentication

Do the following:

1. Navigate to the *service.conf* file, which by default is located in:  
`%Program Files%\NPrintingServer\NPrinting\License\license.config`
2. Locate the following line and uncomment it:  
`<!-- <add key="proxy-uri" value="https://localhost:8888" /> -->`
3. Modify the value attribute to the proxy address:  
`<add key="proxy-uri" value="https://example.com:8080" />`
4. Save the file and close.
5. Restart the Qlik NPrinting licensing service.

### Setting up basic authentication for a proxy

To set up basic authentication for a proxy, do the following:

1. Stop the Qlik NPrinting license service.
2. Navigate to the *service.conf* file, which by default is located in:  
`%Program Files%\NPrintingServer\NPrinting\License\license.config`
3. Uncomment the following lines:  
`<!-- <add key="proxy-uri" value="https://localhost:8888" /> -->`  
`<!-- <add key="proxy-basic-authentication" value="true" /> -->`  
`<!-- <add key="proxy-username" value="username-without-domain" /> -->`
4. Set values for `proxy-uri` and `proxy-username`.
5. To use a plain text password, uncomment:  
`<!-- <add key="proxy-password" value="clear-text-password" /> -->`
6. Set the value for `proxy-password`.
7. To use an encrypted password (recommended) uncomment:  
`<!-- <add key="proxy-encrypted-password" value="script-generated-password" /> -->`
8. Open powershell and run the password encryption script located in:  
`%Program Files%\NPrintingServer\NPrinting\License\Encrypt-Password.ps1`  
using the command:  
`Encrypt-Password.ps1 -password clear-text-password`
9. Set the output from the command as the value attribute in the tag.
10. Save the file and close it.
11. Restart the Qlik NPrinting licensing service.

### Example configuration:

```
<appSettings>
<!--=====
```

## License options

```

=====
<!--To be enabled if proxy tunneling is required-->
<add key="proxy-uri" value="https://localhost:8888" />
<!--NTLM authentication settings for proxy tunneling-->
<!--Enable Basic authentication-->
<add key="proxy-basic-authentication" value="true" />
<!--Enable NTLM authentication-->
<!-- <add key="proxy-ntlm-authentication" value="true" /> -->
<!--Domain for authentication-->
<!-- <add key="proxy-domain" value="windows-domain" /> -->
<!--Username for authentication (without domain)-->
<add key="proxy-username" value="myUser" />
<!--Encrypted password as generated by Encrypt-Password.ps1 -password [user password]-->
<add key="proxy-encrypted-password"
value="ASDHJNCE243454NNJFWEJFJKFSD8U843RJKJCDWC98RFNSDJVSKJDVR8UFVC9SJV09439FJSDJVOIHVSKV" />
<!--Clear text password, if encrypted version cannot be used-->
<!-- <add key="proxy-password" value="clear-text-password" /> -->
</appSettings>

```

## Setting up NTLM authentication for a proxy

1. Stop the Qlik NPrinting license service.
2. Navigate to the *service.conf* file, which by default is located in:  
`%Program Files%\NPrintingServer\NPrinting\License\license.config`
3. Uncomment the following lines

```

<!-- <add key="proxy-uri" value="https://localhost:8888" /> -->
<!--<add key="proxy-ntlm-authentication" value="true" />-->
<!--<add key="proxy-domain" value="windows-domain" />-->
<!-- <add key="proxy-username" value="username-without-domain" /> -->

```
4. Set values for proxy-uri, proxy-domain and proxy-username.
5. To use a plain text password, uncomment:

```

<!-- <add key="proxy-password" value="clear-text-password" /> -->

```
6. Set the value for proxy-password.
7. To use encrypted password (recommended) uncomment:

```

<!-- <add key="proxy-encrypted-password" value="script-generated-password" /> -->

```
8. Open powershell and run the password encryption script located in:  
`%Program Files%\NPrintingServer\NPrinting\License\Encrypt-Password.ps1`  
using the command:  
`Encrypt-Password.ps1 -password clear-text-password`
9. Set the output from the command as the value attribute in the tag.
10. Save the file and close it.
11. Restart the Qlik NPrinting licensing service.

**Example configuration:**

```

<appSettings>
<!--=====
License options
=====
<!--To be enabled if proxy tunneling is required-->

```

```
<add key="proxy-uri" value="https://localhost:8888" />
<!--NTLM authentication settings for proxy tunneling-->
<!--Enable Basic authentication-->
<!--<add key="proxy-basic-authentication" value="true" />-->
<!--Enable NTLM authentication-->
<add key="proxy-ntlm-authentication" value="true" />
<!--Domain for authentication-->
<add key="proxy-domain" value="domain" />
<!--Username for authentication (without domain)-->
<add key="proxy-username" value="user" />
<!--Encrypted password as generated by Encrypt-Password.ps1 -password [user password]-->
<add key="proxy-encrypted-password"
value="ASDHJNCE243454NNJFWEJFJKFSD8U843RJKJCDWC98RFNSDJVSKJDVR8UFVC9SJV09439FJSDJVOIHVSKV" />
<!--Clear text password, if encrypted version cannot be used-->
<!-- <add key="proxy-password" value="clear-text-password" /> -->
</appSettings>
```

---

**See also:**

*Licensing service cipher suites (page 209)*

## Activating a QlikView Desktop license

You can activate or check a QlikView Desktop license.

Do the following:

1. Find the QlikView executable file, typically located in *C:\Program Files\QlikView\Qv.exe*.
2. Right-click on the file while holding down Shift and Ctrl, and select **Run as Different User**.
3. Insert the credentials of the Windows user dedicated to the Qlik NPrinting service and check that QlikView Desktop is activated.

This is one of the most frequent causes of issues with the Qlik NPrinting service.

## Licensing Qlik NPrinting offline

You must have an internet connection to activate a license. If you are offline, or if the online activation fails, the Qlik NPrinting Server will ask you to manually insert the contents of the License Enabler File (LEF) , Signed License Key (SLK), or Signed License Definition (SLD).

For more information on licensing, see *Licensing Qlik NPrinting (page 145)*.

### Using Qlik NPrinting with LEF


If you do not have an LEF file, please contact [Customer Support](#).

Do the following:


1. Open your browser and point it to your Qlik NPrinting Server **License activation** page by opening the URL:  
`https://YourServerName:4993/#/admin/license/offline?username=xxx&organization=yyy`  
where:
  - *YourServerName* is the name of your Qlik NPrinting Server.
  - *xxx* is your username
  - *yyy* is your organization name
2. Copy and paste the contents of the LEF file in the text box of the **License activation** form.
3. Click on **Activate offline**.

You will see a deactivation message and license parameter forms.

### Using Qlik NPrinting with SLD with Delayed Sync

No special configuration is needed. For information on generating the SLD, see  [How to activate Qlik Sense, QlikView, and Qlik NPrinting without Internet Access](#).

### Using Qlik NPrinting with offline SLD

Your license must be converted for offline use. Please refer to for obtaining the offline Signed License Definition, see  [Request license offline approval - April 2020 and onwards](#).

Once you obtain the offline license, you must edit the *license.config* file.

Do the following:

1. Stop the WebEngine, Scheduler, and License services.
2. Open this file: `\Program Files\NPrintingServer\NPrinting\License\license.config`
3. Add the following tag in the appSettings section: `<add key="offline" value="true" />`
4. Restart the License, Scheduler, and WebEngine services.
5. In the Qlik NPrinting web console go to **Admin > License activation**.  
If you are updating an existing license, click **Change**.
6. Select **Signed key** license format and enter the offline license information.
7. Click **Activate**.

Offline mode is not compatible with the online signed key format. If Qlik NPrinting is licensed with an online signed key and the service is set up to run in offline mode, it will reject the existing license.

You can revert this process as needed.

Do the following:

1. Stop the WebEngine, Scheduler, and License services.
2. Remove the tag that was added from the *license.config* file.
3. Restart the services.
4. In the Qlik NPrinting web console go to **Admin > License activation**.  
If you are updating an existing license, click **Change**.

5. Select **Signed key** license format and enter the offline license information.
6. Click **Activate**.

### Performance

The performance of your Qlik NPrinting system will depend on a number of factors. When planning your deployment you must consider:

- the size of your deployment
- the number of Qlik NPrinting Engines needed
- the type of connections you plan to use
- the number CPU cores required for each Qlik NPrinting Engine
- the amount of RAM required for Qlik NPrinting Engine computers

### Performance guidelines

To size your installation, consider the following:

- number of Qlik NPrinting Engines
- number of CPU cores for each Qlik NPrinting Engine
- amount of RAM required for Qlik NPrinting Engine computers

Use this information to help you plan your system.

#### Number of Qlik NPrinting Engines

Increasing the number of Qlik NPrinting Engines associated with a Qlik NPrinting Server will result in a linear increase in performance. For example, if you move from an installation with two Qlik NPrinting Engines to an installation with four Qlik NPrinting Engines, the time to create and deliver the same set of reports is divided by two. The total amount of time necessary to deliver a set of reports can also depend on external factors, such as the performance of your SMTP server.

#### Number of CPU cores for each Qlik NPrinting Engine

The performance impact of the number of CPU cores depends on whether the reports are based on connections to QlikView or Qlik Sense.

When you create reports from Qlik Sense connections, performance increases linearly with the number of CPU cores added. For example, if you move from a four core CPU to an eight core CPU, the time to create the same set of reports is divided by two. The total amount of time necessary to deliver a set of reports also depends on external factors, such as the performance of your SMTP server. There is no upper limit to this relationship if your connections are exclusively to Qlik Sense apps.

When you create reports from QlikView connections, performance increases linearly with the number of CPU cores added until you reach twelve cores. If you exceed twelve CPU cores, the increase is no longer linear. The change in performance occurs because Qlik NPrinting Engine launches an instance of QV.exe for each CPU core and uses QlikView bookmarks to apply filters. QlikView bookmarks are written to a file, so for each CPU core there is an instance of QV.exe that needs to read and write to the same file. Conflicts while accessing the bookmark file



can cause a noticeable decrease in performance when you exceed twelve QV.exe instances or twelve CPU cores. If you plan to connect only to QlikView documents, we recommend that you install Qlik NPrinting Engines on physical or virtual computers with a maximum of twelve cores. Connections to Qlik Sense apps are not impacted by this limitation.

Qlik NPrinting can create reports with data from QlikView and Qlik Sense connections at the same time. There are currently no performance test results available for this scenario.

### RAM required for Qlik NPrinting Engine computers

The amount of RAM required for Qlik NPrinting Engine computers depends on the QlikView documents you use to create reports. On a Qlik NPrinting Engine, each instance of QV.exe opens a single QlikView document. For example, if your Qlik NPrinting Engine server has four CPU cores it means that it runs four QV.exe instances which in turn open four QlikView documents. You need enough RAM to adequately manage these four QlikView documents to ensure good performance.

### Deployment examples

The following examples outline some basic architecture and hardware options for scaling an Qlik NPrinting deployment.

#### Single-engine (small)

This example is a minimum specification consisting of a single Qlik NPrinting Server with web engine, scheduler and repository installed on the same server.

- 1 Qlik NPrinting Server
- 4 CPU cores
- 32 GB RAM

#### Single-engine (medium)

This example has more CPU cores but also consists of a single NPrinting server with web engine, scheduler and repository installed on the same server. As demand increases more CPU cores can help to improve performance.

- 1 Qlik NPrinting Server
- 8 CPU cores
- 32 GB RAM

#### Multi-engine (large)

As your needs increase to produce a larger number of reports, scalability becomes increasingly important. This example consists of a single NPrinting server but three NPrinting engines to improve performance and scalability.

- 4 servers (1 Qlik NPrinting Server, 3 Qlik NPrinting Engines)
- 12 CPU cores for each server
- 32 GB RAM for each server

See: *Multi-engine deployment example: Large volume deployment of Excel reports from QlikView (page 142)*

### Troubleshooting

#### Possible cause

There are several factors that may cause performance loss.


#### Proposed action

- Check the hardware resources of the Qlik NPrinting Engine computer.
- If you are connecting to QlikView documents, make sure that the QlikView computer has enough resources to manage the source documents.
- Check the QlikView source document:
  - Does it take a long time to open it and to apply a filter in the Qlik NPrinting Engine? Save the *.qvw* with all charts minimized to decrease the opening time.
  - Create a QlikView document or a Qlik Sense app solely for Qlik NPrinting reporting. Clone the original and remove all unnecessary data.
  - Where possible, move calculated fields from charts to a script. Every time you apply a filter, these fields are recalculated.
- Report generation time depends on the number of **Levels** and **Pages** in the report. Every value in a level or page is a filter, so you must wait for filter calculation. Use Excel pivot tables in reports, instead of using levels.

### Downloading installation files

The Qlik Download Site provides the files you need to install and upgrade Qlik products. You can find the site in Qlik Community under Support > Product News > Product Downloads.

Do the following:

1. Go to the  [Product Downloads](#).
2. Select **Qlik Data Analytics**, and then select **Qlik NPrinting**.
3. Use the filters to narrow your list of possible downloads.
4. Click a download link to start the download.

Example from the **Download Site** where the files have been filtered on product and release. In this case, it shows available installation files for Qlik NPrinting release May 2021.

The screenshot shows the Qlik Download Site interface. At the top, there are navigation buttons: "Qlik Data Analytics" (highlighted in green), "Qlik Data Integration", "Search All", "Clear Filter", and "Feedback?". Below these are four filter dropdowns: "Visibility" (set to "All releases and all patches"), "Product" (set to "Qlik NPrinting"), "Release" (set to "May 2022"), and "Release Number" (set to "Service Release 2 (SR2)").

Below the filters is a "Downloads" table with the following data:

Product	Release	Num...	Version	Publish...	End of Supp...	Release N...	Size	Download Link
Qlik NPrinting	May 2022	SR2	v22.15.8	20 Sep 2022	https://community...	Release Notes	111 MB	Qlik.NPrinting.Designer...
Qlik NPrinting	May 2022	SR2	v22.15.8	20 Sep 2022	https://community...	Release Notes	4 MB	Qlik.NPrinting.On-Dem...
Qlik NPrinting	May 2022	SR2	v22.15.8	20 Sep 2022	https://community...	Release Notes	217 MB	QlikNPrintingEngine_x...
Qlik NPrinting	May 2022	SR2	v22.15.8	20 Sep 2022	https://community...	Release Notes	476 MB	QlikNPrintingServer_x6...

## 3.2 Qlik NPrinting installation

In a minimal installation, Qlik NPrinting Server, a single Qlik NPrinting Engine, and Qlik NPrinting Designer can be installed on the same computer.

You must install the Qlik NPrinting Server before you install the Qlik NPrinting Engine. Only a single Qlik NPrinting Engine can be installed on each computer.



*When you install or upgrade your Qlik NPrinting Server, Qlik NPrinting Engines, and Qlik NPrinting Designer, ensure that they are all the same software version. Mixing versions of Qlik NPrinting components is not supported.*

1. *Installing Qlik NPrinting Server (page 155)*
2. *Installing Qlik NPrinting Engine (page 162)*
3. *After you install Qlik NPrinting Engine, you must activate your license on the Qlik NPrinting Server. See: Licensing Qlik NPrinting Server (page 146)*
4. *Installing Qlik NPrinting Designer (page 168)*

### Installing Qlik NPrinting Server

Qlik NPrinting Server must be installed first. The Qlik NPrinting scheduler service that is installed with Qlik NPrinting Server is required to communicate with the Qlik NPrinting Engine. Servers can be installed using the user interface or command line interface (CLI).

### What is installed

Qlik NPrinting Server installs the following. These must not be uninstalled from the server:

- Qlik NPrinting scheduler service
- Qlik NPrinting repository
- Qlik NPrinting audit service
- Qlik NPrinting web engine
- Qlik NPrinting messaging service
- Qlik NPrinting licensing service
- Qlik NPrinting repo service (PostgreSQL 13.11-2)
- .NET framework: 4.8.0 or higher  
.NET framework is installed when you install Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer. The installation of .NET framework requires an internet connection. If .NET framework is not already installed on a computer without an internet connection, the installation stops. Before you begin the installation of Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer, you must install the .NET framework on computers without an internet connection. If an internet connection is not available on a computer with .NET framework already installed, the installer will skip this part of the installation.
- Erlang OTP 25.2.1
- Microsoft Visual C++ 2013 Redistributable x64 (12.0.30501)
- Microsoft Visual C++ 2015-2022 Redistributable x86 (14.34.31931)
- Microsoft Visual C++ 2015-2022 Redistributable x64 (14.34.31931)

### Requirements

- Check that your environment meets the *System requirements for Qlik NPrinting Server (page 123)*.
- Check that the required *Ports (page 133)* are available.
- Prepare the *User accounts (page 136)* required to run the Qlik NPrinting services.
- Understand how *Licensing Qlik NPrinting (page 145)* is configured, and have your license key available.

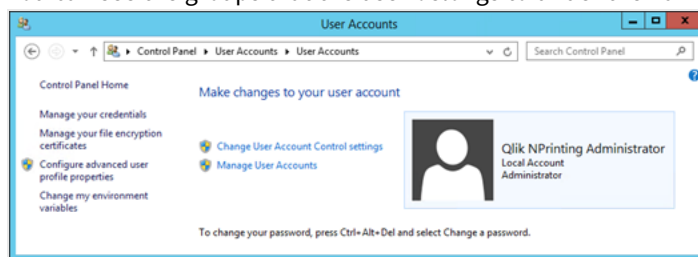
### Limitations

- Qlik NPrinting can only be installed on C drives.
- Starting with Qlik NPrinting 17.2.1, the Qlik NPrinting Server setup removes RabbitMQ and replaces it with the Qlik NPrinting messaging service.
- RabbitMQ cannot be installed on the same computer as Qlik NPrinting Server 17.2.1 or newer.
- You must install the Qlik NPrinting Server before you install the Qlik NPrinting Engines.
- You cannot install Qlik NPrinting Server 17 and newer on the same computer as Qlik NPrinting Server 16.
- Local data such as logs, configuration files, template files, and NewsStand files are stored in `C:\ProgramData\NPrinting`. This location is not configurable.
- Any email addresses used to create accounts must be compliant with the HTML specification. Comments, quoted strings, and special characters like `[ ] / ( ) ; : ' " < > ,` are not allowed. .

## Creating a Qlik NPrinting service user

Do the following:

1. Create a user to run your Qlik NPrinting services. The user must be a local Administrator, with Logon as a Service rights, and should be used exclusively to run Qlik NPrinting services.
  - a. In Windows **Computer Management**, go to **Local Users and Groups > Users**, and click **Action > New User....**
  - b. Enter a **User name** and **Password** for the user and click **Create**.
  - c. Right-click on the user that you created in the previous step, and click **Properties**.
  - d. Click on the **Member Of** tab and click **Add....**
  - e. Enter Administrators in the field and click **Check Names**. If the name is valid, click **OK**.
  - f. From the Windows **Control Panel**, go to **Administrative Tools**, and click on **Local Security Policy**.
  - g. Go to **Local Policies > User Rights Assignment**, and click **Log on as a service**.
  - h. On the **Local Security Setting** tab, click **Add User or Group....**
  - i. Enter the user that you created in the previous steps and click **Check Names**. If the name is valid, click **OK**.
2. Log into the computer where you plan to install Qlik NPrinting Server as a local Windows administrator. You can use the account that you created in the previous steps.
  - a. To verify that you are logged on as a local administrator, go to **Control Panel > User Accounts**. You can see the groups that the user belongs to under the name on the contact card.



## Downloading the installation file

Download *QlikNPrintingServer\_x64.exe* from the [Qlik Download Site](#)

For more information, see *Downloading installation files (page 154)*.

## Installing Qlik NPrinting Server via user interface

Do the following:

1. Double-click *QlikNPrintingServer\_x64.exe* to launch the setup.
2. Click the check box to accept the license agreement, and click **Install**. If:
  - The **User Account Control** window appears, click **Yes** to proceed.
  - The Microsoft Visual C++ 2013 window appears, accept the license terms and install it. If you have an older version installed, click **Repair**. When the installation is complete, click **Close**.

- The Windows Security Alert appears, select both check boxes and then click on **Allow access**. Erlang needs to communicate over the network, so you must allow the creation of the related firewall rule.
3. On the **Qlik NPrinting repository Service Setup** Welcome page, click **Next**.
  4. On the **Repository database superuser password** screen, enter a password for the Qlik NPrinting repository database superuser.  
Qlik NPrinting installs a PostgreSQL repository database during setup. The database superuser is a PostgreSQL login role with the highest level of privileges that bypasses all permission checks. You will need this password to administrate your PostgreSQL installation.



*You can proceed without creating a password, but this is not recommended.*

5. On the **Administrator credentials** screen:
  - a. Enter the following to create a Qlik NPrinting user with administrative privileges:
    - **Administrator username**
    - **Email address**
    - **Password**
 This user is used the first time you log into Qlik NPrinting.

**Administrator credentials**  
Enter credentials for Qlik NPrinting administrator.

Qlik NPrinting Repository Service June 2017 will add an administrative user with the credentials provided below.


Administrator username:

Email address:

Password:

Repeat password:

Back Next Cancel

 *Save these credentials. You cannot retrieve them later.*

- b. Click **Next**.
6. Click **Install**.

A screen indicating that the repository database setup is complete appears.

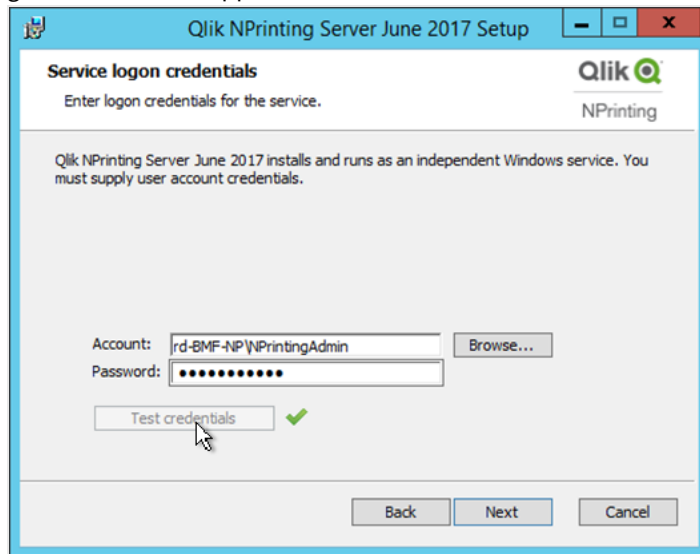
**Completed the Qlik NPrinting Repository Service June 2017 Setup Wizard**

Click the Finish button to exit the Setup Wizard.

Back Finish Cancel

7. Click **Finish**.
8. On the **Qlik NPrinting Server** Welcome page, click **Next**.
9. On the **Installation options** screen, select your preferred program shortcut locations and click **Next**.
10. On the **Service logon credentials** screen, type the credentials for the user that you created in [Creating](#):
  - a. **Account**: Enter the **Domain** and **User name** in this format *Domain\User name*. You can use the **Browse** button to search for the user.
  - b. **Password**: Enter the user's **Password**.

- c. Click **Test Credentials** to verify that the user credentials are valid.  
If the log on credentials are validated successfully, the **Test Credentials** button is grayed out and a green check mark appears next to it.



- d. Click **Next**.

11. Click **Install**.

12. Click **Finish**.

The **Setup Successful** screen appears.

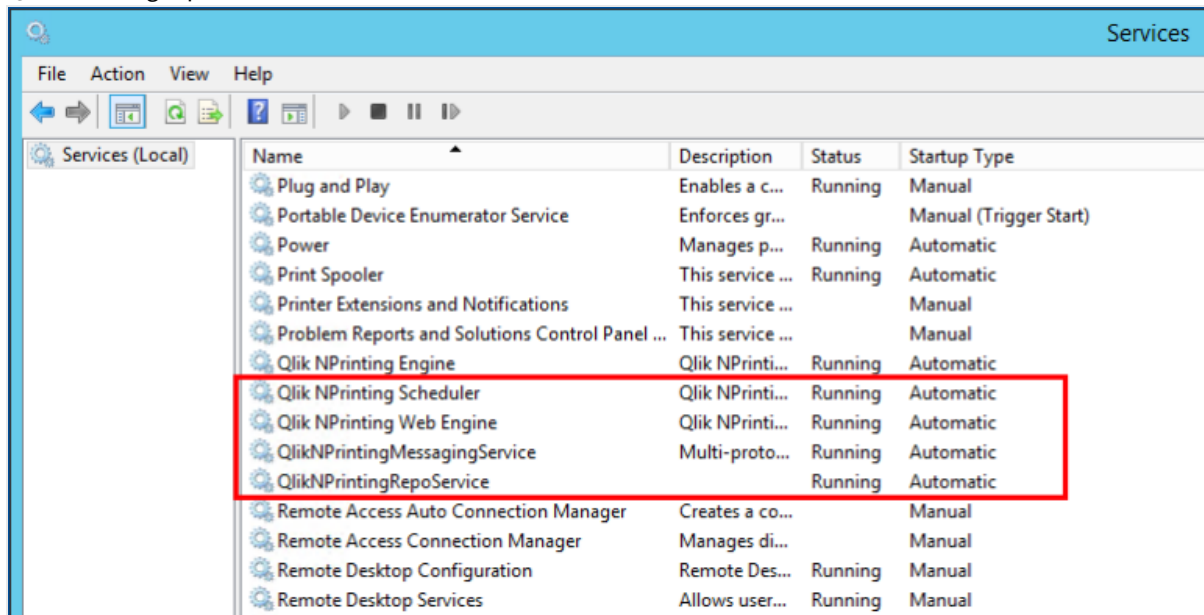
13. Click **Close**.

Qlik NPrinting Server installs four Windows services that must be running:

- Qlik NPrintingScheduler
- Qlik NPrintingWeb Engine
- Qlik NPrinting messaging service



- Qlik NPrintingRepoService



To open the Qlik NPrinting web console, point your web browser to <https://YourServerName:4993>, and then log in with the [administrator email and password that you set up](#). To open the NewsStand, point your web browser to <https://YourServerName:4994>, and then log in with the same email and password.

You are now ready to install Qlik NPrinting Engine. See: *Installing Qlik NPrinting Engine (page 162)*.

## Installing Qlik NPrinting Server via command line

### Viewing command line arguments

To display a list of command line arguments, execute the following in the command line:

```
QlikNPrintingServer_x64.exe /help
QlikNPrintingEngine_x64.exe /help
/quiet install or uninstall means no UI is displayed.
```

/passive install or uninstall means a minimum UI with a progress bar is displayed, but no wizards or user interaction.

### Install Qlik NPrinting Server

Execute the following command in the command line as an administrator:

```
QlikNPrintingServer_x64.exe /install {/quiet|/passive} accept-eula=1 service-username="{DOMAIN\USERNAME}" service-password="{USER_PASSWORD}" database-password="{DATABASE_PASSWORD}" admin-email="{ADMIN_EMAIL}" admin-username="{ADMIN_USERNAME}" admin-password="{ADMIN_PASSWORD}" [/log "{PATH_TO_LOG_FILE}"]
```

#### Example

```
QlikNPrintingServer_x64.exe /install /passive accept-eula=1 service-username="qtset\admin" service-password="s3cr3t" database-password="s3cr3t" admin-email="admin@qlik.com" admin-username="Admin" admin-password="admin" /log ".\server.log"
```

You are now ready to install Qlik NPrinting Engine. See: *Installing Qlik NPrinting Engine (page 162)*.

### Installing Qlik NPrinting Engine

Qlik NPrinting Engine is required to generate reports. You must have at least one active Qlik NPrinting Engine in your Qlik NPrinting deployment. Engines can be installed using the user interface or command line interface (CLI).

Qlik NPrinting Server must be installed before you install Qlik NPrinting Engine. The Qlik NPrinting scheduler service is installed with Qlik NPrinting Server, and is required to communicate with the Qlik NPrinting Engine. You can install multiple Qlik NPrinting Engines on different computers to distribute the workload and create a high-availability reporting system. Qlik NPrinting Engine can be installed on the same computer as the Qlik NPrinting Server or on a different computer.

### What is installed

Qlik NPrinting Engine installs the following. These must not be uninstalled from the server:

- Qlik NPrinting Engine service
- .NET framework: 4.8.0  
.NET framework is installed when you install Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer. The installation of .NET framework requires an internet connection. If .NET framework is not already installed on a computer without an internet connection, the installation stops. Before you begin the installation of Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer, you must install the .NET framework on computers without an internet connection. If an internet connection is not available on a computer with .NET framework already installed, the installer will skip this part of the installation.
- PDF-XChange

### Requirements

- Check that your environment meets the *System requirements for Qlik NPrinting Engine (page 125)*.
- Check that the required *Ports (page 133)* are available.
- Prepare the *User accounts (page 136)* required to run the Qlik NPrinting services.
- Understand how *Licensing Qlik NPrinting (page 145)* is configured, and have your license key available.

### Limitations

- Qlik NPrinting can only be installed on C drives.
- You can install only one Qlik NPrinting Engine on each physical computer or virtual machine.
- The Qlik NPrinting Engine is multi-threaded, so it can use all the server CPU cores. A minimum of two cores is required.
- If you are connecting to QlikView, QlikView Desktop must be installed locally on the same physical computer or virtual machine as the Qlik NPrinting Engine. It cannot be accessed as a virtual application.

- You must install the Qlik NPrinting Server before you install the Qlik NPrinting Engines.
- Ports 4242, 4243 and 4747 must be opened outbound on the Qlik NPrinting Engine computer.
- Local data such as logs, configuration files, template files, and newsstand files are stored in `C:\ProgramData\NPrinting`. This location is not configurable.

## Creating a Qlik NPrinting service user

Do the following:

1. Create a user to run your Qlik NPrinting services. The user must be a local Administrator, with Logon as a Service rights, and should be used exclusively to run the Qlik NPrinting services.
  - a. In Windows **Computer Management**, go to **Local Users and Groups > Users**, and click **Action > New User...**
  - b. Enter a **User name** and **Password** for the user and click **Create**.
  - c. Right click on the user that you created in the previous step, and click **Properties**.
  - d. Click on the **Member Of** tab and click **Add...**
  - e. Enter Administrators in the field and click **Check Names**. If the name is valid, click **OK**.
  - f. From the Windows **Control Panel**, go to **Administrative Tools**, and click on **Local Security Policy**.
  - g. Go to **Local Policies > User Rights Assignment**, and click **Log on as a service**.
  - h. On the **Local Security Setting** tab, click **Add User or Group...**
  - i. Enter the user that you created in the previous steps and click **Check Names**. If the name is valid, click **OK**.



*If you are connecting to QlikView, you must use a different Windows user account for each Qlik NPrinting Engine instance.  
If you are connecting to Qlik Sense, you can use the same Windows user account for all Qlik NPrinting Engine installations.*



*If you are installing an instance of Qlik NPrinting Engine on the same computer as the Qlik NPrinting Server, you can use the same Windows user account to run all Qlik NPrinting services on that computer.*



*This user will require additional permissions configured in Qlik Sense or QlikView to connect to those servers.*

2. If you are connecting Qlik NPrinting to Qlik Sense, you must assign **RootAdmin** authorization to the user that runs the Qlik NPrinting Engine service.
  - a. On the Qlik Sense server, open the QMC and click **Users**.
  - b. Select the user that you created in step 1 from the list, and click **Edit**.
  - c. Click **Add role**, and select **RootAdmin** from the list.
  - d. Click **Apply**.

3. If you are connecting Qlik NPrinting to QlikView, the user that runs the Qlik NPrinting Engine service must:
  - Be a member of the Administrators group on all QVS servers used by Qlik NPrinting.
  - Have an active license for QlikView Desktop, which must be installed on the Qlik NPrinting Engine computer.

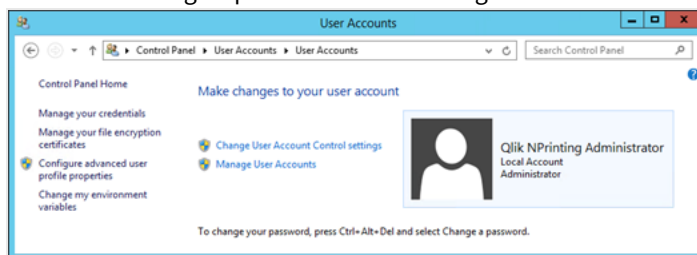


*QlikView Desktop Personal Edition is not supported. Licensing Qlik NPrinting (page 145).*


4. Log into the computer where you plan to install Qlik NPrinting Engine as a local Windows administrator. You can use the account that you created in the previous steps.

- a. To verify that you are logged on as a local administrator, go to **Control Panel > User Accounts**.

You can see the groups that the user belongs to under the name on the contact card.



## Downloading the installation file

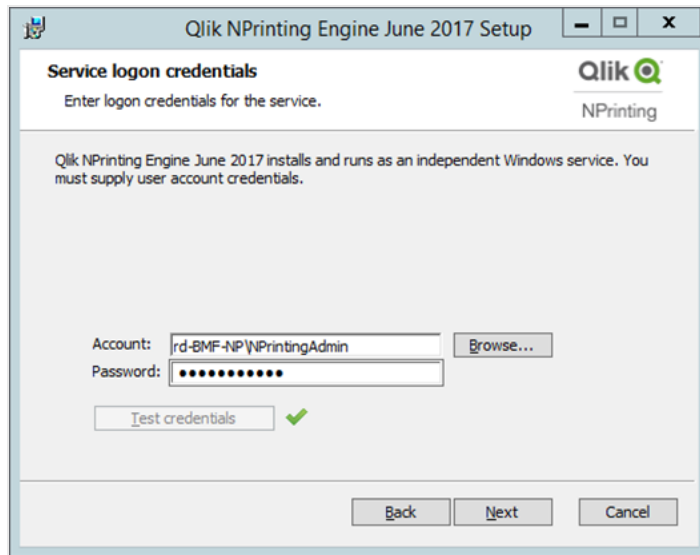
Download *QlikNPrintingEngine\_x64.exe* from the  [Qlik Download Site](#)

For more information, see *Downloading installation files (page 154)*.

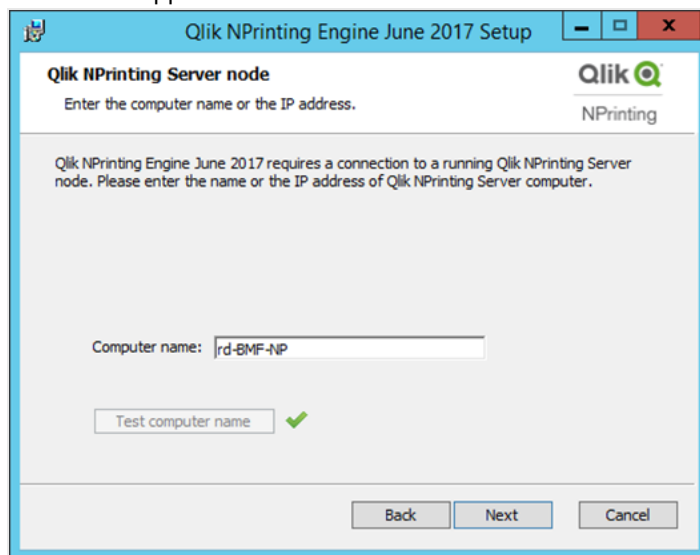
## Installing Qlik NPrinting Engine via user interface

Do the following:

1. Double-click *QlikNPrintingEngine\_x64.exe* to launch the setup.
2. Select the check box to accept the license agreement, and click **Install**.  
If the **User Account Control** window appears, click **Yes** to proceed.
3. On the **Qlik NPrinting Engine Setup Welcome** page, click **Next**.
4. On the **Service logon credentials** screen, use the credentials for the user that you created in step 1. to complete the fields as follows:
  - a. **Account** - Enter the **Domain** and **User name** in this format *Domain\User name*. You can use the **Browse** button to search for the user.
  - b. **Password** - Enter the user's **Password**.
  - c. Click **Test Credentials** to verify that the user credentials are valid.  
If the log on credentials are validated successfully, the **Test Credentials** button is grayed out and a green check mark appears next to it.



- d. Click **Next**.
5. On the **Qlik NPrinting Server node** screen, enter the name of the computer where Qlik NPrinting Server is installed.
- a. Click **Test Credentials** to verify that the server name is valid, and that it can be reached from the Qlik NPrinting Engine computer.
- If the server node is validated successfully, the **Test Credentials** button is grayed out and a green check mark appears next to it.



*You can enter the domain name of the computer, its IP address, or its DNS name. The Qlik NPrinting Engine computer must be able to resolve the DNS name if that option is used.*



Firewalls must allow connections on port 5672 between the Qlik NPrinting Engine computer (outbound) and the Qlik NPrinting Server node (inbound). See: Ports (page 133)



If the Qlik NPrinting Engine is installed on the same computer as Qlik NPrinting Server you can use the loopback network interface, so that you can insert the IP address **127.0.0.1** or **localhost**. In that case it is not necessary to open firewall ports on the public network interface.

6. On the **Engine certificate password** screen, enter a password to encrypt certificate exchange for TLS certificates.



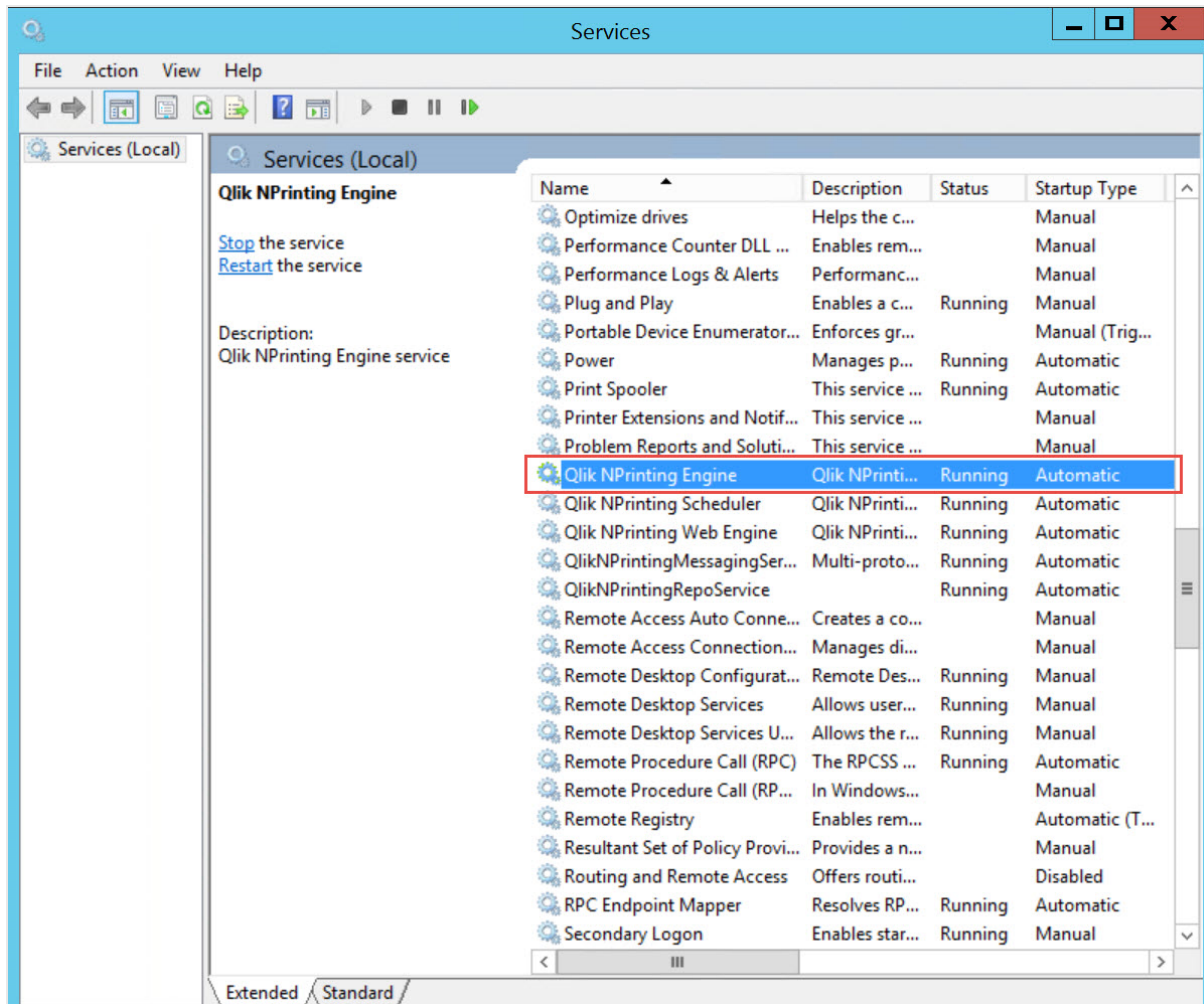
The same password must be provided to the Qlik NPrinting Server on the engine configuration page.



On Qlik NPrinting Server, port 4997 must be open outbound. On all Qlik NPrinting Engines, port 4997 must be open inbound.

7. Click **Next** to continue.
8. Click **Install**.
9. Click **Finish**.  
The **Setup Successful** screen appears.
10. Click **Close**.

Qlik NPrinting Engine installs the Qlik NPrinting Engine Windows service that must be running.



Once you have installed Qlik NPrinting Engine successfully, you must:

- License your Qlik NPrinting deployment. See: *Licensing Qlik NPrinting (page 145)*.
- Add at least one Qlik NPrinting Engine to the Qlik NPrinting scheduler service. See: *Adding a Qlik NPrinting Engine (page 170)*

## Installing Qlik NPrinting Engine via command line

### Viewing command line arguments

To display a list of command line arguments, execute the following in the command line:

```
QlikNPrintingServer_x64.exe /help
QlikNPrintingEngine_x64.exe /help
/quiet install or uninstall means no UI is displayed.
```

/passive install or uninstall means a minimum UI with a progress bar is displayed, but no wizards or user interaction.

## Install Qlik NPrinting Engine

Execute the following command in the command line as an administrator:

```
QlikNPrintingEngine_x64.exe /install {/quiet/passive} accept-eula=1 service-username="{DOMAIN\USERNAME}" service-password="{USER_PASSWORD}" engine-certs-password="{CERTS_PASSWORD}" server-hostname="{HOSTNAME}" [/log"{PATH_TO_LOG_FILE}"]
```

### Example

```
QlikNPrintingEngine_x64.exe /install /passive accept-eula=1 service-username="qtse1\admin" service-password="s3cr3t" engine-certs-password="s3cr3t" server-hostname="np-server" /log ".\engine.log"
```

Once you have installed Qlik NPrinting Engine successfully, you must:

- License your Qlik NPrinting deployment. See: *Licensing Qlik NPrinting (page 145)*.
- Add at least one Qlik NPrinting Engine to the Qlik NPrinting scheduler service. See: *Adding a Qlik NPrinting Engine (page 170)*

---

### See also:

 *Installing Qlik NPrinting Designer (page 168)*

## Installing Qlik NPrinting Designer

You need to install Qlik NPrinting Designer on all computers that you will use to develop report templates. It can be installed on Qlik NPrinting Server or Qlik NPrinting Engine computers, or on another computer.

Qlik NPrinting Designer retrieves information from the Qlik NPrinting repository. It can only be launched from Qlik NPrinting web console. You must install Microsoft Office if you want to develop Excel, Word or PowerPoint templates. No additional software is required to develop QlikEntity, PixelPerfect, or HTML templates with Qlik NPrinting.

Qlik NPrinting Designer installs Microsoft .NET Framework 4.8.0. It must not be uninstalled.

.NET framework is installed when you install Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer. The installation of .NET framework requires an internet connection. If .NET framework is not already installed on a computer without an internet connection, the installation stops. Before you begin the installation of Qlik NPrinting Server, Qlik NPrinting Engine, or Qlik NPrinting Designer, you must install the .NET framework on computers without an internet connection. If an internet connection is not available on a computer with .NET framework already installed, the installer will skip this part of the installation.

### Limitations

- Qlik NPrinting can only be installed on C drives.
- Qlik NPrinting Designer must be the same version as Qlik NPrinting Server.



- You cannot run Qlik NPrinting Designer as a stand-alone application. Qlik NPrinting Designer must be used with Qlik Sense or QlikView.
- To move from one version of Qlik NPrinting Designer to another, you must uninstall the older version before installing Qlik NPrinting Designer. See: *Uninstalling Qlik NPrinting Designer (page 185)*.




*The Qlik NPrinting Designer installer will not automatically prevent an upgrade to run on the system, but uninstalling and reinstalling Qlik NPrinting Designer is required for full functionality.*

- You cannot install Qlik NPrinting Designer 17 on the same computer as the Qlik NPrinting Designer 16.
- Qlik NPrinting Designer is not compatible with Microsoft Office 365 web or mobile. It is compatible with Microsoft Office 365 desktop.
- Local data such as logs, configuration files, template files, and newsstand files are stored in `C:\ProgramData\NPrinting`. This location is not configurable.

Before you install, check that your environment meets the system requirements. .

### Downloading the installation file

Download `QlikNPrintingDesigner_x64.exe` from the  [Qlik Download Site](#)

For more information, see *Downloading installation files (page 154)*.

### Installing Qlik NPrinting Designer

Do the following:

1. Double-click `QlikNPrintingDesigner_x64.exe` to launch the setup.
2. On the **Qlik NPrinting Designer Setup** Welcome screen, click **Next**.
3. Accept the terms in the license agreement and click **Next**.
4. On the **Destination Folder** screen, click **Change** if you want to install to a folder other than the default, and click **Next**.
5. On the **Ready to Install the Program** screen, click **Install**.
6. If the **User Account Control** window appears, click **Yes** to proceed.
7. Click **Finish**.

### Multi-engine sites

A single Qlik NPrinting scheduler service can manage multiple Qlik NPrinting Engines to distribute the workload resulting in a high-availability reporting system.

In a multi-engine environment, report creation is distributed among engines, allowing many reports to be created at the same time. If an engine fails, the Qlik NPrinting scheduler service will redistribute the workload to the other active engines.

You can install a single Qlik NPrinting Engine on each computer. The Qlik NPrinting Engine is multi-threaded so it can use all available CPUs and cores. By default, only one Qlik NPrinting Engine is available for each Qlik NPrinting Server license. If you want to add additional engines to your Qlik NPrinting environment, you need to purchase them.

### Engine manager

The **Engine manager** provides a single web interface to add, remove, monitor, and manage Qlik NPrinting Engines. You can find it in the Qlik NPrinting web console, under the **Admin** menu.

### Requirements

You must open the following ports:

- Outbound on the Qlik NPrinting Engine computer: 5672
- Inbound on Qlik NPrinting scheduler service computer: 5672, 4993, and 4994
- Outbound on Qlik NPrinting Server and inbound on all Qlik NPrinting Engines: 4997

### Qlik NPrinting Engine status

A Qlik NPrinting Engine can be in the following states:

- **Offline:** the Qlik NPrinting Engine is configured but cannot accept new jobs.
- **Online:** the Qlik NPrinting Engine is ready to accept new jobs.
- **Error:** the Qlik NPrinting Engine has an issue.

### Troubleshooting

If your QlikView Desktop installation on the Qlik NPrinting Engine computer does not have a valid license activated, you will receive an error.

To resolve this error, activate QlikView Desktop for the user who runs the Qlik NPrinting Engine service, and then re-activate the Qlik NPrinting Engine from the web console. See: *Licensing Qlik NPrinting (page 145)*.

### Adding a Qlik NPrinting Engine

You can add as many Qlik NPrinting Engines as you want to your Qlik NPrinting installation. You must configure each new Qlik NPrinting Engine so that the Qlik NPrinting scheduler service can distribute new jobs to it.

You must install the Qlik NPrinting Engine before you can use the **Engine manager** to add a new engine. For detailed installation instructions, see *Installing Qlik NPrinting Engine (page 162)*. You must enter the domain computer name of the Qlik NPrinting scheduler service during the Qlik NPrinting Engine installation. If you don't enter this information, you must uninstall and reinstall the Qlik NPrinting Engine.

## Requirements



You must open the following ports:

- On the Qlik NPrinting Engine computer: outbound port 5672
- On Qlik NPrinting scheduler service computer: inbound ports 5672, 4993 and 4994
- On Qlik NPrinting Server: outbound port 4997
- On all Qlik NPrinting Engines: inbound port 4997

You cannot add a Qlik NPrinting Engine that is already connected to a Qlik NPrinting scheduler service. A Qlik NPrinting Engine that is already connected to a Qlik NPrinting scheduler service will appear as offline, and cannot be used by the new connection.

## Adding a new engine

Do the following:

1. From the **Admin** menu, select **Engine manager**.
2. Click **Add engine**.
3. Enter a Qlik NPrinting Engine **Name**.  
For example, enter *Engine 2*.
4. Enter a **Description**.  
This field is optional but can be helpful during system maintenance.
5. Ensure that the **Enable** check box selected.  
If the check box is not selected, the new Qlik NPrinting Engine will be saved, but it will be ignored by the Qlik NPrinting scheduler service.
6. Enter the domain name of the computer where the Qlik NPrinting Engine is installed.  
For example, enter *engine2*.  
To determine the computer name, open the **System** properties page and use the **Computer name** parameter, without the domain name. You cannot use the IP address.
7. Click **Add engine**.
8. On the **Edit engine** page under **Certificates**, enter the **Password** you created during the Qlik NPrinting Engine installation, and click **Send certificates**.



If multiple Qlik NPrinting Engines are added to the deployment, each engine must be configured with the password used during the installation for that specific machine.

The new Qlik NPrinting Engine, appears in the list.

If the operation is successful, the engine status will be **Offline** and it will change to **Online** after few seconds.

## Enabling and Disabling a Qlik NPrinting Engine

You can enable or disable Qlik NPrinting Engine using the **Engine manager**.

The Qlik NPrinting scheduler service will not use a disabled Qlik NPrinting Engine.

To enable or disable a Qlik NPrinting Engine, log into the Qlik NPrinting Server web interface, and do the following:


1. From the **Admin** menu, select **Engine manager**.
2. Select or deselect the **Enabled** check box.  
A green box with a check mark indicates the Qlik NPrinting Engine is enabled.

### Deleting a Qlik NPrinting Engine

When you delete a Qlik NPrinting Engine in **Engine manager** it can no longer be used.

We recommend disabling an Qlik NPrinting Engine to avoid this. See: *Enabling and Disabling a Qlik NPrinting Engine (page 171)*.

Do the following:

1. From the **Admin** menu, select **Engine manager**.
2. In the **Engine manager** page, click on the Qlik NPrinting Engine name to open the **Edit engine** page.
3. Click  in the upper right corner.
4. Confirm the deletion when prompted.

The Qlik NPrinting Engine is deleted. This action cannot be undone.

### Connecting Qlik NPrinting with Qlik Sense

You must connect your Qlik NPrinting installation to one or more Qlik Sense servers if you want Qlik Sense charts in your reports. You can designate one Qlik Sense hub to receive Qlik NPrinting reports.

The Qlik NPrinting Server folder with the Qlik Sense certificates (*C:\Program Files\NPrintingServer\Settings\SenseCertificates*) is kept during upgrades, but is deleted if you uninstall Qlik NPrinting.



*This page outlines how to connect to a Qlik Sense server. To connect specific Qlik Sense apps to Qlik NPrinting in order to create reports, see: [Connecting to Qlik Sense apps \(page 30\)](#).*

### Requirements

For Qlik Sense version compatibility, see *Qlik Sense compatibility (page 127)*.

- In the QMC, you must give **RootAdmin** authorization to the Windows user that runs the Qlik NPrinting Engine Windows service. That Windows user must also be a domain user. See: *User accounts (page 136)*.

- Microsoft Windows NTLM authentication on the Qlik Sense proxy. SAML and JWT are not supported. If your virtual proxy uses SAML or JWT authentication, you need to add a new virtual proxy with NTLM enabled for Qlik NPrinting connections. The following must be correctly set up:
  - A Qlik Sense proxy.
  - A Qlik Sense virtual proxy.
  - A link between the proxy and virtual proxy.
  - The Qlik Sense virtual proxy must be reachable from the Qlik NPrinting Engine machines to retrieve data to create reports. It must be reachable from the Qlik NPrinting Server to publish to the Qlik Sense hub.

### Limitations

- Connecting additional Qlik Sense servers will have an impact on Qlik NPrinting Server system resources. You may need to increase the RAM and CPU usage on Qlik NPrinting Engine and Qlik NPrinting Server computers if you connect to multiple Qlik Sense servers. See: *Performance (page 152)*.
- Publishing to multiple Qlik Sense hubs it is not supported.
- Qlik Sense Desktop is not supported.

### Validating the connection to Qlik Sense

Qlik NPrinting must validate the connection to Qlik Sense using certificates.

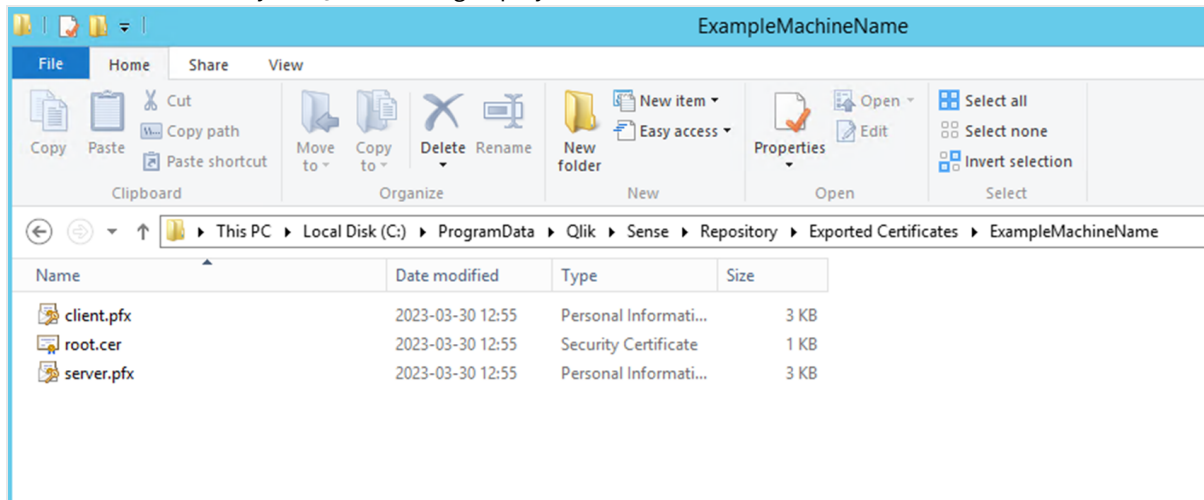
Certificates must be installed on the Qlik NPrinting scheduler service computer in order to distribute reports from Qlik NPrinting to the Qlik Sense hub. Certificates must also be installed on all Qlik NPrinting Engine computers in order to create connections to Qlik Sense apps. If the Qlik NPrinting scheduler service and Qlik NPrinting Engine are installed on the same computer, you only need to install the certificates once.

### Exporting the certificates from the QMC

Do the following:

1. Log into the QMC as a Qlik Sense administrator or a user with a RootAdmin access.
2. Select **Certificates** on the QMC start page or from the ▼ menu.  
The **Export** page for **Certificates** is displayed.
3. In the **Machine name** box, type the full computer name of the Qlik NPrinting Server computer that you are creating the certificates for: *MYMACHINE.mydomain.com* or the *IP address*.
4. Leave the **Certificate password** box empty.
5. Select .pfx file format in the **Export file format for certificates** drop-down list.
6. Click **Export certificates** in the action bar.
7. When the export is finished, the dialog **Certificates exported** is displayed. **Certificates will be exported to this disk location** displays the target directory.  
The default is: *C:\ProgramData\Qlik\Sense\Repository\Exported Certificates\QlikNPrintingServerName*
8. Go to this directory. You should see three files: *client.pfx*, *server.pfx*, and *root.cer*. These are the files that

need to be installed in your Qlik NPrinting deployment.



If you are connecting to multiple Qlik Sense servers, you will need to repeat the export process for each server, and rename the certificate files.

### Installing Qlik Sense client certificates



*This process is mandatory for all Qlik NPrinting deployments that connect to Qlik Sense data or hubs.*

You need the *client.pfx* file that was exported during *Exporting the certificates from the QMC (page 173)*. If you are installing certificates from multiple Qlik Sense servers, the *client.pfx* file must be renamed with a unique name. For example: *YourQlikNPrintingServerName.pfx*. Repeat this process for each Qlik NPrinting Engine. Each different *client.pfx* must be given a unique name.

The certificate export process must be repeated on each Qlik Sense server you want to connect to Qlik NPrinting Server and Qlik NPrinting Engine.

Do the following:

1. Receive the exported and renamed Qlik Sense certificates from your Qlik Sense system administrator.
2. Log into the Qlik NPrinting Server running the Qlik NPrinting scheduler service, as the Windows Qlik NPrinting Server services administrator.
3. Add the certificates to *C:\Program Files\NPrintingServer\Settings\SenseCertificates*. Qlik NPrinting will automatically identify the correct one to be used for each connection.



*You should only keep active Qlik Sense certificates used by Qlik NPrinting connections in the *C:\Program Files\NPrintingServer\Settings\SenseCertificates* folder. We recommend that you remove any certificates that are not in use.*

4. Repeat this process on each Qlik NPrinting Engine running the Qlik NPrinting Engine service, using the Windows Qlik NPrinting Engine services administrator.

Additional user access allocation in Qlik Sense is not required for a user to view reports in the Qlik Sense hub.

## Configuring server certificate validation for Qlik Sense connections



*This process is mandatory if you are Turning on server certificate validation (page 177) Turning on server certificate validation is optional, but recommended.*

Server certificate validation ensures that Qlik NPrinting only connects to trusted Qlik Sense servers for data retrieval (getting data or images from a Qlik Sense app) and report publishing to Qlik Sense hubs. Installing these certificates allows Qlik NPrinting to validate the connection to Qlik Sense.



*Server certificate validation is tuned on by default for new Qlik NPrinting installations. If you upgrade from previous Qlik NPrinting versions, this feature is turned off by default, to avoid disrupting any previously configured Qlik Sense tasks. In this case, server certificate validation must be enabled manually.*

### Requirements

- Installation locations: The Qlik Sense *root.cer* file must be installed on Qlik NPrinting Server and Qlik NPrinting Engine machines, by someone logged in as the corresponding Windows Qlik NPrinting Server services administrator or Windows Qlik NPrinting Engine services administrator (if certificates are being installed for the **Current user** and not for **Local machine**).
- Fully Qualified Domain Names (FQDN): When **Apply Qlik Sense server certificate validation** is enabled, only Fully Qualified Domain Names (FQDN) can be used to connect to Qlik Sense servers for both data retrieval and report publishing.  
All Qlik Sense connections and Qlik Sense hub proxy addresses must contain the full address: `http(s)://mysenseserver.mydomain.com/with_proxy_prefix_if_used`.  
The shorter address cannot be used: `http(s)://mysenseserver/with_proxy_prefix_if_used`. If a Qlik Sense connection does not use FQDN proxy addresses, it must be manually changed by a Qlik NPrinting Administrator.

### Installing server certificates

You need the *root.cer* file that was exported during *Exporting the certificates from the QMC (page 173)*. This is the file that you need to install on the Qlik NPrinting Server and your Qlik NPrinting Engine machines. Server certificates must be installed on:

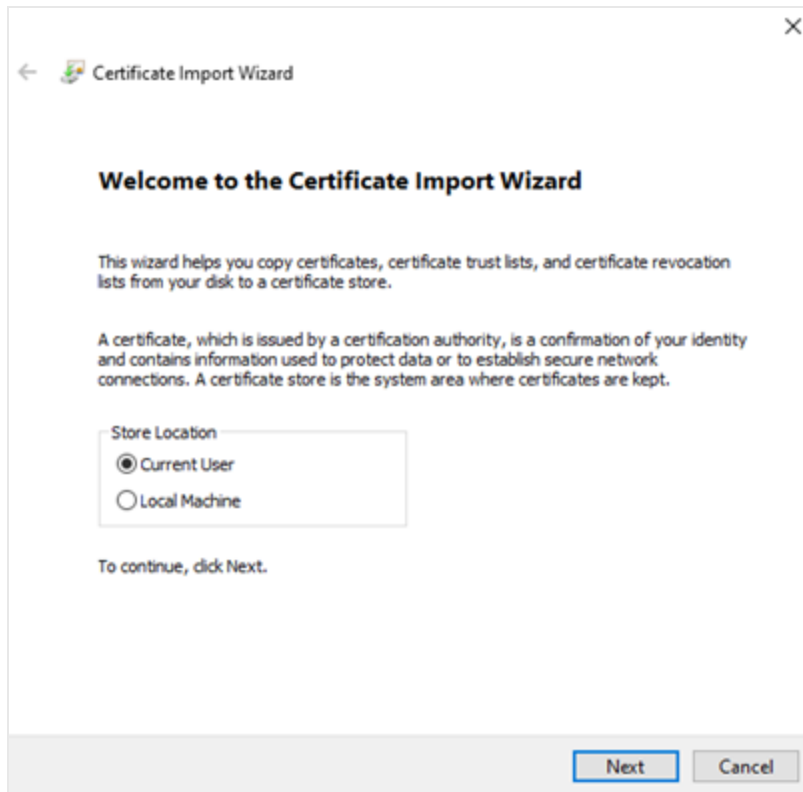
- The Qlik NPrinting Server computer when Qlik Sense hub is used as a report publishing destination.
- Every Qlik NPrinting Engine machine if connections to Qlik Sense are used. Installing certificates on the Engine machines is not required if QlikView is used exclusively to fetch data



*If you are installing the certificates on a Qlik NPrinting Server, you must be logged in as a Windows Qlik NPrinting Server services administrator. If you are installing the certificates on a Qlik NPrinting Engine machine, you must be logged in as a Windows Qlik NPrinting Engine services administrator.*

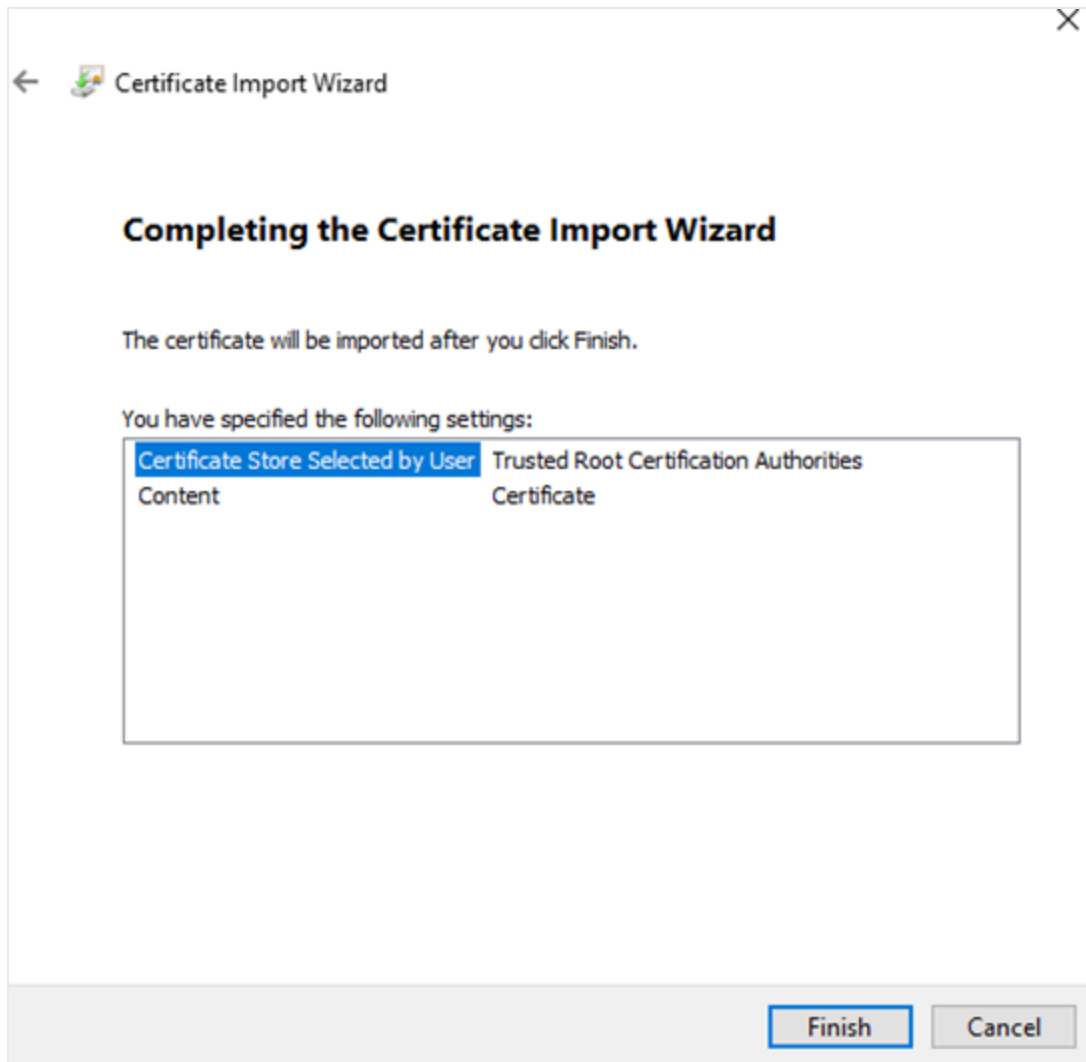
Do the following:

1. Log into a Qlik NPrinting Server or Qlik NPrinting Engine with the correct services administrator account.
2. Double-click on the *root.cer* file you already copied and click **Install Certificate....**  
This starts the Certificate Import Wizard.
3. The first dialog box will suggest that you install the certificate only for the **Current User**. This is either the Server or Engine Windows service user account. If you choose **Local Machine**, the certificate will be available to all users. Click **Next**.



4. Choose **Place all certificates in the following store** and then click **Browse....**
5. Select **Trusted Root Certification Authorities** and then click **OK**. Click **Next**.
6. Review your selections. They should match the image below, especially **Certificate Store Selected by User: Trusted Root Certification Authorities**.





7. Click **Finish**.
8. A **Security Warning** dialogue may appear. If so, read it and click **Yes**.

You will see a message informing you that the import was successful. Ensure that all Qlik NPrinting connections and, if used, the Qlik Sense publish to hub proxy address, use FQDN. For more information, see *Requirements* (page 172).

Once you have installed the certificates on the required Qlik NPrinting Server and Qlik NPrinting Engine machines, you are ready to manually enable the feature.

#### Turning on server certificate validation



*If you are installing Qlik NPrinting for the first time, you can skip this section, because server certificate validation will be turned on by default.*

After you turn on server certificate validation, if the corresponding Qlik Sense *root.cer* certificate files were not properly installed on Qlik NPrinting Server and each Qlik NPrinting Engine machine, any configured task that uses a Qlik Sense connection will fail when executed.

Do the following:

1. Log into Qlik NPrinting web console as an Administrator.
2. In the top menu, go to **Admin > Settings > Task**.
3. In the **Security** section, click the **Apply Qlik Sense server certificate validation** checkbox.
4. Click the **Update** button.

Once this feature is turned on, a message will appear at the bottom of every Qlik Sense connection page and Qlik Sense hub destination setup page.

*Sense hub destination setup page with note at the bottom explaining that server certificate validation will be applied.*

The screenshot shows the Qlik NPrinting web console interface. At the top, there is a navigation bar with the Qlik logo and 'NPrinting®' followed by menu items: 'Apps', 'Reports', 'Tasks', 'Admin', 'Destinations', and 'Admin'. Below this is a 'Hub' configuration form. The form has three main sections: 'Name' with a text input containing 'Qlik Hub', 'Description' with a larger text area, and 'Central node address' with a text input containing 'mysenseserver.mydomain.com'. At the bottom of the form, there is a note with a small icon: 'Qlik Sense server certificate validation will be applied when publishing reports.' To the right of the form are two buttons: 'Cancel' and 'Save'.

## Connecting Qlik NPrinting with QlikView

You must connect your Qlik NPrinting installation to QlikView if you want QlikView charts in your reports.

QlikView documents can be saved in local folders, on network shared folders, or on a QlikView Server.



*This page outlines how to connect to a QlikView server. To connect specific QlikView documents to Qlik NPrinting in order to create reports, see: [Connecting to QlikView documents \(page 21\)](#).*

## Requirements

### QlikView Desktop

QlikView Desktop is required on the Qlik NPrinting Engine computer. QlikView Server and QlikView Desktop must be the exact same version, including the release number. QlikView Desktop must be installed locally on the same physical or virtual computer as the Qlik NPrinting Engine. QlikView Desktop is not required if you are only

connecting to Qlik Sense apps.

For QlikView version compatibility, see *QlikView compatibility (page 127)*.



Your Qlik NPrinting version must be equal to or higher than your QlikView version.

### QlikView Server

To generate reports using QlikView Server connections, the following are required:

- Access to at least one QlikView Server.
- The Windows user that runs the Qlik NPrinting Engine Windows service must belong to the QlikView Administrators Windows group on the QlikView Server computer.
- To configure Qlik NPrinting for **NTFS authorization**, it must be configured in the Qlik Management Console. This means that the Windows operating system controls the file (document) access for users and groups through the NTFS security settings.
- To configure Qlik NPrinting for DMS authorization QlikView controlled file access, see: *JWT authentication (page 222)*.

### QlikView Cluster

To generate reports using QlikView Cluster connections, the following are required:

- Access to at least one QlikView Server.
- The Windows user that runs the Qlik NPrinting Engine Windows service must belong to the QlikView Administrators Windows group on the QlikView Server computer.
- To configure Qlik NPrinting for **NTFS authorization**, it must be configured in the Qlik Management Console. This means that the Windows operating system controls the file (document) access for users and groups through the NTFS security settings.
- To configure Qlik NPrinting for DMS authorization QlikView controlled file access, see: *JWT authentication (page 222)*.

To create a connection to a QlikView Cluster, the user that runs the Qlik NPrinting Engine service must:

- Be a domain user.
- Be part of QlikView Administrators security group in all the nodes of the cluster.
- Be part of QlikView Management API security group in the computer where QMS runs.

### Section access

If you are using section access, the following are required:

- Connections must be configured to use server authentication.
- A domain account must be configured in user settings, independent of the authentication type enabled in the Qlik NPrinting general settings.



*Section access is not fully supported for local QlikView documents. If you connect to a local QlikView document with section access, report recipients will see all available data, as if section access was not applied. You must use Qlik NPrinting filters or connect to documents via QlikView Server to ensure users only receive permitted data.*

### Licensing

To start the Qlik NPrinting service and connect to QlikView, you must have one of the following:

- A named user Client Access License (CAL) that is manually assigned to the Qlik NPrinting Engine service user active directory account, on the QlikView Server.
- A local QlikView Desktop license.

Users connecting through the API must be members of the QlikView Management API security group. The group is not created during the installation and must be added and populated manually, for example, with the members of the QlikView Administrators group.

### Limitations

You cannot use the same user to run a QlikView service and Qlik NPrinting service.

### Differences between QlikView server and local QlikView connections

There are benefits to connecting to a QlikView server:

- Better performance
- More stability
- Section access
- Increased security
- Automatic data refreshes (no need to trigger a metadata reload)

### Installing Qlik NPrinting and Qlik Sense on the same computer

Installing Qlik Sense and Qlik NPrinting on the same computer is not a supported configuration. In a production environment, Qlik NPrinting Server and Qlik NPrinting Engine will consume all of the available resources of the computer that they are installed on. If Qlik Sense is installed on the same computer as Qlik NPrinting Qlik Sense may crash due to a lack of available resources, and no reports will be delivered. Currently, Qlik NPrinting Server, Qlik NPrinting Engine and Qlik Sense do not have an internal system to limit their usage or resources.



*There are no known incompatibilities between Qlik NPrinting and Qlik Sense, but in a production environment, Qlik NPrinting requires a separate computer (virtual or physical) from Qlik Sense.*

In some circumstances, such as for demonstrations, you may choose to install the Qlik NPrinting Server, Qlik NPrinting Engine, and Qlik Sense on the same computer. It is also possible to run Qlik Sense and Qlik NPrinting together on an AWS (Amazon Web Service) computer by doing some additional configuration.

We do not recommend using this configuration for a proof of concept, because it could return false results. The concurrent usage of resources by Qlik NPrinting and Qlik Sense could cause the system to fail. This does not happen in a correctly configured production environment.

To limit the effects of contextual usage of resources:

- Assign more hardware resources (more RAM, more CPUs) to a virtual machine.
- Reboot the computer often so that resources are released.



*These suggestions do not completely resolve this problem.*

Do the following:

1. Install Qlik Sense.  
[Installing Qlik Sense Enterprise on Windows](#)
2. Install Qlik NPrinting Server and Qlik NPrinting Engine.  
[Installing Qlik NPrinting Server](#)  
[Installing Qlik NPrinting Engine](#)  
Qlik NPrinting Designer can be installed on the same computer (virtual or physical) as Qlik Sense, Qlik NPrinting Engine, or on a different one.
3. Install the Qlik Sense certificates.  
[Installing Qlik Sense certificates](#)  
You only need to install the *client.pfx* certificate. You must use the same Windows account set in the Qlik NPrinting Engine Windows service.
4. From the Qlik NPrinting web console, connect the Qlik NPrinting Engine with the Qlik NPrinting scheduler service local node.  
[Adding a Qlik NPrinting Engine](#)
5. Create a Qlik NPrinting connection to a Qlik Sense app.  
[Creating connections](#)  
Remember to use the computer name, because using *localhost* is not supported. To find the correct computer name of an AWS (Amazon Web Services) computer, see *Additional configuration for AWS computers (page 181)*.

### Additional configuration for AWS computers

For all Qlik NPrinting connections to Qlik Sense, the proxy address must be the address of the Certificate Authority created by Qlik Sense.

To find the address of the Certificate Authority on the AWS (Amazon Web Services) computer, do the following:

1. Open a command prompt.
2. Run **mmc.exe**.

3. In the **File** menu, click on **Add/Remove snap in**.
4. Select **Certificates** in the **Snap-in** column
5. Click **Add**.
6. Select **Computer account**.
7. Click **Next**.
8. Click **Finish**.
9. Click **Ok**.
10. Expand the **Certificates (Local Computer)** node by clicking on the **+** symbol.
11. Select **Personal**.
12. The computer name you require appears in the **Issued By** column and it ends with **-CA**. For example, you may find an **Issued By** value like **ip-123-31-38-88.ec2.internal-CA**, so you must use **ip-123-31-38-88.ec2.internal** as the computer address to connect to.

When creating a Qlik NPrinting connection to Qlik Sense, the computer address must be preceded by *https://*.

The above steps are mandatory because on AWS (Amazon Web Services) computers Qlik Sense produces its certificates by using a specific network interface, which is not the public Amazon computer name, or the computer name.

## Uninstalling Qlik NPrinting Server

You can uninstall the Qlik NPrinting Server using the user interface or the command line interface (CLI).

### Configuration files

The Qlik NPrinting uninstallation process deletes the *app.conf* proxy configuration files:

- *%ProgramData%\NPrinting\newsstandproxy\app.conf*
- *%ProgramData%\NPrinting\webconsoleproxy\app.conf*

If you re-install Qlik NPrinting, either in the same computer or in another, you will need to re-apply all the edited settings.

You can keep a copy of the files to record which configuration options were changed. Do not overwrite any *app.conf* configuration file with an older version as some configuration options may be different. You can overwrite the *app.conf* configuration files only if the replacement is from the same release of Qlik NPrinting.

The proxy configuration files for Qlik NPrinting 17.3, including service releases, had the following paths:

- *%ProgramFiles%\NPrintingServer\proxy\newsstandproxy\src\qlik.com\newsstandproxy\conf\app.conf*
- *%ProgramFiles%\NPrintingServer\proxy\webconsoleproxy\src\qlik.com\webconsoleproxy\conf\app.conf*

### Stopping Qlik NPrinting Windows services

Qlik NPrinting services must be stopped before you uninstall Qlik NPrinting Server, because the services could be using files that must be removed.

Do the following:

1. Open *services.msc*.
2. Scroll-down the list until you find the Qlik NPrinting services.
3. Stop the Qlik NPrinting Windows services (by right-clicking them, and then clicking **Stop**) in the following order:
  1. Only if it is installed, stop Qlik NPrintingEngine
  2. Qlik NPrintingScheduler
  3. Qlik NPrintingWebEngine
  4. Qlik NPrintingRepoService
  5. Qlik NPrinting messaging service
4. Close *services.msc*.

### Uninstalling Qlik NPrinting Server via user interface

1. In Windows, open the program uninstaller from the **Control Panel**.
2. Right-click Qlik NPrinting Server, and then select **Uninstall**.
3. Click **Uninstall** to proceed.
4. Click **Close**.

All Qlik NPrinting Windows services are uninstalled and no longer appear under services.

### Uninstalling Qlik NPrinting Server via command line

#### Viewing command line arguments

To display a list of command line arguments, execute the following in the command line:

```
QlikNPrintingServer_x64.exe /help
QlikNPrintingEngine_x64.exe /help
/quiet install or uninstall means no UI is displayed.
```

/passive install or uninstall means a minimum UI with a progress bar is displayed, but no wizards or user interaction.

#### Uninstall Qlik NPrinting Server

Execute the following command in the command line as an administrator:

```
QlikNPrintingServer_x64.exe /uninstall {/quiet|/passive}
```

#### Example

```
QlikNPrintingServer_x64.exe /uninstall /passive
```

### Uninstall Erlang OTP and Microsoft .NET Framework 4.6.2 via user interface

Do the following:

1. In Windows, open the program uninstaller from the **Control Panel**.
2. Scroll down the list until you find **Microsoft .NET Framework 4.6.2**.

3. Right-click on it and select **Uninstall**.
4. Repeat the process for Erlang OTP.

## Uninstalling Qlik NPrinting Engine

You can uninstall the Qlik NPrinting Engine using the user interface or the command line interface (CLI).

### Stopping Qlik NPrinting Engine Windows service

Qlik NPrinting Engine service must be stopped before you uninstall Qlik NPrinting Engine, because the service could be using files that must be removed.

Do the following:

1. Open *services.msc*.
2. Scroll-down the list until you find the **Qlik NPrinting Engine service**.
3. Select the service **Qlik NPrinting Engine**.
4. Right-click on it and select **Stop**.
5. Close *services.msc*.

### Uninstalling Qlik NPrinting Engine via user interface

Do the following:

1. In Windows, open the program uninstaller from the **Control Panel**.
2. Scroll down the list until you find Qlik NPrinting Engine.
3. Right-click on it and select **Uninstall**.
4. Click **Uninstall** to proceed.

### Uninstalling Qlik NPrinting Engine via command line

#### Viewing command line arguments

To display a list of command line arguments, execute the following in the command line:

```
QlikNPrintingServer_x64.exe /help
QlikNPrintingEngine_x64.exe /help
/quiet install or uninstall means no UI is displayed.
```

/passive install or uninstall means a minimum UI with a progress bar is displayed, but no wizards or user interaction.

#### Uninstall Qlik NPrinting Engine

Execute the following command in the command line as administrator:

```
QlikNPrintingEngine_x64.exe /uninstall {/quiet|/passive}
```

#### Example

```
QlikNPrintingEngine_x64.exe /uninstall /passive
```



## Uninstalling Qlik NPrinting Designer

To uninstall Qlik NPrinting Designer, you must log in as a Windows administrator.

### Uninstall Qlik NPrinting Designer

Do the following:

1. In Windows, open the program uninstaller from the **Control Panel**.
2. Scroll down the list until you find Qlik NPrinting Designer.
3. Right-click on it and select **Uninstall**.

### Uninstall Microsoft .NET Framework

Microsoft .NET Framework is widely used, so before you uninstall it make sure that it is not used by other software installed on your computer. The Qlik NPrinting Designer uninstall does not remove Microsoft .NET Framework. It must be uninstalled separately.

Do the following:

1. In Windows, open the program uninstaller from the **Control Panel**.
2. Scroll down the list until you find Microsoft .NET Framework [version].  
[version] will be a number, for example: 4.8.
3. Right-click on it and select **Uninstall**.
4. Select the radio button to **Remove .NET Framework from this computer**.
5. Click **Continue** when the warning message appears.

### Uninstall PDF-XChange 2012

PDF-XChange 2012 is the PDF virtual printer installed by Qlik NPrinting Engine.

Do the following:

1. In Windows, open the program uninstaller from the **Control Panel**.
2. Scroll down the list until you find PDF-XChange 2012.
3. Right-click on it and select **Uninstall**.
4. Confirm that you want to remove PDF-XChange 2012 by clicking **Yes**. Wait until the uninstall finishes.
5. You can restart the computer immediately by clicking on **Yes** or later by clicking on **No**. You must restart the computer in order to complete the PDF-XChange 2012 uninstall.

## Uninstalling Qlik NPrinting (complete uninstallation)

Before starting, back up the NPrinting repository. See *Backing up Qlik NPrinting (page 193)* for details.

### Configuration files

The Qlik NPrinting uninstallation process deletes the *app.conf* proxy configuration files:

- `%ProgramData%\NPrinting\newsstandproxy\app.conf`
- `%ProgramData%\NPrinting\webconsoleproxy\app.conf`

If you re-install Qlik NPrinting, either in the same computer or in another, you will need to re-apply all the edited settings.

You can keep a copy of the files to record which configuration options were changed. Do not overwrite any `app.conf` configuration file with an older version as some configuration options may be different. You can overwrite the `app.conf` configuration files only if the replacement is from the same release of Qlik NPrinting.

The proxy configuration files for Qlik NPrinting 17.3, including service releases, had the following paths:

- `%ProgramFiles%\NPrintingServer\proxy\newsstandproxy\src\qlik.com\newsstandproxy\conf\app.conf`
- `%ProgramFiles%\NPrintingServer\proxy\webconsoleproxy\src\qlik.com\webconsoleproxy\conf\app.conf`

### Uninstall Qlik NPrinting

Do the following:

1. Disable any antivirus or malware protection software that may prevent complete uninstallation of the product. It can be enabled with proper exclusions later for production.
2. Open the **Microsoft Windows Control Panel** and navigate to **Program and Features**. Uninstall the following programs, in this order:

1. Qlik NPrinting Server
2. Qlik NPrinting Designer
3. Qlik NPrinting Engine

To uninstall a program, right-click the program and select **Uninstall**. Wait until the uninstall finishes.

3. To avoid possible errors during Qlik NPrinting re-installation on the same computer, it may be necessary to perform manual steps to complete the uninstallation of Erlang and Rabbit. See *Qlik NPrinting re-installation errors (page 549)* for details.

### Uninstall Microsoft .NET Framework 4.6.2

Do the following:

1. Open the **Microsoft Windows Control Panel** and navigate to **Program and Features**.
2. Scroll down the list until you find **Microsoft .NET Framework 4.6.2**.
3. Right-click on it and select **Uninstall**. Wait until the uninstall finishes.

## 3.3 Planning your upgrade

You must follow one of the approved upgrade paths to ensure that the Qlik NPrinting repository is rendered compatible with the newer version of Qlik NPrinting. If you try to upgrade Qlik NPrinting without following an approved upgrade path, the installer will stop the procedure and display an error message.

As a best practice, you should update your Qlik NPrinting deployment regularly, to ensure you are using a supported version.

You must back up your data before you proceed. Data can become damaged if a problem occurs during the upgrade. If data is damaged, a backup is required to restore the repository. For more information, see *Backup and restore Qlik NPrinting (page 192)*.



*If you want to import QlikView NPrinting 16 entities into Qlik NPrinting November 2019 or newer. For more information, see *Migrating (page 105)*.*

If you are upgrading from a version older than February 2018, all QlikView and Qlik Sense metadata caches will be marked as "not generated". This is due to a breaking change in the format of the metadata cache. All connection caches must be regenerated before you can edit a template or create a new connection.

### Upgrading from April 2018 or newer

You can upgrade from Qlik NPrinting April 2018 (18.9.5) or later using the Qlik NPrinting setup program. For more information, see *Upgrading Qlik NPrinting (page 189)*.

If you want to upgrade to May 2022 or later you must start from April 2018 or later.

### Upgrading from September 2018 SR2 or older

If you are upgrading from September 2018 SR2 or older you must:

1. Open port 4997 outbound on Qlik NPrinting Server and inbound on all Qlik NPrinting Engines.
2. Reinstall all your Qlik NPrinting Engine and provide a password for certificate exchange.
3. Open the Engine manager in the Web Console.
4. Open the detail page for each Engine and send the certificate after inserting the same password you used during the engine's re-installation.

Qlik NPrinting Engines stay offline until the certificate exchange is performed.

### Upgrade paths from version 17.3 to Qlik NPrinting June 2017 or newer

The following information applies if you are upgrading to Qlik NPrinting June 2017 or later.

To upgrade to Qlik NPrinting June 2017 or later you must start from any previous version of Qlik NPrinting in the 17.3 series or later. You cannot upgrade to Qlik NPrinting June 2017 or later from a version older than 17.3. For example, if you have installed Qlik NPrinting 17.1 you must first upgrade to 17.2 and then to 17.3 before upgrading to Qlik NPrinting June 2017 or later.

### Upgrade paths from version 17.2 to version 17.3

The following information applies if you are upgrading Qlik NPrinting to version 17.3 or 17.3.1.

Qlik NPrinting 17.3 has increased the number of supported upgrade paths. To upgrade to Qlik NPrinting 17.3.0 you must start from any version of Qlik NPrinting in the 17.2 series. You cannot upgrade to Qlik NPrinting 17.3 from a version older than 17.2. For example, if you have installed Qlik NPrinting 17.1 you must first upgrade it to 17.2 before upgrading to 17.3.

The following upgrade paths are supported:

Current Qlik NPrinting version	Upgrade to
17.2.0	Qlik NPrinting 17.3.0
17.2.1	Qlik NPrinting 17.3.0
17.2.2	Qlik NPrinting 17.3.0
17.2.3	Qlik NPrinting 17.3.0
17.3.0	Qlik NPrinting 17.3.1



*You must upgrade to version 17.3.0 before you can upgrade to version 17.3.1.*

## Upgrade paths from version 17.0 to 17.2

The following information applies if you are upgrading Qlik NPrinting to a version earlier than 17.3.

A Qlik NPrinting feature release must be upgraded to the next successive feature or service release. A Qlik NPrinting service release must be upgraded to the next successive service release. You cannot upgrade a service release directly to next major feature release. For example, from 17.0.1 you must upgrade to 17.0.2, then to 17.0.3, etc, without skipping any releases.

If the installed version is the final service release before a major feature release, you can upgrade it to the next feature release. For example, 17.0.5 is the final service release of the 17.0 series and you can upgrade it to 17.1.

You can not skip a major feature release. For example, you can not upgrade directly from 17.0.5 to 17.2. The previous feature release 17.1 must be installed before upgrading to 17.2.

## Qlik NPrinting messaging service upgrade

Starting with Qlik NPrinting 17.2.1, the Qlik NPrinting Server upgrade removes RabbitMQ and replaces it with the Qlik NPrinting messaging service. It is not possible to keep RabbitMQ installed on the same computer as Qlik NPrinting Server 17.2.1 or later.

## Repository database backups

The Qlik NPrinting upgrade process will attempt to close the Qlik NPrinting Windows services and stop the processes automatically. However, under some circumstances, not all services and processes are stopped

successfully. If you attempt to upgrade Qlik NPrinting with the services and process still running, it can result in repository data being lost. Therefore, it is important to check that the services are stopped before proceeding with an upgrade, and close them manually if necessary.

The Qlik NPrinting upgrade process creates two backups of the repository :

- Backup before updating the repository.  
The name is composed by concatenating a timestamp (YearMonthDayTime) with the fixed string `_nprinting17.2.0.0_backup_old.zip` (for example `201611180947162456_nprinting17.2.0.0_backup_old.zip`).
- Backup after updating the repository.  
The name is composed by concatenating a timestamp (YearMonthDayTime) with the fixed string `_nprinting17.2.1.0_backup_new.zip` (for example `201611180947162456_nprinting17.2.1.0_backup_new.zip`).

Both backup files are stored in the folder `%ProgramData%\NPrinting` by default.

For example, if you are upgrading from Qlik NPrinting 17.2.0.0 to 17.2.1.0, Qlik NPrinting creates a backup `201611180947162456_nprinting17.2.0.0_backup_old.zip` before making any changes to the repository database, and a backup `201611180947162456_nprinting17.2.1.0_backup_new.zip` after upgrading the repository database. If, for any reason, you want to re-install Qlik NPrinting 17.2.0.0, you must restore the backup `201611180947162456_nprinting17.2.0.0_backup_old.zip`.

We strongly recommend that you also manually create a backup before upgrading.

### Upgrading Qlik NPrinting

You can upgrade from Qlik NPrinting April 2018 (18.9.5) or later using the Qlik NPrinting setup program. When upgrading, the previous version is completely replaced by the new version.

To upgrade from versions older than April 2018, see *Planning your upgrade (page 186)*



You cannot upgrade from QlikView NPrinting 16 using the setup program. To upgrade from QlikView NPrinting 16, see *Planning your migration (page 105)*.

### Configuration files

The content of the following files is overwritten during the upgrade process:

- NewsStand proxy configuration file  
`%ProgramFiles%\NPrintingServer\proxy\newsstandproxy\src\qlik.com\newsstandproxy\conf\app.conf`
- Qlik NPrinting web console proxy configuration file  
`%ProgramFiles%\NPrintingServer\proxy\webconsoleproxy\src\qlik.com\webconsoleproxy\conf\app.conf`

If you have made custom configurations in either of these files in your existing Qlik NPrinting deployment, you must recreate them manually after an upgrade.



We recommend recreating custom configurations in the files after upgrading instead of copying the Qlik NPrinting `app.conf` files from a previous deployment and using them in the upgraded installation because the upgraded files could include some different settings. You can compare a copy of the existing Qlik NPrinting `app.conf` files with the upgraded versions to ensure that no custom configurations are lost.

When you upgrade to Qlik NPrinting April 2018 or later the following new folders are created automatically:

- `%ProgramData%\NPrinting\newsstandproxy\`
- `%ProgramData%\NPrinting\webconsoleproxy\`

A copy of the `app.conf` file, with everything commented, is inserted in each folder. Settings that are not commented in the `app.conf` files have a higher priority than the old files, so they will overwrite the same settings in the older files. After the first upgrade the settings in the new `app.conf` files will be kept.

## Upgrading via user interface

Do the following:

1. Confirm that you have a current backup of the repository.



You must back up your data before you continue. Data can be damaged if a problem occurs during the upgrade, so it is necessary to have backup to restore the repository from . See [Backup and restore a repository](#).

2. Open Windows Services.
3. Stop the following Qlik NPrinting services by right-clicking them, and then clicking **Stop**:
  - Qlik NPrinting Engine
  - Qlik NPrinting Scheduler
  - Qlik NPrinting WebEngine
  - Qlik NPrinting MessagingService
  - Qlik NPrinting RepoService
  - Qlik NPrinting License Service

4. Close Windows Services.

Windows stops the services only after you close this program, so do not keep it open.



Proceed only when you are sure that all the services mentioned are stopped or the repository may be damaged. If any of these services are left running during upgrade, the upgrade can fail, and it may be necessary to restore data from backup.

5. Open the Windows **Task Manager**, then do the following:
  - a. Browse to the **Processes** tab.
  - b. Click on **Show processes from all users** to be sure to see all working processes.

- c. If any of the following processes is running, terminate it by right clicking on it and choosing **End process tree**:
- **Qlik.NPrinting.Engine.exe**
  - **Qlik.NPrinting.Scheduler.exe**
  - **Qlik.NPrinting.WebEngine.exe**
  - **Qlik.NPrinting.Cefsharp.exe**. If you see more than one process with this name, select the one owned by the Windows user of the Qlik NPrinting services.
  - **webconsoleproxy.exe**
  - **newsstandproxy.exe**
  - **Qlik.NPrinting.License.exe**
  - **licenses.exe**



*Proceed only when you are sure that all previous processes are stopped or the repository may be damaged.*



*If you attempt to upgrade Qlik NPrinting while the Windows services and process are running, it can result in a installation failure, so it is important to check before proceeding, and stop them manually if necessary.*

6. Install Qlik NPrinting as described in [Installing Qlik NPrinting](#).
7. Check all Qlik NPrinting services are running after the upgrade is complete. It may be necessary to start them manually.



*When you install or upgrade your Qlik NPrinting Server, Qlik NPrinting Engines, and Qlik NPrinting Designer, ensure that they are all the same software version. Mixing versions of Qlik NPrinting components is not supported.*

## Upgrading via command line

### Viewing command line arguments

To display a list of command line arguments, execute the following in the command line:

```
QlikNPrintingServer_x64.exe /help
QlikNPrintingEngine_x64.exe /help
/quiet install or uninstall means no UI is displayed.
```

/passive install or uninstall means a minimum UI with a progress bar is displayed, but no wizards or user interaction.

### Upgrade Qlik NPrinting Server

Execute the following command in the command line as an administrator:

```
QlikNPrintingServer_x64.exe /install {/quiet|/passive} accept-eula=1 service-username="
{DOMAIN\USERNAME}" service-password="{USER_PASSWORD}" [/log"{PATH_TO_LOG_FILE}"]
```

**Example**

```
QlikNPrintingServer_x64.exe /install /passive accept-eula=1 service-username="qtse1\admin"
service-password="s3cr3t" /log ".\server.log"
```

**Upgrade Qlik NPrinting Engine**

Execute the following command in the command line as an administrator:

```
QlikNPrintingEngine_x64.exe /install {/quiet|/passive} accept-eula=1 service-username="
{DOMAIN\USERNAME}" service-password="{USER_PASSWORD}" engine-certs-password="{CERTS_PASSWORD}"
server-hostname="{HOSTNAME}" [/log"{PATH_TO_LOG_FILE}"]
```

**Example**

```
QlikNPrintingEngine_x64.exe /install /passive accept-eula=1 service-username="qtse1\admin"
service-password="s3cr3t" engine-certs-password="s3cr3t" server-hostname="np-server" /log
".\engine.log"
```

**Troubleshooting - Canceling an upgrade**

The rollback that follows a Qlik NPrinting Server or Qlik NPrinting Engine upgrade cancellation may corrupt the related Qlik NPrinting installation. A rollback is triggered by errors or by clicking the cancel button during the upgrade execution. After a corruption caused by a rollback, services may be uninstalled or cannot be started. You will need to restore the Engine and Server.

**Restoring Qlik NPrinting Server to its original status**

Do the following:

1. Retrieve a recent backup.
2. Uninstall Qlik NPrinting Server. For more information, see: *Uninstalling Qlik NPrinting Server (page 182)*
3. Perform a clean installation of the same Qlik NPrinting Server as the backup.
4. Restore the backup.

**Restoring Qlik NPrinting Engine to its original status**

Do the following:

1. Uninstall Qlik NPrinting Engine. For more information, see: *Uninstalling Qlik NPrinting Engine (page 184)*
2. Perform a clean installation of Qlik NPrinting Engine.

## 3.4 Backup and restore Qlik NPrinting

We recommend that you create regular backups to ensure that your Qlik NPrinting deployment can be recovered in the event of a system failure or when a node in your deployment needs to be moved or replaced.

When you create a backup of your Qlik NPrinting deployment, the key component that you are backing up is the Qlik NPrinting repository. For more information, see *Architecture (page 131)*.





A Qlik NPrinting backup can only be restored to an installation of the exact same version of Qlik NPrinting because Qlik NPrinting repository structures may differ between versions of Qlik NPrinting.



If you want to upgrade and migrate your data between versions of Qlik NPrinting, you must follow the instructions for upgrading. For more information, see *Upgrading Qlik NPrinting* (page 189).

Qlik NPrinting is delivered with a utility, *Qlik.Nprinting.Manager.exe*, that is used to create backups and restore deployments. The *Qlik.Nprinting.Manager.exe* file is installed by default, and is located in *%Program Files%\NPrintingServer\Tools\Manager*. This tool is a console application and must be executed from a command prompt. The resulting backup contains a Qlik NPrinting repository database dump file, and related files in a .zip archive.

## Backing up Qlik NPrinting

Qlik NPrinting is delivered with a utility, *Qlik.Nprinting.Manager.exe*, that is used to create backups and restore deployments.

*Qlik.Nprinting.Manager.exe* is installed by default, and is located in *%Program Files%\NPrintingServer\Tools\Manager*. This tool is a console application and must be executed from a command prompt. The resulting backup contains a Qlik NPrinting repository database dump file, and related files in a .zip archive.

## Accessing the command line help

Enter one of the following commands to see the command line help for the *Qlik.Nprinting.Manager.exe*:

- `Qlik.Nprinting.Manager.exe --help` for general help
- `Qlik.Nprinting.Manager.exe backup --help` for help with backups
- `Qlik.Nprinting.Manager.exe restore --help` for help with restoring from a backup

Before you begin:

- Check to see if Qlik NPrinting Engine is installed on the Qlik NPrinting Server computer where you are creating the backup.
- Verify the location of your PostgreSQL installation, typically *C:\Program Files\NPrintingServer\pgsql\bin*.
- Verify that you know the superuser password for the PostgreSQL database.
- Delete, move, or rename any existing backup files if this is not the first backup created, as the tool will not overwrite an existing file with the same name.

Do the following:

1. On the computer that hosts your Qlik NPrinting Server installation, open the **Windows Service Manager** (*services.msc*), and stop the following services in the order listed, by right-clicking on the service then

selecting **Stop**:

- a. Qlik NPrintingEngine (if installed on the computer)
- b. Qlik NPrintingScheduler
- c. Qlik NPrintingWebEngine



*Qlik NPrintingRepoService must be running to create a backup.*

2. Using Windows Explorer, create a folder to store the backups in, for example `C:\NPrintingBackups`.
3. Open a Windows command prompt (`cmd.exe`) as administrator, and navigate to the folder where `Qlik.NPrinting.Manager.exe` is installed. The default location is `%Program Files%\NPrintingServer\Tools\Manager`. For example:  

```
cd C:\Program Files\NPrintingServer\Tools\Manager
```
4. Enter `Qlik.Nprinting.Manager.exe backup -f` followed by the full path to the backup folder that you created in step 2, then concatenate `-p` followed by the full path to the PostgreSQL bin folder. Also concatenate the option `--pg-password` followed by the repository database superuser password that you defined during setup. For example:  

```
Qlik.Nprinting.Manager.exe backup -f C:\NPrintingBackups\NP_Backup.zip -p "C:\Program Files\NPrintingServer\pgsql\bin" --pg-password secretPassword
```



*Adding the repository database superuser password into the command line is optional. If you do not enter the superuser password, it will be read from the Qlik NPrinting configuration files.*



*Quotation marks are necessary when you have spaces in the path.*

5. Read the messages displayed on the console carefully as they provide important status and error information.  
When the backup is complete, you will see a `.zip` file named `NP_Backup.zip` in the folder that you created in step 2 above, for example `C:\NPrintingBackups`.
6. Verify that your backup was successful by navigating to the folder that you created in step 2 above, and checking that the `.zip` file is there.



*Before you create a new backup, you must delete, move, or rename any existing backup file, as the tool will not overwrite an existing file with the same name.*

## Backing up the Qlik NPrinting audit trail

You can backup your *Audit trail* (page 272) with the `Qlik.Nprinting.Manager.exe`.



*If you need to backup your Qlik NPrinting deployment, see [Backing up Qlik NPrinting](#) (page 193).*

*Qlik.NPrinting.Manager.exe* is installed by default, and is located in *%Program Files%\NPrintingServer\Tools\Manager*. This tool is a console application and must be executed from a command prompt. The resulting backup contains a Qlik NPrinting audit trail database dump file, and related files in a .zip archive.

## Accessing the command line help

Enter one of the following commands to see the command line help for the *Qlik.NPrinting.Manager.exe*:

- `Qlik.Nprinting.Manager.exe --help` for general help
- `Qlik.Nprinting.Manager.exe audit-backup --help` for help with backups
- `Qlik.Nprinting.Manager.exe audit-restore --help` for help with restoring from a backup

Before you begin:

- Check to see if Qlik NPrinting Engine is installed on the Qlik NPrinting Server computer where you are creating the backup.
- Verify the location of your PostgreSQL installation, typically *C:\Program Files\NPrintingServer\pgsql\bin*.
- Verify that you know the superuser password for the PostgreSQL database.
- Delete, move, or rename any existing backup files if this is not the first backup created, as the tool will not overwrite an existing file with the same name.

Do the following:

1. On the computer that hosts your Qlik NPrinting Server installation, open the **Windows Service Manager** (*services.msc*), and stop the following services in the order listed, by right-clicking on the service then selecting **Stop**:
  - a. Qlik NPrintingEngine (if installed on the computer)
  - b. Qlik NPrintingScheduler
  - c. Qlik NPrintingWebEngine
  - d. Qlik NPrintingAuditService



*Qlik NPrintingRepoService must be running to create a backup.*

2. Using Windows Explorer, create a folder to store the backups in, for example *C:\NPrintingBackups*.
3. Open a Windows command prompt (*cmd.exe*) as administrator, and navigate to the folder where *Qlik.NPrinting.Manager.exe* is installed. The default location is *%Program Files%\NPrintingServer\Tools\Manager*. For example:

```
cd C:\Program Files\NPrintingServer\Tools\Manager
```
4. Enter `Qlik.Nprinting.Manager.exe audit-backup -f` followed by the full path to the backup folder that you created in step 2, then concatenate `-p` followed by the full path to the PostgreSQL bin folder. Also concatenate the option `--pg-password` followed by the repository database superuser password that you defined during setup. For example:

```
Qlik.Nprinting.Manager.exe audit-backup -f C:\NPrintingBackups\NP_Audit_Backup.zip -p "C:\Program Files\NPrintingServer\pgsql\bin" --pg-password secretPassword
```



Quotation marks are necessary when you have spaces in the path.

5. Read the messages displayed on the console carefully as they provide important status and error information.  
When the backup is complete, you will see a .zip file named *NP\_Backup.zip* in the folder that you created in step 2 above, for example *C:\NPrintingBackups*.
6. Verify that your backup was successful by navigating to the folder that you created in step 2 above, and checking that the .zip file is there.



Before you create a new backup, you must delete, move, or rename any existing backup file, as the tool will not overwrite an existing file with the same name.

## Restoring Qlik NPrinting from a backup

Qlik NPrinting is delivered with a utility, *Qlik.Nprinting.Manager.exe*, that is used to create backups and restore deployments.

*Qlik.Nprinting.Manager.exe* is installed by default, and is located in *%Program Files%\NPrintingServer\Tools\Manager*. This tool is a console application and must be executed from a command prompt. The resulting backup contains a Qlik NPrinting repository database dump file, and related files in a .zip archive.

### Command line help

To see the command line help for the *Qlik.Nprinting.Manager.exe*, enter one of the following commands:



- `Qlik.Nprinting.Manager.exe --help` for general help
- `Qlik.Nprinting.Manager.exe backup --help` for help with backups
- `Qlik.Nprinting.Manager.exe restore --help` for help with restoring from a backup

Do the following:

1. On the computer where you want to restore your Qlik NPrinting Server deployment, open the **Windows Service Manager** (*services.msc*). Verify that the following services are stopped:
  - a. Qlik NPrintingEngine (if installed on the computer)
  - b. Qlik NPrintingScheduler
  - c. Qlik NPrintingWebEngine

2. If an engine is configured on a remote machine:
    - a. Log into the engine machine.
    - b. Open the Windows Service Manager.
    - c. Ensure that the following service is stopped: *Qlik NPrintingEngine*.
  3. Open a Windows command prompt (*cmd.exe*) as administrator, and navigate to the folder where *Qlik.NPrinting.Manager.exe* is installed. The default location is *%Program Files%\NPrintingServer\Tools\Manager*. For example:
 

```
cd C:\Program Files\NPrintingServer\Tools\Manager
```
  4. Enter `Qlik.Nprinting.Manager.exe restore -f` followed by the full path to the backup.zip file, then concatenate `-p` followed by the full path to the PostgreSQL bin folder. Also concatenate the option `--pg-password` followed by the repository database superuser password that you defined during setup. For example:
 

```
Qlik.Nprinting.Manager.exe restore -f C:\NPrintingBackups\NP_Backup.zip -p "C:\Program Files\NPrintingServer\pgsql\bin" --pg-password secretPassword
```
-  *Restore overwrites the installed repository and resets to the version stored in the backup. If you created new entities after the backup was created, they will be lost.*
-  *Quotation marks are necessary when you have spaces in the path.*
5. Read the messages displayed on the console carefully as they provide important status and error information. They indicate if the restore was successful, and help to troubleshoot errors. If no errors occur, you are ready to restart your services.
  6. Open the **Windows Service Manager** (*services.msc*), and start the following services in the order listed, by right-clicking on the service then selecting **Start**:
    - a. Qlik NPrintingWebEngine
    - b. Qlik NPrintingScheduler
    - c. Qlik NPrintingEngine (if installed on the computer)
    - d. Qlik NPrintingEngine (if installed on a remote machine)

## Restoring Qlik NPrinting audit trail data from a backup

Qlik NPrinting is delivered with a utility, *Qlik.Nprinting.Manager.exe*, that is used to create backups and restore deployments.

*Qlik.NPrinting.Manager.exe* is installed by default, and is located in *%Program Files%\NPrintingServer\Tools\Manager*. This tool is a console application and must be executed from a command prompt. The resulting backup contains a Qlik NPrinting audit trail database dump file, and related files in a .zip archive.

### Command line help



To see the command line help for the *Qlik.NPrinting.Manager.exe*, enter one of the following commands:

- `Qlik.NPrinting.Manager.exe --help` for general help
- `Qlik.NPrinting.Manager.exe audit-backup --help` for help with backups
- `Qlik.NPrinting.Manager.exe audit-restore --help` for help with restoring from a backup

Do the following:

1. On the computer where you want to restore your Qlik NPrinting Server deployment, open the **Windows Service Manager** (services.msc), and verify that the following services are stopped:
    - a. Qlik NPrintingEngine (if installed on the computer)
    - b. Qlik NPrintingScheduler
    - c. Qlik NPrintingWebEngine
    - d. Qlik NPrintingAuditService
  2. Open a Windows command prompt (`cmd.exe`) as administrator, and navigate to the folder where `Qlik.NPrinting.Manager.exe` is installed. The default location is `%Program Files%\NPrintingServer\Tools\Manager`. For example:
 

```
cd C:\Program Files\NPrintingServer\Tools\Manager
```
  3. Enter `Qlik.NPrinting.Manager.exe audit-restore -f` followed by the full path to the backup.zip file, then concatenate `-p` followed by the full path to the PostgreSQL bin folder. Also concatenate the option `--pg-password` followed by the repository database superuser password that you defined during setup. For example:
 

```
Qlik.NPrinting.Manager.exe audit-restore -f C:\NPrintingBackups\NP_Audit_Backup.zip -p "C:\Program Files\NPrintingServer\pgsql\bin" --pg-password secretPassword
```
-  *Restore overwrites the installed repository and resets to the version stored in the backup. If you created new entities after the backup was created, they will be lost.*
-  *Quotation marks are necessary when you have spaces in the path.*
4. Read the messages displayed on the console carefully as they provide important status and error information. They indicate if the restore was successful, and help to troubleshoot errors. If no errors occur, you are ready to restart your services.
  5. Open the **Windows Service Manager** (services.msc), and start the following services in the order listed, by right-clicking on the service then selecting **Start**:
    - a. Qlik NPrintingWebEngine
    - b. Qlik NPrintingScheduler
    - c. Qlik NPrintingEngine (if installed on the computer)
    - d. Qlik NPrintingAuditService

---

## 3.5 Security

Qlik NPrinting leverages internal and external resources to manage access, authentication, authorization, and data governance.

### Platform security

All communication between Qlik NPrinting services and web clients use web protocols using Transport Layer Security (TLS). TLS uses digital certificates to encrypt information exchanged between services, servers, and clients. Encrypted information flows through tunnels requiring two certificates to secure the connection; a server certificate to identify the correct server and a client certificate to allow the client to communicate with the identified server.

The operating system security system controls access to certificates, storage, memory, and CPU resources. Qlik NPrinting uses these controls to protect the platform by only allowing authorized users and processes access to required resources.

For more information about certificates, see *Certificates (page 201)*.

### Authentication

Authentication in Qlik NPrinting deployments can be managed by proxy service. Upon verification, Qlik NPrinting transfers the user to the Qlik NPrinting Server or NewsStand. For more information about authentication, see *Authentication (page 216)*.

### Authorization

Attribute based access control provides a comprehensive framework to govern user capabilities within the platform. Data reduction through section access dynamically manages the data which users view and select in applications.

Document Metadata Service (DMS) integrates fully with the existing Directory Service Provider (for example, Active Directory, other LDAP) where Group Membership has been recorded – this is a mechanism by which QlikView Server can re-use existing enterprise accounts and group structures.

For more information about managing role based access controls, see *Role based security (page 227)*.

For more information about section access, see *Prerequisites for QlikView Server and QlikView Cluster connections (page 232)*.

### Platform security

Qlik NPrinting supports TLS (Transport Layer Security) a cryptographic protocol that provide communications security over a computer network. TLS is sometimes referred to as SSL (Secure Sockets Layer). TLS uses certificates signed by trusted certification authorities (CA). This also avoid security warning messages on the web browser.

### Cryptography basics

This is an overview of cryptography basic concepts that you must know in order to use TLS certificates with Qlik NPrinting.

Symmetric-key cryptographic algorithms use the same key for both encryption and decryption. The key is shared between the parties that communicate and must be secret.

Asymmetric cryptography algorithms (or public key cryptography), use instead a pair of keys: one public and one private. The public key may be disseminated widely, and the private key is known only to the owner. If you perform an encryption or decryption with one key you can reverse it by using the other key. Which key you use depends on whether you are trying to do a digital signature or an encryption.

The process to implement an asymmetric encryption algorithm is composed by the following steps:

- generate the public and the private key
- distribute the public key
- encrypt
- decrypt

RSA (Rivest, Shamir and Adleman), used in Qlik NPrinting, is an asymmetric encryption algorithm. RSA is used to transmit encrypted shared keys for symmetrical cryptography which is faster.

A public certificate is an electronic public document used to prove the ownership of a public key. A public certificate includes information about the key, information about its owner's identity, and the digital signature of an entity that has verified that the content of the certificate is correct. If the signature is valid, and the user trusts the signer, then the user knows that the public certificate can be used to communicate with its owner.

PEM is an ASCII text format for public certificates. It is portable across platforms.

A public key infrastructure (PKI) is a system for the creation, storage, and distribution of digital certificates which are used to verify that a particular public key belongs to a certain entity. A PKI includes a certificate authority (CA) that stores, issues and signs third party digital certificates. A certificate authority (CA) could be a company that sells you public certificates. OpenSSL is the simplest tool for PKI. OpenSSL is also open source and you can use it for free.

X.509 is a standard format for public key certificates, for example the ones used by Qlik NPrinting. An X.509 certificate does not contain the private key.

Transport Layer Security (TLS) is a cryptographic protocol that provides communication security over a computer network. Sometimes TLS is still called with the older name SSL (Secure Socket Layer). TLS connections are secured by using symmetric cryptography with a secret and unique key for each session negotiated at the beginning of the communication. The identity of the communicating parties can be verified by using public-key cryptography. Public certificates are an important component of the TLS because they prevent an attacker from impersonating other server.



### Certificates

A certificate is a data file that contains keys that are used to encrypt communication between a client and a server in a domain. Certificates also confirm that the domain is known by the organization that issued the certificate.

A certificate includes information about the keys, information about the identity of the owner, and the digital signature of an organization that has verified that the content of the certificate is correct. The pair of keys (public and private keys) are used to encrypt communication.

Qlik products use certificates when they communicate with each other. They also use certificates within products, for communication between components that are installed on different computers. These are standard TLS certificates.

The organization that issues the certificate, the certificate authority, is said to “sign” the certificate. You can arrange to get certificates from a certificate authority, to show your domain is known. You can also issue and sign your own (“self-signed certificates”).

### Common errors

Because it generally important for security to know whether a site is known, browsers will display error messages related to certificates and might block communication.

Some common errors are related to the certificate authority. For example, if there is no certificate authority or if the certificate has expired, the default level of security in most browsers will stop communication with a message about “unsigned certificates”, “expired certificates”, or similar terms. If your security administrators know that the certificate is still good, you can create an exception so the error is ignored for that certificate.

Other common errors are related to how the domain is named. For example, `companyname.com` is a different domain from `www.companyname.com`, and `localhost` is a different domain from a server name. A fully qualified domain name is an unambiguous name for a domain. For example, a server at `companyname.com` might be named `mktg-SGK`, and can be referred to that way, but the fully qualified domain name is `mktg-SGK.companyname.com`. (This is called whitelisting.)

### Encryption and keys

The kind of encryption used in certificates in Qlik products requires a pair of keys (asymmetric encryption). One key, the public key, is shared. The other key, the private key, is used only by the owner.

PEM is an ASCII text format for public certificates. It is portable across platforms.

You can get certificates and key pairs from certificate authorities or you can generate them. To get a certificate signed, you will need to also generate a signing request.

### Installing OpenSSL

By using OpenSSL you can generate you private and public keys, the certificates and the certificate signing requests to be send to a certification authority. OpenSSL is an open source project and you can use it for free.

OpenSSL official website provides detailed information about how to use it. The following are basic instructions to use OpenSSL with Qlik NPrinting.

Before you begin, you must install OpenSSL.

Do the following:

1. Download a binary distribution of OpenSSL for your operating system.



*Compiling your own version, and checking the gpg keys in the tags, is a more secure alternative.*



*The OpenSSL project does not distribute any code in binary form, and does not officially recommend any specific binary distributions but you can find an informal list at <https://wiki.openssl.org/index.php/Binaries>. We will use `Win64OpenSSL_Light-1_1_0e.exe` downloadable from the page <https://slproweb.com/products/Win32OpenSSL.html>.*

2. Before start the installation, close all Windows command prompts.
3. Double click on `Win64OpenSSL_Light-1_1_0e.exe` to start the installation.
4. If a security warning appears, click on *Run*.
5. If the user account control appears, click on *Yes*.
6. Click on *Next*, accept the license agreement and click on *Next* again.
7. Don't change the default installation folder and click on *Next*.
8. Use the default start menu folder and click on *Next*.
9. In *Copy OpenSSL DLL to windows* select the option on to *The Windows system directory* and click on *Next*.
10. Click on *Install*.
11. Click *Finish* to exit setup.

### Managing keys and certificates

Qlik NPrinting encryption requires a X.509 certificate file in PEM format. You can generate a self-signed certificate, or get one signed from a certification authority (CA). A single certificate covers both the NewsStand and the Qlik NPrinting web console, because they have the same domain name.

### Limitations

- Certificates generated using CNG compatible algorithms are not compatible with the On-Demand Add-on.

### Generating a public and private RSA key pair in PEM format

Do the following:

1. Open a Windows command line prompt.
2. Move to the OpenSSL binary folder. Default command is: `cd c:\openssl-win64\bin`

You can customize the folder if it is necessary. Files will be created in this folder, then you will move them into the final folder.

3. Run the command: `openssl genrsa -out NPrinting.key 4096`.  
`genrsa` is the option to generate an RSA private key. `4096` is the size of the generated private key in bits.
4. If you only want to export the public certificate in PEM format, run the command: `openssl rsa -in NPrinting.key -outform PEM -pubout -out NPrintingPublic.pem`.  
`pubout` is the OpenSSL option to extract the public key from and RSA private key.



*The certificate key must not be passphrase protected.*



*The private key should not be disclosed to anyone, nor sent to the certificate authority. Back it up and store it in a safe place. You can distribute the public key file if needed.*

5. Before sharing your public key file, we suggest that you visually inspect it to be sure that you are sending the correct file:
  - a. Open the file `NPrinting.key` in a text editor. `NPrinting.key` is your private key and it starts with: `-----BEGIN RSA PRIVATE KEY-----`. Keep it secret.
  - b. Open the file `NPrintingPublic.pem` in a text editor. `NPrintingPublic.pem` is your public key and it starts with: `-----BEGIN PUBLIC KEY-----`. You can share this file.

## Private key security

Qlik NPrinting operates 24/7. This means that the private key must be stored on the file system unencrypted. Protecting the private key with a password is not feasible because an administrator must enter the password every time the service is restarted. You can protect the private key file by giving access rights only to the administrators. The private key file is only used for TLS and it never leaves the server.

### Generating a self-signed certificate

A self-signed certificate is an identity certificate that is signed by the entity owning the certificate. This entity uses its own private key to certify its identity. Using a self-signed certificate lets you sign your certificate by yourself.

You can use a self-signed certificate if:

- You intend to use HTTPS (HTTP over TLS) to secure your web servers.
- You do not require that your certificates are signed by a certificate authority (CA).

For example, you can use a self-signed certificate if your web servers are used only inside your local network.

Do the following:

1. Open a Windows command line prompt.
2. Move to the OpenSSL binary folder. Default command is `cd C:\OpenSSL-win64\bin`. Files will be created in this folder, then you will move them into the final folder.
3. To create the self-signed certificate run the following command:  

```
openssl req -newkey rsa:4096 -nodes -keyout NPrinting.key -x509 -days 365
```

```
-out NPrinting.crt
```

Where:

- req is the PKCS#10 certificate request and generating utility.
- The `-x509` option tells req to create a self-signed certificate.
- The `-days 365` option specifies that the certificate will be valid for 365 days.

To skip the interactive questions, use the `-subj` followed by your domain information within quotation marks.

For example:

```
-subj "/C=US/ST=New York/L=Brooklyn/O=Example Brooklyn Company/CN=mywebsitedomain.com".
```



*The private key should not be disclosed to anyone, nor sent to the certificate authority. Back it up and store it in a safe place.  
You can distribute the public key file.*

### Buying a certificate from a certification authority

Your certificates must be signed by a certification authority (CA) if you need to avoid security warnings in case your web server is publicly reachable via web browsers. There are numerous certification authorities. The CA you choose will have their own specific instructions to follow. Some steps on generating and implementing CA-signed certificates are common to all certification authorities. The following sections outline these common steps.

## Generating a certificate signing request

To obtain a CA-signed certificate, you must generate a certificate signing request (CSR). A CSR contains your public key and other additional information. This information will be included in the signed certificate. A CSR never contains the private key.

Do the following:

1. To generate the CSR and the private key run the following command:

```
openssl req -new -newkey rsa:4096 -nodes -keyout NPrinting.key -out  
NPrinting.csr
```

2. You will be prompted to answer the interactive questions.

To skip the interactive questions, use the `-subj` followed by your domain information within quotation marks.

For example:

```
-subj "/C=US/ST=New York/L=Brooklyn/O=Example Brooklyn Company/CN=mywebsitedomain.com".
```

For any custom procedure needed for creating the CSR, refer to the certification authority's instructions .

### Common Name field

The name in the Common Name field (CN) must be the Fully Qualified Domain Name (FQDN) of the host that will use the certificate.

For example:

- If the URL of your NewsStand is *https://yourcompany.com:4994*, the FQDN is *yourcompany.com* (the port is not part of the FQDN).
- The URL *https://www.yourcompany.com:4994* is considered different from *https://yourcompany.com:4994*. If you want both URL addresses to be valid host names, you must generate two certificates, one containing the FQDN *www.yourcompany.com*, and one containing the FQDN *yourcompany.com*.

### Merging signed certificates with server certificates

When using a certificate signed by a certification authority (CA), you must create a PEM file certificate bundle containing:

- the server certificate
- any intermediates
- the CA-signed certificate

Make sure to apply the following order for the concatenation:

1. Domain certificate
2. Intermediate certificates (one or multiple)
3. Root certificate

Once you have created the certificate bundle, use it together with your private key to set up the proxy. Files containing a certificate and matching private key for the server must be provided.

Do the following:

In this example, the certificate for your domain is *NPrinting.crt*.



1. Open a Windows command line and enter the following:

```
more NPrinting.crt >> NPrinting.public.pem
more RSADomainValidationSecureServerCA.crt >> NPrinting.public.pem
more RSAAddTrustCA.crt >> NPrinting.public.pem
more AddTrustExternalCARoot.crt >> NPrinting.public.pem
```

Where:

- *NPrinting.crt* is the domain certificate.
  - *NPrinting.public.pem* is the certificate bundle that will be used to set up the proxy.
  - *RSADomainValidationSecureServerCA.crt* and *RSAAddTrustCA.crt* are intermediate certificates.
  - *AddTrustExternalCARoot.crt* is the root certificate.
2. Use *NPrinting.public.pem* as a certificate file and the private key to set up the proxy.

**See also:**

  [How to configure a .pfx certificate for use with Qlik NPrinting web console and the NewsStand](#)

**Installing Qlik NPrinting certificates**

You can install a self-signed or CA-signed Qlik NPrinting certificate.

To generate certificates, see: *Private key security (page 203)*. The certificate file name is *NPrinting.crt* and the private key file name is *NPrinting.key*. You can rename them, but this is not recommended.

**Installing certificates on Qlik NPrinting Server June 2017 or later**

Do the following:

1. Copy the certificate *NPrinting.crt* and the related private key *NPrinting.key* into the appropriate folders:
  - a. For the NewsStand: *%ProgramData%\NPrinting\newsstandproxy\*.  
Typical path is *C:\ProgramData\NPrinting\newsstandproxy\*.
  - a. For the Qlik NPrinting web console: *%ProgramData%\NPrinting\webconsoleproxy\*.  
Typical path is *C:\ProgramData\NPrinting\webconsoleproxy\*.
2. Change both proxy configuration files to refer to the new certificate file:
  - a. Edit the NewsStand proxy configuration file: *%ProgramData%\NPrinting\newsstandproxy\app.conf*.  
Uncomment by removing the # and change or add the following lines to:  
*http.sslcert=\${ProgramData}\NPrinting\newsstandproxy\NPrinting.crt*. Change the certificate file name if necessary.  
*http.sslkey=\${ProgramData}\NPrinting\newsstandproxy\NPrinting.key*. Change the private key file name if necessary.  
*\${ProgramData}* is the Windows ProgramData environment variable with the notation for the configuration file. As alternative you can insert your full path, for example *C:\ProgramData\NPrinting\newsstandproxy\NPrinting.crt*.
  - b. Edit the Qlik NPrinting web console proxy configuration file:  
*%ProgramData%\NPrinting\webconsoleproxy\app.conf*.  
Uncomment by removing the # and change or add the following lines to:  
*http.sslcert=\${ProgramData}\NPrinting\webconsoleproxy\NPrinting.crt*. Change the certificate file name if necessary.  
*http.sslkey=\${ProgramData}\NPrinting\webconsoleproxy\NPrinting.key*. Change the private key file name if necessary.  
*\${ProgramData}* is the Windows ProgramData environment variable with the notation for the configuration file. As alternative you can insert your full path, for example *C:\ProgramData\NPrinting\webconsoleproxy\NPrinting.crt*.
3. You must stop and restart the Qlik NPrinting web engine service because new certificates are read only during the service start-up process.

### Checking the installation

Connect to the Qlik NPrinting web console and ask your browser to display certificate details to verify that the web site is using the certificates you installed:

- If you used CA-signed certificates the browser warning message disappears.
- If you used a self-signed certificate you still have the warning message. To remove the warning message from all browsers, you need to add the self-signed certificates to the trusted roots of your local computer. Refer to official Microsoft documentation related to your operating system to perform this action [Manage Trusted Root Certificates](#).

### TLS cipher suites

A cipher suite is a set of algorithms used to encrypt network communication. Qlik NPrinting components support a variety of cipher suites, to allow for different security protocols.

Qlik NPrinting does not set a specific secure cipher suite as mandatory, in order to guarantee compatibility with different operating systems and platforms.

### Qlik NPrinting proxy cipher suites

The proxy configuration parameter `tls.ciphersuites` lets you manage a custom set of cipher suites in the Qlik NPrinting proxy.

The proxy configuration files are:

- `%ProgramData%\NPrinting\webconsoleproxy\app.conf`
- `%ProgramData%\NPrinting\newsstandproxy\app.conf`

These files contain the list of customizable configuration properties, all commented by default. These files do not change when you upgrade to new versions of Qlik NPrinting. Therefore, this configuration property is not immediately visible when you upgrade from older versions. This ensures you do not lose your settings.

### Limitations

- The Qlik NPrinting proxy supports a limited set of cipher suites. The list may change after a product upgrade in order to include new algorithms or deprecate others.
- Some of the supported cipher suites are considered TLS 1.2 unsecure by the HTTP/2 protocol. They must be placed in the list of custom values after any non-blacklisted cipher. Otherwise, the proxy cannot be started, and you will see this error:  
"http2: TLSConfig.ciphersuites index %index% contains an HTTP/2-approved cipher suite (%ciphername%), but it comes after unapproved cipher suites. With this configuration, clients that don't support previous, approved cipher suites may be given an unapproved one and reject the connection."
- Note that %index% and %ciphername% are variables that will show:
  - %index%: the name of the index.
  - %ciphername%: the name of the cipher suite that caused the issue.
- These cipher suites are mandatory:
  - `TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256` (HTTP/2 RFC required)
  - `TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256` (to support ECDSA-only servers)

If they are removed, the proxy cannot be started, and you will see this error: "http2: TLSConfig.CipherSuites is missing an HTTP/2-required AES\_128\_GCM\_SHA256 cipher"

### Supported cipher suites

```

TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305
TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA
TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256
TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA
TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
TLS_RSA_WITH_AES_128_GCM_SHA256
TLS_RSA_WITH_AES_256_GCM_SHA384
TLS_RSA_WITH_AES_128_CBC_SHA256
TLS_RSA_WITH_AES_128_CBC_SHA
TLS_RSA_WITH_AES_256_CBC_SHA
// RC4-based cipher suites are disabled by default
TLS_RSA_WITH_RC4_128_SHA
TLS_ECDHE_RSA_WITH_RC4_128_SHA
TLS_ECDHE_ECDSA_WITH_RC4_128_SHA
// black-listed by default
TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA
TLS_RSA_WITH_3DES_EDE_CBC_SHA

```

### Accessing the custom cipher suites list

Do the following:

1. Stop the *QlikNPrintingWebEngine* service.
2. To customize the Qlik NPrinting web console, open *webconsoleproxy\app.conf*. To customize the NewsStand, open *newsstandproxy\app.conf*.
3. Uncomment or add `tls.ciphersuites`.
4. Enter the comma-separated list of cipher suites to support as value from most to least preferred.
5. Save the file.
6. Restart the *QlikNPrintingWebEngine* service.

### Example

Set only the cipher suites considered secure by the RFC 7540 standard.

```

# set a custom set of supported cipher suites ordered from most to least preferred
tls.ciphersuites = "TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305,TLS_ECDHE_ECDSA_WITH_CHACHA20_
POLY1305,TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256,TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384,TLS_ECDHE_
ECDSA_WITH_AES_128_GCM_SHA256,TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384"

```



### Qlik NPrinting messaging service cipher suites

These are the cipher suites supported by Qlik NPrinting messaging service for TLS communication between Qlik NPrinting scheduler service and Qlik NPrinting Engines. They are supported by RabbitMQ and TLS 1.2.

If you want to disable TLS connections with client certificate authentication and use simple authentication, see: *Configuring the messaging service for simple authentication (page 215)*.

#### Limitations

- Due to a limitation in the certificates used to connect to Qlik NPrinting messaging service, only some TLS 1.2 cipher suites can be used.
- Cipher suites based on Cipher Block Chaining (CBC) mode, even if supported by the product, are not considered secure. It is recommended that you use cipher suites that rely on Galois/Counter Mode (GCM), if supported by your operating system.
- While it is possible to restrict cipher suites accepted by Qlik NPrinting Messaging service when customizing the RabbitMQ config file, this method may cause errors. Instead, it is recommended that you disable weak cipher suites at the Microsoft Windows operating system level using IIS Crypto or a similar product. Be sure to leave at least one of the following cipher suites enabled (along with other needed cipher suites). For more information, see *How to use IIS Crypto GUI to enable or disable cipher suites on a Microsoft Windows OS machine (page 210)*.

#### Supported cipher suites

TLS\_ECDHE\_RSA\_AES128\_GCM\_SHA256  
TLS\_ECDHE\_RSA\_AES256\_GCM\_SHA384

### Licensing service cipher suites

The license service configuration parameter `cipher-suites` lets you manage a custom set of cipher suites in the licensing service.

#### Limitations

- The licensing service configuration file is reset when you upgrade to a new version of Qlik NPrinting. Therefore, a change to the `cipher-suites` parameter must be done again after an upgrade.
- The licensing service supports a limited set of cipher suites. The list may change after a product upgrade in order to include new algorithms or deprecate others.
- These cipher suites are mandatory:
  - TLS\_ECDHE\_RSA\_WITH\_AES\_128\_GCM\_SHA256 (HTTP/2 RFC required)
  - TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_GCM\_SHA256 (to support ECDSA-only servers)

#### Supported cipher suites

TLS\_ECDHE\_RSA\_WITH\_AES\_128\_GCM\_SHA256  
TLS\_ECDHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_GCM\_SHA256  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_GCM\_SHA384  
TLS\_ECDHE\_RSA\_WITH\_CHACHA20\_POLY1305  
TLS\_ECDHE\_ECDSA\_WITH\_CHACHA20\_POLY1305  
TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_CBC\_SHA  
TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA

```

TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
TLS_RSA_WITH_AES_128_GCM_SHA256
TLS_RSA_WITH_AES_256_GCM_SHA384
TLS_RSA_WITH_AES_128_CBC_SHA
TLS_RSA_WITH_AES_256_CBC_SHA
TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA
TLS_RSA_WITH_3DES_EDE_CBC_SHA

```

### Accessing the custom cipher suites list

Do the following:

1. Stop the services *QlikNPrintingScheduler*, *QlikNPrintingWebEngine*, and *QlikNPrintingLicenseService*.
2. Open the configuration file `%ProgramFiles%\NPrintingServer\NPrinting\License\license.config`.
3. Uncomment or add the cipher-suites parameter.
4. Enter the comma-separated list of cipher suites to support as value from most to least preferred.
5. Save the file.
6. Restart the services.

### Example

Set only the cipher suites considered secure by the RFC 7540 standard.

```

<!--Add a custom comma-separated list of cipher suites as shown below-->
<add key="cipher-suites" value="TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256,TLS_ECDHE_ECDSA_WITH_AES_
128_GCM_SHA256" />

```

### Qlik NPrinting Server and Engine cipher suites to connect to a Qlik Sense server

These are the cipher suites supported by Qlik NPrinting Server and Qlik NPrinting Engine service for TLS communication between Qlik NPrinting and Qlik Sense. At least one of these must be enabled on all:

- Qlik NPrinting Server machines
- Qlik NPrinting Engine machines
- Qlik Sense machines (including all Sense nodes) which connect to Qlik NPrinting

Please note that Qlik NPrinting uses these cipher suites to publish reports to Qlik Sense servers. For more information, see *Distributing reports to the Qlik Sense hub (page 487)*

### Supported cipher suites

```

TLS_ECDHE_RSA_AES128_GCM_SHA256
TLS_ECDHE_RSA_AES256_GCM_SHA384

```

### How to use IIS Crypto GUI to enable or disable cipher suites on a Microsoft Windows OS machine

Do the following:

1. Download IIS Crypto 3.3 or a more recent version from [Nartac Software downloads](#).
2. Execute it with admin privileges, and then go to the "Cipher Suites" on the sidebar on the left.

3. Enable the requested cipher suites listed above for all Qlik NPrinting components. If not present, you can add them using the appropriate button.  
This step will only work if these cipher suites are supported by your operating system.
4. Click **Apply**.
5. Reboot the machine.

### Session expiration

Qlik NPrinting web console uses HTTP cookies to handle sessions. Cookies are pieces of data related to user behavior on a website. They are stored on the user's computer. For example, cookie data could contain login or authentication information.

By default, all cookies generated previously are no longer valid when a user logs out of Qlik NPrinting. The user must to log in again if they want to access Qlik NPrinting.

If the user is using other instances of Qlik NPrinting or NewsStand, these instances will also be inaccessible. Closing the browser does not invalidate session cookies. The user must choose to log out.

You can change the default session expiration rules or remove them completely.

### Customizing session expiration

The default value session means that expiration is handled by the browser or by forcing a logout. You can change this value and enter a custom period.

Do the following:

1. Open the proxy configuration files.
  - a. For the NewsStand: `%ProgramData%\NPrinting\newsstandproxy\`.  
Typical path is `C:\ProgramData\NPrinting\newsstandproxy\`.
  - b. For the Qlik NPrinting web console: `%ProgramData%\NPrinting\webconsoleproxy\`.  
Typical path is `C:\ProgramData\NPrinting\webconsoleproxy\`.
2. Edit the `session.expires` field in the proxy configuration file. Valid time units are: "ns", "us" (or "µs"), "ms", "s", "m", "h".  
For example: `session.expires=24h` means that the session will expire after 24 non-use hours.

### Disabling session expiration after logout

Do the following:

- a. Open the `webengine.config` file located in: `%Program Files%\NPrintingServer\NPrinting\WebEngine\webengine.config`.
- b. Uncomment this line: `<add key="auth-session-expiration-on-logout-off" />`.
- c. User sessions will no longer expire after logout.

### Configuring X-Frame-Options

Qlik NPrinting supports X-Frame-Options HTTP response headers.

The X-Frame-Options header is a security measure that prevents Qlik NPrinting web console and NewsStand from being embedded in a <frame> or <iframe>. Enabling X-Frame-Options HTTP response headers defends against Cross-Frame Scripting (XFS), clickjacking, and other forms of attack.

### XFS headers profiles

The following table illustrates different XFS headers restriction profiles based on X-Frame-Options settings.

[XFS headers restriction profiles]

Configurations	XFS header
<code>xfp.headers.enabled=false</code>	None
<code>xfp.headers.enabled=true</code> <code>xfp.headers.option=DENY</code>	X-Frame-Options: DENY  Content-Security-Policy: frame-ancestors 'none'
<code>xfp.headers.enabled=true</code> <code>xfp.headers.option=SAMEORIGIN</code>	X-Frame-Options: SAMEORIGIN  Content-Security-Policy: frame-ancestors 'self'
<code>xfp.headers.enabled=true</code> <code>xfp.headers.option=ALLOW-FROM</code> <code>xfp.headers.allowed_url=https://domain.com</code>	X-Frame-Options: ALLOW-FROM https://domain.com  Content-Security-Policy: frame-ancestors domain.com

### Configuring your X-Frame-Options header

#### Opening the proxy file

To configure X-Frame-Options, you must edit the proxy configuration files for Qlik NPrinting web console and NewsStand. The default locations of these files are:

- NewsStand proxy configuration file:  
`%ProgramData%\NPrinting\newsstandproxy\app.conf`
- Qlik NPrinting web console proxy configuration file:  
`%ProgramData%\NPrinting\webconsoleproxy\app.conf`



*You must stop the Qlik NPrinting web engine service before changing any configuration.*

#### Enabling XFS headers

To enable or disable XFS headers, edit the following setting:

Setting: `xfp.headers.enabled`

Values options:

- `true`
- `false`

Default value: `true`

### Setting XFS header options

To set specific XFS header options, edit the following setting:

Setting: `xfp.headers.option`

Values options:

- DENY
- SAMEORIGIN
- ALLOW-FROM

Default value: DENY

### Allowing a specific URL address

You can indicate a specific URL allowed to use responses inside a frame. This setting must be configured when ALLOW-FROM is used for `xfp.headers.option`. You can insert multiple URLs by inserting a space between each URL.

Setting: `xfp.headers.allowed_uri`

Example: `xfp.headers.allowed_uri=https://domain.com`

Default value: undefined



*You must restart the Qlik NPrinting web engine service to make your changes effective.*

## Configuring HTTP Strict Transport Security (HSTS)

HTTP Strict Transport Security (HSTS) lets your web servers declare that web browsers can only interact with them using secure HTTPS connections. This helps protect against protocol downgrade attacks and cookie hijacking.

The server communicates this to the user agent via an HTTPS response header field named "Strict-Transport-Security". It can be enabled in the proxy configuration files. You can also specify how long these security settings should last.




### Configuring HSTS headers

Do the following:

1. Stop the *QlikNPrintingWebEngine* service.
2. Open the proxy files:
  - a. To customize the Qlik NPrinting web console, open *webconsoleproxy\app.conf*. Typical path is *C:\ProgramData\NPrinting\webconsoleproxy*.
  - b. To customize the NewsStand, open *newsstandproxy\app.conf*. Typical path is *C:\ProgramData\NPrinting\newsstand*.

3. Configure the following strings:
  - a. `hsts.header.enabled`: Default value is `false`. Set to `true` to enable HSTS.
  - b. `hsts.header.maxage`: The time, in seconds, that the browser should remember that a site should only be accessed using HTTPS. Default value is 63072000 (two years).
4. Restart the `QlikNPrintingWebEngine` service.

**See also:**

-  [Configuring X-Frame-Options \(page 211\)](#)
-  [TLS cipher suites \(page 207\)](#)
-  [Session expiration \(page 211\)](#)

## Enabling HTTP

By default, Qlik NPrinting is configured to use HTTPS for connections with its user interfaces. Qlik NPrinting can be enabled to use HTTP for its connections, but HTTPS is the recommended configuration.



*If you use HTTP instead of HTTPS the data transmitted will not be encrypted. This can pose a security risk. See: [Configuring HTTP Strict Transport Security \(HSTS\) \(page 213\)](#).*

You can enable HTTP for the NewsStand and Qlik NPrinting web console.

## Enabling HTTP for the NewsStand

This procedure enables the use of HTTP for connections with the NewsStand.

Do the following:

1. Connect to the computer where Qlik NPrinting Server is installed with a user with administrator rights.
2. Stop the Qlik NPrinting web engine Windows service.
3. Open the NewsStand configuration file `%ProgramData%\NPrinting\newsstandproxy\app.conf` in your preferred text editor.
4. Change the default value of `#http.ssl=true` to `http.ssl=false`. Delete the `#` character at the beginning of the string.
5. Change the default value of `#cookie.secure=true` to `cookie.secure=false`. Delete the `#` character at the beginning of the string.
6. Save the configuration file.
7. Restart the Qlik NPrinting web engine Windows service.
8. Open the NewsStand by opening the URL `http://YourServer:4994`.



*Using `https://` in the URL does not work after changing the configuration to enable HTTP.*

## Enabling HTTP for the Qlik NPrinting web console

This procedure enables the use of HTTP for connections with the Qlik NPrinting web console.

Do the following:

1. Connect to the computer where Qlik NPrinting Server is installed with a user with administrator rights.
2. Stop the Qlik NPrinting web engine Windows service.
3. Open the NewsStand configuration file `%ProgramData%\NPrinting\webconsoleproxy\app.conf` in your preferred text editor.
4. Change the default value of `#http.ssl=true` to `http.ssl=false`.
5. Change the default value of `#cookie.secure=true` to `cookie.secure=false`.
6. Save the configuration file.
7. Restart the Qlik NPrinting web engine Windows service.
8. Open the Qlik NPrinting web console by opening the URL `http://YourServer:4993`.



*Using `https://` in the URL does not work after changing the configuration to enable HTTP.*

## Supported protocols for connecting Qlik NPrinting to Qlik Sense Server

The following are the supported scenarios for connecting Qlik NPrinting to Qlik Sense Server:

- If Qlik Sense Server is configured to use HTTPS protocol, Qlik NPrinting connection must use HTTPS as well.  
Qlik NPrinting connection/Qlik Sense Server: HTTPS/HTTPS.
- If Qlik Sense Server is configured to use HTTP protocol, Qlik NPrinting connection can use either HTTPS or HTTP.  
Qlik NPrinting connection/Qlik Sense Server: HTTPS/HTTP.  
Qlik NPrinting connection/Qlik Sense Server: HTTP/HTTP.



*If Qlik Sense Server is configured to use HTTPS protocol, using an HTTP protocol for Qlik NPrinting connection is not supported. This scenario causes the connection between Qlik NPrinting and Qlik Sense Server to fail. A server using HTTPS protocol cannot accept an HTTP connection for security reasons.*



*If your Windows log in does not work after enabling HTTP, delete your browser's cookies and try again.*

## Configuring the messaging service for simple authentication

If you want to disable TLS connections with client certificate authentication and use simple authentication, you must manually edit the configuration files.

Do the following:

1. Stop the following services:
  - Qlik NPrinting Engine
  - Qlik NPrinting scheduler service
  - Qlik NPrinting web engine
  - Qlik NPrinting messaging service
2. Edit each of the following files by adding the line `<add key="use-rabbit-plain"/>`:
  - \Program Files\NPrintingServer\NPrinting\Engine\engine.config
  - \Program Files\NPrintingServer\NPrinting\Scheduler\scheduler.config
  - \Program Files\NPrintingServer\NPrinting\WebEngine\webengine.config
3. Open C:\ProgramData\NPrinting\RabbitMQ\advanced.config and search for the **Authentication** section.



*The modifications needed to reconfigure rabbitMQ are listed in the file comments.*

- a. Modify TCP listeners to enable plain connection on port 5672.
  - b. Remove TLS listener on port 5672.
  - c. Enable PLAIN and AMQPLAIN authentication mechanisms.
4. Restart all services

## Authentication

Authentication in Qlik NPrinting deployments is managed by the Qlik NPrinting web engine, which verifies user identities before allowing access to the Qlik NPrinting Server or NewsStand.

The standard entry points for Qlik NPrinting web console and NewsStand are configured to use HTTPS for connections with their web interfaces. Traffic is encrypted using TLS and certificates. HTTPS is the recommended configuration, because it is more secure. However, Qlik NPrinting can be configured to use HTTP in environments that requires it, like when it should work behind a reverse proxy. For more information about HTTP, see: *Enabling HTTP (page 214)*.

Qlik NPrinting supports the use of username and passwords or Kerberos and NTLM as integrated authentication methods. They are managed internally by the Qlik NPrinting web engine.



*The default authentication module requires that the proxy that handles the authentication is part of the Microsoft Windows domain where Qlik NPrinting is installed.*

## Windows login

To enable Windows login, open the user profile and add the domain\username.

Do the following:

1. From the **Admin** menu, click **Users**.
2. Select the user you wish to edit.



3. Fill in the **Domain account** field: Enter the domain and user name.

A user must have an associated domain account to use the following features:

- Receive reports in Qlik Sense hub.
- Create On-Demand reports in QlikView.

The user's Windows Active Directory user account must be associated as the domain account.

You can disable Windows login by going to **Admin > Settings > Authentication**.

## Kerberos

If you want to use Kerberos authentication, you need to make sure that browsers used to access Qlik NPrinting are configured to support Kerberos. See: *Kerberos authentication (page 217)*.

## External authentication

Qlik NPrinting supports the following external authentication methods, managed by the Qlik NPrinting web engine:

### JSON Web Token (JWT)

JWT is an open standard for secure transmission of information as a JavaScript Object Notation (JSON) object. JWT enables single sign-on (SSO), which minimizes the number of times a user has to log on to cloud applications and websites. For more information about JWT authentication, see: *JWT authentication (page 222)*.

### Security Assertion Markup Language (SAML)

Qlik NPrinting supports SAML V2.0. For more information, see: *Security Assertion Markup Language (SAML) is an XML-based, open-standard data format for exchanging authentication and authorization data between parties (for example, between an identity provider and a service provider). SAML is typically used for web browser single sign-on (SSO). (page 218)*.

## Kerberos authentication

Qlik NPrinting supports the use of Kerberos and NTLM. If you want to use Kerberos authentication, you need to ensure that browsers used to access Qlik NPrinting are configured to support Kerberos.



*The default authentication module requires that the proxy that handles the authentication is part of the Microsoft Windows domain where Qlik NPrinting is installed.*

## Enabling Kerberos authentication in Qlik NPrinting

To enable Kerberos authentication in Qlik NPrinting, you must edit the **webengine.config** file installed by default with Qlik NPrinting Server.

Do the following:

1. Open the **webengine.config** file located in:  
`%Program Files%\NPrintingServer\NPrinting\WebEngine\webengine.config`

2. Uncomment the following line  
+ <!--<add key="win-auth-use-negotiate" value="true" />-->
3. In the domain controller, for the domain where Qlik NPrinting is installed, add the required SPN for the service and users.



Use the `SetSPN` utility to set the SPN for Kerberos authentication. For example: `setspn -S HTTP/np-server domain\username`, where `np-server` is the name of the Qlik NPrinting Server and `domain\username` is the user for whom Kerberos is enabled.

This enables **Negotiate** authentication, that requires Kerberos authentication. If Kerberos authentication is not available, it will fall back to NTLM if NTLM is enabled. To disable the fallback to NTLM, you must configure it in the domain controller.

## Security Assertion Markup Language (SAML) single sign-on (SSO)

Security Assertion Markup Language (SAML) is an XML-based, open-standard data format for exchanging authentication and authorization data between parties (for example, between an identity provider and a service provider). SAML is typically used for web browser single sign-on (SSO).

### How SAML works

The identity provider (IdP) is used for authentication. When the identity provider has asserted the user identity, the service provider (SP) can give the user access to their services. Because the identity provider has enabled SSO, the user can access several service provider sites and applications without having to log in at each site.

The SAML specification defines three roles:

- Principal: Typically a user
- IdP: The identity provider
- SP: The service provider

The principal requests a service from the SP, which requests and obtains an identity assertion from the IdP. Based on the assertion, the SP decides whether or not to perform the service requested by the principal.

### SAML in Qlik NPrinting

Qlik NPrinting supports SAML 2.0 by:

- Implementing a service provided it can integrate with external identity providers
- Supporting HTTP Redirect Binding and HTTP POST Binding for SAML responses
- Supporting SAML properties for access control of resources and data

### Limitations

- Qlik NPrinting does not sign the SAML authentication request. This means that identity providers that require the SAML authentication request to be signed are not supported.

- SAML response encryption is not supported, so encrypted messages or attributes are not read by Qlik NPrinting.
- SAML single logout is not supported.



*You must enable Windows authentication to use the Qlik NPrinting On-Demand Add-on on QlikView Web server and Qlik Sense.*

*If you only want to use JWT authentication, then you must install the Qlik NPrinting On-Demand Add-on on a QlikView Server configured on a Microsoft IIS Web Server.*

*Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint (page 490)*

### **Qlik NPrinting web console and NewsStand configurations**

Since Qlik NPrinting web console and NewsStand have different web addresses you must setup two different SAML connections to make both work.

### **Identity provider initiated SSO**

With identity provider initiated SSO, the user logs in directly to the identity provider, which performs the SSO authentication.

When the authentication flow starts from the identity provider, the user is redirected to the Qlik NPrinting dashboard for Qlik NPrinting web console, or to the NewsStand home page.

### **Service provider initiated SSO**

With service provider initiated SSO, the user starts at the service provider site. Instead of logging in at the service provider site, SSO authentication is initiated with the identity provider. In this authentication process, Qlik NPrinting plays the role of a service provider. Based on your SAML configuration, the Qlik NPrinting login page displays a button for each of your identity providers. When you click a button, you are redirected to the identity provider site for authentication. If you are already logged in the identity provider directs you to the Qlik NPrinting dashboard.

### **Metadata**

The service provider (Qlik NPrinting) needs configuration information from an identity provider. This information is available as an identity provider metadata file that can be downloaded and delivered to the service provider for easy configuration. The identity provider metadata is uploaded from the Qlik NPrinting SAML configuration page.

Not all identity providers support downloading metadata files. If download is not supported, the metadata file can be created manually.

Qlik NPrinting provides the identity provider with service provider metadata, that is downloaded from the SAML configuration list page. The metadata includes the following information:

- Assertion consumer service (ACS) URL
- Entity ID

Qlik NPrinting requires the following information in the identity provider metadata:

- Certificate
- Entity ID
- HTTP-Redirect location



*When reading the certificate to verify the SAML response signature, Qlik NPrinting will use the first certificate with the "signing" attribute. If the IdP metadata provided contains more than one certificate with the "signing" attribute, and it does not use the first one to sign responses, the signature verification will fail. You must remove the unused certificate from your IdP metadata file before uploading it to Qlik NPrinting.*

### Configuring Security Assertion Markup Language (SAML) single sign-on (SSO)

With SAML configured, you can enable a single sign-on (SSO) solution that minimizes the number of times a user must log on to cloud applications and websites.

#### Requirements

- Configure Qlik NPrinting.
- Configure the identity provider (IdP) by uploading the Qlik NPrinting metadata, or manually extracting the required information.
- Upload the identity provider (IdP) metadata to Qlik NPrinting.
- Access Qlik NPrinting from the buttons on the login page, or the identity provider (IdP) console.
- Any static strings in the user directory need to be inside square brackets [ ]. For example: [DOMAIN]



*You must enable Windows authentication to use the Qlik NPrinting On-Demand Add-on on QlikView Web server and Qlik Sense.*

*If you only want to use JWT authentication, then you must install the Qlik NPrinting On-Demand Add-on on a QlikView Server configured on a Microsoft IIS Web Server.*

*Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint (page 490)*

### Configuring Qlik NPrinting

Do the following:

1. Log in to Qlik NPrinting as an administrator.
2. Go to **Admin > Settings** and click on the **SAML** tab.
3. Click the **Add configuration** button.
4. Enter a **Name** for your SAML configuration.
5. Select either **WebConsole** or **NewsStand** from the **Portal** drop-down.
6. Enter the URL of your Qlik NPrinting web console or NewsStand in the **Service Provider URL** field. For example, `https://myserver.mydomain:4993`.



*This must be a fully qualified domain name.*

7. Enter an **Entity ID**, for example OktaWebConsole.



*This is used to configure your identity provider.*



*Do not upload the identity provider metadata yet. You can upload the metadata after you complete the identity provider configuration.*

8. Select the radio button for your preferred authentication method, either **Authenticate user by Domain\Name** or **Authenticate user by email** and enter the name for the attribute that is used to exchange communication between the identity provider (IdP) and Qlik NPrinting.
9. Click **Save**.
10. Click on the name of the configuration you created.
11. Click on **Download SP Metadata**.

You have now created a SAML configuration and downloaded an `IdPmetadata.xml` file that you can use when configuring the IdP.

### Configuring the identity provider (IdP)

Identity provider configuration is specific to the IdP that you choose. There is some information contained in the Qlik NPrinting metadata that you will need to complete your configuration regardless of your choice of IdP. Some identity providers allow you to upload the file, and automatically setup some of the configuration information, while others don't. If your identity provider does not allow this, you can read the required information from the Qlik NPrinting metadata file and manually configure the IdP. If your IdP does not support metadata upload, you will required the following information from the Qlik NPrinting metadata:

- **IdP Entity ID**, as a property under the **EntityDescriptor** tag
- The **Assertion Consumer Service URL**, as the **Location** property of the **AssertionConsumerService** tag
- The **Assertion Consumer Service Index** as the index property of the **AssertionConsumerService** tag

### Uploading the identity provider IdP metadata

As soon as the identity provider IdP configuration is complete, you can upload the IdP metadata to your Qlik NPrinting SAML configuration. Not all IdPs allow you to download a metadata file. If your IdP does not allow downloads, you must create a new file and with content provided by your identity provider.

Once you have the IdP `metadata.xml` file (the file name can be anything you choose, but the file extension must be .xml), you can upload it in the Qlik NPrinting SAML configuration page. This is required to complete the SAML configuration.

Do the following:

1. Log in to Qlik NPrinting as an administrator.
2. Go to **Admin > Settings** and click on the **SAML** tab.
3. Select the configuration that you created in the first procedure.
4. Click the **Browse** button to upload the **IdP XML metadata file**.
5. Navigate to the location where your *metadata.xml* file is stored and select it.
6. Click **Save**.

### Accessing Qlik NPrinting via SSO

You can access Qlik NPrinting via SSO by going to the login page clicking on the identity provider IdP button. You can also access Qlik NPrinting directly from the identity provider by clicking on the Qlik NPrinting app, if your identity provider supports this feature.

### JWT authentication

JSON Web Token (JWT) is an open standard for secure transmission of information between two parties as a JavaScript Object Notation (JSON) object.

JWT verifies that the service credentials are true and lets the service act on behalf of whichever user, bypassing user credentials authentication. Because JWT enables single sign-on (SSO), it minimizes the number of times a user has to log on to cloud applications and websites.

### JWT structure

A JWT consists of three parts: a header, a payload, and a signature.

#### Header

The header usually consists of two parts: `type (typ)` and `algorithm (alg)`. The algorithm is used to generate the signature.

#### Example:

```
{
  "typ": "JWT",
  "alg": "RS256"
}
```

RS256 indicates that RS256 - RSA signature with SHA256 is used to sign this token.

#### Payload

The payload is a JSON object that consists of the claims that you want to make. Claims are statements about an entity (usually the user) and additional metadata. You must have either an email attribute, or the domain and name attributes defined.

#### Example:

```
{
  "email": "jde@company.com",
  "exp": 1472034208
}
```

**Example:**

```
{  
  "name": "jde",  
  "domain": "company",  
  "exp": 1472034208  
}
```

**Signature**

The signature is used to verify the identity of the JWT sender and to ensure that the message has not been tampered with. The signature is the encoded header and payload, signed with a secret key. In the normal case, X.509 certificates are used to generate and validate the signature.

Authentication is performed by verifying the signature. If the signature is valid, access is granted.

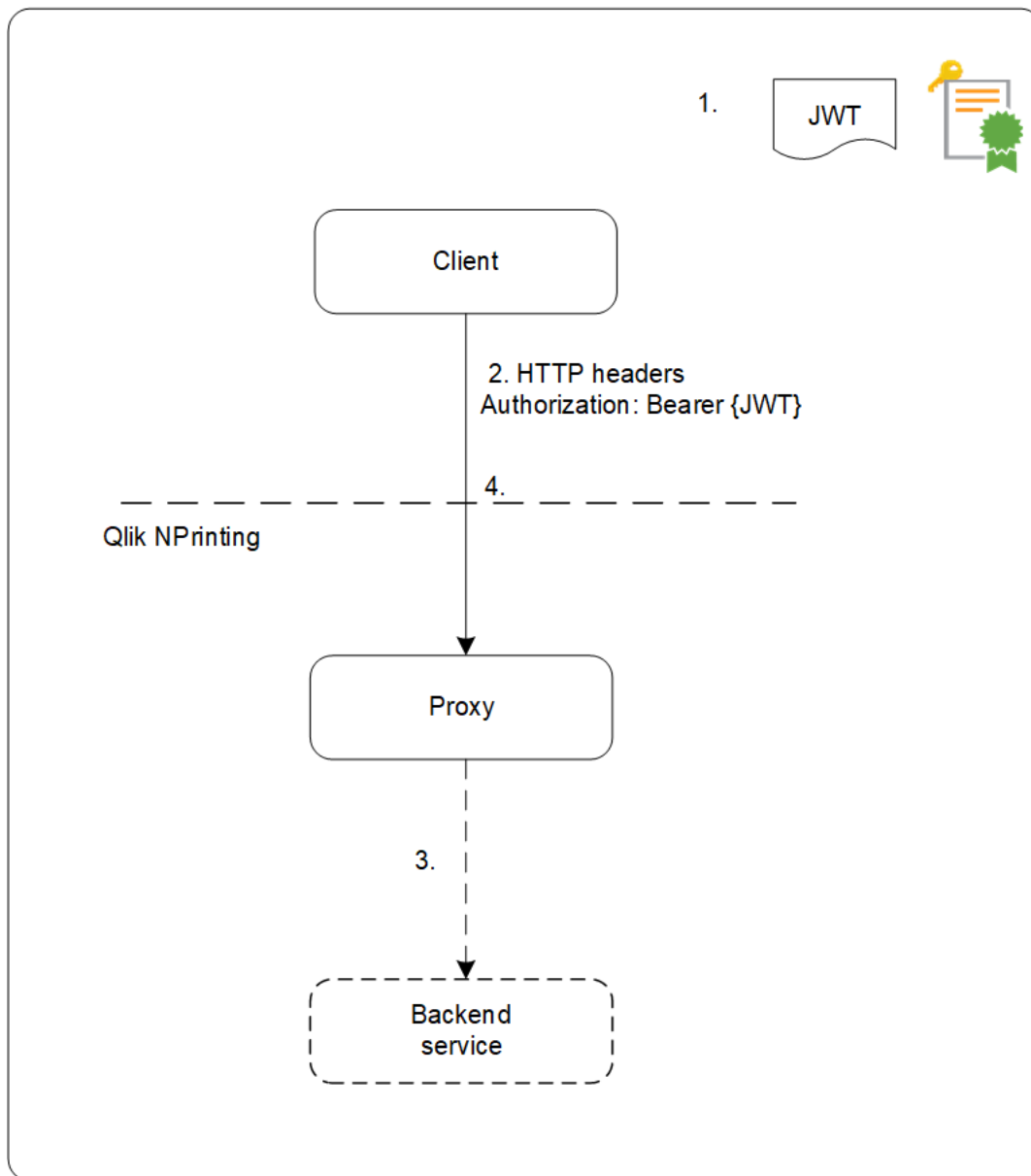
### Supported signature algorithms

The following signatures are supported in Qlik NPrinting:

- RS256 - RSA signature with SHA256
- RS384 - RSA signature with SHA384
- RS512 - RSA signature with SHA512

**Example: Accessing Qlik NPrinting with a signed JWT**

The following example shows the steps involved in gaining access using a signed JWT.



1. A JWT is generated, including a set of claims, and is signed with the private key for the configured certificate.
2. A request is sent to the proxy including the signed JWT in the HTTP Authorization header.
3. The proxy injects the configured attribute mappings and forwards the call to the backend service.
4. The client will receive a session and subsequent calls are not required to include a JWT.
  - a. If the calls do include a JWT it will be validated, and if it is invalid the user will be rejected access.
  - b. If the user in the JWT is different from the user stored for the session, the user will obtain a new session.



### Standard fields

The following fields inside a JWT claim are used by Qlik NPrinting:

- Expiration time (exp): identifies the expiration time after which the JWT is not accepted.
- Not before (nbf): identifies the starting time on which the JWT is accepted.



*You can have other fields configured in your JWT token, however only those listed above are considered by Qlik NPrinting.*

### Limitations

The following limitations exist:

- Encrypted JWTs are not supported.
- Only the following signing algorithms are supported:
  - RS256 - RSA signature with SHA256
  - RS384 - RSA signature with SHA384
  - RS512 - RSA signature with SHA512

### Configuring JWT authentication

Configure JWT authentication and authorization to enable single sign-on (SSO), and minimizes the number of times your users have to log on.

Do the following:

1. Log on to Qlik NPrinting as an administrator.
2. Click **Admin**, and select **Authentication settings**.
3. Enable JWT authentication using the associated toggle.
4. In the **JWT certificate** field, add the JWT .X509 public key certificate in PEM format.
5. Select either **Match user by Domain\Name** or **Match user by email**.
  - a. If you select **Match user by Domain\Name**:
    - Enter the JWT attribute name for the attribute describing the user ID in the **JWT attribute for user ID** field.
    - Enter the JWT attribute name for the attribute describing the user directory.
  - b. If you select **Match user by email**, enter the JWT attribute for email.
6. Click **Update authentication settings** to save your changes.

### DMS for Qlik NPrinting

Qlik NPrinting supports connections to QlikView deployments configured with either Document Metadata Service (DMS) or NTFS authentication.

DMS integrates fully with the existing Directory Service Provider (for example, Active Directory, other LDAP) where Group Membership has been recorded. This allows QlikView Server to re-use existing enterprise accounts and group structures. The permitted users or groups are recorded in a meta file that resides next to the QlikView document, and it is managed using QMC.

DMS is required when the authenticated user identity is not a Windows user account. The DMS permissions are explicitly assigned using QMC, or may be assigned using QlikView Publisher distribution tasks.

To enable On-Demand reports on a QlikView Server with DMS configured, see *Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint (page 490)*.



*You must enable Windows authentication to use the Qlik NPrinting On-Demand Add-on on QlikView Web server and Qlik Sense.*

*If you only want to use JWT authentication, then you must install the Qlik NPrinting On-Demand Add-on on a QlikView Server configured on a Microsoft IIS Web Server.*

*Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint (page 490)*

### Reverse proxy authentication

Qlik NPrinting Designer supports reverse proxy environments. Users will have an extra log in step before they can edit report templates.

Reverse proxies add extra layers of security by being an intermediary for associated servers contacted by any client. They can hide the existence and characteristics of origin servers.

When users try to connect to Qlik NPrinting Server, a dialogue window with an embedded browser will open, and let them authenticate manually. Cookies are collected so users will not have to complete this extra step each time, only when the cookies expire.

Do the following:

1. Open the Qlik NPrinting home page.  
A dialogue window with gateway log in opens.
2. Enter your log in credentials.  
You can now access the Qlik NPrinting web console.
3. In the main menu, click on **Reports**.
4. Click on the report you want to edit, and then click **Edit template**.  
The Qlik NPrinting Designer will try to connect to the Qlik NPrinting Server. The Qlik NPrinting Designer is not authenticated in the reverse proxy, so the request will fail.
5. A dialogue box with an embedded web browser will open. Type in your log in credentials for the reverse proxy gateway.  
Qlik NPrinting Designer saves the cookies that will allow it to communicate with the server through the reverse proxy. The saved cookies will be used for future connections. When they expire, you will have to log in to the proxy again.

### Authorization

Qlik NPrinting manages user-based security where all allowed actions are based on user roles. You can create users, add filters and groups, and assign roles to the users.

### Security management

The basic concepts of security in Qlik NPrinting include how to create roles, and how to add apps and actions to those roles. The available entities, and user and admin actions, are listed, and adding and applying a role to a user is described in detail.

### Creating users with filters and groups

Create a new Qlik NPrinting user, configure the user's identity, and add user details for use in email messages. Add a user to a group, and add filters and roles to that user.

### Creating groups for users

Groups are lists of users. The reports received by users in the same group are based on the same templates, but the data received by any particular user is based on the filters applied to that user.

Put the users who need to receive the same reports into a group. One user can be a member of many groups.

### Importing users with filters and groups

Import users, with related filters and groups, from external Excel files. Create the Excel file and structure the information contained in the file, including the necessary syntax. Create the import task and its mandatory fields, and set the actions that you require for the task.

### Role based security

Qlik NPrinting manages user based security.

Users must log into the NewsStand in order to have access to their published reports. Users are allowed to do actions based on assigned roles, so you can create roles and re-use them. By default, users are not associated with any roles. You can set authorizations at a granular level.

### Definitions

- **Action:** A specific action associated with an entity. For example, **Subscribe**, **Edit**, and **Run** are actions associated with reports.
- **Role:** A list of associations; App - Entity - Action or Entity - Action. For example, Sales Demo - Reports - Create; the role with this association can create new reports in the Sales Demo app. Also, for example, User - canCreate; the role with this association can create new users.

### Basic concepts

- The default super user is created during the installation process with a user name of your choice. The admin user can perform all actions, and is associated with the administrator role for all apps. The admin

user cannot be deleted or removed from the administrator role.

- You must give permission to perform actions. By default, a user cannot perform any actions.
- Each user must be associated with one or more roles. You can allow different actions for a user for specific apps. For example, *Role1* can be allowed to create reports in *App1*, but not in *App2*.
- Some permissions do not depend on the apps. For example, creating users is not related to apps, while creating connections is app-related.
- You can only give permissions, as opposed to specifying restrictions. For example, you can allow *Role1* to create reports into *App1*. You cannot explicitly forbid this.
- The **Create** and **Edit** options allow you to create and edit entity properties. Specific actions will have matching actions. For example, **Create/Edit** a connection does not imply the reload metadata action. Similarly, **Create/Edit** a report does not imply the template edit action.

List of entities that you can enable

**Apps section:**

- **Apps**
- **Connections**
- **Filters**
- **Conditions**
- **Reports**
- **Publish Task**
- **Published Reports**
- **Destination**
- **On-Demand reports**

**Users section:**

- **Users**
- **Groups**

**Admin section:**

- **Security**
- **Settings**
- **Engines**
- **Import tasks**
- **Task executions**
- **On-Demand requests**
- **Audit**

Managing roles

You can assign predefined security roles, or create custom ones.

There are four predefined roles:

- **Administrator**
- **Developer**
- **NewsStand User**
- **User**

You can associate one or more roles to a user. Creating new roles lets you customize authorization profiles for your reporting system. For example, you can make it so certain users can only view the reports of a particular app.

You can give a role the rights to do specific actions on an entity type, but you cannot set rights to a single entity. For example, you can design a role that gives the right to view all reports related to a particular app. You cannot give a role rights to view only some of the reports available in an app.



*The **Administrator**, **Developer**, and **NewsStand User** roles are system roles and have default permissions that cannot be changed. They are enabled automatically and cannot be disabled.*

*The **User** security role can be edited or used as a template for custom roles. By default, this role contains minimal permissions and is not enabled. You can enable it by going to **Admin > Security roles**.*

### Risks related to import task permissions



*You can grant security roles permission to view, create, edit, delete, and run import tasks. Import tasks let you create and edit Qlik NPrinting users, including adding administrative roles to the .xlsx import file. This means that users with permission to edit import tasks can grant administrative roles to themselves and other users. Import task run permission is not required to run import tasks, because edit privileges let you create and enable import task triggers.*

A user with permission to read import files can retrieve administrative credentials if present in the file. A user with edit rights can alter the result of the next import task execution that uses the .xlsx file.

### Creating a new role

Do the following:

1. Click **Admin** in the main menu.
2. Select **Security roles** from the drop-down list.
3. Click **Create role**.
4. Enter a **Name** for the new role.
5. Enter an **Description** (optional).
6. Leave the **Enabled** check box selected.  
If you deselect the flag, the role will be saved, but ignored by the Qlik NPrinting Engine.
7. Under **Actions > Apps**, select an app from the **Available items** list.
8. Move the selected app to the **Selected items** list.

A role must have at least one associated app. You can also check **All apps** to authorize users with the assigned role to use all available apps.

### Setting app permissions

You can set different permissions related to apps, connections, filters, reports, publishing tasks, published reports, and destinations. The permissions are applied only to the added apps. It is possible to create very specific actions for a single app.

Under **Actions > Apps**:

- **Apps**: users can **View**, **Edit**, or **Delete** the associated apps.
- **Connections**: users can **View**, **Edit**, **Create**, or **Delete** connections to the selected apps. **Reload metadata** allows users to run a cache refresh. We recommend enabling this option for developers.
- **Filters**: users can **View**, **Edit**, **Create**, or **Delete** filters in selected apps.
- **Conditions**: users can **View**, **Edit**, **Create**, or **Delete** conditions.
- **Reports**: users can **View**, **Edit**, **Create**, **Delete**, **Preview**, **Edit template** or **Subscribe**
- **Publish tasks**: users can **View**, **Edit**, **Create**, **Delete**, or **Run now**.
- **Published reports**: users can access reports in NewsStand. Users can **Preview**, or **Download** a published report.
- **Destination**: users can **View**, **Edit**, **Create**, or **Delete** destinations related to apps.
- **On-Demand reports**: users can **Create** On-Demand reports

### Setting user profile permissions

You can allow roles to perform the following actions on user profiles.

Under **Actions > Users**:

- **Users**: **View**, **Edit**, **Create**, or **Delete** user profiles.
- **Groups**: **View**, **Edit**, **Create**, or **Delete** groups.

### Setting administrator permissions

You can allow roles to perform the following Admin actions.

Under **Actions > Admin**:

- **Security**: users can **View**, **Edit**, **Create**, or **Delete** security related entities.
- **Settings**: users can **View** or **Edit** settings.
- **Engines**: users can **View**, **Edit**, **Create**, or **Delete** engines.
- **Import tasks**: users can **View**, **Edit**, **Create**, or **Delete** import tasks. Select **Run Now** to give users the ability to import tasks without waiting for the next scheduled execution.
- **Task executions**: users can **View** or **Abort** tasks.
- **On-Demand** requests: users can **View**, **Abort**, or **Delete** requests.
- **Audit**: users can **Export** audit trail logs.

When finished, save the role in the repository by clicking **Create**.

### Copying roles

If you are making a new role that is very similar to an existing role, you can save time by copying the original. For example, you may want to make a new role that is similar to the **Developer** role, but has some rights exceptions.

Do the following:

1. Click **Admin** in the main menu.
2. Select **Security roles** from the drop-down list.
3. Click the **Actions** gear icon next to the role you want to clone.
4. Click **Copy** in the drop-down list.
5. A new form will open. The copied role can be edited the same as a new role, described above.

When you finish, save the role in the repository by clicking **Create**.

### Adding roles to user profiles

You can add or remove user roles at any time. To set permissions for the user, you must first create a role, and then associate it with the user.

Do the following:

1. Click **Admin** in the main menu.
2. Select **Users** from the drop-down list.
3. Click on the user name in the list.
4. Move it to the **Selected items** list.
5. Confirm and save to the repository by clicking on the **Update user roles** button.

### Section access

You can configure section access in Qlik NPrinting when generating reports from QlikView documents or Qlik Sense apps. Section access support is handled differently for local connections, and for server and cluster connections.

Qlik NPrinting uses the domain account matched to the Qlik NPrinting user to apply section access during report creation. The domain account must have section access assigned before the publish task runs. Users with incorrect section access will receive an error saying that report generation failed.



*Section access adds performance overhead to task executions, such as publish tasks. The Qlik NPrinting Server must create connections for each report recipient that has section access. If a report has many recipients, your task executions might slow down significantly.*

*You can use Qlik NPrinting filters instead of section access to reduce task execution time. For information about creating filters, see [Filters \(page 304\)](#).*

### Connecting to local QlikView documents with section access



*Section access is not fully supported for local QlikView documents. If you connect to a local QlikView document with section access, report recipients will see all available data, as if section access was not applied. You must use Qlik NPrinting filters or connect to documents via QlikView Server to ensure users only receive permitted data.*

Do the following:

1. Open the **Apps** drop-down list, and then select **Connections**.
2. Click **Create connection**.
3. Enter a **Name** for the connection.
4. Enter a description (optional).
5. Select an **App** from the drop-down list.
6. Ensure the **Source** is set to QlikView.
7. Select **Local** in the document **Type**.
8. Enter the complete path to reach the *.qvw* in the **Document path** field.
9. Ensure the **Connection requires authentication** check box is selected.
10. Enter the **Username** and **Password**.
11. Click **Create**.

### Connecting to QlikView Server and QlikView Cluster connections

## Prerequisites for QlikView Server and QlikView Cluster connections

To generate reports using QlikView Server or QlikView Cluster connections, the following are required:

- Access to at least one QlikView Server.
- The Windows user that runs the Qlik NPrinting Engine Windows service must belong to the QlikView Administrators Windows group on the QlikView Server computer.
- To configure Qlik NPrinting for **NTFS authorization**, it must be configured in the Qlik Management Console. This means that the Windows operating system controls the file (document) access for users and groups through the NTFS security settings.
- To configure Qlik NPrinting for DMS authorization QlikView controlled file access, see *DMS for Qlik NPrinting* (page 225).

If you are using section access as well, the following are also required:

- Connections must be configured to use server authentication.
- A domain account must be configured in user settings, independent of the authentication type enabled in the Qlik NPrinting general settings.

## Creating a new connection to a server document

Do the following:



1. Open the **Apps** drop-down list, and then select **Connections**.
2. Click **Create connection**.
3. Enter a **Name** for the connection.
4. Select an **App** from the drop-down list.
5. Ensure the **Source** is set to QlikView.
6. Select **Server** in the document **Type**.
7. Enter the complete path to reach the *.qvp* in the **qvp://** field.
8. Ensure the **Connection requires authentication** check box is selected
9. Select **Server authentication** and enter the **Identity**.
10. Click **Create**.

## Creating a new connection to a cluster document

Do the following:

1. Open the **Apps** drop-down list, and then select **Connections**.
2. Click **Create connection**.
3. Enter a **Name**.
4. Select an **App** from the drop-down list.
5. Ensure the **Source** is set to QlikView.
6. Select **Cluster** in the document **Type**
7. Enter the cluster **Address**, **Cluster ID** and **Document name**.  
The cluster address and ID can be found in the Qlik Management Console under **System > Setup**. The cluster address is in the **Management service > Summary** tab. The cluster ID can be found by selecting the QVWS server under **QlikView Web Servers**, and the ID is in the **Name** field of the **General** tab.
8. Ensure the **Connection requires authentication** check box is selected.
9. Enter the server authentication **Identity**.
10. Click **Create**.

## User configuration

Do the following:

1. Open the **Admin** drop-down list, and then select **Users**.
2. Click the **Name** of the user that needs to receive reports with section access applied.
3. Configure the **Domain account** field with a valid user that has access to the document.
4. Click **Save**.

### Connecting to Qlik Sense apps with section access

## Requirements

- The Qlik Sense app and individual app objects must be published. For more information, see [Publishing](#).
- All report recipients must have permission to access the Qlik Sense app.

- Section access must be configured accurately in the load script.



*Report recipients that have section access must have rights to export data, or the report creation fails for these users. In such cases, you can replace section access with Qlik NPrinting filters and security roles to give specific users the right to export data and publish reports.*

*Since Qlik NPrinting must create connections for each report recipient that has section access, using the filters and security roles instead of section access reduces task execution time. For information about creating filters, see [Filters](#) (page 304).*

Do the following:

1. Create a new connection to a Qlik Sense app or open an existing one.  
For more information, see [Creating connections](#).
2. Select the **Apply user section access for reports** check box to apply section access for the selected **Identity**.
3. Click **Create** or **Save** to confirm.

---

**See also:**

- [Section Access Management](#)
- [Managing security with section access](#)

## 4 Administering

You can administer the entire reporting system from the web console. You can manage engines, schedule reports, manage users, and many other activities.

### 4.1 Admin settings

Administrators can configure many components from the **Admin > Settings** page in the Qlik NPrinting web console.

#### System

Qlik NPrinting uses server- side settings to derive hostnames. Web Console and NewsStand system URLs must be set to the public address in order to access certain security features. We strongly recommend that you fill out these fields:

- **Web Console URL:** used to create links in password reset emails and email notifications.
- **NewsStand URL:** used to create password reset emails.

#### Authentication

You can enable or disable the following authentication types:

- **Qlik NPrinting authentication**
- **Windows authentication**  
See: [Windows authentication](#)
- **JWT authentication**  
See: *JWT authentication (page 222)*

#### SAML

You can add or edit SAML configurations. See: *Configuring Security Assertion Markup Language (SAML) single sign-on (SSO) (page 220)*.

#### NewsStand

You can customize the NewsStand:

- **Title:** Changes the webpage title that displays on browser tabs. The default is *NewsStand*.
- **Logo:** Replaces the NewsStand image link in the top left corner.
- **Primary color:** Changes the color of plain text. This does not affect menu items or column headers.
- **Link color:** Changes the color of link text.
- **Header color:** Changes the background color of the top menu.

### Email

You can setup your SMTP server. You must fill out this section if you want to send reports via email. See: *Configuring SMTP server (page 268)*.

### Report

#### PixelPerfect security

You can enable or disable PixelPerfect script execution.

PixelPerfect scripts allow privileged access to protected resources, which could result in security issues. You should only enable these scripts if you trust your reports.

#### Default templates

You can upload default templates for all report types, except QlikEntity.

### On-Demand

You can add or edit trusted origins.

#### Adding a server as a trusted origin

If you are creating On-Demand reports in Qlik Sense or a QlikView Web Server hosted QlikView AccessPoint, you must add these servers as a trusted origin in Qlik NPrinting web console.

For each server path used to access the Qlik NPrinting web console, you must add a trusted origin. For example, if your server can be accessed through a local domain, a shortened host, or fully qualified URLs, a trusted origin must be added for each of those server paths.

How you enter the server paths in the **Address** field of the trusted origin depends on your security configuration.

#### Configuration 1: SSL security not setup with Qlik NPrinting web console

A trusted origin is required for each server path used to log onto the Qlik NPrinting web console. For example, if your server is *qlikserver1* and has an IP address of 192.168.0.101, you would add the following trusted origins:

- *http://qlikserver1*
- *http://qlikserver1.domain.local*
- *http://192.168.0.101*

#### Configuration 2: SSL security setup with Qlik NPrinting web console and third-party

A trusted origin is required for each server path used to log onto the Qlik NPrinting web console. URLs must use HTTPS. For example, if your server is *qlikserver1* and has an IP address of 192.168.0.101, you would add the following trusted origins:

- *https://qlikserver1*
- *https://qlikserver1.domain.local*

- <https://192.168.0.101>

### Adding a trusted origin

Do the following:

1. In Qlik NPrinting, click **Admin > Settings**.
2. Click **On-Demand Settings**.
3. Click **Add trusted origin**.
4. After **Name**, enter a name for the trusted origin.
5. After **Description**, enter a description for the trusted origin.
6. After **Address**, enter the URL for the QlikView Server.  
The URL must be the base URL (scheme and host) only. For example, <http://qlikserver1> rather than <http://qlikserver1/qlikview/index.htm>.
7. Click **Create**.

### Task

You can decide what happens when reports or variables do not render. You can also choose to receive task notification emails.

### Requirements

Before you can set up task notifications via email, make sure that the NewsStand and Qlik NPrinting web console URL settings are configured. If you do not configure the URLs, links in the notification emails will not work. See: [System](#).

### Error handling: reports

By default, if report generation fails, recipients still receive scheduled emails. Instead of the report, users see an error message and instructions to contact an administrator. Administrators can disable this behavior so that emails are not sent when reports fail. Report failure appears as an error in the log files.

If you disable this behavior, emails are still sent if at least one report was created successfully.

For example:

You have 3 users in a single task. The task has 2 reports for each user, which are sent via e-mail.

- User A: report generation successful.
- User B: one report fails to generate.
- User C: all reports fail to generate.

In this case:

- User A receives the email with the two attachments.
- User B receives the email with a single attachment. There will be no mention of the report that failed.
- User C will not receive any email.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Email distribution errors**, go to **When a publish task cannot generate one or more reports**.

Choose from the following options:

- Recipients will receive successful reports, with a message listing reports that failed
- Recipients will receive successful reports, with no error message



*If all reports fail, recipients will not receive an email.*

4. Click **Update**.

### Error handling: variables

Administrators can set what happens if variables in an email do not resolve.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Email distribution errors**, go to **When a publish task cannot resolve a variable tag**. Choose from the following options:
  - Send the email with the tag as is
  - Send the email with the tag removed
  - Do not send the email
4. Click **Update**.

### Task execution notifications

You can receive notifications if tasks end with success, errors, or warnings. Notifications can be sent to multiple email addresses.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Notifications**, you can choose to send emails if tasks end with:
  - Errors
  - Warnings
  - Success
4. Under **Email configuration**, you must add:
  - Sender address
  - Sender name
  - To
5. You can choose to add a CC or BCC.



You can use semicolons to add multiple To, CC, or BCC addresses.

- Click **Update**.
- If you want to receive notification emails for a task, they need to be enabled. Open the task, go to the bottom of **Overview**, and select **Send task notifications**.

## Security

You can enable or disable server certificate validation. For more information, see *Configuring server certificate validation for Qlik Sense connections (page 175)*.

Do the following:

- In the main menu, go to **Admin > Settings**.
- Click the **Task** button.
- Under **Security**, click the **Apply Qlik Sense server certificate validation** checkbox.
- Click **Update**.

*Qlik NPrinting web console Task settings page*

**Qlik** NPrinting® Apps ▾ Reports Tasks ▾ Admin ▾ Destinations ▾ Admin ▾

**Settings**

System Authentication SAML NewsStand Email Report On-Demand **Task** Audit

**Email distribution errors**

**When a publish task cannot generate one or more reports:**

Recipients will receive successful reports, with a message listing reports that failed

Recipients will receive successful reports, with no error message

**When a publish task cannot resolve a variable tag:**

Send the email with the tag as is

Send the email with the tag removed

Do not send the email

**Notifications**

**Send notifications if task ends with:**

Errors

Warnings

Success

**Security**

**When connecting to a Qlik Sense server:**

Apply Qlik Sense server certificate validation

Cancel Update

### 4.2 Users

Users can access Qlik NPrinting reports. Users can be created, or imported from Excel files or LDAP sources.

Users can be assigned security roles, or organized into groups.

#### Creating users

You have to add and configure users before you can send them reports. You can add users manually, or import them.

For more information on importing users, see: *Importing users (page 243)*.

#### Administering new users

You must have sufficient admin rights to view, edit, create, or delete users. You can do the following once you have created users:

- Configure delivery and filtering information.
- Manage distribution groups. Users will automatically receive reports if they belong to a distribution group associated with a publish task.
- Activate and de-activate user accounts. Users who are de-activated will not receive reports, even though they may be associated with a publish task.
- Set security information including roles, passwords, and link to a domain account.
- Define a locale and a time zone that is specific for each user.

#### Creating a new user manually

Do the following:

1. From the **Admin** menu, click **Users**.
2. Click **Create user**.

#### Configuring user identity

Do the following:

1. Configure the following fields in the **Overview** tab:
  - **Email:** Enter a unique and valid email address that the user will use to log on.
  - **Name:** Enter an identifier for the user that will be used in Qlik NPrinting. For example, you will see the list of user names when you add a user to a Publish task.
  - **Password:** Enter a password. **Password strength** is displayed under the field. The border will be red if the password is not complex enough. This is for information purposes only, and will not stop the user creation process.



Valid password characters are letters, numbers, and the following special characters: \$ & + , : ; = ? @ # | ' < > . - ^ \* ( ) % !

- **Confirm password:** Enter the password again.
- **Domain account:** Enter the domain and user name if you want to associate the user with a domain account.

A user must have an associated domain account to use the following features:

- Receive reports in Qlik Sense hub.
- Create On-Demand reports in QlikView.  
The user's Windows Active Directory user account must be associated as the domain account.
- **Time zone:** Select a time zone for the user. The scheduled subscriptions for the user will be run according to the time zone.
- **Locale:** Select a locale for the user. This sets the user interface language for Qlik NPrinting web console, NewsStand, and Qlik NPrinting Designer.
- **Enabled:** Deselect the check box if you want to save the user but keep the account inactive.
- **Report security:** These passwords are used to view and edit encrypted reports. Enter a **Password to open**, a **Password to write**, or both (optional).

2. Click **Create**.

The **Details**, **Groups**, **Filters** and **Roles** tabs become enabled.

### Configuring user details

Do the following:

1. Configure the following fields in the **Details** tab. All these fields may be used in HTML email messages. They can be set manually, or imported using **Import task**:
  - **Nickname**
  - **Title**
  - **Company**
  - **Job Title**
  - **Department**
  - **Office**

2. Click **Save**.

### Configuring report distribution

Do the following:

1. Configure the following fields in the **Distribution** tab. These fields determine where reports are sent. They can be set manually, or imported via Excel.
  - **Folder:** Enter the path to a distribution folder where the user can find their reports (optional).
  - **Subfolder:** Enter the name for a subfolder (optional). It can be combined with a manually typed.

- **Alternate email 1:** Enter alternate email addresses, separate by semicolons (optional). These could be used for To, CC, or BBC fields.
- **Alternate email 2:** Enter alternate email addresses, separate by semicolons (optional). These could be used for To, CC, or BBC fields.
- **Alternate email 3:** Enter alternate email addresses, separate by semicolons (optional). These could be used for To, CC, or BBC fields.

2. Click **Save**.

## Configuring user groups

You can add the user to one or more groups.

Do the following:

1. From the **User** menu, click the **Groups** tab.
2. Select one or more groups from the list in the **Available items** column.
3. Move the groups into the **Selected items** column.
4. Click **Update user groups** to save your selections.

You cannot create new user groups from this page. To create new user groups, go to the **Admin** menu and click **Groups**.

## Creating new groups

Groups are lists of users. You can put users who need to receive the same reports into a group. One user can be a member of many groups.

Reports received by users in the same group are based on the same templates. The data received by any particular user is based on the filters applied to that user.

Do the following:

1. Select **Admin** in the main menu.
2. Click **Groups**.
3. Click **Create group**.
4. Enter a name for the group.
5. Enter a description (optional).
6. Select users in **Available items**.
7. Select one or more users from the list in the **Available items** column.
8. Move the users into the **Selected items** column.
9. Click **Create** to save.

### Setting user filters

You can add filters to users manually. All reports sent to them will have data filtered accordingly.

Do the following:

1. From the **User** menu, click the **Filters** tab.
2. Select the filter you want to add, then click > to move it from the **Available items** to the **Selected items** list.  
You can use Shift or Ctrl to make multiple selections.
3. Click **Update user filters** to save your selections.

### Defining user roles

Roles define the rights of users. You have to assign one or more roles to each user.

Do the following:

1. From the **User** menu click the **Roles** tab.
2. Select one or more roles in the **Available items** column.
3. Move the roles into the **Selected items** column.
4. Click **Update user roles** to save your selections.

### Importing users

You can import users, with related filters and groups, from Excel files, LDAP sources, or a combination of both.

We recommend that you have one import task per set of users, groups, and filters. You can have different sources for the same entities. For example: one Excel file for managers and one Excel file for vendors, where both files have a common group or filter. Both of these sources should be attached to the same import task. You can change the path of your Excel and LDAP sources when needed.

You should run import tasks one at a time. If you run several import tasks simultaneously, conflicts may arise, and the tasks may fail.



You can update Qlik NPrinting group, user, and filter information daily in a file with the same name, and load it to the same recipient import task path location.

## Limitations

There are some limitations when importing:

- You cannot import filters using LDAP. You must use an Excel file.
- You cannot import alternate emails using LDAP. You must use an Excel file.
- If you need to create or delete security roles, you must do so manually in the Qlik NPrinting web console. See: *Setting app permissions (page 230)*
- You can import from LDAP forests, trees, and domains that are different from the Qlik NPrinting server. However, cross-memberships between forests is not supported.
- When importing users from LDAP, locale and time zone values are not available. Users imported this way will default to English and UTC. You can set different locale and time zone values by importing users from an Excel file, or changing them manually. Importing the same users again via LDAP will not overwrite locale and time zone values.

There are some limitations when importing users via Excel:

- If groups, roles, or filters added in the row do not exist, they will be ignored.
- If the name of a filter, user, or role contains commas, use double quotes as delimiters. Example: "Jeremy Martinson, Jr."
- If a field value contains double quotes, leading/trailing spaces, or "{", "}" you must start and end the string with double quotes. Double quote characters must be inserted twice in order to differentiate them from escape quotes.

Example:

- [Country]={ " Italy, France ", "Germany",Spain} => " Italy, France ", "Germany", "Spain"
- [Country]={""Italy""} => ""Italy""
- [Country]={"{Sweden}"} => {Sweden}

- In order to import a field with leading/trailing spaces, you must start and end the string with square brackets.

Example: [ Country ]={Italy}, CountryBorn ={Italy} => " Country "={Italy}, "CountryBorn"={Italy}

- You cannot insert "[", "]" as field names.
- You can delete existing filter fields by adding fields (values, numeric values, or formula columns) with a valid name and an empty values list. The **Update filters if modified** check box must be selected.

Example:

- [Country] => input ignored
- [Country]={} => filter field with name country removed

## Import syntax in Excel documents

You must create an Excel file with the following exact names on the worksheets and columns. You cannot re-order or remove columns. You cannot re-arrange or remove worksheets.

### Import filter syntax

The first worksheet contains filter definitions. If a value or formula contains commas, use double quotes as delimiters. For example: `[SalesmanName]={"Jeremy Martinson, Jr.", Tom Lindwall}`.

If a filter uses the **Select excluded** feature to exclude values, add `<exclUded>` at the end. For example: `[CategoryName]={Babywear, Men's wear, women's wear}<exclUded>`

The `<override>` attribute can be used when importing filter fields from Excel with the override values flag enabled. For example:

- `[Country]={Sweden}<override>`
- `[Country]={"France"}<override,exclUded>`

Filters

Property	Required?	Description	Example
<b>Name</b>	Required	The name of the filter.	Quarterly Sales
<b>Description</b>	Optional	The purpose of the filter.	Sales from the current quarter.
<b>App</b>	Required	The name of the app associated with the filter. The app must exist on the server.	SalesDemoApp
<b>Enabled</b>	Required	Set to <code>TRUE</code> if you want to create an active filter. Set to <code>FALSE</code> to create an inactive filter that will be ignored during report generation.	<code>TRUE</code>
<b>Connection</b>	Required	The name of the connection. By specifying this, you can create different filters based on fields with the same names from different connections in the same app. The connection must exist on the server.	SalesDemoConnection
<b>Values</b>	Optional	Use to filter string values. List them in the form: <code>[field name]={value1,value2,...}</code> . To add values for more than one field, separate them with a comma. To exclude values, add <code>&lt;exclUded&gt;</code> at the end.	<code>[Country]={Italy,Germany,Spain},</code> <code>[CategoryName]={Babywear, Men's wear, women's wear}</code>
<b>Numeric Values</b>	Optional	Use to filter numeric values. List them in the form: <code>[field name]={value1,value2,...}</code> .	<code>CategoryID={1.0,"5",8.2}</code>

Property	Required?	Description	Example
<b>Formulas</b>	Optional	Use to calculate values to filter by using QlikView formulas. List them in the form: <i>[field name]={formula1,formula2,...}</i> .	Year={Year(now()), Year(now())-1,Year(now())-2}
<b>Advanced Search</b>	Optional	Use to filter values by using QlikView or Qlik Sense advanced search expression. List them in the form: <i>[field name]={advancedformula1,advancedformula2,...}</i> .	ProductName={=ProductName like '*Shoes*'}
<b>Variables</b>	Optional	Use to create a variable-based filter. Separate multiple entries with commas.  <i>[VariableName]={FixedValue}</i> to set a variable to a fixed value.  <i>[VariableName]={"=Formula()"}&lt;evaluate&gt;</i> to use a formula to calculate the value of a variable.	vSales= Sum(Sales)

### Import user syntax

The second worksheet contains user definitions.

In the **Alternate email** fields, you can add more than one email address, separated by colons. Your email provider determines how many addresses can be added to each field.

#### Users

Property	Required?	Description	Example
<b>Email</b>	Required	The user's unique email address. It will be used to log in.	john_brown@qlik.com
<b>Username</b>	Required	The unique user name that is displayed in the interface to identify the user. If you import a user with the same name as an existing user, the import will overwrite the existing user. If you import a user with the same name as an existing entity (group, role) that is not a user, you will get an error. The same error will happen if you import a group with the same name as an existing user.	John Brown

Property	Required?	Description	Example
<b>Password</b>	Required	The password the user uses to log in to Qlik NPrinting.	testpass
<b>Domain Account</b>	Optional	The unique domain account assigned to the user. A user must have an associated domain account to use the following features: <ul style="list-style-type: none"> <li>• Receive reports in Qlik Sense hub.</li> <li>• Create On-Demand reports in QlikView.</li> </ul> The user's Windows Active Directory user account must be associated as the domain account.	JohnBrown33
<b>Enabled</b>	Required	Set to TRUE if you want to create an active user. Set to FALSE to create an inactive user that will be ignored during report generation.	TRUE
<b>Time Zone</b>	Required	Report publishing is scheduled according to the time zone of the user. You must type the name as it appears in the Qlik NPrinting interface.	Europe/Rome
<b>Locale</b>	Required	The display language of Qlik NPrinting. There are eight options: En (English), Es (Spanish), Fr (French), De (German), Pt (Portuguese), Ja (Japanese), It (Italian), Zh (simplified Chinese).	It
<b>Description</b>	Optional	The description of the user.	Account manager, Vicenza.
<b>NickName</b>	Optional	The user's nickname.	JoBrown
<b>Title</b>	Optional	The user's title.	Mr.
<b>Company</b>	Optional	The user's company.	Qlik
<b>Job Title</b>	Optional	The user's job title.	Account Manager
<b>Department</b>	Optional	The user's department.	Sales

Property	Required?	Description	Example
<b>Office</b>	Optional	The user's office.	1st floor, Vicenza
<b>Folder</b>	Optional	Report destination folder that the user can assess.	C:\QlikReportingTraining\Output\
<b>Sub Folder</b>	Optional	Report destination sub-folder that the user can assess.	John Brown
<b>Alternate email 1</b>	Optional	Report destination email. Can contain multiple addresses, separated by semicolons.	john.brown@qlik.com
<b>Alternate email 2</b>	Optional	Report destination email. Can contain multiple addresses, separated by semicolons.	j.br@qlik.com
<b>Alternate email 3</b>	Optional	Report destination email. Can contain multiple addresses, separated by semicolons.	salestraining@qlik.com, salestraining@qlik.eu
<b>Read Password</b>	Optional	The password needed to open reports. Credential authentication will be disabled for the user if no password is specified.	password33
<b>Write Password</b>	Optional	The password needed to edit reports. Credentials authentication will be disabled for the user if no password is specified.	password44
<b>Filters</b>	Optional	The list of filters the user can access, separated by commas.	Quarterly Sales
<b>Groups</b>	Optional	The list of groups the user is a member of, separated by commas.	Marketing Team, Sales Team
<b>Roles</b>	Optional	The list of the user's security roles, separated by commas.	Developer, Administrator

### Import group syntax

The third worksheet contains group definitions.



## Groups

Property	Required?	Description	Example
<b>Name</b>	Required	The name of the group.	Marketing Team
<b>Description</b>	Optional	The purpose of the group.	Global Marketing Team
<b>Enabled</b>	Required	Set to TRUE if you want to create an active group. Set to FALSE to create an inactive group that will be ignored during report generation.	TRUE

## Import syntax in LDAP sources

## Connection syntax

## Connection

Property	Required?	Description	Default value
<b>Connection path</b>	Required	The URI used to connect to the directory server. To support SSL, specify the protocol as LDAPS instead. Currently, LDAPS is only supported for Active Directory. You can add a distinguished name (DN) to change the starting container: <i>ldap[s]://[server address[:port]]/[dn]</i>	<i>ldap://company.domain.com</i>

Property	Required?	Description	Default value
<b>User name</b>	Optional	The user ID used to connect to the directory server. If this is empty, the user running the repository is used to log on to the directory server.	-
<b>Password</b>	Optional	The password for the user.	-
<b>User directory name</b>	Required	The name of the UDC instance (to be compared to the domain name of an Active Directory). If you leave this field empty, it will be populated with the correct domain name in Active Directory servers, or with the first DC component of the distinguished name.	-

#### Entry attributes syntax

The entry attributes should reflect the attributes names of your LDAP server.

## Entry attributes


Property	Required?	Description	Default value
<b>Type</b>	Required	The types that can be imported are: users, groups, and roles.	objectClass
<b>User identification</b>	Required	The attribute value of the directory entry that identifies a user. A value that the attribute specified by <b>Type</b> can assume.	inetOrgPerson
<b>Group identification</b>	Required	The attribute value of the directory entry that identifies a group. A value that the attribute specified by <b>Type</b> can assume.	group
<b>Role identification</b>	Required	The attribute value of the directory entry that identifies a role. A value that the attribute specified by <b>Type</b> can assume.	group
<b>Account name</b>	Required	The attribute that specifies the unique name that the user uses to log in.	sAMAccountName
<b>Email</b>	Required	The attribute name that holds the emails of a directory entry (user).	mail

Property	Required?	Description	Default value
<b>Display name</b>	Required	The attribute that holds the full name of a directory entry (user, group, role).	name
<b>Group membership</b>	Required	The attribute that indicates the direct groups that a directory entry is a member of. Indirect group membership is resolved during user synchronization.	memberOf
<b>Members of directory entry</b>	Required	The attribute name that holds a reference to the direct members of this directory entry.	member
<b>Role membership</b>	Required	The attribute that indicates the direct security roles that a directory entry holds. Indirect group roles are resolved during the user synchronization.	memberOf

## Advanced syntax

## Advanced

Property	Required?	Description	Default value
<b>Timeout (seconds)</b>	Optional	The timeout for reading data from the data source.	240

Property	Required?	Description	Default value
<b>Page size of search</b>	Optional	<p>Determines the number of posts retrieved when reading data from the data source. When the specified number of posts have been found, search is stopped and the results are returned. When search is restarted, it continues where it left off.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;">  <i>If the user synchronization is unsuccessful, try setting the value to '0' (zero), which is equal to not doing a paged search.</i> </div>	2000
<b>Alternative group path</b>	Optional	The distinguished name for using a different directory entry as starting point for group search.	-
<b>Alternative role path</b>	Optional	The distinguished name for using a different directory entry as starting point for role search.	-
<b>Additional user filters</b>	Optional	The LDAP query used to retrieve the users in the directory.	-
<b>Additional group filters</b>	Optional	The LDAP query used to retrieve groups in the directory.	-
<b>Additional role filters</b>	Optional	The LDAP query used to retrieve roles in the directory.	-

### Active directory

Active directory users should change the **User identification** value from *inetOrgPerson* to *user* or *person*. The default behavior is to import all groups. If you would like to import a specific group, use the **Alternative group path** or **Additional group filters** fields.

### Merging import source data

Merge policy refers to the rules to apply when merging data from an import step with the results of previous steps. The synchronization in the Qlik NPrinting repository of import source data merge results do not use a merge policy. They are based on your import task settings. See: *Creating an import task* (page 255).

### User merge key

This specifies the user field used to identify when a user retrieved from import sources is referring to an existing user. The algorithm used to merge the user data is based on entity and associations merge policies. In order to match the imported entities against the Qlik NPrinting repository, the **Username** is always used, so this merge key is not considered.

### Entity merge policy

This specifies the algorithm used to merge the data retrieved from different import sources that are referring to the same entity (user, group or filter). It is not applied to fields that are mapping an association to another entity (user filters, roles and groups, and filter fields).

The supported values are **Overwrite**, **Update missing**, and **Ignore**. The data retrieved from a previous import source are:

- **Overwrite**: removed and replaced by the most recent import. Columns that exist in a previous step, but not the latest step, are not changed.
- **Update missing**: ignored, except for values not present in previous import tasks, which are added. This applies to missed columns, not empty cells.
- **Ignore**: ignored.

### Association merge policy

This specifies the algorithm used to merge data retrieved from different import sources that are referring the same entity (user, group or filter). It is applied to fields that are mapping an association to another entity (user filters, roles and groups, and filter fields).

Supported values are **Overwrite**, **Merge**, and **Ignore**. The list of entities retrieved from a previous import steps are:

- **Overwrite**: removed and replaced by the most recent import. Columns that exist in a previous step, but not the latest step, are not changed.
- **Merge**: merged.
- **Ignore**: ignored.

### Assigning import rights to a security role

To import users, you must log into Qlik NPrinting web console as a user with **Import task** rights in at least one security role. Users with an **Administrator** role have **Import task** rights. If you apply the **Administrator** role to a user, they will also have all other administrative privileges.



You can also assign import rights to a security role, without giving it other administrative authority.

Do the following:

1. Log into Qlik NPrinting web console as a user with the **Administrator** security role.
2. In the Qlik NPrinting main menu, click the **Admin** drop-down menu.
3. Click **Security roles**.
4. Click on the role you want to give **Import task** rights.
5. Click on the **Apps** tab.
6. Scroll to the **Import task** rights check boxes.
7. Select the check box to the left of **Import task** to assign all import task rights to the role.  
You can also select only specific rights by selecting the appropriate check boxes.
8. Click **Save**.

## Creating an import task

Do the following:

1. In the Qlik NPrinting main menu, select **Tasks**, and then select **Import Task**.
2. Click **Create import task**.
3. Insert the **Name** of the task. For example: *Import Users*.
4. Ensure the **Enabled** check box is selected. Otherwise, your task will be ignored by the Qlik NPrinting Engine.
5. Under **Sources**, click **Add Source**. In the drop-down menu, select **Import from Excel** or **Import from LDAP**.
6. The next steps will depend on the source type:
  - a. Excel: Add the **Import file path (on server)** of the Qlik NPrinting Server where the Excel file is saved.  
For example: *C:\ProgramData\NPrinting\Imports\NP\_Web\_Imports.xlsx*. This is not the file path on your local computer.  
You can also use a remote computer network path. The Windows user that runs the Qlik NPrinting scheduler service must have access to the remote folder from the Qlik NPrinting Server. See: *Import syntax in Excel documents (page 245)*.
  - b. LDAP: Add the **Connection path** of the LDAP source.  
You can fill in the other fields as needed. See: *Import syntax in LDAP sources (page 249)*.
7. Ensure the **Enabled** check box is selected. Otherwise, your source will be ignored by the Qlik NPrinting Engine.
8. Click **Add Source** to add another source.
9. Click , on the right, to delete a source. Click  to duplicate it.
10. Under **Settings**, select the check boxes that specify how you want to handle merge conflicts:
  - **Create users if not present**
  - **Update users if modified**
  - **Remove users not present in newest import sources**  
Only users added in a previous run of the same import will be removed. Other users, like those added manually, will not be removed.
  - **Replace existing user associations (filters, roles, and groups)**  
Existing user associations will be removed if not present in the import file. They will be replaced with associations in new file.
  - **Remove groups not present in newest import sources**  
Only groups added in a previous run of the same import will be removed. Other groups, like those added manually, will not be removed.
  - **Create filters if not present**
  - **Update filters if modified**
  - **Remove filters not present in newest import sources**  
Filters added in a previous run of the same import will be removed. Other filters, like ones added manually, will not be removed.

- **Replace existing filter fields**

Existing filter fields will be removed if not present in the import file. They will be replaced with filter fields from the import file.

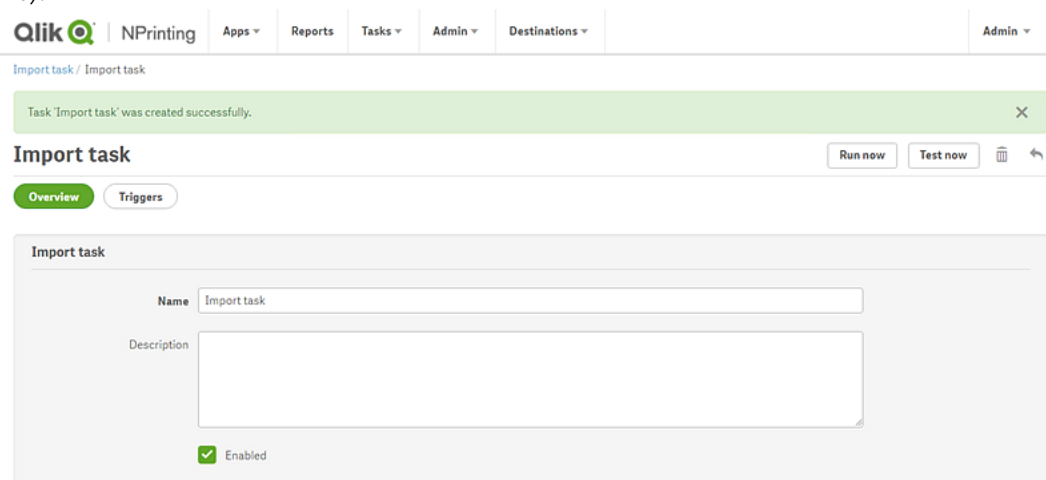
11. Under **Notifications**, you can select **Send task notifications**. An email will be sent to the addresses specified under **Settings > Tasks**. See: *Task execution notifications (page 268)*.
12. Click **Create**.

## Running the import task

The green bar at the top of the form confirms that the task was created successfully. There are different ways of running the task.

Do one of the following:

- Click **Run now** to import users, filters, and groups immediately.
- Click **Test now** to test the task. This runs a dummy import, and generates a .txt file with the results. This way you can check for merge conflicts before running an import.
- Click the **Triggers** button to schedule the execution of the task. See: *Creating a distribution schedule (page 475)*.



## Checking task status

On the **Import filters and recipients task** main page, you can see the status of your import tasks.


- **Last execution:** shows the date and time of the last execution.
- **Last execution status:** if a task ran successfully, it will show as **Completed**. Otherwise, it will show as **Failed**.

- **Last execution progress:** shows how far an active task has progressed.

- **Last import log:** click the **Download** link to see the latest logs associated with the task.

If an error occurs during the import, the log file will show the error message in the current locale of the computer where the import was executed. The import for all users will halt at the first error, and the entire import is rolled back. The log file download contains a log line for each import action. The task execution logs only contain the main logs, such as errors and progress information.



- **Enabled:** if this check box is not selected, your task will be ignored by the Qlik NPrinting Engine.
- **Actions:** Click the  to edit, delete, run, or test the task.

Check the imported users on the **Users** page to see newly created users. You can check that associated filters were created by opening the **Filters** tab.

### Changing user passwords

Users can send requests to change their passwords. Administrators can change the password of any user.

#### Administrators

Do the following:

1. Click **Admin** in the main menu.
2. Select **Users** from the drop-down list.  
The list of available users appears. You can filter the list by typing the user name in the search form.
3. Click on the user name to open its profile.
4. Select the **Change password** check box.  
The form to enter the new password appears.
5. Enter and confirm the new password.
6. Click **Save**.

You must implement your password policy manually. For example: there is no way to remind users to change their password once a month.

#### Users

You can change your user password at any time. The SMTP server must be configured because you will receive email confirmations.

#### Password reset rules

- If you make a second password reset request, the first request is deleted and the link becomes invalid.
- You have to wait one minute to make a second request to reset your password, in order to avoid email spam.
- You have to use the password reset link within one hour. After that, you have make the request again.

#### Request password reset

Do the following:

1. Open the NewsStand with your preferred web browser. The URL is <https://YourServer:4994>.
2. Click **Forgot your password?**
3. Enter your email address.
4. Click **Reset password**.  
A message requests that you check your email for further instructions.

### Reset password

Do the following:

1. Check your email for a message with the subject line, **Qlik NPrinting password reset request**. If you do not see the email, check your spam folder.
2. Click on the reset password link, or copy and paste it into your web browser.
3. Enter and confirm your new password.
4. Click **Reset password**.  
A message indicates that your password has been reset. You will also receive a confirmation email.

### Changing user language

Users can change the language displayed in the user interface of Qlik NPrinting, NewsStand, and Qlik NPrinting web console.

This procedure sets the user interface language for Qlik NPrinting web console, NewsStand, and Qlik NPrinting Designer.

Do the following:

1. Log into NewsStand by entering a web address in your browser, such as *https://<server name>:4993*. The exact address you enter depends on how NewsStand has been deployed in your organization.
2. On the **Admin** menu, click **Settings**.
3. On the **Locale** menu, click your desired language.
4. Click **Save**.
5. The NewsStand page will be refreshed in the selected language.

## 4.3 Tasks

Tasks can distribute reports to specific recipients, schedule data imports, or refresh connections. You can create specific tasks for individual users or groups.

Qlik NPrinting has five types of task:

- Import filters and recipients
- Publish reports
- Generate connection caches
- Search field values
- On-Demand requests

You can monitor and abort active tasks on the *Task executions (page 262)* page. On-Demand tasks can be administered on the *Managing On-Demand requests (page 508)* page.

### Publish tasks

Qlik NPrinting apps contain tasks. Tasks can be used to distribute reports to specific recipients, or schedule data imports.

You need to have an Administrator, Developer, or custom role to create publish tasks. You can manage tasks from the **Publish tasks** page.

To learn about import tasks, see: *Importing users (page 243)*.

### Creating a new publish task

Do the following:

1. Select **Tasks** from the main menu, and click **Publish task**.
2. Click **Create task**.
3. Enter a name for the task. For example, the name of the user associated with the task.
4. Select an app from the drop-down list.
5. Leave **Days to keep**, **Reports to keep**, and **Enabled** at their default values.
6. Under **Report security**, you can input a **Password to open**, a **Password to write**, or both. This step is optional. Users will need to input these passwords to access reports attached to this task.
7. Click **Create**.

### Adding a report to a task

Do the following:

1. Go to the **Reports** tab, and click **Add report**.
2. Select a report from the **Choose report** drop-down list.
3. Select a report format from the **Output format** drop-down list.
4. Select image resolution from the **Quality** drop-down list.
5. Leave the **Attach to email** and **Enabled** check boxes selected.
6. Click **Add report**.

### Assigning a user to a task

Do the following:

1. Go to the **Users/groups** tab, and click **Add user or group**.
2. Click the **Choose recipient** drop-down list and select the user that should be assigned the task.
3. Select the **Enabled**, **NewsStand destination**, and **Email destination** check boxes.
4. Click **Add recipient**.  
The user is now listed in **Users/Groups**.

### Assigning filters to a task

Do the following:

1. Go to the **Filters** tab.
2. Use the arrow buttons to move filters to the Selected items box. These filters will be applied to the task.
3. Click **Update task filters**.

### Setting a destination

You can set NewsStand and email as destinations. All the users added in NewsStand have access to the reports that are associated with their profile.

Do the following:

1. Go to the **Destinations** tab.
2. Enable the **NewsStand** check box for all users that should access reports via NewsStand.
3. Enable the **Email** check box for all users that should receive reports via email.
4. Click **Save**.

### Creating an email

See: *Distributing reports by email (page 479)*

### Creating triggers

Triggers manage the automatic execution of tasks.

Do the following:

1. Go to the **Triggers** tab, and click **Create trigger**.
2. Enter a name for the new trigger.
3. Set the **Schedule type** and **Start date**.
4. Select a **Time zone**.
5. Click **Create**.

To learn more about triggers, see: *Creating a distribution schedule (page 475)*.

### Adding conditions to a task

You can add conditions only to reports already inserted into tasks. It is not possible to add conditions directly to reports. A report is generated only if related conditions are satisfied.

Do the following:

1. Go to the **Conditions** tab, and click **Add condition**.
2. Select **True** or **False** in the **Expected result** drop-down menu. If you select **True** the report will be created when the condition is verified. If you select **False** the report will be created when the condition is not verified. This is useful because, for example, you can add two different report with the same condition and set one true and the other false. So if the condition is satisfied the first report will be distributed, otherwise the second report will be distributed.

3. To add another condition, click the plus symbol, or click **Add condition**. You can add how many conditions you want.
4. Click **Save**.

To learn more about how Conditions work, see: *Conditions (page 313)*.

### Running a task

You can now run the task you have created.

Do the following:

1. Go to the **Overview** tab.
2. Click **Run now**.  
A confirmation message appears at the top of the page.

To learn more about how tasks work, see: *Task executions (page 262)*.

### Running multiple tasks

You can run several tasks at once. You do not have to wait for the next scheduled execution.

Do the following:

1. In the top menu bar select **Tasks**, and then click **Publish task**.  
The **Publish tasks** page shows all available tasks and related information, including the date and time of task creation, and the most recent update. You can perform actions on multiple tasks at the same time. At the bottom of the list, you can set how many tasks to display at a time.
2. Select one or more boxes to the left of the task names.  
To select all tasks, click the top or bottom box.
3. At the bottom of the list, click the **Choose action** drop-down. The following actions are available:
  - **Enable**: Enables the selected tasks.
  - **Disable**: Disables the selected tasks. The tasks are stored in the repository, but they are ignored by the scheduler.
  - **Delete**: Removes the selected tasks from the repository. You cannot restore a deleted entity.
  - **Run now**: Starts the execution of the selected tasks.
4. Select **Run now**.  
Click **Go**.  
This will schedule all selected tasks for execution. A green message for each task appears above the task list.

### Filtering visible tasks

You can filter tasks by **View**, **App**, or **Date range**. You can also search by task name.

The **View** drop-down list has the following options:

- **All tasks:** All tasks are visible. This is the default option.
- **Corporate subscriptions:** Shows only corporate tasks.
- **All subscriptions:** Shows all subscribed tasks.
- **My subscriptions:** Shows only tasks subscribed to by the logged on user.
- **Enabled:** Shows only enabled tasks.
- **Disabled:** Shows only disabled tasks.

The **App** drop-down list contains all enabled apps.

There are two **Date range** drop-down lists:

- **Created:**
  - **Created**
  - **Last updated**
- **All time:**
  - **All time**
  - **Today**
  - **Yesterday**
  - **This week**
  - **This month**
  - **Last 7 days**
  - **Last 30 days**
  - **Custom:** Lets you set a specific date range.

To search by name, type the name of task you are looking for into the search form on the right. The list of tasks will be dynamically filtered.

## Task executions

The Task executions page shows details related to Qlik NPrinting Server tasks.

You can open the **Task executions** page by clicking on **Admin** and selecting **Task executions**.

Task execution times are displayed relative to the time zone of the logged in user. These may be different than the time zone of the Qlik NPrinting Server. You can change your time zone by clicking on your user name in the top right, and selecting **Settings**.

## Execution phases

A publish task has three phases:

1. **Content resolution:** Qlik NPrinting gets data needed to create a report from QlikView or Qlik Sense.
2. **Content production:** Qlik NPrinting creates the report.
3. **Publish:** the report is delivered according to your task settings.

These steps are executed in order for each combination of report and user. They are performed in parallel for different reports and many reports can be executed at the same stage at the same time.

### Filtering tasks

By default, all in-progress or finished tasks are displayed. You can filter tasks by **View**, **Task type**, or **Date range**. You can also search by task name. Clicking the black triangles next to the header titles of any column will sort column items alphabetically.

The **View** drop-down list has the following options:

- **All executions**
- **In progress**
- **Finished**

The **Task type** drop-down list has the following options:

- **Import filters and recipients**
- **Publish report**
- **Generate connection cache**
- **Generate report template:** this task is related to migrating QlikView NPrinting 16 report templates. See: *Using the migration tool (page 110)*.
- **Search field value:** If you press the **Search** button while adding an uncached field, Qlik NPrinting will start a task to retrieve the non-cached values.

There are two **Date range** drop-down lists:

- **Created:**
  - **Created**
  - **Last updated**
- **All time:**
  - **All time**
  - **Today**
  - **Yesterday**
  - **This week**
  - **This month**
  - **Last 7 days**
  - **Last 30 days**
  - **Custom:** Lets you set a specific date range.

To search by name, type the name of task you are looking for into the search form on the right. The list of tasks will be dynamically filtered.

## Task execution status

Task execution fields

Field	Description
<b>Task name</b>	The name of the task.
<b>Task type</b>	The type of task.
<b>Status</b>	A blinking status means that the task is running. A fixed status means that the task has finished, or stopped with Warning, Failed, or Aborted.
<b>Progress</b>	Percentage of publishing completion. Progress will remain at 0% during content resolution and content production. It will start to increase when publishing starts, or when a condition evaluation returns false. This means that some reports will not be produced and will be counted as finished.
<b>Created</b>	Date and time task was created.
<b>Last updated</b>	Date and time task was last updated.

You can change the number of visible rows by clicking on the numbered buttons at the bottom of the page.

There are several types of **Status**:

- **Warning** (only blinking): some reports are created correctly, but some have problems. The task is still running.
- **Warning** (only fixed): some reports are created correctly, but some have problems. The task has been completed with a **Warning** status.
- **Failed**: all reports have problems.
- **Running** (only blinking): everything is going well, but the task is still in execution.
- **Completed** (only fixed): all reports have been correctly created and delivered.
- **Queued**: task is waiting to start its execution.
- **Aborted**: task execution was manually stopped because the user pressed the **Abort** button in the task detail page.

## Task execution details

Click on a task name to open its details page . The details page is divided into three sections:

- Overview
- Statistics
- Logs

When opening this page, you need to wait until all logs are loaded. This could take several seconds.

### Overview

This section contains basic information about the task:



- Task name
- Task type
- Status
- Progress
- Created
- Last updated

### Statistics

The second section shows the task's statistics.

Task execution statistics

Field	Description
Elapsed time	Time since the task started or since the latest task restart. It is updated only when there are timed updates on the task. If the task is blocked, the elapsed time will not be updated. Visible for all type of tasks.
Started resolutions	The number of reports that have started the content resolution step. Visible only for publish report tasks.
Finished resolutions	The number of reports which have finished the content resolution step. Visible only for publish report tasks.
Started productions	The number of reports that have started the content production step. Visible only for publish report tasks.
Finished productions	The number of reports which have finished the content production step. Visible only for publish report tasks.
Started publishing	The number of reports that have started the publishing step. Visible only for publish report tasks.
Finished publishing	The number of reports that have finished the publishing step. Visible only for publish report tasks.
Report failures	The number of reports that failed any of the execution steps. Visible only for publish report tasks.

### Logs

The last section of the task details page contains detailed logs. Each log is comprised of:

Task log fields

Field	Description
Date and time	Date and time of log generation in the Qlik NPrinting Server time zone.
Level	The log level is an hint about the severity of the event recorded. The values <b>Error</b> or <b>Warn</b> mean that something went wrong and we suggest to investigate. The value <b>Info</b> means that the event ended correctly.

Field	Description
Description	Detailed description of the logged action.

### Retrieving the report from the ID in the logs

Report IDs are not resolved in the logs of the task execution details page. Report names are not visible and you will need to retrieve them.

Do the following:

1. Open the task details page.
2. Select and copy the report ID that you want to resolve.
3. Go to the publish task page.
4. Open the publish task related to the original log.
5. Open one of the available reports
6. Replace the last part of the URL (the string on the right side of last backslash) by pasting the copied report ID.
7. Press Enter.

### Aborting a task

You can stop the execution of a task at any time.

Do the following:

1. Click on the name of the task.
2. Click on the **Abort** button in the upper right corner.
3. The execution of the task is stopped and shows an **Aborted** status.

### Changing task settings

Administrators can set what happens when reports or variables do not render. They can also choose to receive task notification emails.

#### Requirements

Before you can set up task notifications via email, make sure that the NewsStand and Qlik NPrinting web console URL settings are configured. If you do not configure the URLs, links in the notification emails will not work.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **System** button.
3. Enter the Qlik NPrinting web console URL including port number in **Web Console URL**. You can copy the URL including port number from the Qlik NPrinting web console browser address bar.
4. Enter the NewsStand URL including port number in **NewsStand URL**.
5. Click **Update**.

### Error handling: reports

By default, if report generation fails, recipients still receive scheduled emails. Instead of the report, users see an error message and instructions to contact an administrator. Administrators can disable this behavior so that emails are not sent when reports fail. Report failure appears as an error in the log files.

If you disable this behavior, emails are still sent if at least one report was created successfully.

For example:

You have 3 users in a single task. The task has 2 reports for each user, which are sent via e-mail.

- User A: report generation successful.
- User B: one report fails to generate.
- User C: all reports fail to generate.

In this case:

- User A receives the email with the two attachments.
- User B receives the email with a single attachment. There will be no mention of the report that failed.
- User C will not receive any email.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Email distribution errors**, go to **When a publish task cannot generate one or more reports**. Choose from the following options:
  - Recipients will receive successful reports, with a message listing reports that failed
  - Recipients will receive successful reports, with no error message



*If all reports fail, recipients will not receive an email.*

4. Click **Update**.

### Error handling: variables

Administrators can set what happens if variables in an email do not resolve.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Email distribution errors**, go to **When a publish task cannot resolve a variable tag**. Choose from the following options:
  - Send the email with the tag as is
  - Send the email with the tag removed

- Do not send the email
4. Click **Update**.

### Task execution notifications

You can receive notifications if tasks end with success, errors, or warnings. Notifications can be sent to multiple email addresses.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Notifications**, you can choose to send emails if tasks end with:
  - Errors
  - Warnings
  - Success
4. Under **Email configuration**, you must add:
  - Sender address
  - Sender name
  - To
5. You can choose to add a CC or BCC.



*You can use semicolons to add multiple To, CC, or BCC addresses.*

6. Click **Update**.
7. If you want to receive notification emails for a task, they need to be enabled. Open the task, go to the bottom of **Overview**, and select **Send task notifications**.

## 4.4 Configuring SMTP server

Qlik NPrinting can distribute your reports by attaching them to email messages.

First, you need to set SMTP parameters, including outgoing mail server address, and port number. You may need to set user name and password parameters if the server requires authentication.

### Best practices

When you set up a SMTP server for distributing Qlik NPrinting reports via email, consider the following best practices for configuration and troubleshooting:

- Check the attachment size limit of the SMTP server and modify or disable it if possible. Qlik NPrinting reports can be considerably large in size and can sometimes exceed the attachments size limit set by SMTP providers.



*Some SMTP providers impose size limits on email attachments. The maximum allowed size varies among providers. If the size of an attached file exceeds the limit, the email is not delivered. A warning is added in the logs.*

- Some SMTP providers limit the number of emails that a user can send during a given period of time. If a user sends more emails than the set limit, emails exceeding the limit are not delivered. Modify or disable such setting where possible.
- Check the SMTP server anti-spam setting and verify that emails can be successfully sent to all Qlik NPrinting users. If the SMTP server only lets you send emails to an allow list of users, make sure that all required Qlik NPrinting users are registered in the allow list.
- Add the IP of your Qlik NPrinting server and the Qlik NPrinting default sender address to the SMTP server allow list, if necessary.
- If the SMTP server only allows the delivery of emails within an organization, grant Qlik NPrinting users the right to send emails outside the organization, if necessary.
- If you want to configure custom sender addresses, your SMTP server settings must allow users to send emails using email addresses other than their assigned email address.
- When using a SMTP server cluster, make sure that the authentication is correctly distributed from the SMTP proxy to all the servers that are part of the cluster.
- When encountering issues with email delivery, check the Qlik NPrinting scheduler service log files and the SMTP server log files with the help of your SMTP server administrator.

## Email settings

Do the following:

1. From the top menu, click on **Admin**, and then select **Settings**.
2. Click **Email**.
3. Enter a name and description for the email settings.
4. Enter the address of the outgoing SMTP mail server in the **Address** text box.
5. Enter the port number.
6. Select the check box for:
  - **Use TLS (transport layer security)** if your SMTP server requires you to use Transport Layer Security. The default ports are 25 and 587.
  - **Use SSL** (Secure Sockets Layer) if your SMTP server requires the whole session to be encrypted using SSL. The default port is 465.
  - **Disable certificate validation**: If you do not want to validate certificates.
7. Specify the **Username** and **Password** required for authentication.
8. Configure the **Default sender email** address to use when sending email messages.
9. Enter a **Test email address** and click **Send test email** to verify that the SMTP configuration works. An email with a time stamp is sent to the specified address to confirm.
10. Click **Update**.

## 4.5 Logging

Qlik NPrinting has detailed log files, which let log analysts view events logged by different services. For example, it is possible to follow a request spread into different tasks and joined back to create a response.

When you need to troubleshoot a problem, start by checking rows with errors in the log files. You will usually find useful error messages to help you understand the origin of the issue. You should include the log files in your support requests.

### Overview

Log files are saved in `%ProgramData%\NPrinting\Logs`. They are divided into three families:

- `nprinting_scheduler.log` (contains the log of Qlik NPrinting scheduler service)
- `nprinting_webengine.log`
- `nprinting_engine.log`

When a file becomes too big to be easily managed, Qlik NPrinting creates a new file and adds a progressive integer suffix to the old file. So the file with no suffix is the current file, and the files with suffixes are the older files. A larger suffix indicates older files. For example:

- `\NPrinting\Logs` (newest file)
- `\NPrinting\Logs.1`
- `\NPrinting\Logs.2` (oldest file)

These files are not rotated on a daily basis. You have to manually delete old files to save disk space. The number of files kept depends on the settings in the following config files:

- `C:\Program files\NPrintingServer\NPrinting\Engine\Qlik.NPrinting.Engine.config` (Engine Service)
- `C:\Program files\NPrintingServer\NPrinting\Scheduler\Qlik.NPrinting.Scheduler.config` (SchedulerService)
- `C:\Program files\NPrintingServer\NPrinting\Webengine\Qlik.NPrinting.Webengine.config` (WebEngine Service)

You can change these settings by editing these strings:

```
<maxSizeRollBackups value="3" />
```

```
<maximumFileSize value="10MB" />
```

For example: If you change the value of `maxSizeRollBackups` to 10 in `Qlik.NPrinting.Engine.config`, Qlik NPrinting will keep 11 files (current file + 10 archived files). If you change the value of `maximumFileSize` to 20MB, log files will reach double their default maximum size before triggering the creation of a new file.

Note that there are two sections: one for normal log files and one for `_dev` files (when debug level is enabled). You must customize the appropriate section, or both.

## Log files structure

All log files have the following fields:

- Product Assembly Name
- Product Version
- Class Name
- Timestamp
- Severity
- Hostname
- User name
- User ID
- WebEngine Request ID
- Connection ID
- Task ID
- Execution ID
- Report ID
- Request ID
- Transformation ID
- Message
- Exception
- Stacktrace

Log files are tab-separated value files, so they can be imported as tables.

## Changing log details level



*You should always backup your Qlik NPrinting repository before editing a .config file. For more information, see [Backing up Qlik NPrinting \(page 193\)](#).*

The log level is set to INFO by default. You can change the log level to DEBUG of a Windows service.

Do the following:

1. Open the appropriate configuration file with a text editor:
  - `C:\Program Files\NPrintingServer\NPrinting\Engine\Qlik.NPrinting.Engine.exe.config`
  - `C:\Program Files\NPrintingServer\NPrinting\Scheduler\Qlik.NPrinting.Scheduler.exe.config`
  - `C:\Program Files\NPrintingServer\NPrinting\WebEngine\Qlik.NPrinting.WebEngine.exe.config`

Where `C:\Program Files\NPrintingServer` is the Qlik NPrinting Server installation path. Adapt it to your installation if necessary.

If you want to view Qlik NPrinting On-Demand logs, you need to set `Qlik.NPrinting.Engine.exe.config` to DEBUG.

2. Search for:

```
<root>
<level value="INFO" />
<appender-ref ref="LogFileAppender" />
<!--Uncomment the row below and set the level value above to obtain the logs in the file
nprinting_engine_dev.log-->
<!--<appender-ref ref="LogFileAppenderDev" />-->
<appender-ref ref="LogFileAppender" />
</root>
```

3. Change level value to "DEBUG":

```
<root>
<level value="DEBUG" />
<appender-ref ref="LogFileAppender" />
<!--Uncomment the row below and set the level value above to obtain the logs in the file
nprinting_engine_dev.log-->
<!--<appender-ref ref="LogFileAppenderDev" />-->
<appender-ref ref="LogFileAppender" />
</root>
```

4. Uncomment: <!--<appender-ref ref="LogFileAppenderDev" />-->

5. Save the edited files.

6. Restart the corresponding Windows service.

When you change a log level to DEBUG, a new log file is created. The new log file has the same name as the log file with INFO details level followed by *\_dev*. For example:

- *nprinting\_scheduler\_dev.log*
- *nprinting\_webengine\_dev.log*
- *nprinting\_engine\_dev.log*

The default log files will still be present and will continue to only have INFO level information.

## 4.6 Audit trail

Audit trail provides access to a history of all executed events and procedures on your system. This provides insight into systems information and system integrity and is used for many reasons including compliance, records of change to system including user access, investigation into anomalous system or user behavior and more.

The following actions are logged as part of the audit trail:

- Authentication events (Success & Denied) for system access points (Qlik NPrinting Web Admin, NewsStand, API)
- Qlik NPrinting web administration system configuration (Create, update and delete events for Qlik NPrinting entities and settings. This includes events from import functions for users and filters, Qlik NPrinting 16 projects and Qlik NPrinting reports.)
- Qlik NPrinting report execution outcome (Who, Where)



Inclusive of scheduled and On-Demand reports

- NewsStand events

### Installed files

#### Qlik NPrinting audit database

A separate dedicated database for audit logging is created with Qlik NPrinting Server. This database is created by default with a dedicated user and a randomly generated password. The database is deleted when Qlik NPrinting is uninstalled, so the data needs to be exported before uninstalling if you want to maintain the archive.

#### Qlik NPrinting audit service

The Qlik NPrinting audit service is installed with Qlik NPrinting Server. The service must be active to write logs to the Qlik NPrinting audit database. The service writes errors to the log file located in

`%PROGRAMDATA%\NPrinting\Logs\nprinting_audit.log` if it fails to write data to the database.

### Using the Audit trail

Audit trail logs are consumed via the public REST API <https://ServerName:4993/api/v1/audit/logs> that provides data as text files separated by tabs.

Do the following:

1. Open the Qlik NPrinting web console in your browser.
2. Log in as a user that has a role with Audit rights.  
*See: [Setting app permissions \(page 230\)](#)*
3. Insert the name of your server in <https://ServerName:4993/api/v1/audit/logs> then paste it in your browser.  
A text file will start downloading. Each field will be in a different tab.
4. You can open the file in a text editor, import to Excel, or upload it to a Qlik Sense app.

### Filtering Audit trail data

Audit trail data can be filtered via API by:

- date
- app id
- user id
- target
- target id
- data type

The resulting CSV contains only filtered rows. All fields are string types. Fields names are case sensitive.

Filter fields

Field	Description	Example
start	The start date and time in the format: <i>yyyy-mm-ddThh:mm:ssZ</i>	<i>/api/v1/audit/logs?start=2020-10-09T14:53:32Z</i>
Target	The target name to filter on.	<i>/api/v1/audit/logs?target=NewsstandReport</i>
TargetId	The ID of the target to filter on.	<i>/api/v1/audit/logs?targetId=b6ae90de-c8ec-4e66-ad6f-d9f71eeec2b2</i>
AppId	The ID of the app to filter on.	<i>/api/v1/audit/logs?appId=ab53ef11-3cdc-45af-9403-b788eba2b004</i>
UserId	The ID of the user to filter on.	<i>/api/v1/audit/logs?userId=ffe2a664-5698-4189-a989-bc8f16ee146f</i>
DataType	The data type to filter on.	<i>/api/v1/audit/logs?dataType=SettingsAudit</i>

## Logged events

Here are some of the event types that are logged:

- Report distribution events
  - Reports published on the NewsStand
  - Reports published to folder
  - Reports published to Qlik Sense hub
  - Reports send via email
- NewsStand events
  - NewsStand reports events
  - Subscription events
- Engines events
- Audit Windows service events
- Users events
- Authentication and security events
  - Authentication
  - Permissions
  - Password reset
- Publish tasks and On-Demand events
  - Licenses events
  - Conditions events

## Output file

The output file contains the following information:

Output file columns

Variable	Description
EventTime	The ISO 8601 date when the event has happened.
Source	The source of event, usually a service.
Event	The standard code of the logged event.
Target	The object or underlying resource that is being changed. For example: user, app, report.
TargetId	The ID of the target object.
TargetName	The name of the target object.
Action	The change performed on the target. For example: created, updated, read.
AppId	The ID of the app where the action is performed.
UserId	The ID of the user who performed the action.
UserName	The name of the user who performed the action.
IpAddress	The IP address which originated the web request.
Description	A human readable description of the event.
Data	Additional information about the event as a .json object.
DataType	Schema for the Data object.

## Configuring audit trail for Qlik NPrinting

You can activate and deactivate writing to audit logs.

Audit trail for Qlik NPrinting is disabled by default. Enabling audit trail for Qlik NPrinting may impact performance. The performance impact will affect importing users and filter operations the most.

You can set retention policy for audit logs in the database. Once the database logs reach the set parameters they will be deleted to ensure consistent performance. The following are the parameters:

- **Max days** - The maximum number of days to keep logs.
- **Max size (GB)** - The maximum amount of space the database will use.

To configure audit trail for Qlik NPrinting do the following:

1. Go to **Settings** and select the **Audit** tab.
2. Select **Enable event logging**.
3. Enter the **Max days** to keep event logs.
4. Enter the **Max size (GB)** to set the maximum amount of space the database will use.



*The cleanup will happen to logs that meet either condition (**Max days** or **Max size (GB)**), they do not need to meet both.*




When the maximum size limit is met:

- Events exceeding the limit are deleted from the event audit table
- The database may reuse space from deleted rows or effectively shrink disk usage depending on the specific disk usage and table fragmentation.

While this means that the total disk usage will not grow after cleanup, a certain time lapse may be needed to have an effective disk space reduction.

## Exporting audit trail for Qlik NPrinting data

Qlik NPrinting audit trail data can be exported using a public API. For more information, see the API reference documentation in the  [Qlik Developer portal](#).

Before you can export Qlik NPrinting audit trail data, you must enable the associated permission for specific roles.

1. From the **Admin** menu, select **Security roles**.
2. Choose the role that you want to enable exporting audit trail data for.
3. In the **Actions** column for the selected role, click **Settings** and select **Edit**.
4. On the **Roles** page under **Actions**, click the **Admin** tab.
5. Select the checkbox for **Audit** and **Export** to enable exporting audit data for the role.
6. Click **Save**.


Users with the associated role can now use the API to export audit trail data.

## 4.7 Managing entities

All existing objects in the Qlik NPrinting Server are referred to as entities. Tasks, users, groups, connections, filters, apps, and reports are all entities.

### Edit a single entity



You have two options to edit an entity:

- Click the name of the entity.
- Click  in the **Actions** column, and then select **Edit**.

Make your edits and save.

### Delete a single entity

You have two options to delete an entity:

- Click  in the **Actions** column, and then select **Delete**.
- Click the name of the entity, and then click  in the upper right corner.



*Deletion is irreversible. Removing an entity will also delete all entities that depend on it. For example, if you remove an app you will also remove all its connections, tasks, and so on.*

## Enable or disable an entity

You can enable or disable single entities by clicking the check box in the **Enabled** column.

The Qlik NPrinting Scheduler ignores a disabled entity.

## Manage multiple entities

When you work with filters, users, and publish tasks, you can enable, disable, or delete multiple entities at the same time.

Do the following:

1. Select the check boxes to the left of the entity names that you want to manage.  
You can select the first or the last check box to select all.
2. Click **Choose action**, and then select the action you want to perform.
3. Click **Go**.

## Special actions

Some entities have special actions, in addition to enable, disable, and delete:

Special actions

Entity	Edit	Reload metadata	Run now	View	Copy
<b>Apps</b>	Yes	No	No	No	No
<b>Connections</b>	Yes	Yes	No	No	No
<b>Filters</b>	Yes	No	No	No	No
<b>Reports</b>	Yes	No	No	No	No
<b>Publish tasks</b>	Yes	No	Yes	No	No
<b>Import tasks</b>	Yes	No	Yes	No	No
<b>Users</b>	Yes	No	No	No	No
<b>Groups</b>	Yes	No	No	No	No
<b>Roles</b>	Yes	No	No	Yes	Yes
<b>System roles</b>	No	No	No	Yes	Yes
<b>Engines</b>	Yes	No	No	No	No

## 4.8 Moving reports between environments

Many users have several Qlik NPrinting environments, such as a test and a production environment. You can export a report from one environment and import it into another.

Exporting a report creates a .zip file containing your Qlik NPrinting Designer template, applied filters, cycles, and dynamic names. The .zip file does not contain your app or connection information. Apps and connections must be present in the secondary environment before you start importing reports.



*Both environments must have the same version of Qlik NPrinting (including SR) installed. To migrate from an old version of Qlik NPrinting to a new one: [Planning your migration \(page 105\)](#).*

### Exporting a report

Do the following:

1. Select **Report** in the top menu.
2. Click on the report you would like to export.
3. Click the **Export** button.  
You will be asked to password protect the file. This is optional.
4. Press **Download**.

You will have a .zip file in the folder that receives files downloaded from your web browser.

### Checking connections in the secondary environment

In order to successfully import a report, connections in the secondary environment must match those from the original report. This includes:

- All objects used in the report template.
- All fields used in cycles.
- All fields used in filters that are associated with the original report, or added as object filters in the template.
- All variables used in dynamic naming.
- All entities used, if you are importing a Qlik entity report.

QlikView and Qlik Sense ids are used when comparing objects between the two environments.

The import will not be performed if there is no connection that contains all required objects. If you receive an error message, you can check your Qlik NPrinting WebEngine log file to get the list of objects that are missing from the target app.

### Replacing an existing report

Do the following:

1. Select **Report** in the top menu.
2. Click on the report you would like to replace.
3. Click the **Replace** button.
4. Choose the Qlik NPrinting app you want to connect to the report template you are importing.
5. Click **Browse...** and select the .zip file you exported previously.
6. Type in the password, if applicable.
7. Click **Next**.
8. Choose a **Connection**. Click **Next**.
9. Choose **Filters**. Click **Next**.
10. Click **Confirm**.

You have successfully replaced the report. If there are any errors, see the log file. For more information, see: *Logging (page 270)*

### Importing a new report

Do the following:

1. Select **Report** in the top menu.
2. Click the **Import report** button.
3. Choose the Qlik NPrinting app you want to connect to the report template you are importing. If you would like to create a new app, see: *Working with apps (page 20)*.
4. Click **Browse ...** and select the .zip file you exported previously.
5. Type in the password, if applicable.
6. Click **Next**.
7. Click **Confirm**.

You will now be able to view this report template under **Reports**.

### Importing user filters from imported reports

When you import reports into Qlik NPrinting, the filters associated with users are not included, for performance reasons. Importing all of the filters associated with thousands of users would take a long time, and could cause Qlik NPrinting to stall.

You can change this behavior by uncommenting the line `<!--<add key="include-user-filters" />-->` in the *webengine.config* file. The import filter dialog will then import all filters you have stored in the repository. This could take a very long time, depending on the number of stored filters.

If you do not want to edit the *webengine.config* file, you can manually import a specific user filter along with your report. There are two ways to do this:

- Remove the filters association from all users.
- Create a new filter, not linked to any user, with the same fields and values.

## 4.9 Report security

You can make sure that your users only work with the reports they have permission to access by implementing password protection at the user, task, or report level. Reports can have read protection, write protection, or both.

### Requirements

Reports with read protection cannot be opened without the correct password. Reports with write protection cannot be edited without the correct password. A document can have read protection, write protection, or both. Enabling passwords has no effect on documents produced in Qlik NPrinting Designer preview. You can also choose to leave your documents password free.

Valid password characters are letters, numbers, and the following special characters: \$ & + , : ; = ? @ # | ' < > . - ^ \* ( ) % !

### Limitations

#### Password protection

Qlik NPrinting leverages the native password protection features of the output document type. For example, Microsoft Word lets you password protect documents. Qlik NPrinting can access this feature. It does not add new features to your reports. This means that some output formats, like .jpg, cannot be password protected because they do not support passwords.

You can password protect the following report output types. The original template type does not matter:

- .pptx
- .doc, .docx
- .xls, .xlsx, .xlsm
- .pdf

See: *Report output formats (page 469)*

If you password protect cycled reports, the reports will be password protected, but not the .zip archive.

Password protected reports will display differently in the NewsStand. Reports with read protection will display a default placeholder image, instead of the normal thumbnail. The NewsStand preview feature will not work on these documents. When you click them, you will see your browser's download prompt.

There is no automated mechanism to manage passwords. For example, if it is your company policy to change user passwords every 90 days, you will have to manually change them, or run a new user import task.



### Sensitivity and AIP labels



*Sensitivity labels or Azure Information Protection (AIP) labels are not supported in Microsoft Office report template files. For more information, see [Limitations](#) (page 283).*

### Adding user level passwords

Users will be able to use these passwords to access reports assigned with user level password protection. These passwords are different than the ones used to log in to the Qlik NPrinting web console or the NewsStand.

Do the following:

1. From the top menu, click **Admin**, and select **Users**.
2. Choose the user you want to assign a password, or create a new one.
3. Under **Report security**, you can input a **Password to open**, a **Password to write**, or both.
4. Click **Save**.

The selected user can now access reports with their assigned user passwords.

You can also configure user password settings when you import users. See: [Importing users](#) (page 243).

### Adding task level passwords

Each document in the same publish task can be accessed with the same set of passwords. Any user with these passwords can open every report attached to the task.

Do the following:

1. From the top menu, click **Tasks**, and select **Publish task**.
2. Choose the task you want to password protect, or create a new one.
3. On the **Overview** tab, under **Report security**, you can input a **Password to open**, a **Password to write**, or both.
4. Click **Save**.

All the reports associated with this task are now password protected.

### Adding report level passwords

You can also add a different password for each report in a task. These can be different than the password set for the task.

Do the following:

1. From the top menu, click **Tasks**, and select **Publish task**.
2. Choose the task that contains the report you want to password protect.
3. Click the **Reports** tab. Choose the report you want to password protect, or add a new one.

4. Under **Report security**, click the **Password protection** drop-down. Choose from the following:
  - **No passwords:** report can be opened and edited by anyone.
  - **User passwords:** report can be opened and edited by entering a user password.
  - **Task passwords:** report can be opened and edited by entering a task password.
  - **Use the following passwords:** report can be opened and edited by entering a report-specific password.  
When you choose this option, you will be prompted to define report level passwords.
5. Click **Save**.

This individual report is now password protected.

## 5 Common report features

There are Qlik NPrinting Designer features and functionality that are common across all report types.

### 5.1 Working in Qlik NPrinting Designer

- *Qlik NPrinting Designer Properties pane (page 284)*
- *Previewing reports in the template editor (page 328)*
- *Adding report templates (page 327)*
- *Reports with multiple connections (page 330)*
- *Conditions (page 313)*
- *Filters (page 304)*

### 5.2 Images

- *Image dimensions (page 296)*
- *Image quality (page 302)*

### 5.3 Report naming

- *Report names (page 321)*
- *Dynamic report names (page 322)*

### 5.4 Cycling

- *Cycling your reports (page 324)*
- *Enabling QlikView cycle group fields (page 326)*

### 5.5 Qlik objects

- *Working with Qlik objects (page 292)*
- *Variables (page 317)*
- *Qlik Sense and QlikView formulas (page 318)*
- *Importing QlikView and Qlik Sense cell values (page 319)*
- *Using Qlik Sense third-party extensions (page 332)*

### 5.6 Limitations

- Report templates should only be edited by one person at a time. While it is possible for two people to open a report template in Qlik NPrinting Designer, it is not supported.

- Generated reports can be a maximum of 512 MB.
- Qlik NPrinting Designer must be the same version as Qlik NPrinting Server.
- Sensitivity labels or Azure Information Protection (AIP) labels are not supported in Microsoft Office report template files. This includes the following formats:
  - Excel
  - PowerPoint
  - Word

If your template contains any of these labels, the data restriction they provide is ignored, report generation proceeds as usual, and generated reports will not contain any of sensitivity or AIP labels. If sensitivity or AIP labels are required for output, you can add them manually to the reports after they are generated.

### 5.7 Troubleshooting

#### Qlik NPrinting Designer crashes sometimes

##### **Possible cause**

Your Windows display is zoomed in. When settings of 125% or 150% are selected, Qlik NPrinting Designer may crash.

##### **Proposed action**

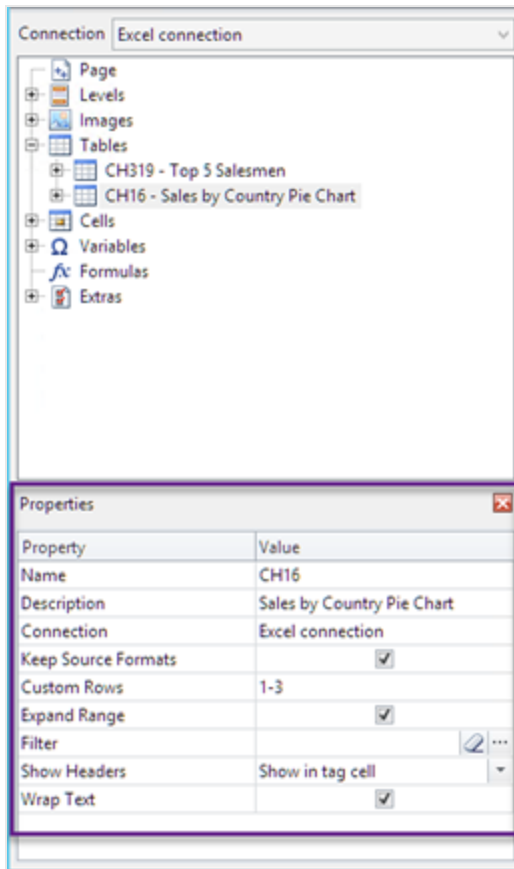
Open your Windows **Display Settings** in the Control Panel. Set zoom to **Smaller – 100%** (default).

### 5.8 Qlik NPrinting Designer **Properties** pane

The **Properties** pane lets you customize chart objects in Excel, Word, PowerPoint, and HTML report templates.

The **Properties** pane will display different settings, depending on:

- the object type you have currently selected (in the left-hand pane, not the template)
- the report type you are working on



Properties pane settings

Property	All objects	Tables	Images	Levels
Name	Yes	No	No	No
Description	Yes	No	No	No
Connection	Yes	No	No	No
Keep Source Formats	No	Yes	Yes	Yes
Custom Rows	No	Yes	No	No
Expand range	No	Yes	No	No
Filter	No	Yes	Yes	No
Show Headers	No	Yes	No	No
Wrap text	No	Yes	No	No
Max Height and Max Width	No	No	Yes	No
Stretch	No	No	Yes	No

### Name

The name of the object. This is the object ID.

### Description

The object description retrieved from QlikView or Qlik Sense.

### Connection

The Qlik Sense or QlikView connection that contains the object.

### Keep Source Formats

**Keep Source Formats** is available for all fields in the **Pages** and **Levels** node, and for fields and objects in the **Tables** node. By default, Qlik NPrinting tries to keep original chart object formats. You can remove original formats and apply your own by clearing the **Keep Source Formats** check box.

By removing **Keep Source Formats** from tables, you can apply Excel, PowerPoint, Word, HTML or features and numeric formats to the columns in the report. By removing **Keep Source Formats** from pages and levels, you can apply formats to the cells in the report. To apply graphical formats, you do not need to remove **Keep Source Formats**. After clearing **Keep Source Formats**, the **Format** option appears. You can use this to specify a custom numeric format.

### Limitations

If you apply **Keep Source Formats** to Qlik Sense columns only the following formats are kept:

- URLs
- color of text (foreground color) in tables
- background color of tables

All other formatting options (such as table borders, text alignment inside cells, text formatting) are not supported.

Custom fonts may not render properly in reports. See: *Fonts do not display properly in reports (page 549)*.

### Tables

Tables or columns from tables exported from QlikView or Qlik Sense can be presented with the same formatting as the original document or app. However, you may also want to customize this information.

For example: after clearing the **Keep Source Formats** check box, you can apply formatting to a table as a whole or to component columns. Both numerical and time/date data are numerical entities. When **Keep Source Formats** is deactivated for a column, a row presenting a new **Format** field appears. You can set specific formatting for the column data by entering a code. Examples are `###0.00`, `0,00%`, `€ ###0`.

You need to clear **Keep Source Formats** if you want to change column or row sizes.

### Deactivating Keep Source Formats

The following lists the results of the various combinations of choices for different templates:

### Without setting a format code in the format field

- Excel: the Excel format is applied to the cell containing the field tag.
- Word and PowerPoint: the relative format is applied to the entity at the point of field tag embedding.
- HTML: the inline style set for the field tag container (div, span, p, th, td, li, etc.) is applied.

### By entering a format code in the format field

- Excel: the code in the **Format** field defines the numerical or time/date format, while graphic style is controlled by the Excel format tools applied to the cell containing the field tag (color, font, size, style, justification, etc.)
- Word and PowerPoint: both the relative format and the format field are applied to the entity or container at the point of field tag embedding
- HTML: both the inline style set and the format field are applied for the field tag container

### For a field used in a level

Time, date, or numerical type of data is determined by the QlikView tag associated with the field. This can be determined by opening the QlikView document in QlikView and pressing Ctrl + Alt + D, selecting the **Tables** tab, and looking in the **Tags** column of the **Fields** list next to the **Field** name. If \$date or \$timestamp, or both, appear, then the field is a time/date type. These tags are associated automatically on **Reload**.

### Format field

The following sections list the effects that the elements have that are used to compose the formatting code. This code is entered into the **Format** field that appears after deactivating **Keep Source Formats**.

#### Floating point numbers

Specifier	Represents
0	Digit placeholder. If the value being formatted has a digit in the position where '0' appears in the format string, then that digit is copied to the output string. Otherwise, a '0' is stored in that position in the output string.
#	Digit placeholder. If the value being formatted has a digit in the position where '#' appears in the format string, then that digit is copied to the output string. Otherwise, nothing is stored in that position in the output string.
.	Decimal point. The first '.' character in the format string determines the location of the decimal separator in the formatted value; any additional '.' characters are ignored. The actual character used as a decimal separator in the output string is determined by the <i>DecimalSeparator</i> global variable or its <i>TFormatSettings</i> equivalent.
,	Thousand separator. If the format string contains one or more ',' characters, the output will have thousand separators inserted between each group of three digits to the left of the decimal point. The placement and number of ',' characters in the format string does not affect the output, except to indicate that thousand separators are wanted. The actual character used as a thousand separator in the output is determined by the <i>ThousandSeparator</i> global variable or its <i>TFormatSettings</i> equivalent.

Specifier	Represents
E+	Scientific notation. If any of the strings 'E+', 'E-', 'e+', or 'e-' are contained in the format string, the number is formatted using scientific notation. A group of up to four '0' characters can immediately follow the 'E+', 'E-', 'e+', or 'e-' to determine the minimum number of digits in the exponent. The 'E+' and 'e+' formats cause a plus sign to be output for positive exponents and a minus sign to be output for negative exponents. The 'E-' and 'e-' formats output a sign character only for negative exponents.
'xx'/'"xx"	Characters enclosed in single or double quotation marks are output as such and do not affect formatting.
;	Separates sections for positive, negative, and zero numbers in the format string.

## Time/date page

Specifier	Displays
c	Displays the date using the format given by the <i>ShortDateFormat</i> global variable, followed by the time using the format given by the <i>LongTimeFormat</i> global variable. The time is not displayed if the date-time value indicates midnight precisely.
d	Displays the day as a number without a leading zero (1-31).
dd	Displays the day as a number with a leading zero (01-31).
ddd	Displays the day as an abbreviation (Sun-Sat) using the strings given by the <i>ShortDayNames</i> global variable.
dddd	Displays the day as a full name (Sunday-Saturday) using the strings given by the <i>LongDayNames</i> global variable.
ddddd	Displays the date using the format given by the <i>ShortDateFormat</i> global variable.
dddddd	Displays the date using the format given by the <i>LongDateFormat</i> global variable.
e	(Windows only) Displays the year in the current period/era as a number without a leading zero (Japanese, Korean, and Taiwanese locales only).
ee	(Windows only) Displays the year in the current period/era as a number with a leading zero (Japanese, Korean, and Taiwanese locales only).
g	(Windows only) Displays the period/era as an abbreviation (Japanese and Taiwanese locales only).
gg	(Windows only) Displays the period/era as a full name (Japanese and Taiwanese locales only).
m	Displays the month as a number without a leading zero (1-12). If the m specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mm	Displays the month as a number with a leading zero (01-12). If the mm specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.



Specifier	Displays
mmm	Displays the month as an abbreviation (Jan-Dec) using the strings given by the <i>ShortMonthNames</i> global variable.
mmmm	Displays the month as a full name (January-December) using the strings given by the <i>LongMonthNames</i> global variable.
yy	Displays the year as a two-digit number (00-99).
yyy	Displays the year as a four-digit number (0000-9999).
h	Displays the hour without a leading zero (0-23).
hh	Displays the hour with a leading zero (00-23).
n	Displays the minute without a leading zero (0-59).
nn	Displays the minute with a leading zero (00-59).
s	Displays the second without a leading zero (0-59).
ss	Displays the second with a leading zero (00-59).
z	Displays the millisecond without a leading zero (0-999).
zzz	Displays the millisecond with a leading zero (000-999).
t	Displays the time using the format given by the <i>ShortTimeFormat</i> global variable.
tt\	Displays the time using the format given by the <i>LongTimeFormat</i> global variable.
am/pm	Uses the 12-hour clock for the preceding h or hh specifier, and displays 'am' for any hour before noon, and 'pm' for any hour after noon. The am/pm specifier can use lower, upper, or mixed case, and the result is displayed accordingly.
a/p	Uses the 12-hour clock for the preceding h or hh specifier, and displays 'a' for any hour before noon, and 'p' for any hour after noon. The a/p specifier can use lower, upper, or mixed case, and the result is displayed accordingly.
ampm	Uses the 12-hour clock for the preceding h or hh specifier, and displays the contents of the <i>TimeAMString</i> global variable for any hour before noon, and the contents of the <i>TimePMString</i> global variable for any hour after noon.
/	Displays the date separator character given by the <i>DateSeparator</i> global variable.
:	Displays the time separator character given by the <i>TimeSeparator</i> global variable.
'xx'/'"xx"	Characters enclosed in single or double quotation marks are displayed as such, and do not affect formatting.

## Changing currency separation symbols

Some regions use periods to format currency, and some use commas. For example: \$347.89 or € 347,89. You can change the decimal separator used in report output files.

Do the following:

1. Log into the Qlik NPrinting Engine computers via RDP as the Windows users that runs the Qlik NPrinting Engine service.
2. Change the region settings in the Control Panel.
3. Restart the Engine service.

This process must be repeated on all Qlik NPrinting Engine computers.

### Custom rows

The **Custom rows** setting appears if you add a table to the template. You can choose to only display certain specific table rows. For example, if you input *1-4*, users will only see the first four rows of the table in their reports.

### Expand range

The **Expand Range** setting only appears if you add a table to an Excel template. If the **Expand Range** check box is flagged (default), Qlik NPrinting will add an adequate number of rows under the table or column tags to avoid overlap with table tags placed underneath. If the **Expand Range** option is cleared, Qlik NPrinting will not add rows under the table or column tags. You must manually manage the position of other table tags. However, Excel formulas can be added to the table, because the references will be kept.

### Filter

You can add object filters to tables and images.

### Show Headers

The **Show Headers** property appears if you add a table. It has three options:

- **Hide:** Qlik NPrinting will not add headers. You can type them manually, or obtain dynamic headers using variables and Excel formulas.
- **Show in tag cell:** column headers will be inserted in the tag cells and data will start in the row below. Formulas and variables in original QlikView or Qlik Sense headers will not be replaced.
- **Show above tag cell:** column headers will be inserted in the row above tag cells. Data will start on the row with the tags. Use this option when column headers in the original connection use variables or formulas and you want them to be reported in the table.

If you add an entire table object to the template, Qlik NPrinting will add the object tag (for example: `<CH123>`). The only way to control column headers is the **Show headers** setting.

If you add columns individually from a table, Qlik NPrinting will create Excel text cells with the headers, even if you set **Hide**. You can keep and format the headers, or you can delete them and set **Show Headers** to other values.

### Wrap text

This setting will wrap text in table cells.

## Max Height and Max Width

You can set a max height and max width for images. In QlikView connections, the **Max Width** and **Max Height** parameters define the output image size in pixels. They can be explicitly set in Excel templates. They can be implicitly retrieved by the image placeholder, in Word and PowerPoint templates. When these parameters can be explicitly set, (0,0) means “Auto”.

In Qlik Sense connections, the **Max Width** and **Max Height** parameters define the output image size in pixels. They can be explicitly set in Excel templates. They can be implicitly retrieved by the image placeholder, in Word and PowerPoint templates. When these parameters can be explicitly set, (0,0) means “Auto”, which is what is captured by the snapshot. This means your **Data Displayed** parameters are considered to also be the output image size.

See: *Image dimensions (page 296)*.

## Stretch

You can resize images using the **Stretch** property. This setting behaves differently depending on your connection type.



*HTML and QlikEntity report templates do not have the **stretch** image option.*

### QlikView connections

The **Stretch** option can be set to the following:

- **Don't Fit:** Image will be the same size as it is in QlikView. Template settings will be ignored. Image may overlap other content.
- **Fit Inside** (default): Image height and width are reduced until both fit the settings in the template. Aspect ratio is kept. Image may become compressed and information may be missing.
- **Fit Width:** Image is reduced until width is the same as **Max Width** set in the template. Image height is adjusted to preserve aspect ratio. **Max Height** is ignored.
- **Fit Height:** Image is reduced until height is the same as **Max Height** set in the template. Image width is adjusted to preserve aspect ratio. **Max Width** is ignored.
- **Stretch:** Image dimensions are increased or decreased until both height and width are the same as set in the template. Aspect ratio is not maintained.

### Qlik Sense connections

You can use the **Stretch** option can be set to the following:

- **Don't Fit:** **Max Width** and **Max Height** measures are ignored. **Data Displayed** size, whether customized or chosen automatically, is the final output size.
- **Fit Inside:** the chart's aspect ratio is set by the **Data Displayed** values. The image will fit both **Max Width** and **Max Height** values. The image will not be padded with a transparent or blank area to reach **Max Width** and **Max Height** size.

- **Fit Width:** the chart's aspect ratio is set by the **Data Displayed** values. The image will fit the **Max Width** measure. The image will not be cut to reach **Max Width** and **Max Height** size.
- **Fit Height:** the chart's aspect ratio is set by the **Data Displayed** values. The image will fit the **Max Height** measure. The image will not be cut to reach **Max Width** and **Max Height** size.
- **Stretch:** the aspect ratio set by **Data Displayed** is not kept. Instead, Qlik NPrinting tries to show either the same amount or more data while filling the entire **Max Width** and **Max Height** area. The image will not be deformed or padded with a blank area.

### 5.9 Working with Qlik objects

Qlik Sense and QlikView have many different object types: bar charts, pivot tables, KPIs, maps, and more. How these objects can be used in Qlik NPrinting reports depends on the type of connection, and the type of object.

In order for Qlik objects to appear in your reports, you need to have a working connection to your Qlik Sense app or QlikView document. See: *Creating connections (page 21)*.

#### How Qlik objects are exported into Qlik NPrinting

Qlik objects are exported into Qlik NPrinting. They may not look exactly the same, or behave the same way. For example, bar charts export as static images. You cannot manipulate an image of a bar chart the same way as a bar chart.

These are the main ways Qlik objects can be displayed in Qlik NPrinting reports:

- **Text:** simple text that can be formatted differently depending on report type. An Excel report will have different formatting options than a PixelPerfect report.
- **Tables:** take your Qlik Sense and QlikView data and present it in tabular form.
- **Images:** take your Qlik Sense and QlikView data and present it as a graphic (.png).
- **Levels:** sub-divide your data by a dimension. Levels can be applied to tables and images. For example, you could divide your top customers by region.

You can import your Qlik Sense app theme settings when configuring a connection by selecting **Apply Sense app theme**, and the theme will be applied to Qlik objects displayed in Qlik NPrinting reports created using that connection.

#### Images

QlikView chart objects are exported as images using the native QlikView image function.

Qlik Sense chart objects are exported as images as follows:

1. Visualization is opened in an in-memory browser window.
2. Image dimensions and dots per inch (DPI) settings are applied according to the report template.
3. A snapshot is taken of the rendered image.
4. The image is exported as a .png into your generated report or preview.

Only the visible part of a visualization will be exported. For example, you export a Qlik Sense table that has scroll bars as an image. You will see the scroll bars and the window area that they specify, but not the entire table. To see how an object will appear in a report, open a Qlik Sense browser window on the Qlik NPrinting Engine machine. Next, apply the same size and resolution used in the report template.

You can adjust the amount of chart data taken in the initial snapshot in the Qlik NPrinting Designer by changing the **Data Displayed** values.

Older versions of Qlik NPrinting (June 2018 and earlier) exported QlikView charts differently. You can revert to this older method.



*You can export a visualization extension (custom object), if the visualization extension is set up to allow it, and the security rules for your installation of Qlik Sense allow it.*

### Qlik objects that are partially supported

Some objects are not fully supported, because they are too complex.

A quick way to check if an object type is supported is to try and add it to the left-hand pane in Qlik NPrinting Designer. Qlik NPrinting Designer will only add supported objects.

For example: you are connected to a QlikView document that contains a bar chart, a pivot table, and a gauge chart. In Qlik NPrinting Designer, go to the left-hand pane, right-click on **Levels**, and select **Add levels**. A window will open, listing the bar chart. The pivot table and gauge chart will not be listed, as they are not supported as levels. They would appear if you added them under **Images**.

If a supported object does not appear in the Qlik NPrinting Designer, it could be because it was added in Qlik Sense or QlikView, but the metadata cache was not refreshed in Qlik NPrinting. See: *Reloading connection metadata* (page 38).

The following tables outline current restrictions:

QlikView restrictions

Object	Cannot be used as	Can be used as
Pivot tables	Levels, text	Images, tables
Container objects	Levels, tables, text	Images
Object filters	Levels, text	Images, tables
Gauge charts	Levels, text	Images, tables

QlikView embedded image files in QlikView tables are not supported in Qlik NPrinting tables. They will render correctly if the QlikView table is added as an image in Qlik NPrinting. You may also be able to use levels to display these types of images. See: *Excel reports with levels* (page 344).

## Qlik Sense restrictions

Object	Cannot be used as	Can be used as
Gauge charts	Levels, text	Images, tables
KPIs	Levels, text	Images, tables
Text and images	Levels, text	Images, tables
Maps	Levels, tables, text	Images
Pivot tables	Levels, <a href="#">other restrictions</a>	Tables, text, images
Filter panes	Levels, tables, text	Images
Histograms	Tables	Images
Sense extensions	Text	Images, tables, levels



*Text can mean single cells, a title, or the textual part of an object.*

## Qlik Sense pivot table limitations

Qlik Sense pivot tables are supported as images, text, and tables. However, there are some features and behaviors that are not supported:

- Levels
- Partial expansion of rows and columns
- Foreground colors and background colors
- Hyperlinks (will display as plain text)
- Expanding or shrinking the size of the table. The desired pivot table size must be saved in the Qlik Sense app, before you open the report in Qlik NPrinting Designer. If you change the size or layout of the table in Qlik Sense, you will need to reload your Qlik Sense connection cache in Qlik NPrinting.

## Paging limitations

PowerPoint reports have a **Paging** node. The following objects can be added as pages:

- Fields (with no calculated dimensions)
- Straight tables

## Objects in Qlik Sense containers

If a supported object is inside a Qlik Sense container, it can be used normally. For example, if you put a KPI in a container, you can use it as an image or table. The fact that it is inside a container has no effect.

## Qlik Sense custom and extended sheets

Qlik Sense custom size sheets and extended sheet features will not be maintained on export.

## Qlik objects that are not supported

Some objects are not supported in Qlik NPrinting. These are:

- Uncertified Qlik Sense extensions
- **Always one selected** value for fields
- Calculated conditions
- Calculated dimensions
- Drill-down dimensions
- Alternate states
- Sheet triggers
- Dashboard bundle If you are experiencing issues, verify that you are using a compatible version of Qlik Sense. Your Qlik NPrinting version must be equal to or higher than your Qlik Sense version.
- Visualization bundle If you are experiencing issues, verify that you are using a compatible version of Qlik Sense. Your Qlik NPrinting version must be equal to or higher than your Qlik Sense version.
- Qlik Sense objects that connect to external servers, usually as additional data sources (Qlik GeoAnalytics, analytic connections)
- Qlik Sense charts with **Chart suggestions** enabled. To include charts created using chart suggestions in Qlik NPrinting reports, disable **Chart suggestions**.
- Qlik Sense objects with Assistance mode enabled cannot use in the **Add title** feature in Qlik NPrinting Designer. If you disable Assistance mode, and refresh the connection, then you can add titles.
- Qlik Sense tables that have a "Show column if" condition set on one or more of their columns cannot be used with the following functionality: levels, single column export, and keep source formats.
- Qlik Sense dynamic views: You can connect Qlik NPrinting to a Qlik Sense app containing dynamic views. However, after a dynamic view refresh, the connection will stop working.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

## Troubleshooting

If your objects are not appearing in your reports correctly, there could be an issue with your connections, or with your Qlik Sense app or QlikView document.



*Qlik Sense sheets can be used as images in report templates. However, if your sheet contains unsupported objects, parts of the image will be blank.*

### See also:

- *Creating connections (page 21)*
- *Image dimensions (page 296)*
- *Image quality (page 302)*

## 5.10 Image dimensions


You can change the size of objects exported as images from QlikView and Qlik Sense. You can also change how much data is shown in each image.

This page applies to Excel, Word, PowerPoint, and HTML reports. Microsoft Office reports maintain image dimensions as defined at the moment the image is dropped into the report template.

If an image does not look correct in Qlik NPrinting Designer preview, refresh the connection cache. It may have changed in Qlik Sense or QlikView, but the metadata cache was not refreshed in Qlik NPrinting. See: *Reloading connection metadata (page 38)*.

### Limitations

- HTML and QlikEntity report templates do not have the **stretch** image option.
- If you add an image from QlikView, and then add filters, the image may become distorted due to changes in dimensions.

-  *Qlik Sense sheets can be used as images in report templates. However, if your sheet contains unsupported objects, parts of the image will be blank.*

### Adding one chart with multiple image sizes

When you use the **Images** node to add a Qlik object, that image can be used multiple times in your report. However, it will be the same size every time. An image object cannot have two different formatting properties. If you want to show the same chart in a report, but in different sizes, you will need to add it twice using the **Images** node.

For example, you want to add Sales by Country as an image to your report. You want to use it as a thumbnail on one page, and you want it large enough to display all its data on another. Add the object using the **Images** node: **CH304 - Sales by Country**. In the **Properties** pane, set **Stretch** to **Fit Inside**, and reduce the image dimensions so it can be used as a thumbnail. Go back to the **Images** node, and add the same object. It will have a slightly different name: **CH304 - Sales by Country\_1**. In the **Properties** pane, set **Stretch** to **Fit Width**, so that the image fills the entire width of the report page.

### Changing image size of QlikView charts

When you generate a preview or report, QlikView charts are resized in QlikView according to template specifications, and then a screenshot is taken. This screenshot is what you see in a generated report. You can change the size and aspect ratio of chart images in the **Properties** pane.



### Max Width and Max Height

The **Max Width** and **Max Height** parameters define the output image size in pixels. They can be explicitly set in Excel templates. They can be implicitly retrieved by the image placeholder, in Word and PowerPoint templates. When these parameters can be explicitly set, (0,0) means “Auto”.

### Stretch parameters

The **Stretch** option can be set to the following:

- **Don't Fit:** Image will be the same size as it is in QlikView. Template settings will be ignored. Image may overlap other content.
- **Fit Inside** (default): Image height and width are reduced until both fit the settings in the template. Aspect ratio is kept. Image may become compressed and information may be missing.
- **Fit Width:** Image is reduced until width is the same as **Max Width** set in the template. Image height is adjusted to preserve aspect ratio. **Max Height** is ignored.
- **Fit Height:** Image is reduced until height is the same as **Max Height** set in the template. Image width is adjusted to preserve aspect ratio. **Max Width** is ignored.
- **Stretch:** Image dimensions are increased or decreased until both height and width are the same as set in the template. Aspect ratio is not maintained.

### Changing how QlikView charts are exported

The export behavior was different if you were using:

- Qlik NPrinting June 2018 and earlier
- QlikView 12.20 SR6 and earlier

QlikView would screenshot the chart, and then it would be resized. You can revert to this older behavior in newer versions of Qlik NPrinting by editing the *QlikView.config* file.

Do the following:

1. Stop the Qlik NPrinting Engine service.
2. Open the *QlikView.config* configuration file.  
The default path is: `C:\Program Files\NPrintingServer\NPrinting\Engine\QlikView.config`
3. Find the `useAdvancedImageExport` flag.
4. Remove the comment characters. Change `<useAdvancedImageExport value="true" />` to `<useAdvancedImageExport value="false" />`.
5. Save the file and restart the service.
6. Repeat this process on all engine servers.

### Example: PowerPoint report with different QlikView chart sizes

This example shows the different image dimension options in a PowerPoint report template, but is relevant to Excel and Word reports.



*If you are creating an Excel report, image sizes will be in pixels, not centimeters. Images cannot be manually re-sized in Excel.*

### Adding an image with the **Don't Fit** property

Do the following:

1. Create a PowerPoint report using the *Sales Demo* document, and then open the **Template Editor**.
2. On the left pane, right-click on **Images**, and select **Add objects**.
3. Select **CH304 - Sales by Country**.  
The original object is 9.16 cm high x 14.93 cm wide.  
If the **Properties** pane is not open, right-click on the object node in the **Template Editor**, and then select **Properties**.
4. Click the **Stretch Value** cell and select **Don't Fit** from the drop-down list.
5. Drag and drop **CH304 - Sales by Country** into the template.
6. Select the **CH304 - Sales by Country** image.
7. In the PowerPoint ribbon, go to **Picture Tools** and then **Format**.
8. Expand the **Size** tool by clicking on the icon in the lower right corner of the **Size** group.
9. Clear the **Lock aspect ratio** check box.
10. Change the **Height** to 8.75 cm and the **Width** to 20 cm.

### Adding an image with the **Fit Inside** property

Do the following:

1. On the PowerPoint ribbon, click the **Home** tab .
2. Click the **New Slide** icon.
3. On the left pane, right-click on **Images**, and select **Add objects**.
4. Add **CH304 - Sales by Country** to the template again.
5. This image will be automatically named **CH304\_1 - Sales by Country**.
6. In the **Properties** panel, set the **Stretch** property to **Fit Inside** .
7. Drag and drop **CH304\_1 - Sales by Country** into the template.
8. Select the **CH304\_1 - Sales by Country** image.
9. In the PowerPoint ribbon, go to **Picture Tools** and then **Format**.
10. Expand the **Size** tool, and clear the **Lock aspect ratio** check box.
11. Change the **Height** to 8.75 cm and the **Width** to 20 cm.

### Adding an image with the **Fit Width** property

Do the following:

1. On the PowerPoint ribbon, click the **Home** tab .
2. Click the **New Slide** icon.

3. On the left pane, right-click on **Images**, and select **Add objects**.
4. Add **CH304 - Sales by Country** to the template again.  
This image will be automatically named **CH304\_2 - Sales by Country**.
5. In the **Properties** panel, set the **Stretch** property to **Fit Width**.
6. Drag and drop **CH304\_2 - Sales by Country** into the template.
7. Select the **CH304\_2 - Sales by Country** image.
8. In the PowerPoint ribbon, go to **Picture Tools** and then **Format**.
9. Expand the **Size** tool, and clear the **Lock aspect ratio** check box.
10. Change the **Height** and **Width** to 12.7 cm.
11. Click on **Close** at the bottom right of the window.

### Adding an image with the **Fit Height** property

Do the following:

1. On the PowerPoint ribbon, click the **Home** tab .
2. Click the **New Slide** icon.
3. On the left pane, right-click on **Images**, and select **Add objects**.
4. Add **CH304 - Sales by Country** to the template again.  
This image will be automatically named **CH304\_3 - Sales by Country**.
5. In the **Properties** panel, set the **Stretch** property to **Fit Height**.
6. Drag and drop **CH304\_3 - Sales by Country** into the template.
7. Select the **CH304\_3 - Sales by Country** image.
8. Select **Format** under **Picture Tools**.
9. Expand the **Size** tool, and clear the **Lock aspect ratio** check box.
10. Change the **Height** and **Width** to 12.7 cm.

### Adding an image and adjusting it manually

Do the following:

1. On the PowerPoint ribbon, click the **Home** tab .
2. Click the **New Slide** icon.
3. On the left pane, right-click on **Images**, and select **Add objects**.
4. Add **CH304 - Sales by Country** to the template again.  
This image will be automatically named **CH304\_4 - Sales by Country**.
5. In the **Properties** panel, set the **Stretch** property to **Fit Inside**.
6. Drag and drop **CH304\_4 - Sales by Country** into the template.
7. Select the **CH304\_4 - Sales by Country** image.
8. Adjust the image size to fill the slide by dragging a corner handle, and then repositioning the image until it fills the slide appropriately.

### Previewing the report

You can now see how the five different sizing options display your image differently.

Do the following:

1. Click on **Preview**. You will see the following:
  - a. **Slide 1 - Don't fit**  
The image is the same size as it was in the QlikView document, 9.16 cm x 14.93 cm. Qlik NPrinting has ignored the height and width settings.
  - b. **Slide 2 - Fit Inside**  
The image has the height specified in height setting, 8.75 cm, and the width has been adjusted proportionately to 14.26 cm.
  - c. **Slide 3 - Fit Width**  
The image width has been reduced to the specified 12.7 cm width, and the height has been adjusted proportionately to 7.79 cm.
  - d. **Slide 4 - Fit Height**  
The image height and width may be equal to or less than the original image dimensions. Even though the height was set to 12.7 cm, the height remains 9.16 cm and the width remains 14.93 cm.
  - e. **Slide 5 - Fit Inside** with manually re-size  
The image is the same size as the original, 9.16 cm x 14.93 cm. The image is positioned in the top left corner.

### Changing image size of Qlik Sense charts

By default, Qlik Sense charts exported into Qlik NPrinting will look exactly as they do in the connected Qlik Sense app. For example, you have a large bar chart which contains twelve months of data, that can be viewed using scroll bars. You reload the connection metadata when the chart is displaying data from February to June. If you add this chart as an image in Qlik NPrinting Designer, that image will only show February to June data, like a snapshot.

### Data Displayed parameters

Under the **Properties** pane, you can use **Data Displayed Width (px)** and **Data Displayed Height (px)** to adjust how much chart data is displayed in the image. These two parameters decide how much data should be captured by Qlik NPrinting when exporting a chart from Qlik Sense, regardless of the chart's final size in the report. Using the same example, if you want to see bar chart data from January to December, you can do so by adjusting **Data Displayed**. You could also choose to only display January. These parameters define the "original" chart size: the size of the snapshot of the chart we want to export.

If you have edited your Qlik Sense app, you must regenerate the connection cache if you want to see updated **Data Displayed** parameters .

The default **Data Displayed** size is (0,0), which means "Auto". Both parameters must be greater than 0, otherwise they will be ignored.

### Max Width and Max Height

The **Max Width** and **Max Height** parameters define the output image size in pixels. They can be explicitly set in Excel templates. They can be implicitly retrieved by the image placeholder, in Word and PowerPoint templates.

When these parameters can be explicitly set, (0,0) means “Auto”, which is what is captured by the snapshot. This means your **Data Displayed** parameters are considered to also be the output image size.

### Stretch parameters

You can use the **Stretch** option can be set to the following:

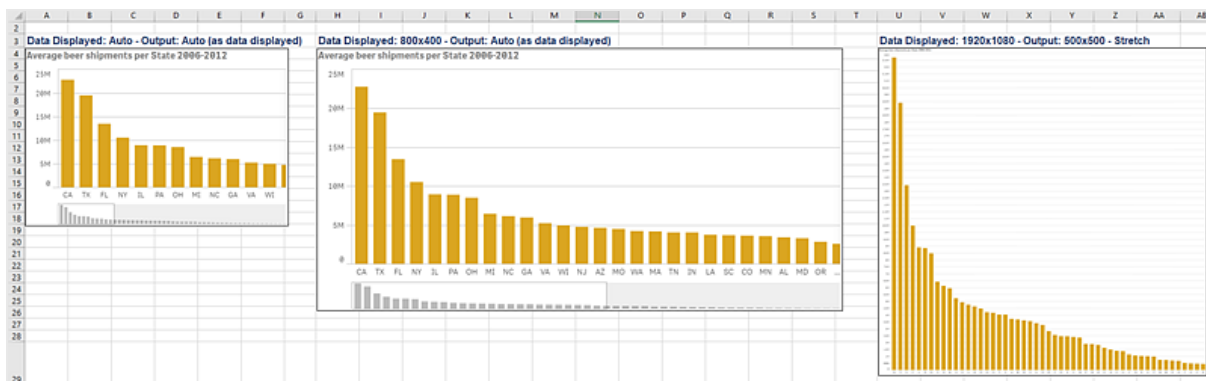
- **Don't Fit:** **Max Width** and **Max Height** measures are ignored. **Data Displayed** size, whether customized or chosen automatically, is the final output size.
- **Fit Inside:** the chart's aspect ratio is set by the **Data Displayed** values. The image will fit both **Max Width** and **Max Height** values. The image will not be padded with a transparent or blank area to reach **Max Width** and **Max Height** size.
- **Fit Width:** the chart's aspect ratio is set by the **Data Displayed** values. The image will fit the **Max Width** measure. The image will not be cut to reach **Max Width** and **Max Height** size.
- **Fit Height:** the chart's aspect ratio is set by the **Data Displayed** values. The image will fit the **Max Height** measure. The image will not be cut to reach **Max Width** and **Max Height** size.
- **Stretch:** the aspect ratio set by **Data Displayed** is not kept. Instead, Qlik NPrinting tries to show either the same amount or more data while filling the entire **Max Width** and **Max Height** area. The image will not be deformed or padded with a blank area.

### Example: Excel report with different Qlik Sense chart sizes

These examples were made using the same Qlik Sense chart. They were all put into an Excel report, with different **Data Displayed**, **Max Width**, **Max Height**, and **Stretch** values.

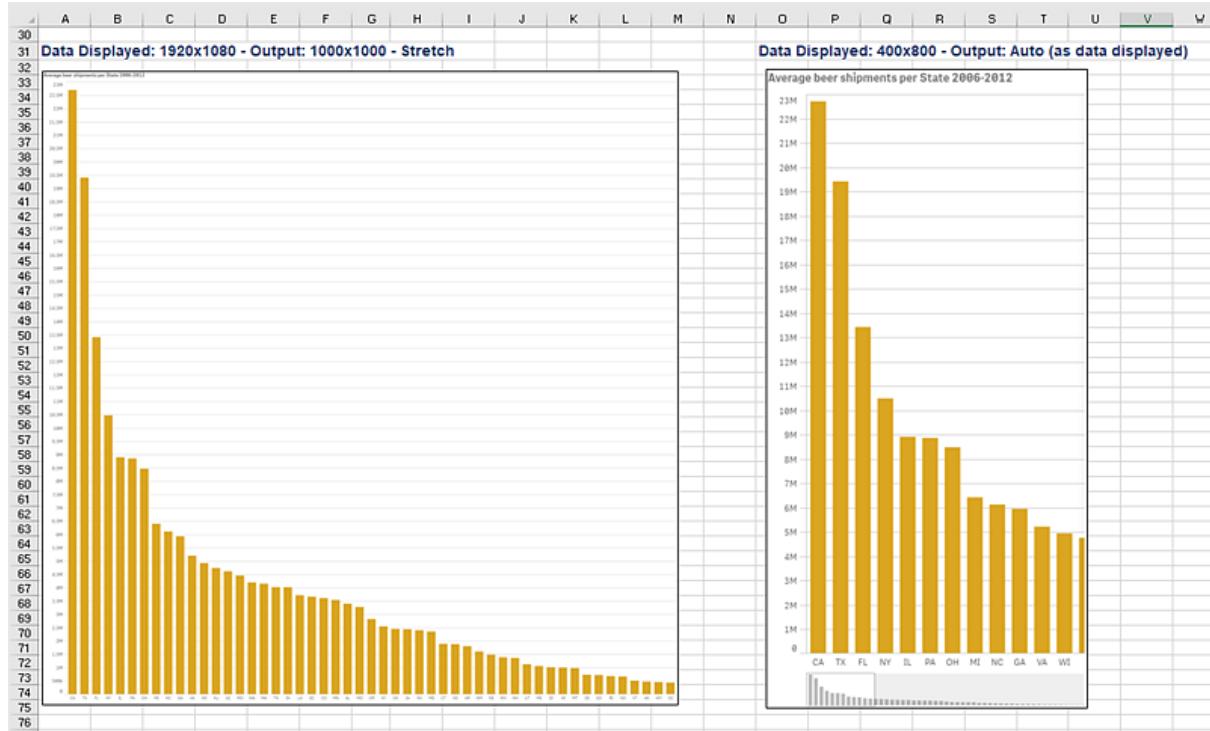
The example has three chart images, from left to right:

1. Data Displayed: Auto, Output: Auto
2. Data Displayed: 800x400 px, Output: Auto
3. Data Displayed: 1920x1080 px, Output: 500x500 px, Stretch



The second example has two chart images, from left to right:

1. Data Displayed: 1920x1080 px, Output: 1000x1000 px, Stretch
2. Data Displayed: 400x800 px, Output: Auto



## Changing image size in PixelPerfect reports

PixelPerfect reports have different image **Stretch** options:

- **Normal:** The image is displayed with its original dimensions.
- **StretchImage:** The image is stretched to fill both the control's width and height.
- **AutoSize:** The control's dimensions are auto-adjusted to the image size.
- **ZoomImage:** The image is proportionally resized, so that it fits the control.
- **Squeeze:** If the control's dimensions exceed the image size, the image is centered and shown full-size. Otherwise, the image is resized to fit into the control's dimensions.
- **Tile:** The original image is replicated within the picture control starting from the upper-left corner. The replicated image is clipped if it does not fit in the picture control which contains it.

### 5.11 Image quality

You can change the image quality of Qlik Sense and QlikView objects by adjusting their dots per inch (DPI) in your published reports.

This means you can create a PowerPoint report with high-quality images that will look good on a large screen during a presentation. After the presentation, you could share a second version with lower-quality images (and a smaller file size) via email. There is no need to create a second report. You can add the same report to two different publish tasks with different image quality settings. You could also create one publish task with two

instances of the same report, and give each report different image quality. When you set your email destination, you can choose which report to attach. However, creating a single publish task means that every other destination (NewsStand, hub) will receive both reports.

Changes in image quality take effect after you distribute your report to the NewsStand, hub, folder, or other destination. In the NewsStand, the image quality of a report is displayed in a column on the right. Published reports export all images as .png, regardless of source.

You can also set the image quality of On-Demand reports.

### Limitations

- QlikView objects cannot be re-sized or given a DPI value before exporting to Qlik NPrinting. Instead, Qlik NPrinting uses an up-scaling algorithm to get a more defined image. This is not an issue with Qlik Sense objects.
- If you publish one report with two different image quality levels to a folder, the newer file will overwrite the older one. This can be avoided by applying a Friendly name when adding the report to a task. See: *Dynamic report names (page 322)*.
- The following report output format combinations cannot have their quality changed:
  - Excel to .tiff
  - PixelPerfect to .gif
  - PixelPerfect to .jpeg
  - PixelPerfect to .png
  - PixelPerfect to .tiff

### Setting image quality in publish tasks

Do the following:

1. In the main menu bar, click **Tasks**, and then select **Publish task**.
2. Create a new publish task, or click an existing publish task to edit it.
3. Click **Reports**.
4. Use the **Quality** dropdown menu to select one of the following:
  - a. Normal: 96 DPI
  - b. High: 192 DPI
  - c. Very High: 384 DPI
5. Click **Save**.

Once you publish your report, you will be able to see the difference in image quality.

### Configuring image quality in On-Demand reports

You can update the *scheduler.config* file to change the image quality of your On-Demand reports. This is a single setting for all reports generated via On-Demand. You cannot select the image quality for the generation of a specific report.

You can set your On-Demand reports to have higher image quality, the same as from a publish task. As soon as you change this, all On-Demand reports will be affected. This will also affect report previews in Qlik NPrinting Designer. Task reports will not be affected.

The report type and output format combinations that are not supported in tasks are still not supported in this case. For example, you cannot set an image quality level on a report from a task if you are exporting a PixelPerfect report as a .jpeg. If you try to run an On-DemandPixelPerfect report setting this flag to "Veryhigh", it will look the same as a "Normal" report.

The following combinations are not supported:

- Excel to .tiff
- PixelPerfect to .gif, .jpeg, .png, .tiff
- QlikEntiy to .csv, .skv, .tab, .tiff

Do the following:

1. Open the *scheduler.config* configuration file.
2. Find the following string: `<add key="ondemand-image-quality" value="Normal" />`  
"Normal" is the default value.
3. Change value to: "Normal", "High", or "Veryhigh". These are case sensitive, and have the following DPI values:
  - a. Normal: 96 DPI
  - b. High: 192 DPI
  - c. Veryhigh: 384 DPI
4. Save the file.

---

### See also:

 [Image dimensions \(page 296\)](#)

## 5.12 Filters

Filters let you refine your data. You can add filters to tasks, reports, objects, and users. They can be static or dynamic.

### Types

Here are a few ways you can use filters:

- Task: filter a publish task to only share data from the current quarter.
- Report: filter a report to only display information related to the top 5 sellers.
- Object: filter a pie chart that details grocery sales to only show fruit sales.
- User: filter a user group to only see data related to their geographic location.



Static filters are selected from a list of QlikView or Qlik Sense field values. You must manually edit the filter to change values.

Dynamic filters use QlikView or Qlik Sense expressions and searches. Expressions must use QlikView or Qlik Sense rules and syntax, and return a single value. Expressions are evaluated, and the results are used to filter data. Searches leverage the various kinds of search available in QlikView or Qlik Sense. You do not have to modify dynamic filters to gain new values.

### Filter evaluation

Filters are verified before generating each report. Task, user, and report filters are checked against document data. If they are invalid, you will see an error stating that filters cannot be applied on the **Task executions** page. This happens before the calculation of report conditions, and before report generation. Qlik NPrinting will resolve filters by applying them in a sequence where the initial state has no selections on any field.

If you have a single filter, it is evaluated as follows:

1. Clear all selections for all fields, with **Override values** selected.
2. Calculate the expressions for each field with evaluated values.
3. Apply selections based on values and searches to all fields.

When you have multiple filters, they are evaluated in the following sequence:

1. All task filters are applied one at a time, according to their sort order.
2. All user filters are applied one at a time, according to their sort order.
3. All report filters are applied one at a time, according to their sort order.
4. All object filters are applied one at a time, according to their sort order.

### Rules

Qlik NPrinting filter rules provide predictable behavior with a limited number of options:

- Evaluated values are calculated first, in order to have static values to manage.
- Filters will not necessarily overwrite past selections. There is no strict hierarchy.
- Each filter will be analyzed in sequence: task -> user -> report -> object.
- The values of filter fields at different levels will be intersected.
- If the intersection gives an empty result, the filter chain will become invalid.
- There is no limit to how many task, report, object, or users filters you can apply in an app. However, only one object filter can be applied to a single object.
- If the application of a filter results in an impossible selection, a specific error is returned: "Cannot apply filter {0} to current document data. Requested fields with evaluates are: {1}",

There is one specific flag that allows you to change these behaviors: **Override values**. This flag, which is related to specific fields of a filter, allows you to clear the selections on a certain field on a certain level of the chain. You can also add other values instead.



Field selections and variables settings within a filter do not effect each other. But they will effect the filters that follow in the evaluation chain.

### Examples of filtering results

These examples show filters assigned to specific entities for different values of the same field, with **Override values** selected or de-selected:

#### Example 1

- Task filter: **Country** = *Italy, Spain*
- User filter: -
- Report filter: **Country** = *Italy, Germany*
- Resulting filter: **Country** = *Italy*

#### Example 2

- Task filter: **Country** = *Italy, Spain*
- User filter: **Override values** = Checked for **Country**
- Report filter: **Country** = *Italy, Germany*
- Resulting filter: **Country** = *Italy, Germany*

#### Example 3

- Task filter: **Country** = *Italy, Spain*
- User filter: **Country** = *Italy, Germany*
- Report filter: **Override values** = Checked for **Country**
- Resulting filter: **Country** = All countries

#### Example 4

- Task filter: **Country** = *Italy*
- User filter: -
- Report filter: **Country** = *Germany*
- Resulting filter: empty

#### Example 5

- Task filter: **Country** = *Italy*
- User filter: **Override values**=True for **Country**
- Report filter: **Country** =*Germany*
- Resulting filter: *Germany*

### Selecting values

In the **Values** drop-down menu you can select from:

- **Value is:** use this option if you want to select a string. For example, if you want to select USA in the Country field.
- **Numeric value is:** in QlikView and Qlik Sense, all field values are potentially dual values. A field value can have both a numeric value and a textual value. For example, a date that could have a numeric value of 40908 and the textual representation "2011-12-31". Use this option if you want to select a numeric value.
- **Evaluate value:** use this option if you want to insert an expression that needs to be evaluated. It must return a single value.
- **Advanced Search:** use this option if you want to select values using a QlikView or Qlik Sense advanced search.

If the **Fully cached** notification appears on the right, it indicates that the Qlik NPrinting cache contains all values of a field. This means that when you start typing in the **Values** dialog box, Qlik NPrinting searches all the values that match your string.

The Qlik NPrinting cache only stores the first 1000 values from QlikView fields with a large amount of distinct values. In this case, the **Fully cached** green label does not appear. You will instead see a **Search** button on the right side of the value field. Type the string, or part of the string, that you want to find. Click **Search** to force Qlik NPrinting to look for the string in the connected QlikView document. When there is a large amount of distinct values, you have to manually insert the whole value that you want to filter.

### Creating a static filter

Do the following:

1. Select **Apps**, and then select **Filters**.
2. Click **Create filter**.
3. Enter a **Name** for your filter.
4. Select an app from the **App** drop-down list.
5. Click **Create**.
6. Click **Fields** in the filters menu.
7. Click **Add field**.
8. Under **Connection**, select your connection.
9. Under **Name**, select a field name.
10. You can choose to **Override values**: if you select this check box, all selections applied by other filters on the same field will be removed and replaced by the values of the field set in current filter. If **Override values** is not selected, a new filter will be created by the intersection of field values from different filters applied on the selected field.



*You can clear all selections on a field by creating a filter with empty values for that field and selecting the **Override values** check box.*

### Adding values to a field

Do the following:

1. Choose a value type from the drop-down list:
  - **Value is**
  - **Numeric value is**
  - **Evaluate value**
  - **Advanced Search**
2. Depending on the value type, you can choose from a list, start typing a string, or type an expression. See: *Selecting values (page 306)*
3. If you want to add a second value, click **Add value**.  
A new empty row appears.
4. Add your second value.
5. Click **Create**.

### Creating a filter with **Select excluded** values

When you create a filter, you can exclude specific values, using the **Select excluded** check box. For example, you may want to exclude data from certain years, or geographic regions. This is similar to the **Select excluded** operation in Qlik Sense and QlikView.

Do the following:

1. Select **Apps**, and then select **Filters**.
2. Click **Create filter**.
3. Enter a **Name** for your filter.
4. Select an app from the **App** drop-down list.
5. Click **Create**. Click **Fields** in the filters menu.
6. Click **Add field**. Under **Connection**, select your connection.
7. Under **Name**, select a field name.
8. Choose a value type.
9. Select the values you want to exclude.  
For example, if the field was *Country*, you could exclude *Sweden* and *Italy*.
10. Click the **Select excluded** check box.
11. Click **Create**.

### Creating a dynamic filter with evaluated values

You can use QlikView and Qlik Sense expressions to calculate values to be used in filters. Each expression must return a single value, and use QlikView or Qlik Sense syntax. For example, you can use an expression to calculate the value of the previous year and compare it with the **Year** field in a filter.

Do the following:

1. Create a new filter.
2. Click the **Values** tab, and select **Evaluate value** from the drop-down.

This option sends your expression to QlikView or Qlik Sense, which will evaluate the result and return it to be used in the filter.

3. Enter an expression in the **Value** box.  
For example, to retrieve the value of the last year, enter `=Year(now())-1`.
4. You can click **Add value** to add another expression. Adding many values for the same field creates a logical "OR" association. The filter will keep data that matches one or both values.
5. Click **Create**.

### Creating a dynamic filter with advanced search

You can use QlikView and Qlik Sense advanced search to select a set of values to use in filters.

Several types of advanced search are supported:

- **Text:** all values that match the text exactly are selected.
- **Wildcard:** \*, ? and ^ can be used as wildcards in a text search.
  - \*: placeholder for 0 or more undefined characters.
  - ?: placeholder for one undefined single character.
  - ^: placeholder that specifies that the next character is the beginning of a word.
- **Numeric:** if a search starts with < or > it will be evaluated as a numeric search
- **Expression:** if a search starts with an = it will be evaluated as an expression search. The result of the expression is interpreted as a Boolean:
  - 0=false
  - Any other value=true

Your advanced search results are intersected with the values selected on the field in previous filters if **Override Values** is not used. The value set generated from an expression search depends on the current selections, similar to how evaluated values are calculated. If you want to ignore the current selections in an app or document, you should use:

- Qlik Sense: [Set analysis and set expressions](#)
- QlikView: [Set analysis and set expressions](#)

There are dynamic search types that are not supported. The following may return unexpected results:

- **Normal:** searches that match the inserted text with the beginning of a word in a field value. You will receive more accurate results with a wildcard search: `*^text to search*`.
- **Fuzzy:** searches that begin with ~. In QlikView and Qlik Sense, fuzzy search selects the first value in the list shown on screen. In Qlik NPrinting, it selects every value in the list.
- **Compound:** searches that enclose search text between ( ) and using operators like |, & and ^ to mix the other search types.

Do the following:

1. Create a new filter.
2. Go to the **Values** area, and select **Advanced search** from the drop-down.  
This option will perform a search on the selected field in QlikView and Qlik Sense and return it to be used in the filter.
3. Enter one of the supported searches in the Value box.  
For example, to retrieve data from every year except the current one, enter `=Year<Year(now())`.
4. You can click **Add value** to add another advanced search. Adding many values for the same field creates a logical "OR" association. The filter will keep data that matches one or both values.
5. Click **Create**.

### Creating a variable-based filter

You can use a variable in a filter, and set the value of the variable directly during report generation. This temporarily overwrites the original value that the variable has in QlikView or Qlik Sense.

Variable-based filters can be static or dynamic. They can be added to reports, tasks, users, and objects.

For example: You can create two different reports that have the same chart object, but that show different results depending on the variable value. Or, you could create one report with two publish tasks, with different variable-based filters.


Do the following:

1. Create a new filter.
2. Click the **Values** tab, and click **Create variable**.
3. Select a connection from the drop-down menu. Under **Name**, select a dimension.
4. Under **Value**, type in an existing dimension.  
Click the **Evaluate** check box if you want the variable to be evaluated before it is applied.
5. Click **Create**.

### Adding filters to a report

You have to create filters before you can add them to reports, tasks, objects or users. You cannot create a new filter from inside another entity.

Do the following:

1. Create a new report, or open an existing one.
2. Click **Filters** in the main menu.
3. Select the filters you want from the **Available items**.
4. Click  to move the filters into the **Selected Items** column.
5. Click **Add filters**.

## Applying a filter to an object

Object filters are useful when you want to filter a specific table or image. For example, if you have a report with no filters, but you want to add a table that only displays last year's sales, you would apply an object filter.

Objects can only have a single filter. If you need to add a complex filter to an object, you must create a unique filter before you edit the report template.

Do the following:

1. On the **Reports** screen, click on your report.
2. Click the **Edit template** button to open the Qlik NPrinting Designer template editor.
3. On the left pane, right-click the type of object you would like to filter, and select **Add objects**.  
You can filter tables and images.
4. A new window will open. Select the object you would like to filter, and click **OK**.
5. Drag your new object from the left pane to your report template.
6. On the **Properties** pane, go to **Filters** and click the **...**
7. A new window will open. Select the filter you would like to use, and click **OK**.



*If you accidentally pick the wrong filter, you can click the eraser icon next to the **...** to remove all filters from an object.*

8. Click **Preview**.  
Your report object will only show information related to the filter.

## Importing object filters associated with users

Object filters associated with users are not automatically included in Qlik NPrinting Designer, for performance reasons. Importing all of the filters associated with thousands of users would take a long time, and could cause Qlik NPrinting to stall.

You can change this behavior by editing the *webengine.config* file.



*You should always backup your Qlik NPrinting repository before editing a .config file. For more information, see [Backing up Qlik NPrinting \(page 193\)](#).*

Do the following:

1. Open the *webengine.config* file.
2. Uncomment the line `<!--<add key="include-user-filters" />-->`.
3. Close and reopen Qlik NPrinting Designer.
4. The list of filters will now upload all filters you have stored in the repository.  
This could take a very long time, depending on the number of stored filters.

If you do not want to edit the *webengine.config* file, you can manually import a specific user filter. There are two ways to do this:

- Remove the filters association from all users.
- Create a new filter, not linked to any user, with the same fields and values.

### Configuring report behavior

You can configure how a report handles object filter errors for charts and tables in your templates. Open the report, scroll down to **Error handling**, and select from these two options:

- **Generate report. Invalid content will be replaced with placeholder images.**  
Invalid charts are replaced with placeholder images. They have a grey background and black overlay text that says "Invalid selections". These images are scaled according to maximum size settings in your report template. Invalid tables are replaced with empty tables with no overlay text.
- **Do not generate report. Report generation will fail until issue is resolved.**  
The entire report will fail to generate. Users will not be able to view it.

In Qlik NPrinting April 2018 and later, the default behavior for new reports is to add placeholder images. If you are using Qlik NPrinting February 2018 or older, and update to a newer version, your reports will keep the pre-existing report failure behavior.

### Configuring empty content

Empty content is displayed as placeholder images. They have black overlay text that says "Invalid selections". This overlay text can be changed.



*You should always backup your Qlik NPrinting repository before editing a .config file. For more information, see [Backing up Qlik NPrinting \(page 193\)](#).*

Do the following:

1. Open the *scheduler.config* configuration file.
2. Find the "empty-content-text" tag. Uncomment this line, and edit the value.
3. Restart the Qlik NPrinting scheduler service.

The change is applied to all empty content placeholder images.

## Troubleshooting

The folder containing my cycled reports shows reports with the FAILED label

### Possible cause

Your reports contain incompatibility filters.

### Proposed action

Check the filters associated with the report. For example, you have 2 filters:



- The first contains → Year: 2012, 2013
- The second contains → Year: 2014

If you use both filters, the intersection between the filters will produce an empty set.

### My reports fail to generate

#### **Possible cause**

Your report uses the same dimension in the task, user, report, and object filter hierarchy.

#### **Proposed action**

Change or remove any filters that use the same dimension.

## 5.13 Conditions

Conditions let you control report generation and distribution on a data basis. You can add multiple conditions to any report or task. Reports are generated and tasks are run only when all their conditions are satisfied. Each condition can be composed of one or more rules.



*If an error occurs during report condition evaluation (before results are produced), the error is reported to the user the same way as errors that occur during report generation. Both result in an error message added to the emails sent to users.*

### Overview

A condition is a set of one or more expressions with one or two operands and one operation. Operands can be fixed values, variables, or expressions. A condition is associated with an app, while the rules within the condition will be bundled to a specific connection of the app. Only the object types that appears in the list during conditions creation can be used.

There are two places that a condition may be applied:

- Publish task report
- Publish task

Sending reports on a conditional basis has many advantages. For example, you can be informed when key events in the data happen. You can save computational resources by not distributing unnecessary reports. You can create and manage reports with data from multiple QlikView documents or Qlik Sense apps in a consistent way since filters, reports, and conditions manage multiple connections at the same time. For example, you can:

- Compare the value of an existing QlikView variable with another variable, an expression or a constant value. Available comparisons are: equal to, not equal to, greater than, greater than or equal to, less than, less than or equal to.
- Check that a certain QlikView chart contains values at run time.

- Distribute a sales report with data from different QlikView documents, select the same year on all documents by applying a filter, and add a condition that checks whether all the charts in the different documents have data.

### Conditions and filters

Publish task report conditions and publish task conditions affect when filters are applied.

When you apply a condition to the publish task via the **Conditions** button:

- If you have applied a task filter, this filter will be applied when evaluating the condition.
- If you have applied a report filter or user filter, the filter will not be applied when evaluating the condition.

When you apply a condition to a publish task report:

- Task filters, report filters, and user filters are always applied when evaluating the condition.

If section access is enabled, task conditions are evaluated with the identity set for the connection in the connections page. Report conditions are evaluated using the identity of the recipient of the report.

If you cycle reports that contain conditions and filters, they will be evaluated in this order: Task filter > user filter > report filter > condition. Conditions are not evaluated separately for each report in the cycle. For example:

1. You have a report filter: YEAR 2012, 2013.
2. Add a cycle on YEAR.
3. Add a report condition (evaluated with the filter applied).
4. Execution flow is as follows:
  - a. YEAR 2012, 2013 filters are applied.
  - b. Condition is evaluated.
  - c. If the condition is met, a report is produced for YEAR 2012, and one is produced for YEAR 2013.

### Limitations

If a chart used in the condition is deleted from the document, you will receive a warning message on the condition rule page. Invalid conditions used on tasks cause generation failures. If an invalid condition is applied to a task, the task fails immediately. If it is used as a report condition, only the related reports generation fails.

Evaluation of a condition will be bypassed when an invalid filter is used on a report task. A failure in condition evaluation is treated like a failure in report generation and a generic email containing an error message will be sent.

### Creating a condition

Before you create a new condition, you should make sure that any related connection caches are up-to-date.

1. Click **Apps**, then select **Conditions**.
2. Click on the **Create condition** button in the upper right corner.
3. Enter a descriptive **Name**.

4. Enter a **Description** (optional).
5. Open the **App** drop-down menu and select the app in which you want to create the new condition.
6. Leave the **Enabled** check box selected.
7. Click on **Create**.

### Adding a rule

1. Click on the **Rules** button.
2. Click on the **Add rule** button in the upper left corner.
3. Enter a descriptive **Name**.
4. Open the **Connection** drop-down menu, and choose a connection.
5. The **Values** section of the page will appear.

### Setting chart-based conditions

You set your conditions in the **Values** section. You can create conditions that check if a chart has or does not have certain values. Make sure that the charts are available in the QlikView document or Qlik Sense app.

1. Select **Chart** from the first column on the left.
2. Select the chart from the central drop-down menu. You can use the **Search** form to filter the list.
3. Choose a condition between **has values** and **has no values**. The condition **has values** is true when the chart contains values with the filters applied at the moment of the evaluation of the condition.
4. Click on **Create**.
5. To add another rule, click the plus symbol, or click **Add condition**.

### Setting variable-based conditions

You can create conditions that compare a QlikView or Qlik Sense variable with another variable, the result of an evaluated expression, or a fixed value. Make sure that the variables are available in the QlikView document or Qlik Sense app..

1. Select **Variable** from the first column on the left.
2. Select a variable from the **Select variable** drop-down menu.
3. Choose the relational operator from the drop-down menu.
4. Select the type to compare:
  1. **Variable**. Select the second variable from the drop-down menu on the right.
  2. **Expression**. Insert an expression that will be evaluated before the comparison. The expression must return a single value.
  3. **Constant**. Type a constant. No evaluation will be done.
5. Click on **Create**.
6. To add another rule, click the plus symbol, or click **Add condition**.

## Adding conditions to a task



*If there is a report or user filter, the filter will not be applied when Qlik NPrinting evaluates conditions added to a task.*

Do the following:

1. In the main menu, go to **Tasks > Publish tasks**, and open the task you want to edit.
2. Click on the **Conditions** button in the upper right of the screen.
3. The list of conditions applied to the task will appear.
4. Click on the **Add condition** button on the right.
5. Select the condition from the **Choose condition** drop-down menu.
6. You can reduce the list by using the **Search** form.
7. Select **True** or **False** in the **Expected result** drop-down menu. If you select **True** the task will be executed when the condition is verified. If you select **False** the task will be executed when the condition is not verified.
8. Click on **Add condition** to confirm and exit.
9. The new condition appears at the end of the list.
10. To add another condition click on **Add condition** again. You can add as many conditions as you want.

## Adding condition to a report in a task

You can add conditions to reports already inserted into tasks. It is not possible to add conditions directly to reports. A report is generated only if all related conditions are satisfied.

Do the following:

1. Open the **Publish task**.
2. Open the **Reports** list, then add the report you want to apply conditions to or open it if it is in the list.
3. Select the condition you want to apply from the **Condition** drop-down menu in the bottom of the page.
4. Select **True** or **False** in the **Expected result** drop-down menu.
  - If you select **True** the report will be created when the condition is verified.
  - If you select **False** the report will be created when the condition is not verified.  
This is useful because you can add two different reports with the same condition, and set one **True** and the other **False**. So if the condition is satisfied the first report will be distributed, otherwise the second report will be distributed.
5. To add another condition, click the plus symbol, or click **Add condition**.
6. Click **Save**.

## Removing a condition

You can delete conditions from the main **Conditions** window, or from the window of the condition itself.

**See also:**

- *Cycling your reports (page 324)*
- *Filters (page 304)*

### 5.14 Variables

Qlik Sense and QlikView variables can be used to customize Qlik NPrinting reports and emails.

A variable in Qlik Sense or QlikView is a static value that can be:

- a string of text
- a number
- a date
- the evaluated result of an expression

Expressions are identified by an equal sign `=` at the beginning. When you use a variable in an app or document, any change made to the variable is applied everywhere the variable is used.

Variables can contain complex expressions, user information, or company details. For example, you could have a variable that calculates weekly sales figures by region. You could use a variable in place of a product name that may change in the future. A user name variable could be used to personalize company emails. These types of variables make your reporting more consistent and easier to maintain.

You can also use variables to make email distribution lists.

#### Best practices for variables used in Qlik NPrinting

Variables in Qlik Sense and QlikView are often used in combination with dollar-sign expansions. You should do this when you want to use a variable like a placeholder, instead of a true variable. Variable dollar-sign expansions work by replacing their "text" with the static value of the variable.

For example, you have these two variables in Qlik Sense or QlikView:

- `vSales` defined as: `Sum(Sales)`
- `vSales2` defined as: `=Sum(Sales)`

An expression like `=$(vSales)` can be used in a Qlik Sense chart as a measure or in a QlikView chart as an expression. When the Qlik engine evaluates this expression, it will replace the content of the dollar-sign expansion `$(vSales)` with the static value of `vSales`. The static value of `vSales` is `Sum(Sales)`. So the evaluated final expression will be `=Sum(Sales)`.

Suppose that the total `Sum(Sales)` is 1560. If you write an expression like `=$(vSales2)`, the Qlik engine will evaluate it, as in the case before, and replace the content of the dollar-sign expansion `$(vSales2)` with the static value of `vSales2`. The static value of `vSales2` is 1560, because it was defined as an expression. So the evaluated final expression will be 1560.

This means that without a dollar-sign expansion, `vSales` is a variable that contains the text of `Sum(Sales)`.

If you insert these expressions as two different measures in a Qlik Sense chart or expressions in QlikView, you would see the following results:

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.

Qlik NPrinting will always consider the static value of the variable, and never its dollar-sign expansion. If you want to evaluate an expression in a variable that does not begin with an `=` sign, you must change its definition in QlikView or Qlik Sense. If you cannot do that, you must create a second variable that can be defined as the dollar-sign expansion of the original one: `vSales3` defined as `=$(vSales)`. If you are using the Qlik NPrinting Designer, you do not have to create another variable. You can use a formula to expand the original variable instead.

### Error handling

Administrators can set what happens if variables in an email do not resolve.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Email distribution errors**, go to **When a publish task cannot resolve a variable tag**. Choose from the following options:
  - Send the email with the tag as is
  - Send the email with the tag removed
  - Do not send the email
4. Click **Update**.

### 5.15 Qlik Sense and QlikView formulas

You can create QlikView and Qlik Sense formulas and add them to reports in Qlik NPrinting. Formulas must follow QlikView or Qlik Sense formula rules and syntax.

Formulas can be added to Excel, PowerPoint, Word, HTML and PixelPerfect reports. They can be formatted the same as plain text.

You can insert formulas in levels. The formula will be evaluated for each level.

### Formula evaluation

Formulas are applied with and without numerical and time formatting. Qlik NPrinting sends the formula to QlikView or Qlik Sense for evaluation. Any numerical or time formatting must be applied by QlikView or Qlik Sense at the moment the formula is evaluated to its unique value. The value is exported from with whatever numerical or time formatting has been applied, and will not be altered by any attempt to apply similar formatting in the template.

### Requirements



*Formulas used in Qlik NPrinting must evaluate to a unique value.*

Note that `=getCurrentSelections()` returns a unique string. It is composed by merging the selected values with a separator, but the function is allowed because this is a single string.

You cannot add an `Aggr()` formula, for example `Aggr(Count(DISTINCT CustomerID), Salesman)`, because it returns multiple values. You can resolve this by concatenating the result of the `Aggr()`, for example `concat(Aggr(Count(DISTINCT CustomerID), Salesman), ' - ')`.

### Adding a formula

Do the following:

1. Open an existing report, or create a new one.
2. Right-click the **Formulas** node, and then select **Add formula**.
3. Enter a name in the window that opens.
4. Enter your formula. For example: `NumericCount (OrderID)`.  
The calculated result is visible in the bottom part of the **Edit Formula** window.
5. Click **OK**.  
You can add additional formulas if desired.
6. Drag the formula node tokens onto empty cells or areas of the template.

## 5.16 Importing QlikView and Qlik Sense cell values

You can use any cell value or group of cell values from QlikView or Qlik Sense objects in Excel, Word, PowerPoint, HTML, or PixelPerfect reports.

### Overview

Cells are imported into Qlik NPrinting report templates from documents and apps based on their position. For example, you can import the cell that is in the third column of the first row.

In QlikView connections, cell #1 selects the value from the total row (at the top). In Qlik Sense connections, cell #1 selects the first value of the table (excluding the total row).

If you change something in the original app or document, you will have to update your Qlik NPrinting report template. Cells work on a positional basis and cannot follow changes in the source objects. These have to be managed. For example, Qlik NPrinting will not automatically update cell nodes if you switch column 2 and column 3 in Qlik Sense.



*You can use Excel formatting tools to apply custom formats to cells if you clear **Keep Source Formats** in the Properties pane. You can also re-build a object cell-by-cell, or part of it, and add Excel formulas to calculations.*

### Inserting cell values into an Excel report

The following example shows how to insert QlikView cell values into an Excel report template. You will insert the same chart object with the same cell position four times, but with different formatting.

### Specifying cells from a QlikView document

Do the following:

1. Open an existing Excel report template, or create a new one.
2. Create a new cell:
  - a. In the left-hand pane, right-click the **Cells** node, and select **Add cells**. A new window opens.
  - b. Click the browse icon **...** to the right of the **Object** field.
  - c. Select a chart object from the list. Click **OK**.
  - d. Qlik NPrinting automatically fills the **Name** field. The first number after the name indicates the cell row. The second number indicates the cell column. You can change the name if needed.
  - e. The **Description** field is optional.
  - f. In the **Top Row** field, enter the number *1* .  
If the **Bottom Row** field now also contains the number 1: you are selecting cells from only one row. Row 0 is the row of QlikView object titles, so row 1 is the first data row.
  - g. In the **Left Column** field, enter the number *1* .  
If the **Right Column** field now also contains the number 1: you are selecting cells from only one column. Column 0 is the first column on the left of the source QlikView object.
  - h. Keep the **Keep Source Formats** box selected. Click **OK**.
3. Repeat steps a-g. Clear the **Keep Source Formats** box.
4. Repeat steps a-g. Clear the **Keep Source Formats** box and add the format code "\$ #,##0.00" to the **Format** field.
5. Repeat steps a-g. Clear the **Keep Source Formats** box. You will use Excel formatting tools to format the cell containing this cell value.

### Adding the cell values to the template

Do the following:



1. Drag each cell value node token onto an empty cell in the template.
2. Format the fourth cell value you created using Excel formatting options.  
For example: change the font size and color.
3. Click **Preview**. You will see the same cell value formatted four ways:
  - a. A cell formatted the same as the original document.
  - b. A cell with no formatting.
  - c. A cell with the custom format "\$ #,##0.00" applied by Qlik NPrinting.
  - d. A cell with custom Excel formats applied by you.
4. Close the preview. You can continue to edit the template if necessary.
5. Click **Save and Close** to save the template and close the **Template Editor**.

### 5.17 Report names

Qlik NPrinting reports can have three different types of names. They can be static or dynamic.

- **Title:** The name given to the report during report creation.
- **Friendly name:** A name that can optionally be added to a report when adding it to a publish task.  
For information about assigning friendly names, see: *Creating publish tasks (page 471)*.
- **Dynamic name:** A name containing static and variable elements that is enabled during report creation.  
For information about assigning dynamic names, see: *Dynamic report names (page 322)*.

Depending on what names are given to the report, different components of Qlik NPrinting may apply the names differently.

### Displayed report names

The tables below explains which names Qlik NPrinting uses when displaying reports.

Preview, Newstand, email attachments

Report name combinations			Preview	NewsStand	Download NewsStand	Email attachment
Report title	x	x	Report title	Report title	Report title	Report title
Report title	Dynamic name	x	Dynamic name	Report title	Dynamic name	Dynamic name
Report title	x	Friendly name	Report title	Friendly name	Friendly name	Friendly name
Report title	Dynamic name *	Friendly name	Dynamic name	Friendly name	Dynamic name	Dynamic name

Email, Hub, Folder

Report name combinations			Embed report name in email	Hub	Download hub	Folder
Report title	x	x	Report title	Report title	Report title	Report title
Report title	Dynamic name	x	Report title	Dynamic name	Dynamic name	Dynamic name
Report title	x	Friendly name	Report title	Friendly name	Friendly name	Friendly name
Report title	Dynamic name *	Friendly name	Report title	Dynamic name	Dynamic name	Dynamic name

### When dynamic name contains the report name variable

Preview, NewsStand, email attachments

%ReportName% variable	Preview	NewsStand	Download NewsStand	Email attachment
with Friendly name configured	Report title	Friendly name	Friendly name	Friendly name
without Friendly name configured	Report title	Report title	Report title	Report title

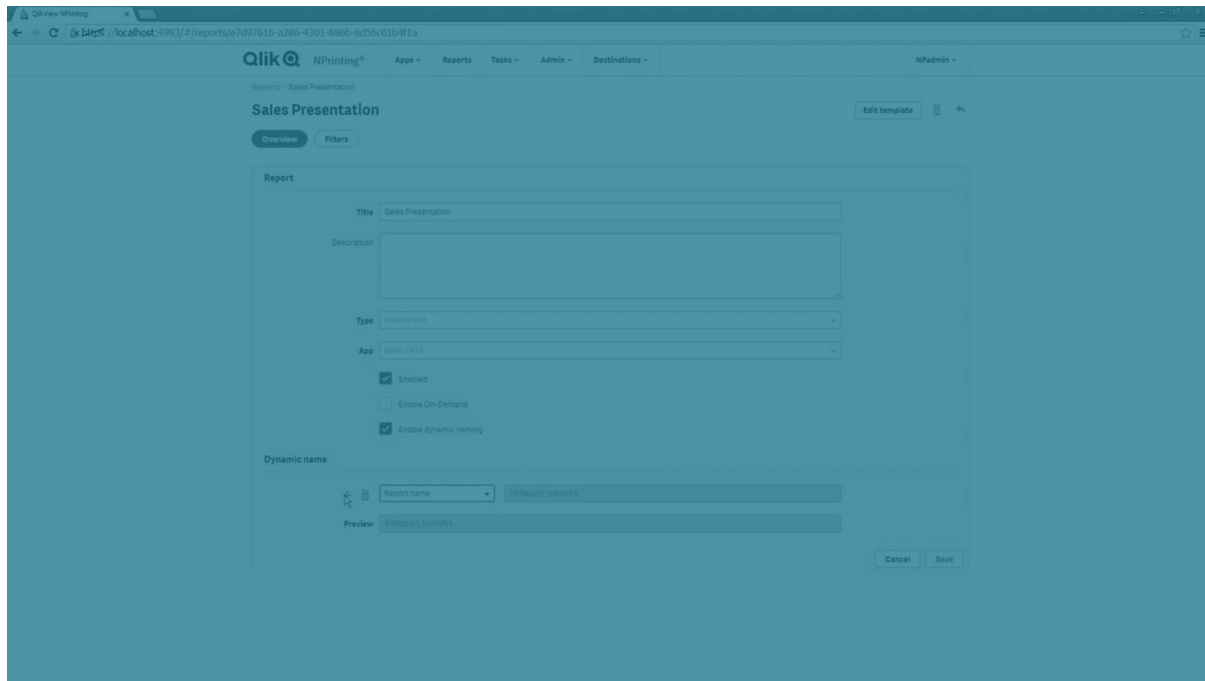
Email, Hub, Folder

%ReportName% variable	Embed report name in email	Hub	Download hub	Folder
with Friendly name configured	Report title	Friendly name	Friendly name	Friendly name
without Friendly name configured	Report title	Report title	Report title	Report title

## 5.18 Dynamic report names

Descriptive report names help your users quickly access the information they need.

Dynamic report naming allows you to set standard naming protocols with static and variable elements. Variable elements include date and time values, user data, and the values of QlikView and Qlik Sense variables.



For example, a sales report may have the static element *SalesReport* and the variable elements "date" and "top-selling product." It would be published to the NewsStand as: *SalesReportNovember252017Pacifiers.xlsx*.

You can also add custom fields. This is a good way to add corporate information, numerical codes, or hyphens to your report names.



*Due to Windows file systems limitations, you cannot attach files with file names longer than 255 characters to Qlik NPrinting emails. If you attach a file with a name that is too long, recipients will see a message listing which reports failed to be generated. The following error message is added to the Qlik NPrinting logs: "Path with value name is exceeding windows limitations, the fully qualified file name must be less than 260 characters."*

### Enabling dynamic naming

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter the information for the report you want to create in the **Title**, **Description**, **Type**, and **App** fields.
3. Select the **Enable dynamic naming** check box.
4. The **Dynamic Name** section appears. This allows you to add or delete different elements to your report name. These field elements can be reordered using the sort-handles on the right.
5. When you have finished adding elements to the report name, click **Create** to create the report.

## Dynamic naming elements

Select the element you want to use from the drop-down list in the first field of the Dynamic name section.



*Date and time values are localized according to the time zone set in the user profile.*

The following elements are available:

Dynamic naming elements

Element	Description
<b>Custom</b>	Custom text conforming to Windows file name standards. Type the required text in the second field.
<b>Date</b>	Date that report generation is started. The format of the date can be selected from the drop-down list in the second field.
<b>Time</b>	Time of day that report generation is started. The format of the time can be selected from the drop-down list in the second field.
<b>Report name</b>	The <b>Friendly name</b> given to the report when adding the report to a <b>Publish task</b> . The default is the report <b>Title</b> , but this can be changed in the <b>Friendly name</b> field.
<b>User name</b>	The <b>Username</b> of the user creating the report. Derived from the user's details. The variable appears in the second field.
<b>User company</b>	The <b>Company</b> of the user creating the report. Derived from the user's details. The variable appears in the second field.
<b>User department</b>	The <b>Department</b> of the user creating the report. Derived from the user's details. The variable appears in the second field.
<b>User office</b>	The <b>Office</b> of the user creating the report. Derived from the user's details. The variable appears in the second field.
Qlik variable	Select the required variable from the drop-down list in the second field. The available variables depend on the app chosen for the report.

The complete report name is displayed in the **Preview** field at the bottom of the **Dynamic name** section. Variable values are represented by the name of the variable.

### 5.19 Cycling your reports

You can generate multiple versions of a report broken down by dimension, such as year or region. Instead of one report, several reports are generated in a .zip file. If you have more than one cycle field, you will get as many reports as the combination of all cycle fields.

For example, you have a Qlik NPrinting Excel report called *SalesData* that you want to cycle by country and year. Your data covers 3 countries and 2 years, so you will get 6 reports in your .zip file:

1. SalesData\_Country1\_Year1.xlsx
2. SalesData\_Country1\_Year2.xlsx
3. SalesData\_Country2\_Year1.xlsx
4. SalesData\_Country2\_Year2.xlsx
5. SalesData\_Country3\_Year1.xlsx
6. SalesData\_Country3\_Year2.xlsx

Once created, the .zip file will be sent to every selected report destination, the same as a standard report. Report cycling works with all distribution methods.

If your reports contain conditions and filters, they will be evaluated in this order: Task filter > user filter > report filter > condition. Conditions are not evaluated separately for each report in the cycle

### Limitations



*There is currently no limit to how many cycles you can select. However, you should choose a maximum of 3 cycles. You should not start a report cycle if your report dimensions contain many values. For example, if your data covers 10 years, 196 countries, and 50 products, report cycling will try to generate 98,000 files. This could take hours or days to generate.*



*Some SMTP providers impose size limits on email attachments. The maximum allowed size varies among providers. If the size of an attached file exceeds the limit, the email is not delivered. A warning is added in the logs.*



*Due to Windows file systems limitations, you cannot attach files with file names longer than 255 characters to Qlik NPrinting emails. If you attach a file with a name that is too long, recipients will see a message listing which reports failed to be generated. The following error message is added to the Qlik NPrinting logs: "Path with value name is exceeding windows limitations, the fully qualified file name must be less than 260 characters."*

### Creating a new report cycle

Do the following:

1. Click the **Reports** tab.
2. Choose a report, and click the **Enable cycle** check box.



Once you choose **Enable cycle**, dynamic report naming becomes mandatory. The fields you choose to cycle through will be automatically included in the report name, but this can be customized under **Dynamic name**. See: *Dynamic report names (page 322)*.

3. Under **Cycle**, select a **Connection** and **Field** to cycle. We recommend choosing 3 or fewer **Fields**.
4. Click **Save**.

The next time your report is distributed, it will be as a .zip file containing multiple files.

## Troubleshooting

The folder containing my cycled reports shows reports with the FAILED label

### Possible cause

Your reports contain incompatibility filters.

### Proposed action

Check the filters associated with the report. For example, you have 2 filters:

- The first contains → Year: 2012, 2013
- The second contains → Year: 2014

If you use both filters, the intersection between the filters will produce an empty set.

## My reports fail to generate

### Possible cause

Your report uses the same dimension in the task, user, report, and object filter hierarchy.

### Proposed action

Change or remove any filters that use the same dimension.

## 5.20 Enabling QlikView cycle group fields

QlikView charts with cycle groups applied as dimensions can be added to Qlik NPrinting reports.

If a chart with cycle group fields is added as a table, you can select which field of the cycle group to display. To show different active fields, you need to add the same chart again, and set a different active field. You can add the same chart as an image or a level, but cannot choose to display a specific field.

## Selecting a cycle group field in Qlik NPrinting tables

You can set one active field per table.

Do the following:

1. Open the report in Qlik NPrinting Designer.
2. On the left pane, right-click on **Tables**, and select **Add objects**.
3. A new window will open. Select the QlikView chart that contains a cycle group dimension.
4. On the left pane, expand your chart to show the dimensions available. Click on the dimension with cycle group you want to use.
5. Go to the **Properties** window, and open the **Use This Group Field** drop-down menu.
6. Select the active field that you want to use.

---

**See also:**

 [Non-hierarchical groups \(cyclic\)](#)

### 5.21 Adding report templates

You can import an Office, HTML, or PixelPerfect file as a template for other reports. This lets you incorporate information and layouts that comply with your corporate standards, or design reports for specific recipients.

You can load a file in **Report settings** to be used as the default template when creating a report, or select a custom file as a template when in the **Create report** form.

#### Loading a default template

Do the following:

1. From the top menu, click on **Admin**, and then select **Settings**.
2. Click **Report settings**.
3. Select the type of template you wish to load from the five available and click **Choose a file**.
4. Locate the file you want to load and highlight it. Click **Open** to load the file.
5. Click on **Update** to save the configuration.

The file name appears in the field next to the type of template you have chosen. This file will be used as the default template for that report type, selectable when creating a new report.

To reset the configuration and use an empty template, click on **Reset**.

#### Create report options

When creating a report three options are available when determining the template to be used.

- **Empty file** creates a copy of an empty file of the type required and saves it to the repository as the template.

- **Default template** creates a copy of the current default template, specified in **Report settings** for the report type, and saves it to the repository.
- **Custom** allows you to upload a file and save it to the repository as the template to be used.

### 5.22 Previewing reports in the template editor

You can preview your reports while working on them in the template editor. You can preview them in their original report format, or choose an alternative. Preview mode applies report, object, and user filters.

#### Previewing your reports

Do the following:

1. In the Qlik NPrinting web console, click **Reports** on the main menu.
2. On the **Reports** screen, select your report.
3. Click the **Edit template** button to open the Qlik NPrinting Designer template editor.
4. Click the **Template** tab, and then click the **Preview** button to preview your report.  
A progress bar shows how long it will take to generate the preview. It may take several minutes, depending on the size of your report.
5. You can continue to edit your report while the preview loads. However, these changes will not be reflected in the preview.  
You can click the **Abort** button on the preview progress bar, and then restart preview to see changes you have made.
6. When you are finished editing, click **Save And Close**.

#### Previewing in different output formats

You may want to issue your report in a format that is different from its initial template. For example, you may have an Excel report you want to distribute in both .xlsx and .pdf format. You can preview the report in both formats.



*Qlik entity reports cannot be altered in the template editor, and therefore cannot be previewed.*

Each report type has different output format options:

- Excel: .xlsx, .xls, .xlsm, .tiff, .pdf, .html
- Word: .docx, .doc, .html, .pdf



- PowerPoint: .pptx, .pdf
- HTML: .html, .htm
- PixelPerfect: .pdf, .html, .xls, .xlsx, .png, .gif, .jpeg, .tiff



*Excel macros (in .xls and .xslm files) will not run in Qlik NPrinting Designer if your Microsoft Office trust settings disable macros. This is the default setting in Excel. You can change this in Excel by going to Options > Trust Center > Trust Center Settings > Macro Settings.*

Do the following:

1. Click the **Template** tab, and then click the **Preview** icon drop-down menu to see the choice of output formats valid for your report.
2. Select the output format you want to preview.

A preview of the report is generated in the format of your choice.

### Verifying user filters applied when previewing

When generating a report preview, Qlik NPrinting applies report and object filters. Task filters are not applied, because there is no task involved in a template preview.

User filters are also applied, based on your Qlik NPrinting app connection settings. You should check your connection settings to make sure preview mode is applying the correct user filters.

Do the following:

1. From the main menu, click the **Apps** drop-down, and then click **Connections**.
2. Select the connection your report is using.
3. Review your connection settings:
  - a. QlikView connections
    - If the **Connection requires authentication** check box is not selected, the preview process uses the Windows user who is running the Qlik NPrinting Engine Windows service.
    - If the **Connection requires authentication** check box is selected, but the **Apply user section access for reports** check box is not, the preview process uses the **Identity** specified in the connection.
    - If the **Connection requires authentication** and **Apply user section access for reports** check boxes are both selected, the preview process uses the Windows domain user. This is the user who is running the Qlik NPrinting Designer.
  - b. Qlik Sense connections



*Qlik Sense connections always require authentication.*

- If the **Connection requires authentication** check box is selected, but the **Apply user section access for reports** check box is not, the preview process uses the **Identity**

specified in the connection.

- If the **Connection requires authentication** and **Apply user section access for reports** check boxes are both selected, the preview process uses the Windows domain user. This is the user who is running the Qlik NPrinting Designer.

### 5.23 Reports with multiple connections

Reports can contain objects from more than one QlikView document or Qlik Sense app.



*On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.*

### Creating a new connection

Do the following:

1. Select **Apps** from the Qlik NPrinting main menu, and then select **Connections**.
2. Click **Create connection**.
3. Enter a **Name** for the connection.
4. Select an app from the **App** drop-down list.
5. Add the connection information:
  - For Qlik Sense apps: *Connecting to Qlik Sense apps (page 30)*
  - For Qlik Sense apps: *Connecting to Qlik Sense apps (page 30)*
6. Click **Create**.  
The generation of the cache starts automatically.
7. While the first connection generates, create a second connection.
8. Enter a **Name**, and select the same Qlik NPrinting app from the dropdown.
9. Add the connection information for your second connection.
10. Click **Create**.

Once both connections are **Generated**, you can start editing your report.

### Creating a new Excel report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title**.
3. Select **Excel** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Leave **Enabled** check box selected.

If you clear the **Enabled** check box, the report will persist in the repository but will not be generated. This can be useful during the development of the report. You can select **Enabled** when the development of the report is complete. You may also want to clear **Enabled** to prevent the generation of a report that you want to save for the future.

6. Click **Create** to create the report.
7. Click **Edit template** to open the **Template Editor**.

### Adding an object from Budget to the template

Do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Open the **Connection** drop-down list in the **Select Objects** window and select *Budget*.
3. Find and select the **CH332 - Top 5 Products** object in the objects list.  
You can use **Search** to find the object name or ID.
4. Click **OK**.  
You can also double-click the object row to add it to the node of the preview.
5. Drag the **CH332 - Top 5 Products** node onto a cell on the template, for example, **B6**.  
The object tag, **<CH332>**, is replaced by its content in the QlikView document when the report is generated.

### Adding an object from Sales Demo to the template

Do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Open the **Connection** drop-down list in the **Select Objects** window and select *Sales Demo*.
3. Select **CH317 - Top 5 Products** from the list.
4. Click **OK**.
5. Drag the **CH317 - Top 5 Products** node onto cell **B10** in the template.

### Running a preview

You can check the final report, filled with your data, at any time during development.

Do the following:

1. Click the **Preview** icon in the ribbon bar to get a preview in the default output format.
2. Open the drop-down menu by clicking the small arrow under the lens to select a different output format among the ones available.

The report is populated with two tables from two distinct QlikView documents.

### Saving the template

Do the following:

1. Click the small disk icon in the upper left corner of the window title bar to save the template. Save frequently because there is no auto-save feature.
2. When you have finished editing the report template, click **Save and Close** to save the template and close the **Template Editor**.

---

**See also:**

 [How to create Excel reports](#)

### 5.24 Using Qlik Sense third-party extensions

You can use Qlik Sense third-party extensions inside Qlik NPrinting reports as images, tables, and levels.

#### Requirements

All objects that have been added to a sheet can be used as images. Qlik NPrinting does not distinguish between native visualizations and extensions. However, for a third-party extension to render correctly, the JavaScript implementation of the extension needs to fulfill certain requirements. In particular, the extension must implement the "[finished rendering](#)" notification.

A third-party extension can be used as a table if:

- The object contains exactly one hypercube.
- The hypercube is either straight or stacked.

A third-party extension can be used as a level if:

- The properties of the object contain exactly one hypercube.
- The hypercube is either straight or stacked.
- The hypercube has at least one dimension.
- The hypercube contains no calculated or grouped dimensions.

Qlik NPrinting does not support the exporting or printing of visualization extensions that use:

- External resources.
- External and undocumented JavaScript modules or APIs.

#### Setting up a "finished rendering" notification

To export your third-party extension as an image, you must use the paint method to inform Qlik NPrinting that the extension has finished rendering. Otherwise, you could have blank or partially rendered images.

```
// ...  
paint : function() {  
    return qlik.Promise.resolve();  
}  
// ...
```

## 6 Excel reports

Excel reports let you export QlikView and Qlik Sense charts to Excel workbooks. You can easily make new calculations or add pivot tables.

Excel reports can be generated and shared in the following output formats: .xlsx, .xls, .xlsm, .tiff, .pdf, .html.



*Excel macros (in .xls and .xlsm files) will not run in Qlik NPrinting Designer if your Microsoft Office trust settings disable macros. This is the default setting in Excel. You can change this in Excel by going to Options > Trust Center > Trust Center Settings > Macro Settings.*

### 6.1 Formatting

As the default, Qlik NPrinting attempts to keep the original QlikView or Qlik Sense formatting when you create a new report template. Alternatively, you can apply Excel formatting. Select the chart object in the Qlik NPrinting Designer and clearing the **Keep Source Formats** check box in the **Properties** pane. Then you can customize fonts, column width, and table properties like in any Excel document.

### 6.2 Tables

You can add QlikView and Qlik Sense table objects and apply Excel table functions. For example, you can apply Excel table formatting. You can use entire QlikView or Qlik Sense tables or select specific columns.

Font and alignment formatting applied from the Excel ribbon to the heading cell will be applied to all table cells in the heading row. Font and alignment formatting applied from the ribbon to a content cell will be applied to all table cells in content rows. Number formatting will have no effect.

### 6.3 Images

You can import charts as images. The original image formatting is kept, as the default setting. For example, if the original QlikView object has a side scroll bar, you will see it in the report. You can also import entire QlikView sheets as images. Data included in objects that are imported as images cannot be edited in the final report.

Images can be embedded side-by-side. You must manually adjust the space between them to avoid overlap. Qlik NPrinting does not automatically add space or columns between images.

### 6.4 Levels

Levels take chart objects and cycle them through the values of a field. The results for each level field value are displayed in order. You can add levels to images, tables, and fields.

For example, you have a Qlik Sense app with a table listing each product you have sold in a year. You can add that table to a Qlik NPrinting report, and add a level for the Product Category field. Your generated report will have a different table for each Product Category, instead of one large table.

### 6.5 Formulas

You can use the **Formulas** node to add QlikView and Qlik Sense formulas. You can input Excel formulas directly in template cells.

### 6.6 Excel charts

You can use Qlik data to add a native Excel chart to your reports.

### 6.7 Excel pivot tables

You can create Excel pivot tables from QlikView or Qlik Sense straight tables.

### 6.8 Creating Excel reports

In this tutorial, you will create a new Excel report template with two tables and an image. You will use the **Page** feature to produce a new worksheet for each value of a field.



*You can select multiple objects or values by holding CTRL or Shift. For example, you can select multiple objects when adding objects from a list, or when dragging and dropping many columns onto the template.*

## What you will do

You will:

1. Create a new Excel report template.
2. Add a table object.
3. Create a custom table column by column.
4. Add an object as an image.
5. Use the **Page** feature to generate a new worksheet for each different sales office.

## Creating a new Excel report template

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report.

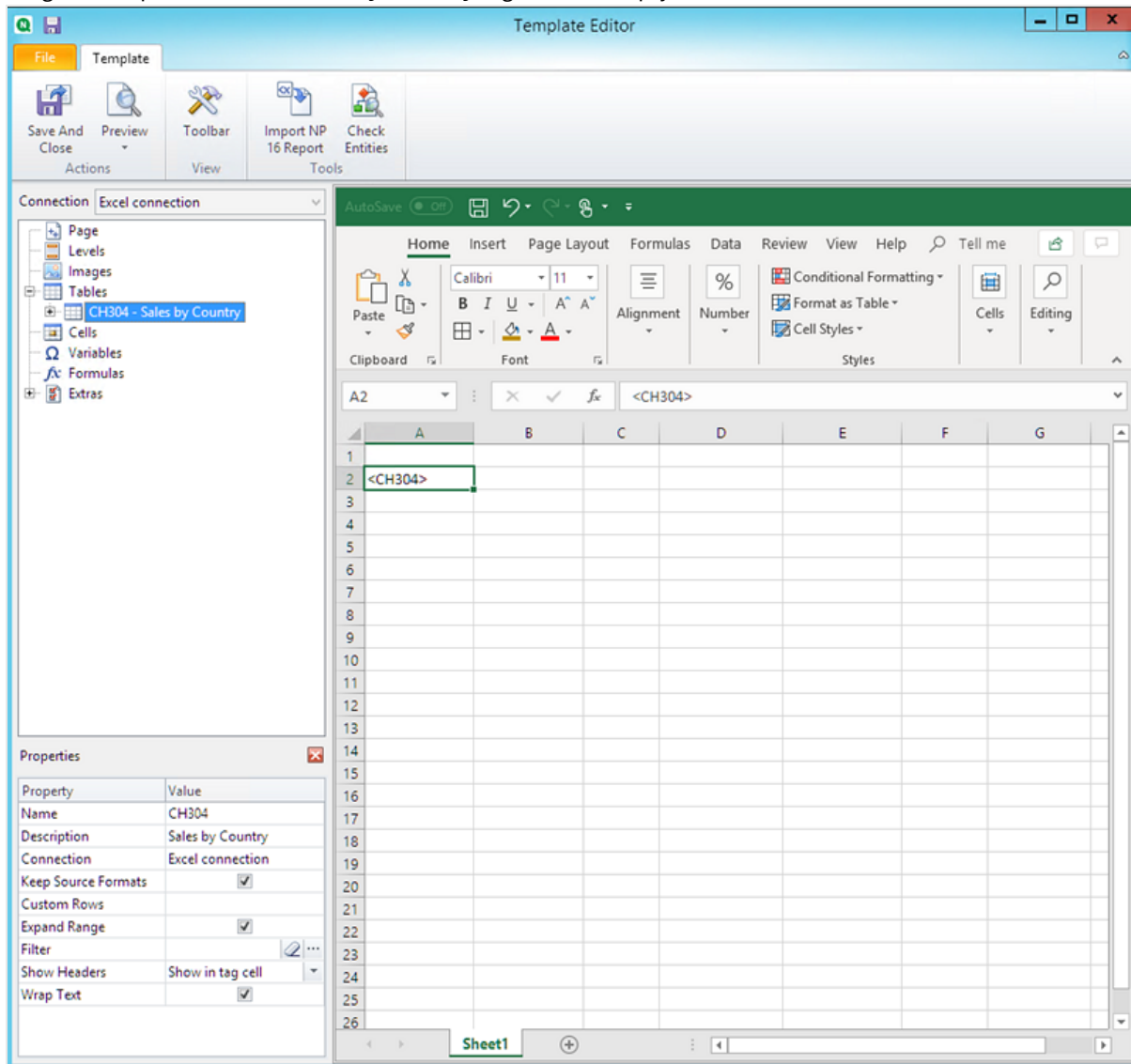
3. Select **Excel** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Select a **Template** from the options available:
  - **Empty template** - uses an empty template
  - **Default template** - use the default template (only available if a default template has been set in **Report settings**.  
See [Load an Office, HTML or PixelPerfect file as a template](#))
  - **Custom** - Choose a file to use as a template.
6. Leave the **Enabled** check box selected. If you clear it, the report will be saved, but ignored by the scheduler.
7. Click **Create** to create the report.
8. Click **Edit template** to open the **Template Editor**.

### Adding a table

Do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Select **Sales by Country** from the objects list. Click **OK**.

3. Drag and drop the **CH304 - Sales by Country** tag onto an empty cell.



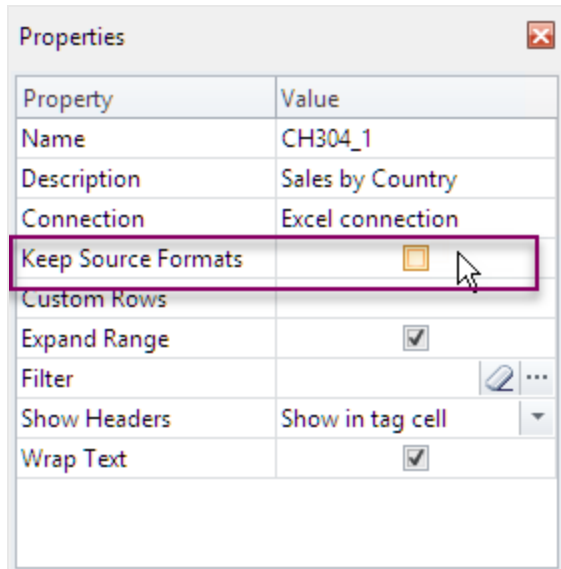
### Customize the formatting on an entire table

This causes the contents of all cells in all columns of the table to be exported from QlikView or Qlik Sense without formatting. You can apply new formatting using the Excel ribbon.

Do the following:

1. On the left-hand pane, select the table you want to customize.
2. Go to the **Properties** pane.
3. Clear the **Keep Source Formats** check box.





4. Use the Excel ribbon to customize the table.  
For example, change font size or color.

## Adding a table column by column

You can create a custom table by adding columns individually. They do not have to be in the same order as the original Qlik Sense or QlikView table.

Do the following:

1. Expand the **CH304 - Sales by Country** node.



*You can only expand the node to reveal column nodes if the object is a straight table or table box. If you do not see the +, you added a pivot table or a straight table with calculated columns.*

2. Drag and drop the column tags into cells one at a time.  
This creates a tags for each selected column with its title as a text cell that you can format.  
You can move the tags in the Excel template to obtain the column order you prefer.

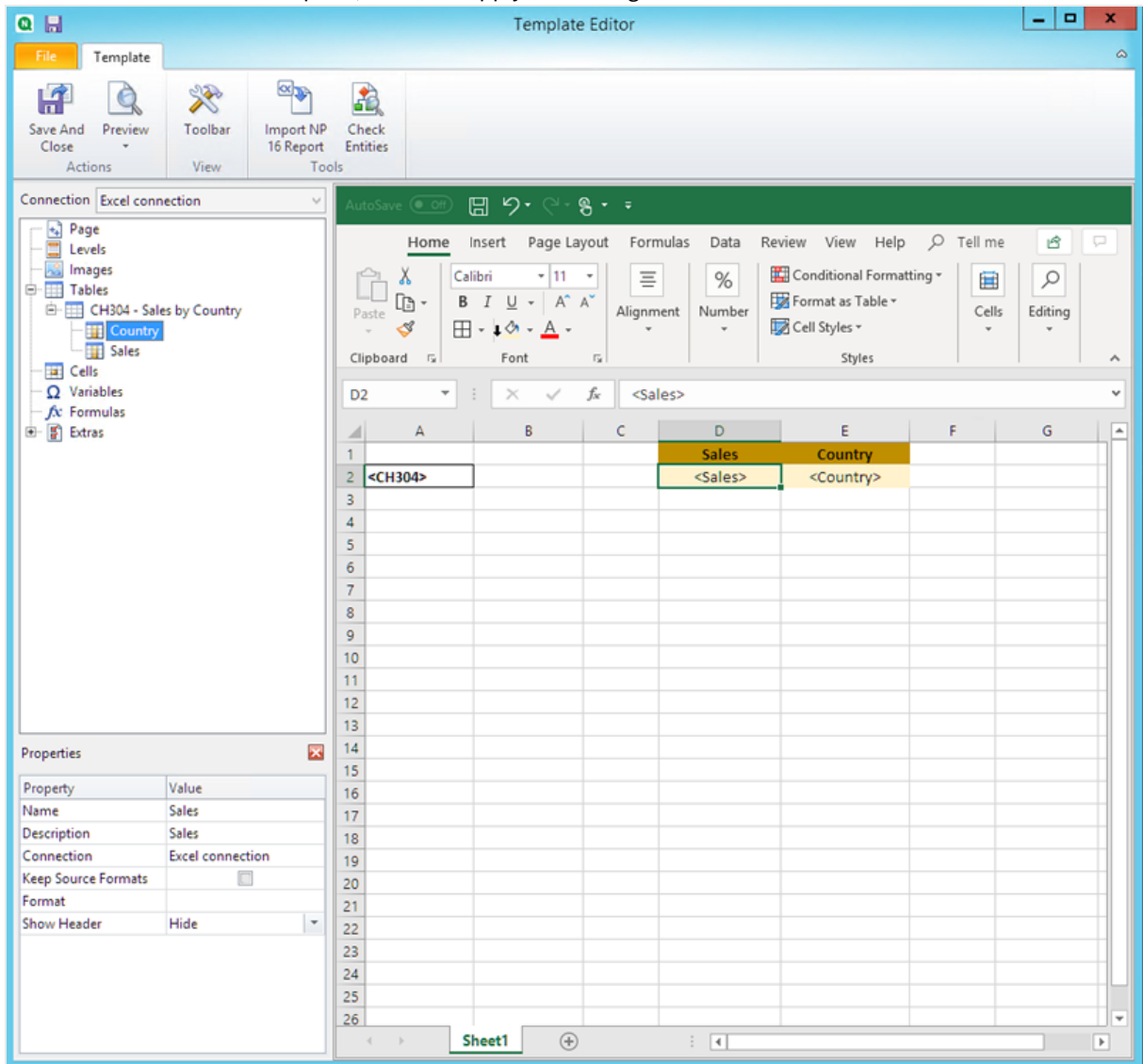
## Customize formatting on specific columns in a table

If you want to keep the source formatting for the majority of columns, leave the **Keep Source Formats** box selected for the table as a whole. You can disable **Keep Source Formats** on individual columns. This causes the content of all cells in the selected column to be exported from QlikView or Qlik Sense without formatting. You can apply formatting using the Excel ribbon.

Do the following:

1. Expand the table node by clicking the + on the left.
2. Select the column that you want to customize.
3. In the **Properties** pane, clear the **Keep Source Formats** check box.

4. Select the column in the template, and then apply formatting as desired.

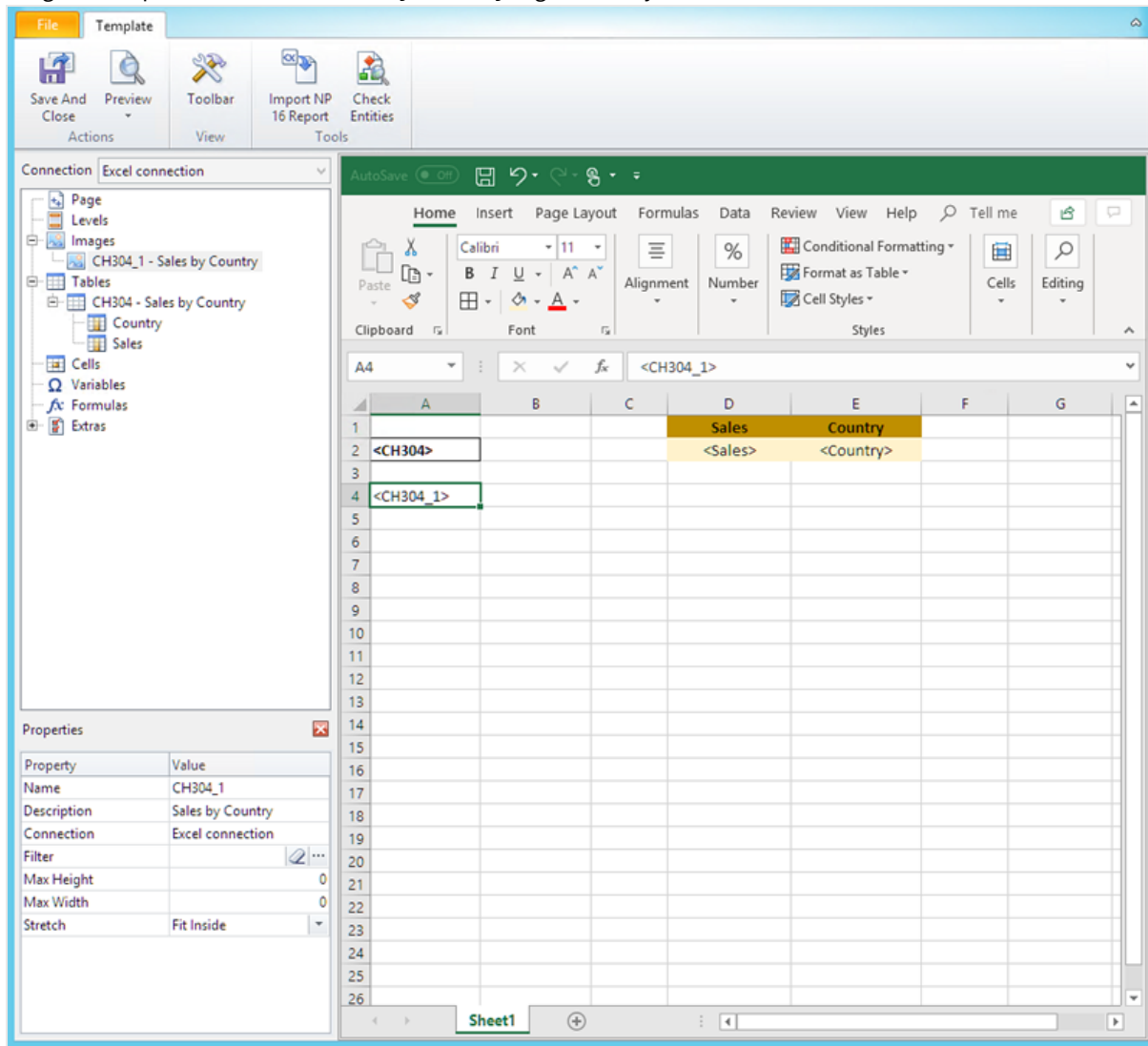


## Adding an image

Do the following:

1. Right-click the **Images** node, and select **Add objects**.
2. Select **Sales by Country** from the objects list. Click **OK**.

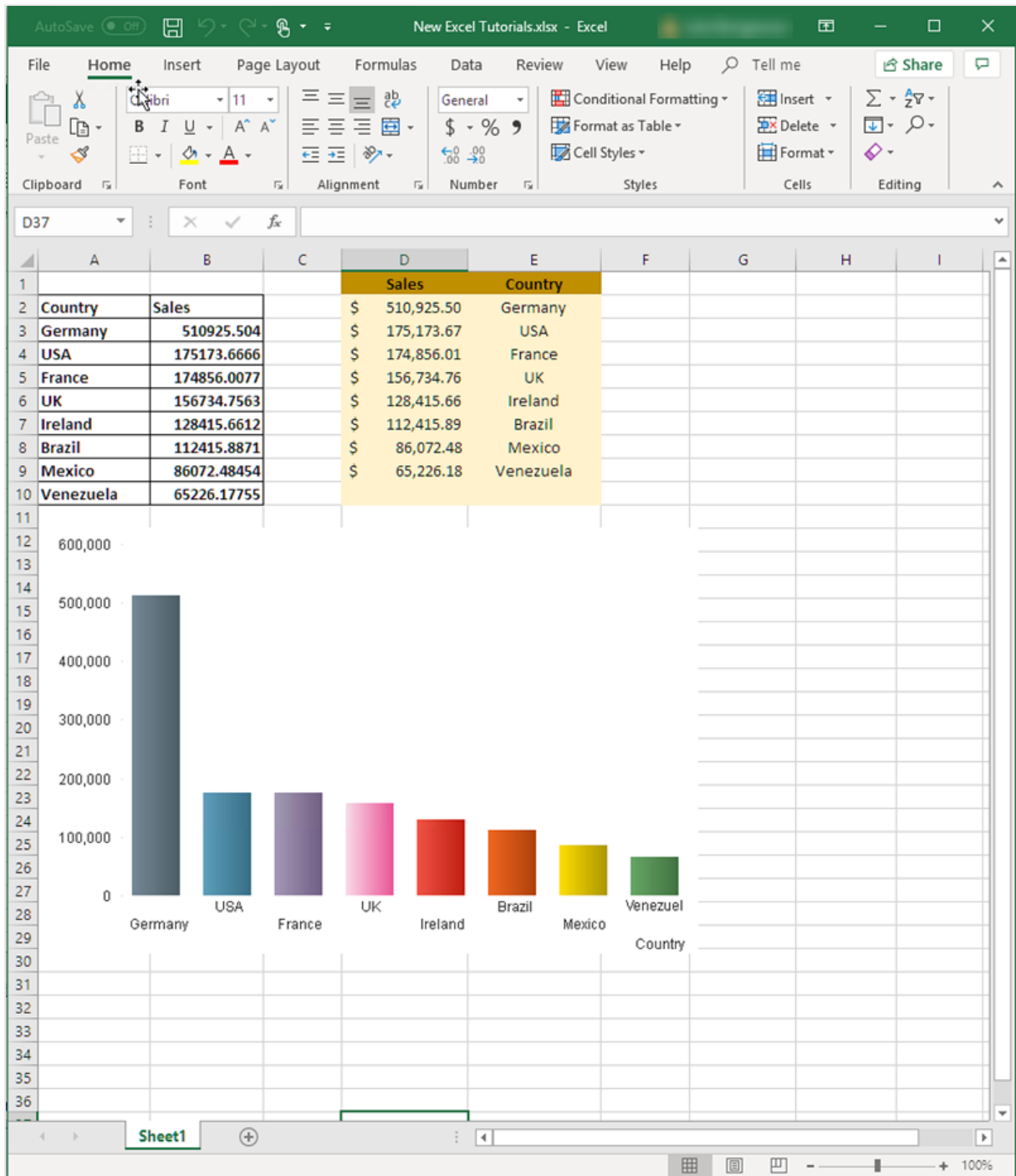
3. Drag and drop the **CH304\_1 - Sales by Country** tags onto any cell below the tables.



## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will see an Excel report with one sheet. That sheet will have the same Qlik object as an image, a table, and a table added column by column.



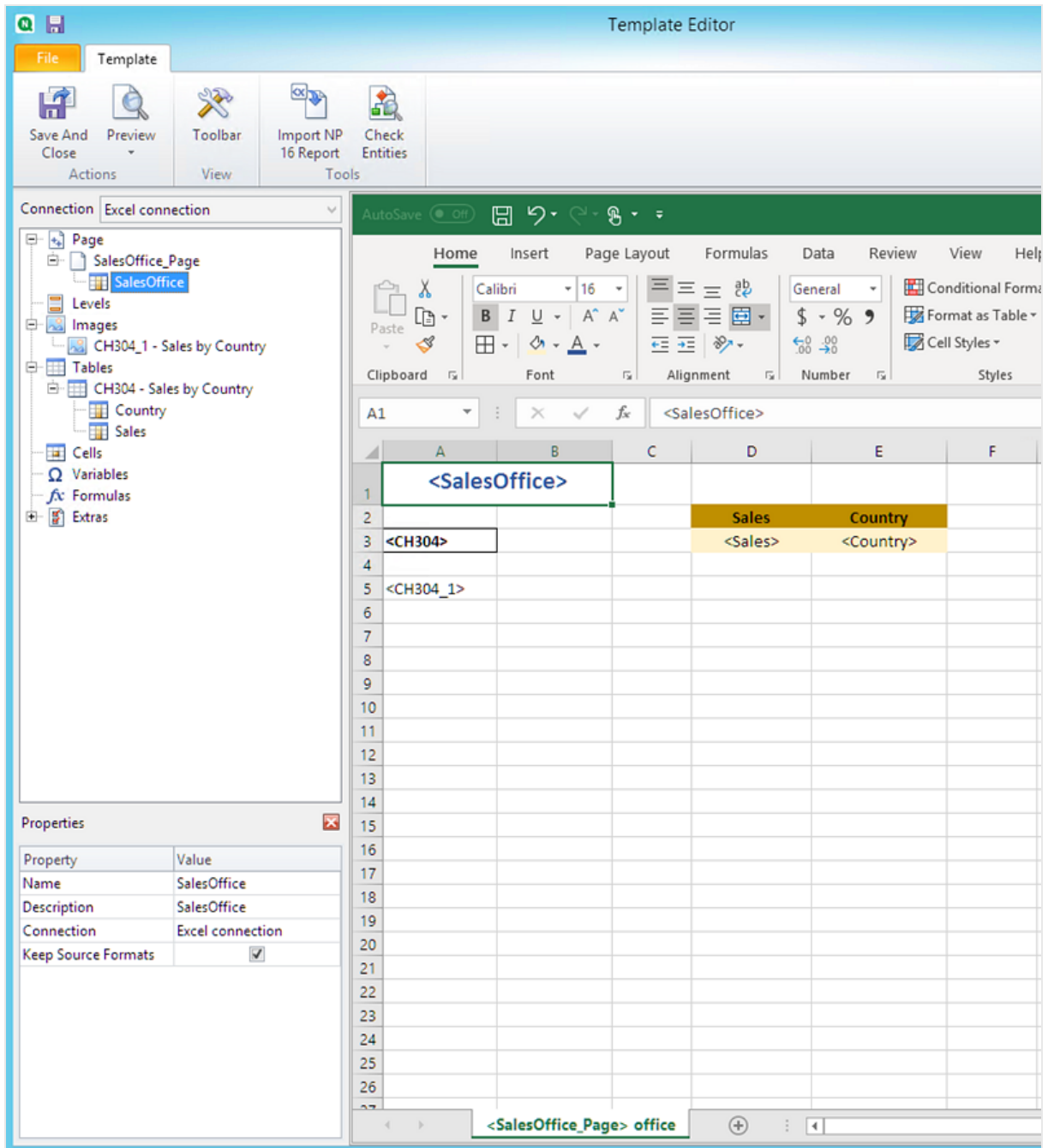
3. Close the preview window.

## Applying Pages

The **Pages** node lets you produce a report with a separate worksheet for each value of a field. For example, a different worksheet for each sales office.

Do the following:

1. Right-click the **Page** node icon in the left pane.
2. Select **Add page to current sheet**.
3. Select **SalesOffice** from the list. Click **OK**.
4. Click the **+** on the left to expand the **SalesOffice** page node.
5. Drag the **SalesOffice** node tag onto a cell in the template.  
You can format the cell using Excel formatting features.
6. The worksheet name changes to <SalesOffice\_Page> on the bottom tab. When the report is generated, this will be replaced with the related value of each worksheet.  
You can edit the worksheet name by adding text. For example: <SalesOffice\_Page> office.

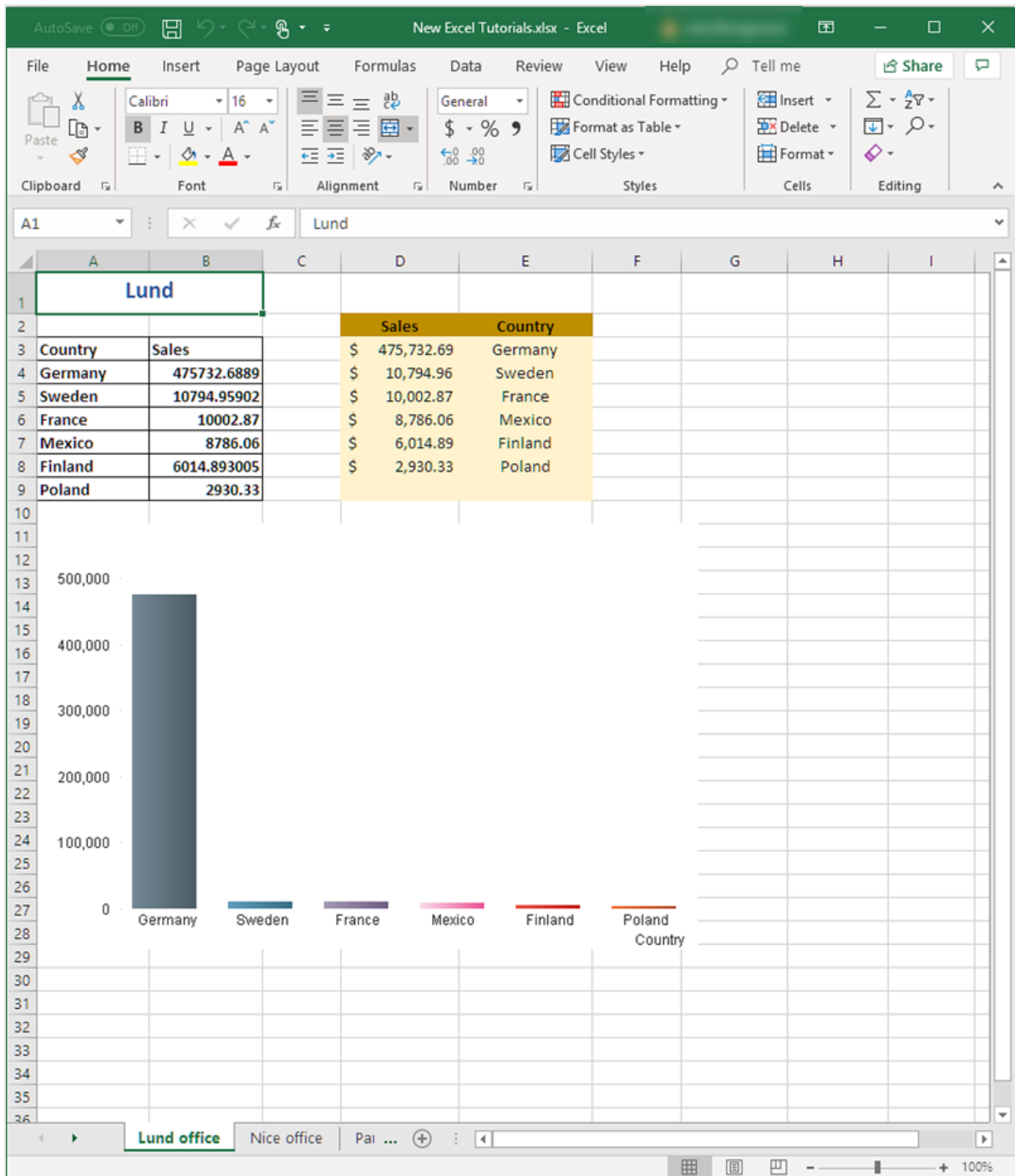


Your report will now be produced with a different worksheet for each sales office.

## Preview and save

Do the following:

1. Click **Preview**.
2. You will see a report with sales office as a title, two tables, and an image. There are now several worksheet tabs, one for each office.



3. Click **Save and Close** to save the template and close the **Template Editor**.



*To avoid having selected cells in your generated reports, always select a cell away from your report elements just before saving and closing the Template editor.*

**See also:**

- *Excel reports with levels (page 344)*
- *Creating calculated columns and rows with Excel formulas (page 361)*

## 6.9 Excel reports with levels

You can use levels to group the data in your report by a dimension. Levels can be applied to tables and images.

Levels cycle report elements through the values of a field. The results for each level field value are displayed in order.

For example, you have a Qlik Sense app with a table listing each product you have sold in a year. The table is very long and does not fit well on the Excel sheet. You can add that table to a Qlik NPrinting report, and add a level for Product Category. Your generated report will have a different table for each value of Product Category, instead of one large table.

You can create complex hierarchies with nested levels. For example, you can create a year > category hierarchy to generate a report with sales for each product category for each year. You can nest as many levels as you want, but performance will decrease with each addition of a level.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

## Performance

Report and preview generation slows down with the addition of levels. Charts and tables are extracted separately for each value in the level field, so the number of exported objects can increase significantly.

## Rules

Each level has an opening tag and a closing tag. These tags do not have to be in the same row or column, but there are some rules for how you can place them:

- The opening tag must be in a row above all the rows containing tags to be cycled. It must also be in a column to the left of, or the same as, any column containing tags to be cycled in the level.
- The closing tag must be in a row below all rows containing tags to be cycled.



- Rows containing level tags will not be present in the report. You should not put content in the same row as a level tag.
- Any empty rows included in the level range will be present in the report.
- You can verify the level range by clicking on the level node. The level range will be outlined and highlighted.

If you drag and drop a level tag into the wrong cell, you can cut and paste it somewhere else.

### What you will do

In this tutorial, you create a report where the QlikView objects inserted between the level opening and closing tags are organized by two fields. You will:

1. Embed one object as a table and one as an image.
2. Add two fields as levels so that the Excel report presents three tiers of information.
3. Add titles and headings.

### Adding an image and a table



*You can select multiple objects or values by pressing Ctrl or Shift during the selection. For example, you can select multiple objects when adding objects from a list, or when dragging and dropping many columns into the template.*

Do the following:

1. Create a new Excel report, or open an existing template.
2. Right-click the **Images** node, and select **Add objects**.
3. Select **Top 5 Salesmen** from the objects list. Click **OK**.  
Under the Images node, you will see **CH319 - Top 5 Salesmen**.
4. Right-click the **Tables** node, and select **Add objects**.
5. Select **Top 5 Customers**. Click **OK**.  
Under the Tables node, you will see **CH318 - Top 5 Customers**.
6. Drag the **CH318 - Top 5 Customers** and **CH319 - Top 5 Salesmen** tokens onto empty cells in the same row.

Make sure there are three or four empty columns between them.

The screenshot displays the Microsoft Excel interface for report design. On the left, the 'Table of Contents' pane shows a hierarchy: Page, Levels, Images (with sub-items 'CH319 - Top 5 Salesmen' and 'CH318 - Top 5 Customers'), Tables, Cells, Variables, Formulas, and Extras. The main workspace shows a spreadsheet grid with columns A through G and rows 1 through 28. Cell A3 contains the text '<CH318>' and cell F3 contains '<CH319>'. The ribbon is set to 'Home', showing font settings (Calibri, 11) and alignment options. The status bar at the bottom indicates 'Sheet1'.

## Adding the first level

Levels have opening and closing tags that your table and image tags need to sit inside. The opening tag must be in a row above the objects you want to cycle. The closing tag must be in a row below.

Do the following:

1. Right-click the **Levels** node, and select **Add levels**.
2. Select **Year** from the list. Click **OK**.
3. Right-click the **Levels** node, and select **Add levels**.

4. Select **CategoryName**. Click **OK**.
5. From the left pane, drag and drop the **Year\_Level** token onto empty cells in the worksheet.
6. Move the **<Year\_Level>** opening tag so it is in a row above all rows you want to include in the cycle.  
It must also be in the same column as (or a column to the left of) all columns to be repeated in the cycle.  
Empty rows included in the level range will be reproduced in the cycle.
7. The closing level tag **</Year\_Level>** must be in a row below any rows you want to include in the level cycle.

You can verify which elements are included in the cycle by clicking on the **Year\_Level** node in the left pane. This highlights the level range.

The screenshot displays the QlikView interface with an Excel connection. The left pane shows a tree view of the data model, with the **Year\_Level** node selected. The main window shows a worksheet with the following content:

	A	B	C	D	E	F	G
1							
2							
3	<Year_Level>						
4	<Year>						
5	<CH318>					<CH319>	
6							
7	</Year_Level>						
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							

The Properties pane at the bottom left shows the following details for the selected **Year\_Level** node:

Property	Value
Name	Year_Level
Description	
Connection	Excel connection

8. You can include a dynamic, customizable heading for the level cycle. Expand the **Year\_Level** node and click on the **Year** node token. In the **Properties** pane, clear the **Keep Source Formats** check box.

The screenshot shows the QlikView interface with the Properties pane open for the 'Year' node. The 'Keep Source Formats' checkbox is unchecked. The Excel sheet displays the rendered report structure with the following content:

	A	B	C	D	E	F	G
1							
2							
3	<Year_Level>						
4	<Year>						
5	<CH318>					<CH319>	
6							
7	</Year_Level>						
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

9. Drag the **Year** tag onto the Excel sheet, in a row below the <Year\_Level> opening tag. You can format the **Year** tag the same way you would format any text in Excel.

## Adding the second level

We are going to add a second level, **CategoryName\_Level**, above **Year\_Level**. This means that your report will be organized by product category, and then year.

### Example: Product category > Year

1. Baby clothes
  - a. 2012
  - b. 2013

- c. 2014
- 2. Men's shoes
  - a. 2012
  - b. 2013
  - c. 2014

You can also do the opposite, and nest **CategoryName\_Level** inside year.

**Example: Year > Product category**

- 1. 2012
  - a. Baby clothes
  - b. Men's shoes
- 2. 2013
  - a. Baby clothes
  - b. Men's shoes
- 3. 2014
  - a. Baby clothes
  - b. Men's shoes

Do the following:

1. From the left pane, drag the **CategoryName\_Level** token onto an empty part of the sheet.
2. Position the **<CategoryName\_Level>** opening tag above the **<Year\_Level>** token. It must also be in the same column or a column to the left of **<Year\_Level>**. Add a new column on the left if you need.
3. Place the **</CategoryName\_Level>** closing tag in a row below all other objects.
4. If you want to include a dynamic **CategoryName** heading: in the left pane, expand the **CategoryName\_Level** node in the left pane by clicking on the **+**.
5. Drag and drop the **CategoryName** node token into the row directly beneath the **<CategoryName\_Level>** opening tag.

You can format the tag the same way you would format any text in Excel.

The screenshot shows the Microsoft Excel interface with a report preview. The report is displayed in a grid with columns A through G and rows 1 through 23. The tags are: Row 2: <CategoryName\_Level>, Row 3: <CategoryName> (bold green), Row 5: <Year\_Level>, Row 6: <Year> (bold purple), Row 8: <CH318>, Row 9: <CH319>, Row 10: </Year\_Level>, Row 11: </CategoryName\_Level>. The Properties pane on the left shows: Name: CategoryName, Description: CategoryName, Connection: Excel connection, Keep Source Formats: unchecked, Format: empty.

## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will have a report organized by your first level, and then your second level.

	A	B	C	D	E	F	G	H	I	J	K
1											
2	<b>Babywear</b>										
3											
4		<b>2012</b>									
5											
6		<b>Customer</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>		<b>Salesman</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>	
7		Boleros	2,556	542	21.2%		Leif Shine	4,028	960	23.8%	
8		Warp AG	1,653	484	29.3%		Helen Brolin	3,635	938	25.8%	
9		The Corner Store	1,606	462	28.7%		Rock Roll	2,550	624	24.5%	
10		Golden Design					Rob Carsson	2,187	364	16.7%	
11		Group	1,053	200	19.0%		Lennart Sk...	1,504	288	19.1%	
12		Grunewald	1,026	269	26.3%						
13		<b>2013</b>									
14											
15		<b>Customer</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>		<b>Salesman</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>	
16		Boleros	5,399	1,464	27.1%		Rob Carsson	14,165	3,547	25.0%	
17		Grunewald	4,878	1,130	23.2%		Tom Lindwall	8,509	1,908	22.4%	
18		The Corner Store	4,042	968	23.9%		Rock Roll	6,240	1,463	23.4%	
19		Champes	3,299	691	21.0%		Helen Brolin	4,514	861	19.1%	
20		El Zapato Rojo	2,851	559	19.6%		Leif Shine	3,973	814	20.5%	
21											
22		<b>2014</b>									
23											
24		<b>Customer</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>		<b>Salesman</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>	
25		Boleros	9,824	2,160	22.0%		Helen Brolin	23,648	4,725	20.0%	
26		Grunewald	7,978	1,723	21.6%		Tom Lindwall	12,550	2,453	19.5%	
27		Th Fashing	5,802	981	16.9%		Rob Carsson	12,283	2,072	16.9%	
28		Millenium	3,045	372	12.2%		Rock Roll	10,869	2,110	19.4%	
29		Noch Einmal					Ingrid Hendrix	4,181	916	21.9%	
30		GMBH	2,887	657	22.8%						
31	<b>Bath Clothes</b>										
32											
33		<b>2012</b>									
34											
35		<b>Customer</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>		<b>Salesman</b>	<b>Total Sales</b>	<b>Gross Profit</b>	<b>GP%</b>	
36		The Corner Store	1,399	324	23.2%		Rob Carsson	3,278	586	17.9%	
37		Th Fashing	863	194	22.5%		Rock Roll	1,628	369	22.6%	
38		Urras Shop	826	142	17.2%		Helen Brolin	1,590	374	23.5%	
39		Noch Einmal					Joan Callins	585	120	20.5%	
		GMBH	643	94	14.6%		Lennart Sk...	474	90	19.0%	

- Click **Save and Close** to save the template, and close the **Template Editor**.

**See also:**

- *Creating calculated columns and rows with Excel formulas (page 361)*
- *Creating calculated columns and rows with Excel formulas (page 361)*

## 6.10 Excel reports with nested levels and subtotals

You can nest levels to create a hierarchy and use Excel formulas to make calculations.

For example, you can create a year > category hierarchy to obtain a report with sales for each product category for each year. You can add summary formulas and labels to each level of the report to show which values are displayed in that level.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

### What you will do

In this tutorial, the QlikView objects inserted between the level opening and closing tags will be sub-divided in the final report.

You will:

1. Create a custom table by adding two table columns.
2. Add two fields as levels so that the Excel report presents three tiers of information.
3. Add SUM formulas so your tables have totals and subtotals.
4. Customize SUM formulas using Excel formatting. This tutorial has suggested formatting, but you can customize your design to your specifications.

### Creating a new Excel report

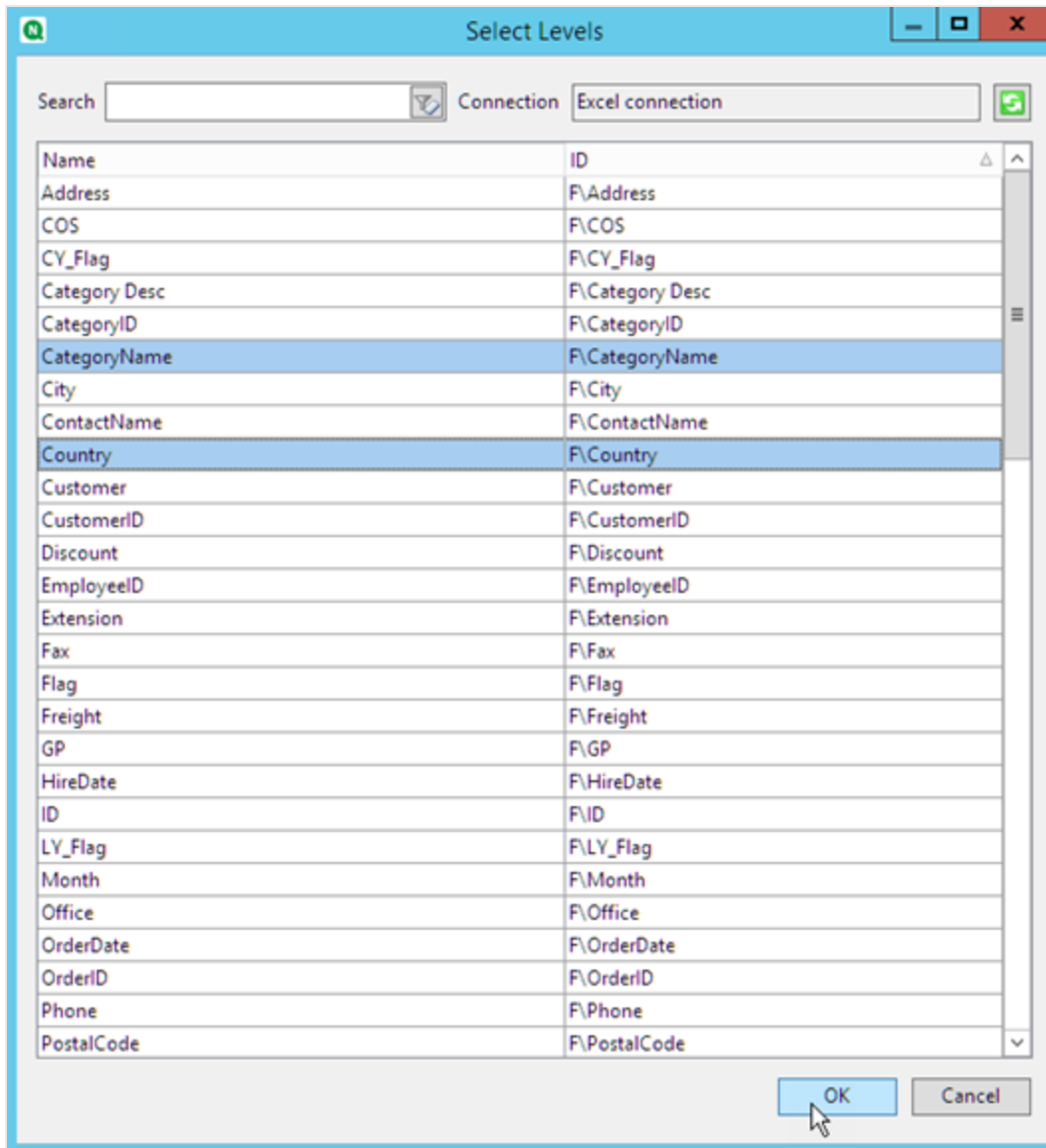
Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *Report with nested levels and subtotals*.
3. Select **Excel** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.



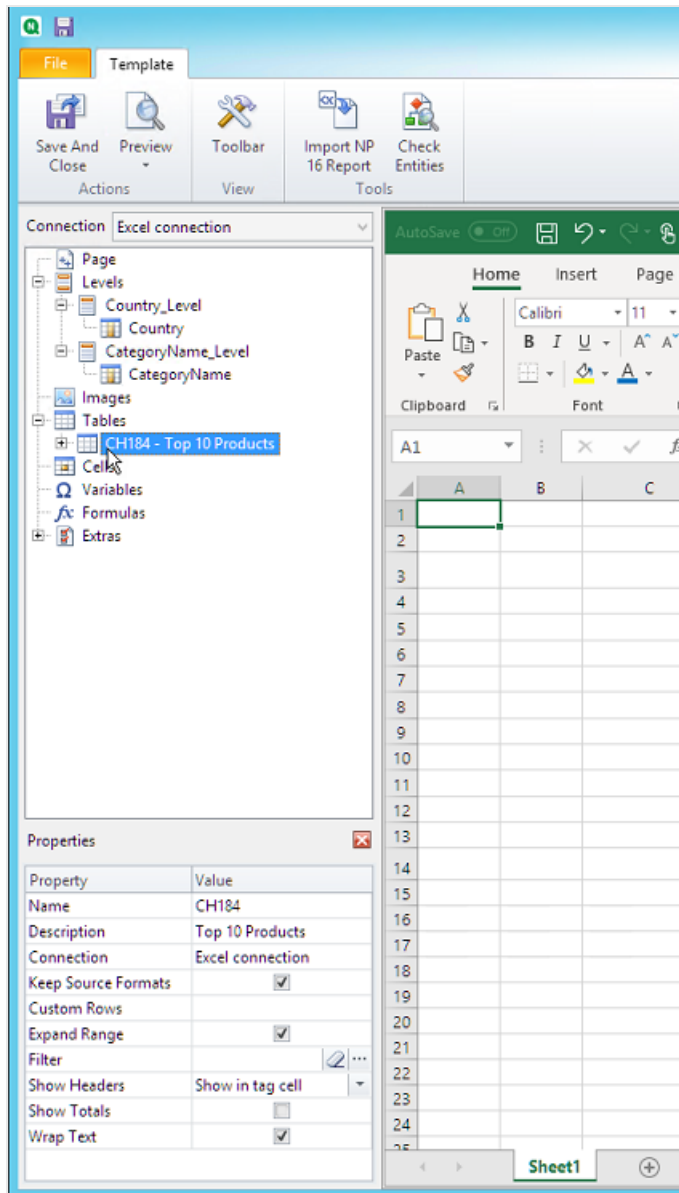
## Choosing levels and table objects

1. Right-click the **Levels** node, and select **Add levels**.
2. Click the objects that you want to add. For example, add the **Country** and **CategoryName** fields. You can hold down CTRL or Shift to select multiple items.
3. Click **OK**.



4. Right-click the **Tables** node, and select **Add objects**.
5. Click the object that you want to add. For example, select Top 10 Products.

6. Click **OK**.



## Adding the table

You can add the entire table object to the template. In this example, you will only add two columns.

Do the following:

1. Under the **Tables** node, expand the Top 10 Products node.
2. Click on **Total Sales**. In the **Properties** pane, clear **Keep Source Formats**.
3. Repeat for **ProductName**.
4. Drag the **ProductName** and **Total Sales** nodes onto empty cells in the template. For example, cells **D6** and **E6**.

5. Click on <Total Sales>, and format as currency.
6. In cell **E8**, enter the Excel formula: =SUM(E6:E7).  
This formula includes an empty row, so Qlik NPrinting will add rows as necessary to contain all values.
7. In cell **D8**, type *Total*.
8. Format cell **E8** using Excel formatting.  
For example:
  - 12px bold font
  - Right justified alignment
  - Custom = Accounting with no digits to the right of the decimal point.

The screenshot shows the Microsoft Excel interface with a Qlik NPrinting report. The report is displayed in a grid with columns A through E and rows 1 through 19. The report content is as follows:

	A	B	C	D	E
1					
2					
3					
4					
5				Product Name	Total Sales
6				<Product Name>	<Total Sales>
7					
8				Total:	\$0.00
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

The Excel interface shows the Home tab with font settings (Calibri, 11) and alignment settings (right-aligned). The Properties pane on the left shows the report's connection to an Excel data source.

## Adding the first level

Do the following:

1. Drag the **Country\_Level** node onto cell **C4**.
2. Move the </Country\_Level> closing tag down to **C10**, so that **Country Level** includes the cell containing the SUM, and an empty row.
3. Click + to expand the **Country\_Level** node.

4. Drag the **Country** node token onto cell **C6**.  
This adds a dynamic title.
5. Format cell **C6** to 12px and bold.
6. In cell **E11**, enter the formula:  $=SUM(E6:E10)/2$ .  
The sum is divided by two because the SUM function will include all values, including the sum of those values that are in cell **E8**.
7. Format cell **E11** to:
  - 12px bold font
  - Right justified alignment
  - Custom = Accounting with no digits to the right of the decimal point.

The screenshot displays the QlikView interface with an Excel connection. The left pane shows the data model structure, including levels like Country\_Level and CategoryName\_Level, and tables like CH184 - Top 10 Products. The main window shows a report table with the following content:

	A	B	C	D	E
1					
2					
3					
4			<Country_Level>		
5			<Country>	Product Name	Total Sales
6				<Product Name>	<Total Sales>
7					
8				<b>Total:</b>	<b>\$0.00</b>
9					
10			</Country_Level>		
11					<b>\$0.00</b>
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

The Properties pane shows the following details for the selected table:

Property	Value
Name	CategoryName
Description	CategoryName
Connection	Excel connection
Keep Source Formats	<input checked="" type="checkbox"/>

## Adding the second level

Do the following:

1. Drag the **CategoryName\_Level** node token onto cell **A2**.
2. Drag the `</CategoryName_Level>` closing tag down to **A14**.
3. Click **+** to expand the **CategoryName\_Level** node.
4. Drag the **CategoryName** node token onto cell **B3**.  
This adds a dynamic title.
5. Format cell **B3** to 16px bold font.
6. Drag a second **CategoryName** node to cell **D11**. Double-click this cell and add the word "total", so the cell displays `<CategoryName> total:`.
7. In cell **D14**, type in *Grand total:*.
8. In cell **E14**, enter the formula: `=SUM(E2:E14)/3`  
The sum is divided by three because the SUM function will add all the values, including the subtotals in cells **E8** and **E11**.
9. Format cell **E14** to:
  - 14px bold font
  - Right justified alignment
  - Custom = Accounting with no digits to the right of the decimal point.

The screenshot shows the Microsoft Excel interface with a report preview. The report is organized by category, with a grand total of \$0.00. The report includes columns for Product Name, Total Sales, and Grand total. The report is displayed in a table format with rows for each category and a total row.

	Product Name	Total Sales
<CategoryName_Level>		
<CategoryName>		
<Country_Level>		
<Country>	Product Name	Total Sales
	<Product Name>	<Total Sales>
	<b>Total:</b>	<b>\$0.00</b>
</Country_Level>		
<CategoryName_Level>	<CategoryName > total:	\$0.00
</CategoryName_Level>		
	<b>Grand total:</b>	<b>\$0.00</b>

## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will have a report organized by your first level, and then your second level.

	A	B	C	D	E
1					
2	<b>Babywear</b>				
3			<b>Argentina</b>	<b>Product Name</b>	<b>Total Sales</b>
4				Aino Shoes	\$116.45
5				Duck Shirt	\$96.30
6				Rodbye Troje	\$34.05
7				Mehmet-Napp	\$11.90
8					
9				<b>Total:</b>	<b>\$258.70</b>
10					
11			<b>Austria</b>	<b>Product Name</b>	<b>Total Sales</b>
12				Aino Shoes	\$2,046.66
13				Deuce shirt	\$1,068.90
14				Sapporoo Gloves	\$724.50
15				Duck Trousers	\$488.59
16				Duck Shirt	\$316.75
17				Mehmet-Tröja	\$219.30
18				Mehmet-Napp	\$35.10
19					
20				<b>Total:</b>	<b>\$4,899.80</b>
21					
22			<b>Brazil</b>	<b>Product Name</b>	<b>Total Sales</b>
23				Baby Dark Lounge Suit	\$2,613.68
24				Ga-Ga Dress	\$2,368.02
25				Deuce shirt	\$1,169.70
26				Aino Shoes	\$1,029.60
27				Sapporoo Gloves	\$688.40
28				Duck Trousers	\$638.71
29				Mehmet-Tröja	\$391.14
30				Rodbye Troje	\$306.77
31				Duck Shirt	\$293.46
32					
33				<b>Total:</b>	<b>\$9,499.48</b>
34					

3. Each table will have a total underneath. Each category will have a total with a dynamic label.





<b>Venezuela</b>	<b>Product Name</b>	<b>Total Sales</b>
	Jumpin Jack Flash Dress	\$5,109.72
	Terence Top	\$1,570.84
	Chantell Shirt	\$1,400.96
	Okkaba Skin Jackets	\$713.90
	Skirt	\$595.37
	Stretch oui-pants	\$212.94
	Sumi Underwear	\$130.60
	<b>Total:</b>	<b>\$9,734.33</b>
	<b>Women's Wear total:</b>	<b>\$651,862.20</b>
	<b>Grand total:</b>	<b>\$1,683,115.51</b>

5. Click **Save and Close** to save the template, and close the **Template Editor**.

## 6.11 Creating calculated columns and rows with Excel formulas

Excel formulas let you add calculated columns and row totals that do not exist in your original QlikView document or Qlik Sense app.

### What you will do

You will:

1. Add row totals using the SUM function.
2. Add calculated columns. You can do this in two different ways:
  - a. Excel tables: You create a table using Excel table tools. This method results in better report creation performance, but requires more advanced Excel skills. We recommend using this approach.
  - b. Levels: You insert field tags in a level, and then add Excel formulas. This is easy to implement, but using levels can impact report generation performance.

This page shows how to create calculated columns using both approaches. To demonstrate, a third column will be calculated by subtracting the values in one column from the values in another column. Then the derived values of the third column will be divided by the corresponding values from one of the original two columns.

### About calculations

If you want to minimize report creation time, you can add desired calculations to the QlikView or Qlik Sense reload script.

This example uses simple Excel formulas, but you can insert more complex formulas if needed. You can also insert Qlik formulas.

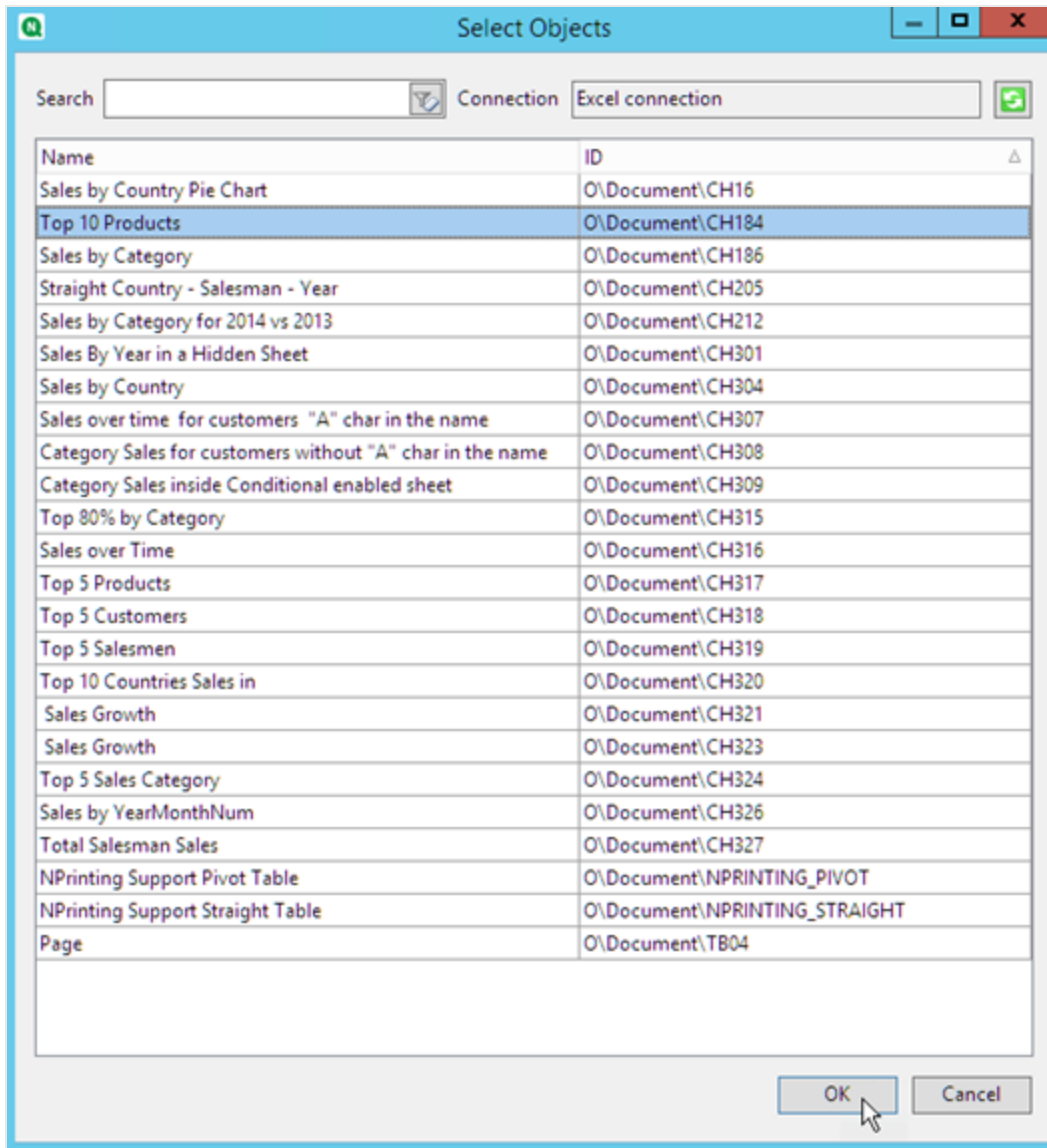
### Adding an Excel table with calculated columns and totals

This is the first way to create calculated columns. You will add the source QlikView object to the Tables node, and then create an Excel table.

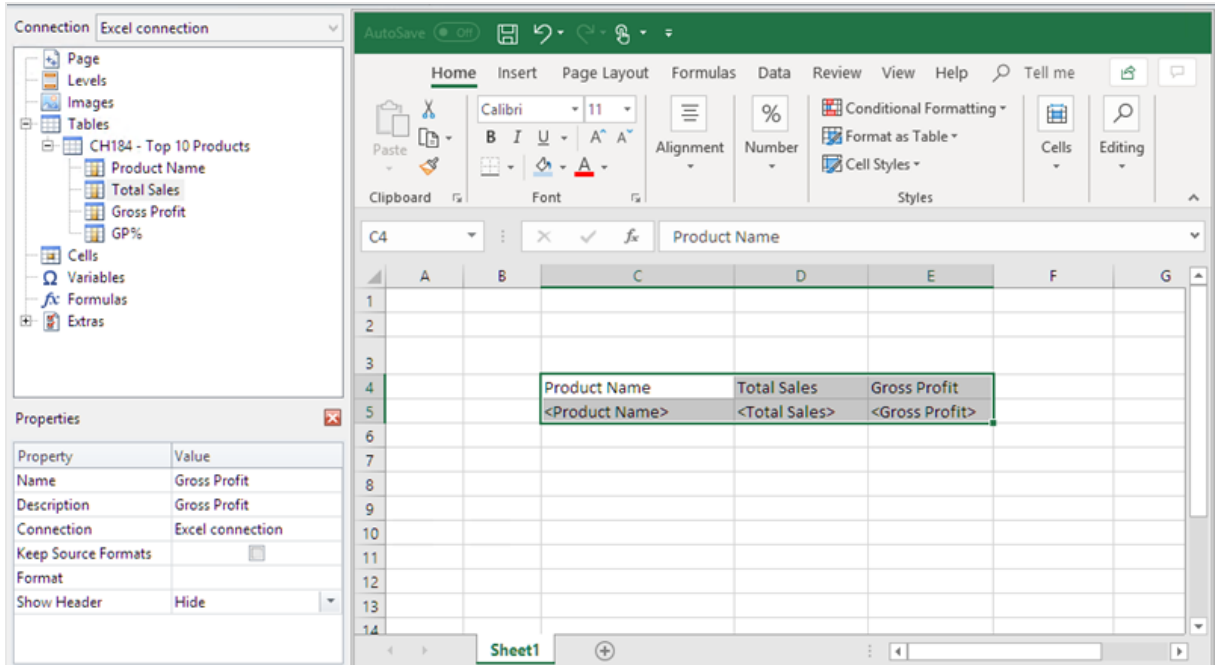
#### Adding the table

Do the following:

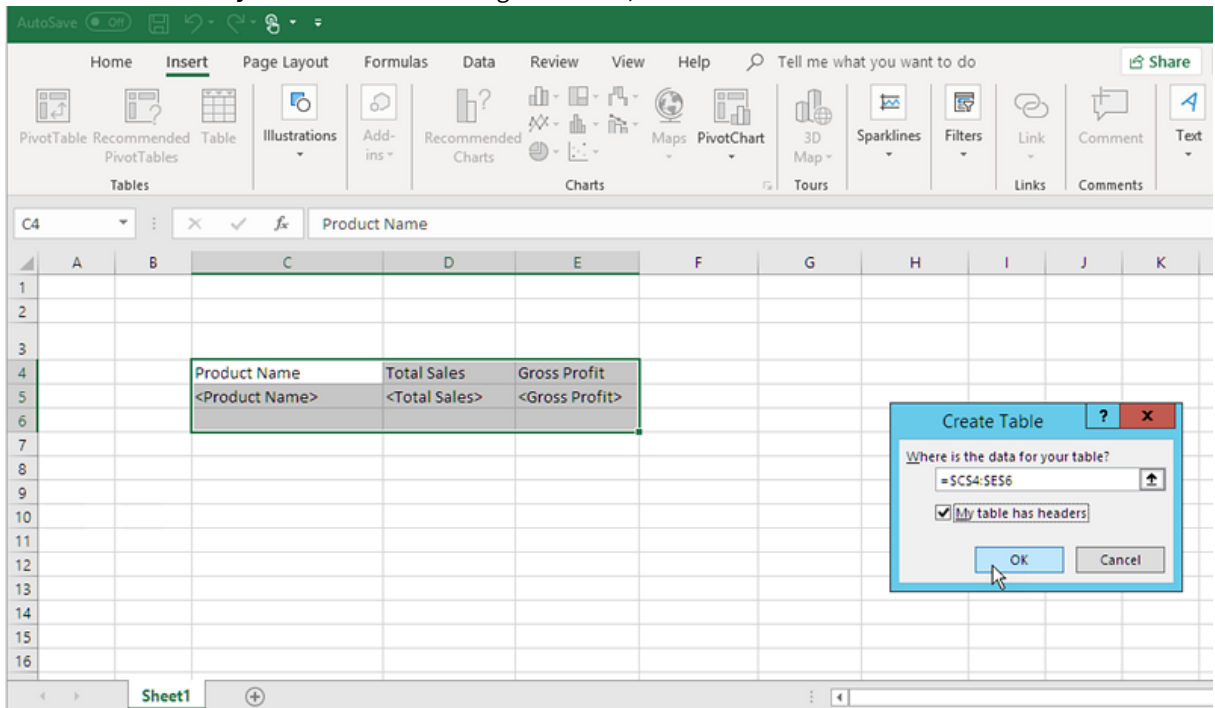
1. Create a new Excelreport, or open an existing one.
2. Right-click the **Tables** node, and select **Add objects**.
3. Select a chart from the list. For example, add **Top 10 Products**. Click **OK**.



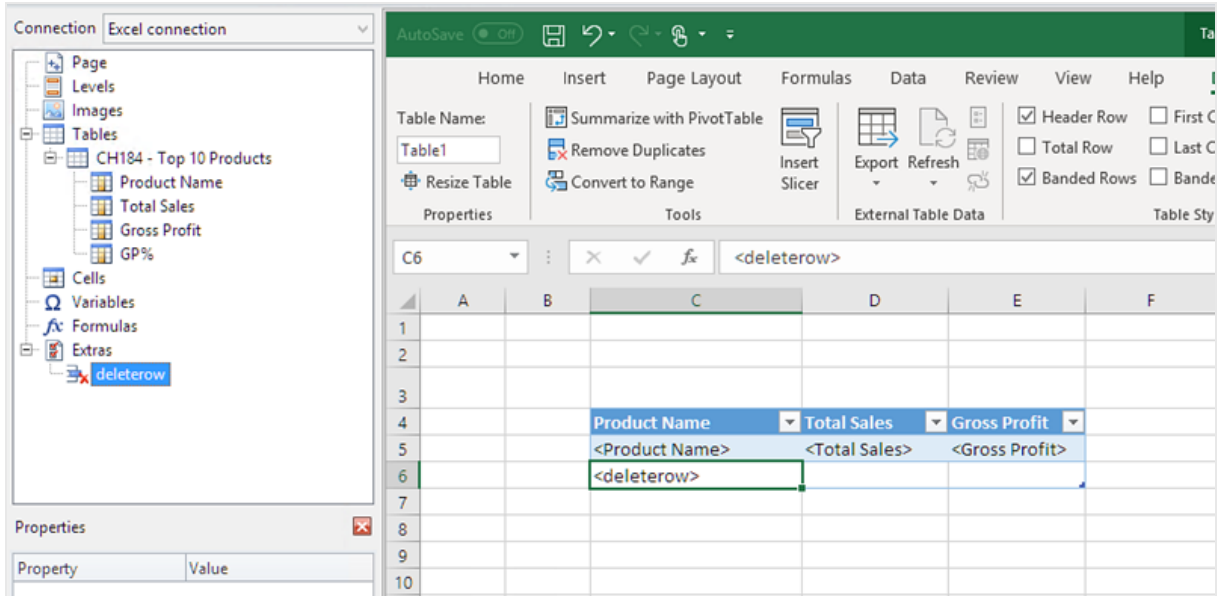
4. Click + on the left to expand the **CH184\_Table - Top 10 Products** table node.
5. One at a time, select each column under **CH184\_Table - Top 10 Products**, and clear **Keep Source Formats**.
6. Hold CTRL and select the table fields you want to add to the sheet.  
For example: **Product Name**, **Total Sales** and **Gross Profit**. Drag them onto an empty row of cells.



7. Select the cells that contain the heading, the field tags, and one blank row below.
8. In the Excel ribbon, click the **Insert** tab, and then click **Table**.
9. Make sure that the **My table has headers** flag is enabled, and then click **OK**.



10. On the left pane, click **Extras**. Drag a **deleterow** tag onto a cell in the empty row below the table.

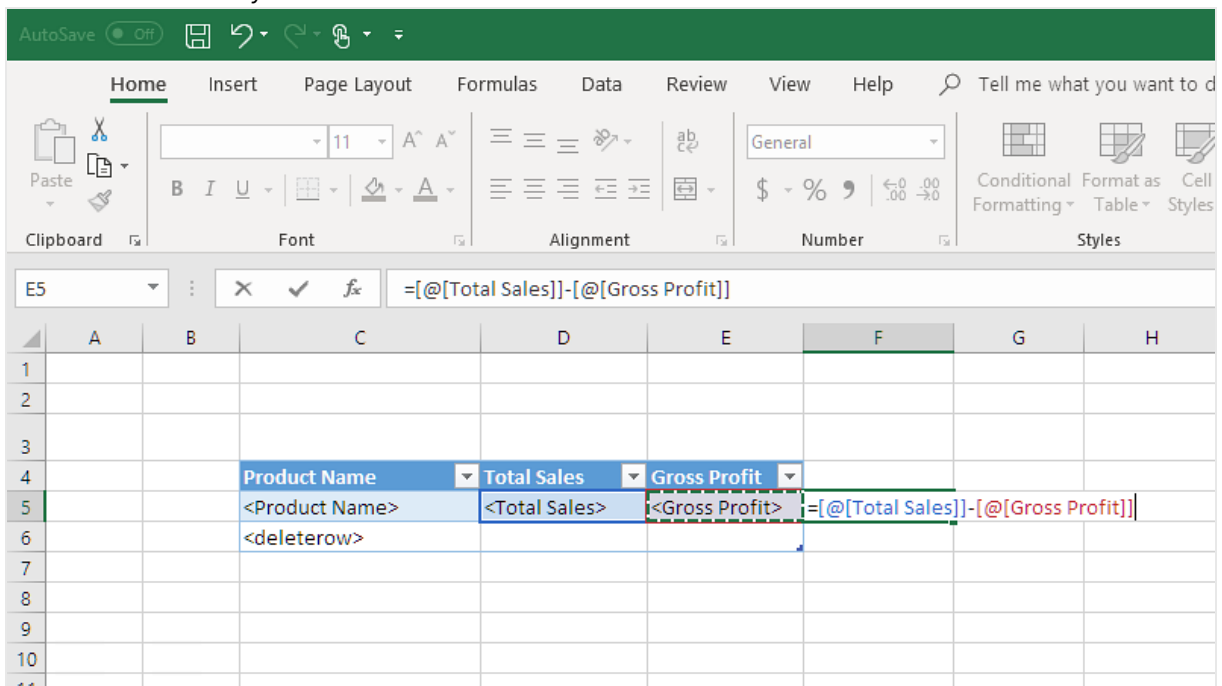


This will remove the empty row from the final report.

## Adding the calculated column

Do the following:

1. Select the first empty cell to the right of the field tags.
2. Insert the formula  $=[@[Total Sales]]-[@[Gross Profit]]$ .  
Excel will automatically add this new column to the table.



3. Type a column heading. For example: Costs.
4. Then use the Excel table design tool to apply formatting.

## Adding totals

Do the following:

1. Select an empty cell below the table. For example, **D8**.
2. Enter a SUM formula in the cell. The range of the SUM function needs to include:
  - The address of the cell in the row containing the level opening tag.
  - The cell containing the field tag.
  - The address of at least one empty cell immediately below it.

In this example, the function would read: `=SUM(D4:7)`.

3. Click and drag this formula to **E8** and **F8**.
4. Apply Excel formatting tools to the elements of the row.  
For example: **Total Sales** and **Gross Profit** totals could have the **Currency** format.

The screenshot shows an Excel spreadsheet with a table. The table has four columns: Product Name, Total Sales, Gross Profits, and Costs. The rows are numbered 1 to 11. Row 4 is the header row. Row 5 contains placeholder text: <Product Name>, <Total Sales>, <Gross Profit>, and #VALUE!. Row 6 contains placeholder text: <deleterow> and 0. Row 8 is the 'Totals' row, with the first cell containing 'Totals:' and the next three cells containing '\$ -', '\$ -', and '#VALUE!'. The formula bar shows the formula =SUM(D4:D7) in cell D8. The Properties pane on the left shows the table name 'CH184 - Top 10 Products' and its description 'Top 10 Products'.

## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will see a table, with the one column containing your calculated results. The bottom row will contain column totals.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1							
2							
3							
4			<b>Product Name</b>	<b>Total Sales</b>	<b>Gross Profits</b>	<b>Costs</b>	
5			Minnki Pälsii	\$ 408,674.51	\$ 81,839.94	\$ 326,834.56	
6			Davenport	\$ 97,370.08	\$ 20,946.24	\$ 76,423.83	
7			Snake Boots	\$ 91,025.31	\$ 19,549.14	\$ 71,476.17	
8			Le Baby Dress	\$ 50,607.82	\$ 10,027.40	\$ 40,580.42	
9			High Heels Shoes	\$ 50,604.67	\$ 10,521.16	\$ 40,083.51	
10			Jumpin Jack Flash Dress	\$ 46,550.00	\$ 9,165.03	\$ 37,384.96	
11			Terence Top	\$ 45,288.56	\$ 8,865.95	\$ 36,422.61	
12			Small Crocodile Boots	\$ 42,222.95	\$ 8,510.22	\$ 33,712.73	
13			Okkaba Skin Jackets	\$ 38,085.37	\$ 8,318.94	\$ 29,766.43	
14			Feiss Fleece Trousers	\$ 38,005.07	\$ 9,033.44	\$ 28,971.63	
15							
16			<b>Totals:</b>	<b>\$ 908,434.32</b>	<b>\$ 186,777.46</b>	<b>\$ 721,656.85</b>	
17							

3. Click **Save and Close** to save the template, and close the **Template Editor**.

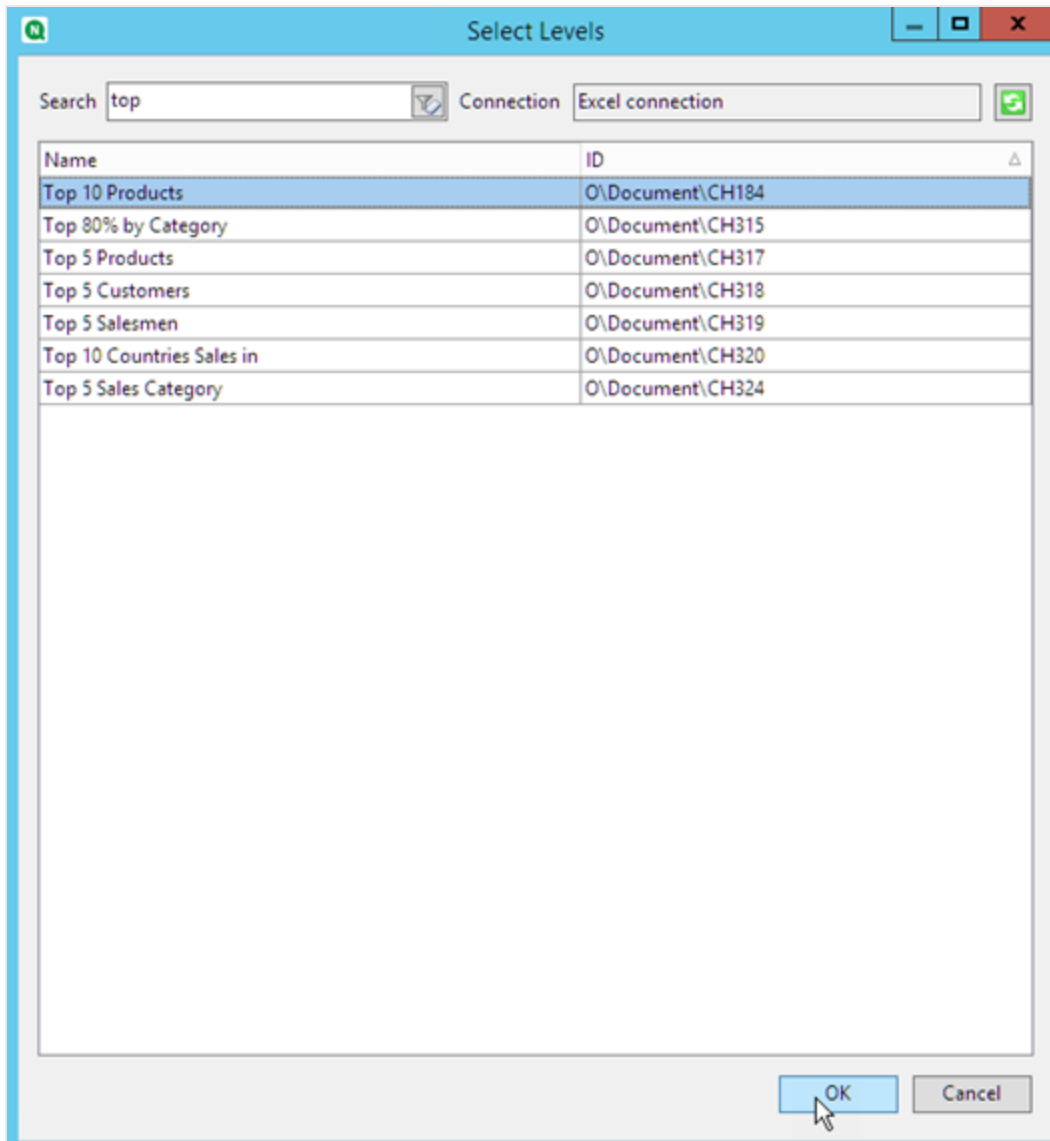
## Using levels to build a table with calculated columns and totals

This is the second way to add calculated columns, using levels. To learn about levels, see: *Excel reports with levels* (page 344).

### Adding the level

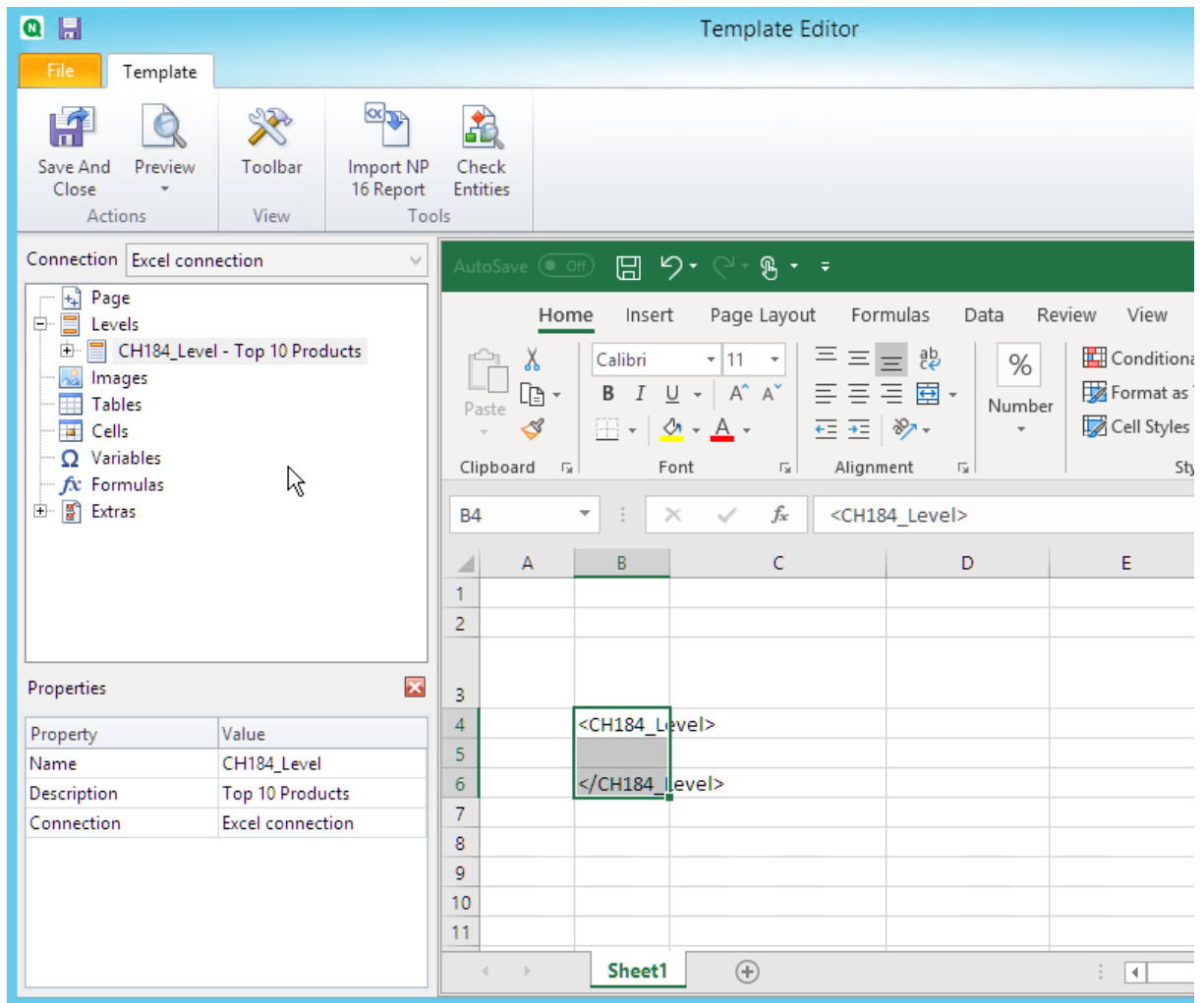
Do the following:

1. Create a new Excel report, or open an existing one.
2. Right-click the **Levels** node, and select **Add levels**.
3. Select a chart from the list. For example, add **Top 10 Products**. Click **OK**.

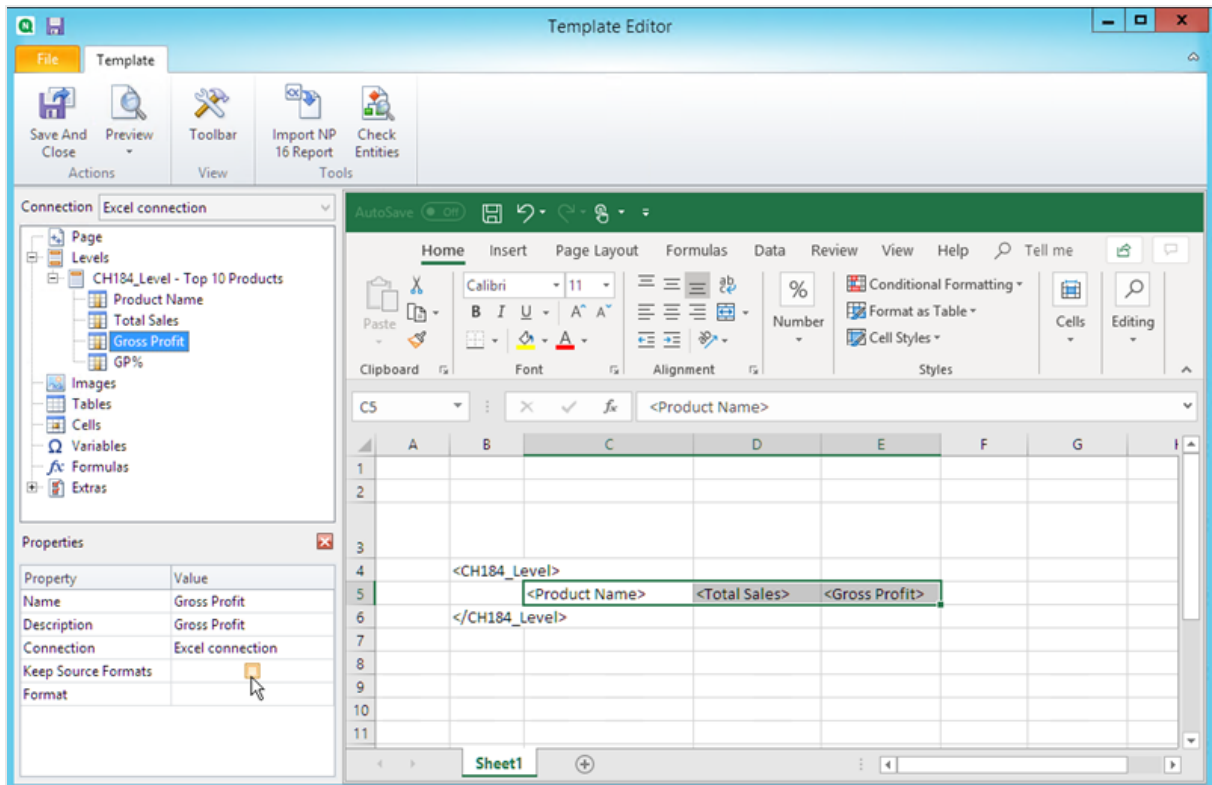


4. Click the **CH184\_Level - Top 10 Products** node, and drag it onto three empty vertically-aligned cells.





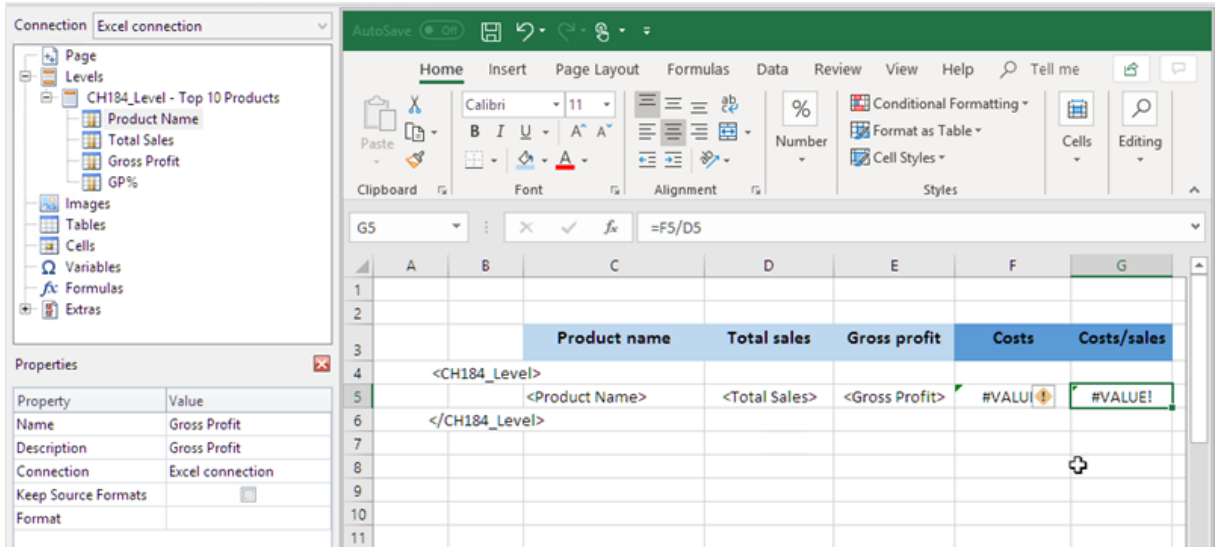
5. Click the + on the left to expand the **CH184\_Level - Top 10 Products** level node.
6. One at a time, select each column under **CH184\_Level - Top 10 Products**, and clear **Keep Source Formats**.
7. Hold CTRL and select the level fields you want to add to the sheet.  
For example: **Product Name**, **Total Sales**, and **Gross Profit**. Drag them onto the empty row of cells between the level tags.



8. Format these fields as you prefer. For example, you could format **Total Sales** as currency.

### Adding formulas and headings

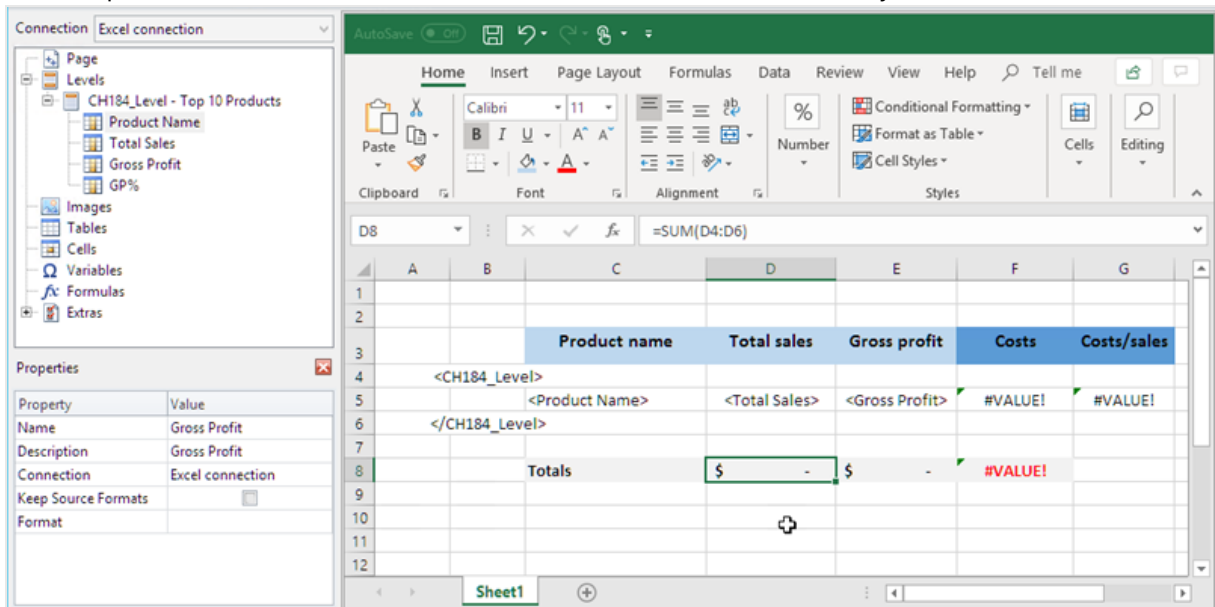
1. Select the first empty cell to the right of the field tags. In this example, **F4**.
2. Click on the cell, type = then click on the **Total Sales** cell.
3. Type -, click on the **Gross Profit** cell and press Enter. This will calculate costs.  
When you insert a formula between level tags, Qlik NPrinting will copy it into every row of the final table. You can ignore the error #VALUE! in the template. This occurs because the Excel formula references cells that contain field tags.
4. In cell **G4**, type =F5/D5. This will divide costs by sales.
5. Format the formula cells as you prefer using Excel formatting.  
For example, costs as currency, and costs/sales as a percentage.
6. Type in headings for each column in a row located one or two rows above the row containing the **Top 10 Products** opening level tag.  
Format these headings as desired.



7. Select a cell below the </Top 10 Products\_Level> level closing tag so that there is at least one intervening empty cell.
8. In cell **D8**, enter an Excel SUM formula to create a row of column totals. The sum range should include:
  - a. The field tag cell address.
  - b. The address of the empty cell below it.

In this example, the function would read: `=SUM(D4:D6)`.

9. Click and drag this formula to **E8** and **F8**.
10. Apply Excel formatting tools to the elements of the row.  
For example: **Total Sales** and **Gross Profit** totals could be formatted as currency.



## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will see a table, with the two new columns containing your calculated results. The bottom row will contain column totals.

The screenshot shows the Microsoft Excel interface with a report table. The table has the following data:

	A	B	C	D	E	F	G	H
1								
2								
3			<b>Product name</b>	<b>Total sales</b>	<b>Gross profit</b>	<b>Costs</b>	<b>Costs/sales</b>	
4			Minnki Pälsii	\$408,674.51	\$81,839.94	\$326,834.56	80%	
5			Davenport	\$97,370.08	\$20,946.24	\$76,423.83	78%	
6			Snake Boots	\$91,025.31	\$19,549.14	\$71,476.17	79%	
7			Le Baby Dress	\$50,607.82	\$10,027.40	\$40,580.42	80%	
8			High Heels Shoes	\$50,604.67	\$10,521.16	\$40,083.51	79%	
9			Jumpin Jack Flash Dress	\$46,550.00	\$9,165.03	\$37,384.96	80%	
10			Terence Top	\$45,288.56	\$8,865.95	\$36,422.61	80%	
11			Small Crocodile Boots	\$42,222.95	\$8,510.22	\$33,712.73	80%	
12			Okkaba Skin Jackets	\$38,085.37	\$8,318.94	\$29,766.43	78%	
13			Feiss Fleece Trousers	\$38,005.07	\$9,033.44	\$28,971.63	76%	
14								
15			<b>Totals</b>	<b>\$ 908,434.32</b>	<b>\$ 186,777.46</b>	<b>\$ 721,656.85</b>		
16								
17								
18								

3. Click **Save and Close** to save the template, and close the **Template Editor**.

#### See also:

- *Excel reports with levels (page 344)*
- *Excel reports with nested levels and subtotals (page 352)*

## 6.12 Creating Excel charts

You can add a native Excel chart to your reports. The same chart does not need to exist in the original document or app.

## What you will do

You will:

1. Add a QlikView table to the template as a level.
2. You will add level fields and create an Excel chart.

## Creating a new Excel report

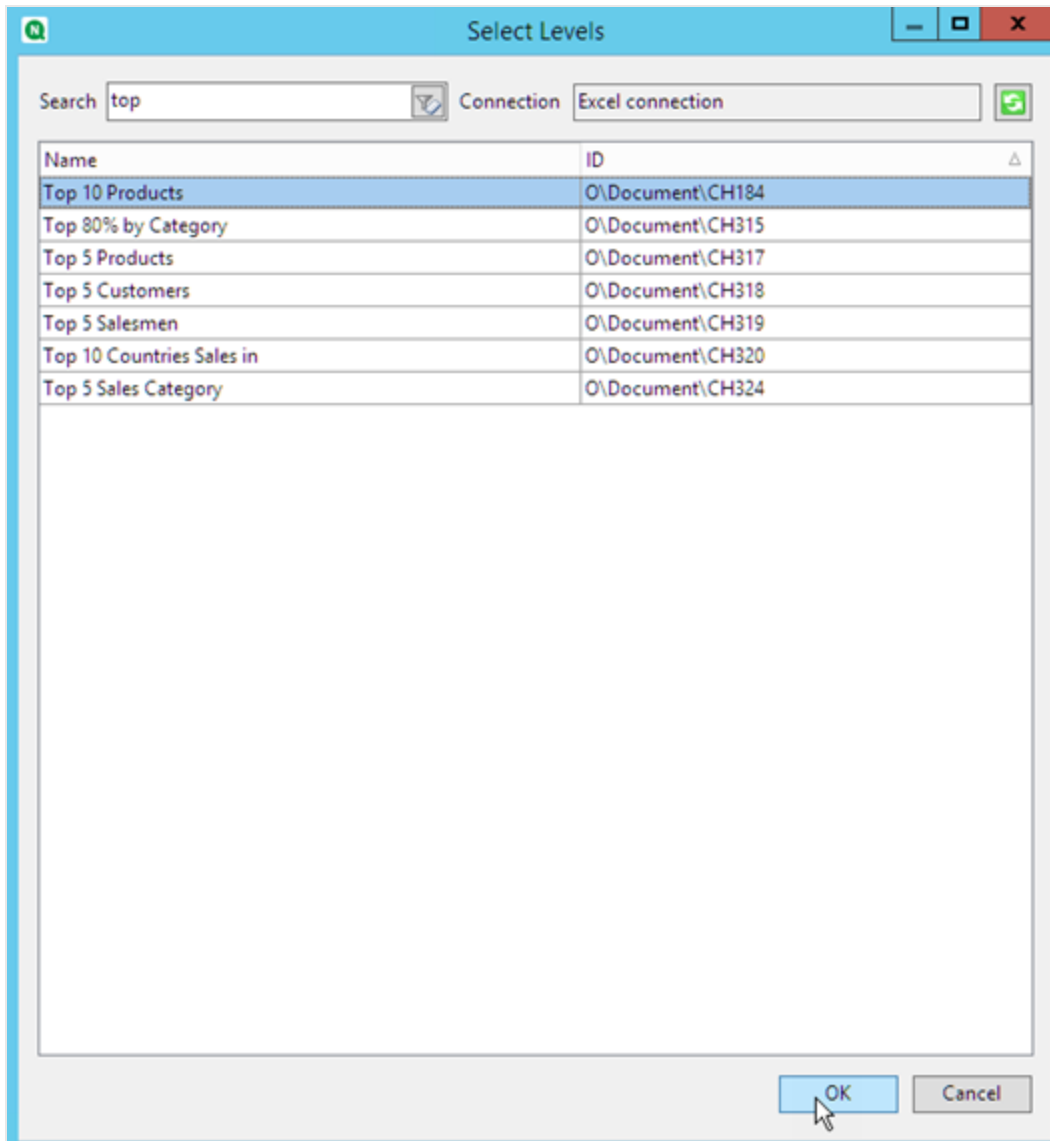
Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. .
3. Select **Excel** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.

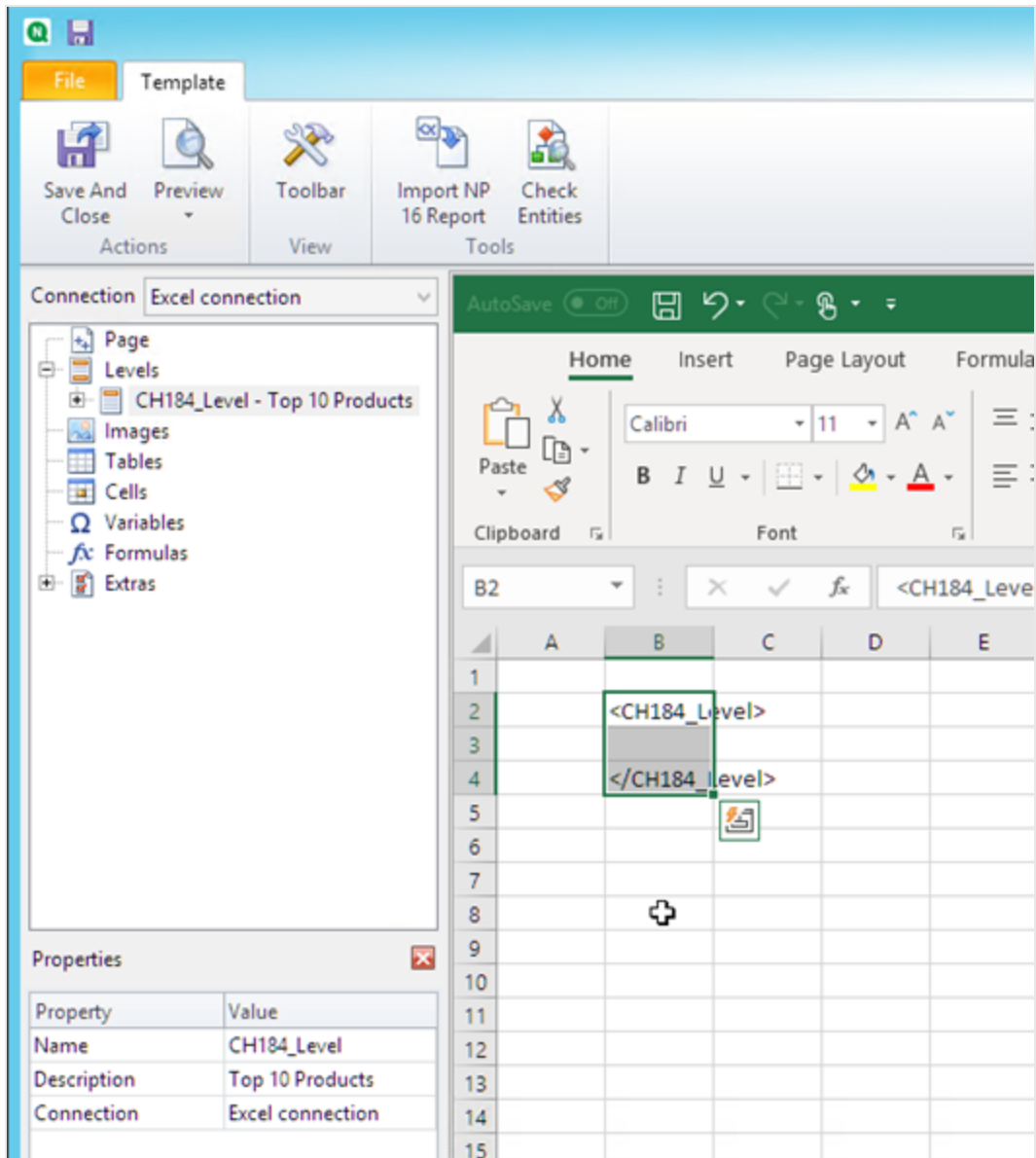
## Adding a table as a level

Do the following:

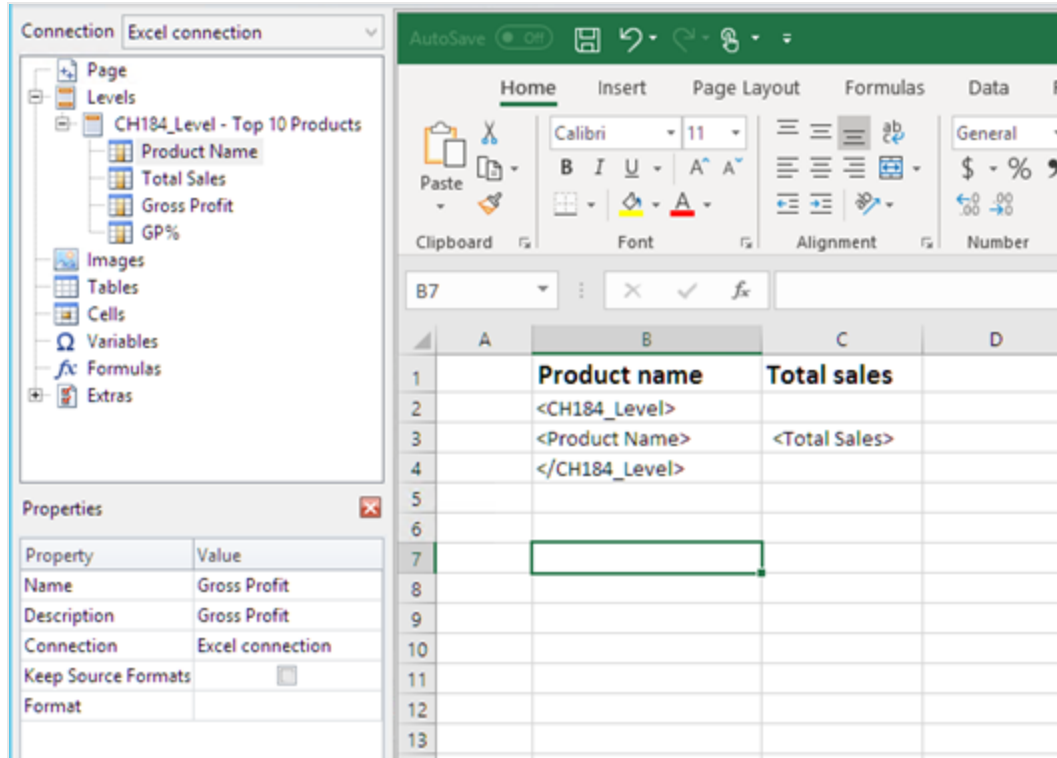
1. Right-click the **Levels** node, and select **Add levels**.
2. Select a chart. For example: **Top 10 Products**. Click **OK**.



3. Under **Levels**, click the **CH184\_Level - Top 10 Products** node and drag it onto three empty vertically-aligned cells.



4. Click the + next to the **CH184\_Level - Top 10 Products** node to expand it.
5. Click on **Total Sales**. In the **Properties** pane, clear **Keep Source Formats**.
6. Hold Shift and click on the **ProductName** and **Total Sales** fields. Drag them onto the empty row between the two level tags.
7. Click on the cell containing <Total Sales>. Use the Excel ribbon to format this cell as currency.
8. In the row above the opening <CH184\_Level> tag, type in heading titles. Format these headings using the Excel ribbon.

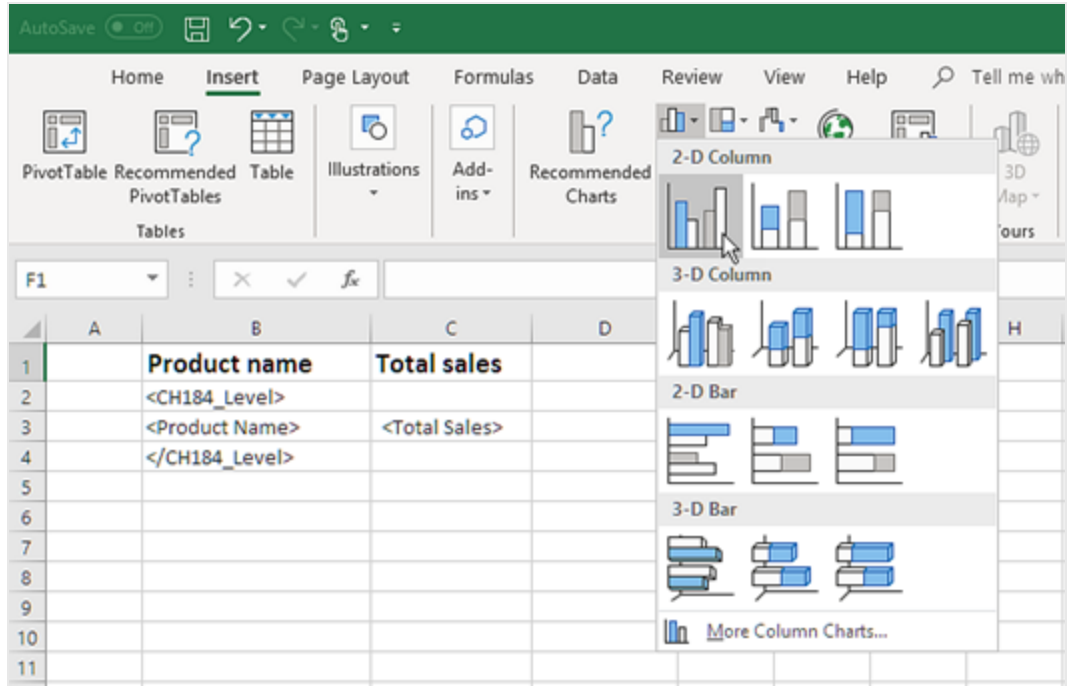


## Creating the Excel chart

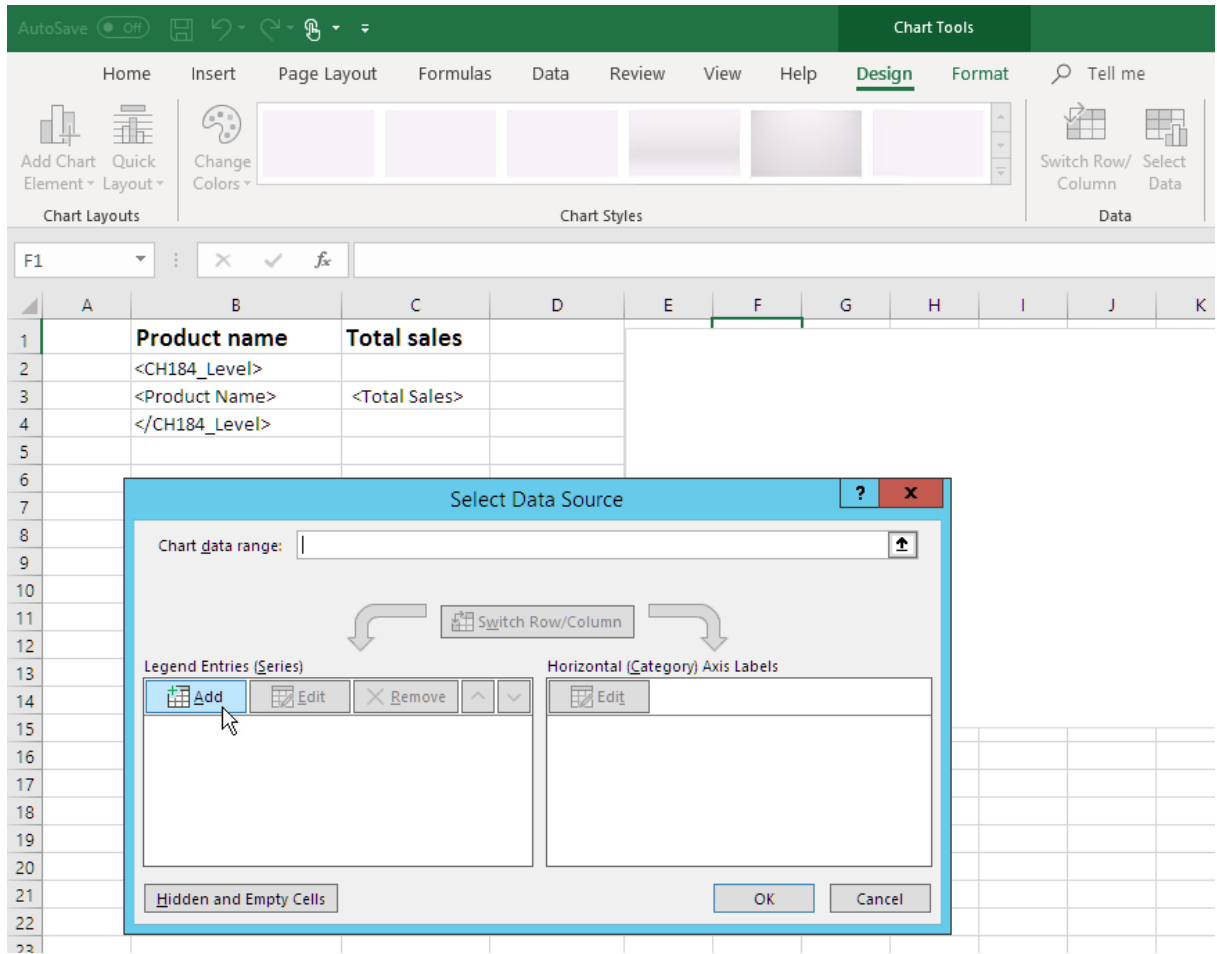
Do the following:

1. On the Excel ribbon, click **Insert**.
2. Click the **Insert Column Charts** icon, and then select **2-D Column** chart.

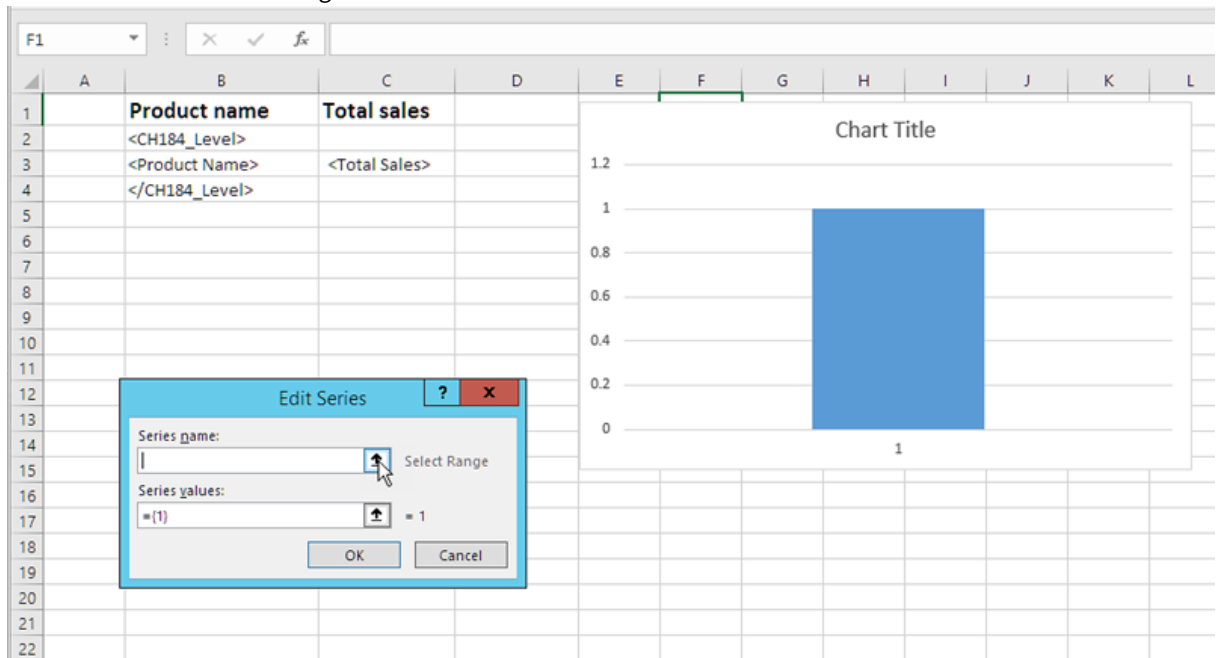




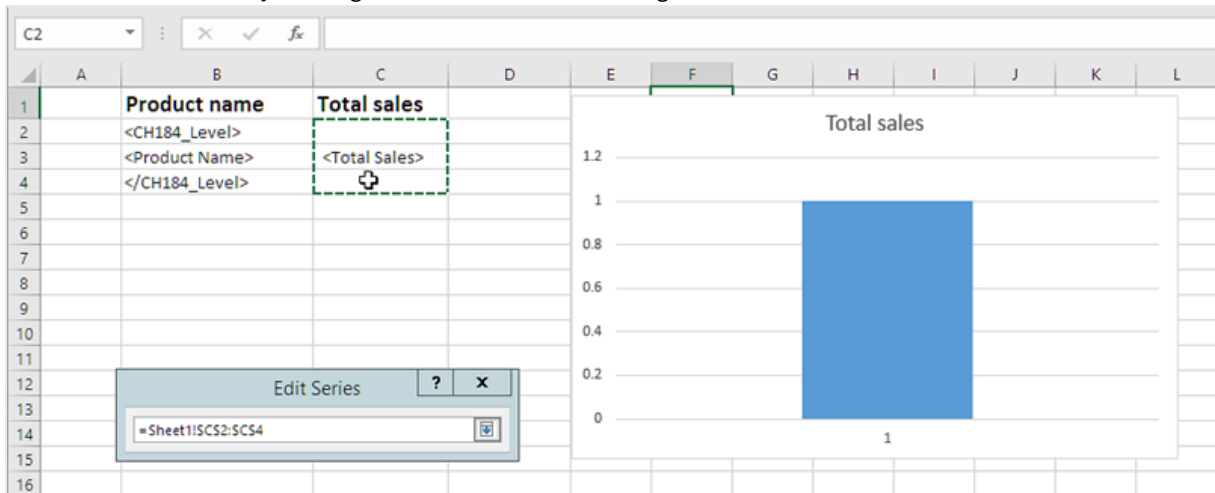
3. Click the **Design** tab, and click the **Select Data** icon.
4. In the **Legend Entries (Series)** pane, click the **Add** button.



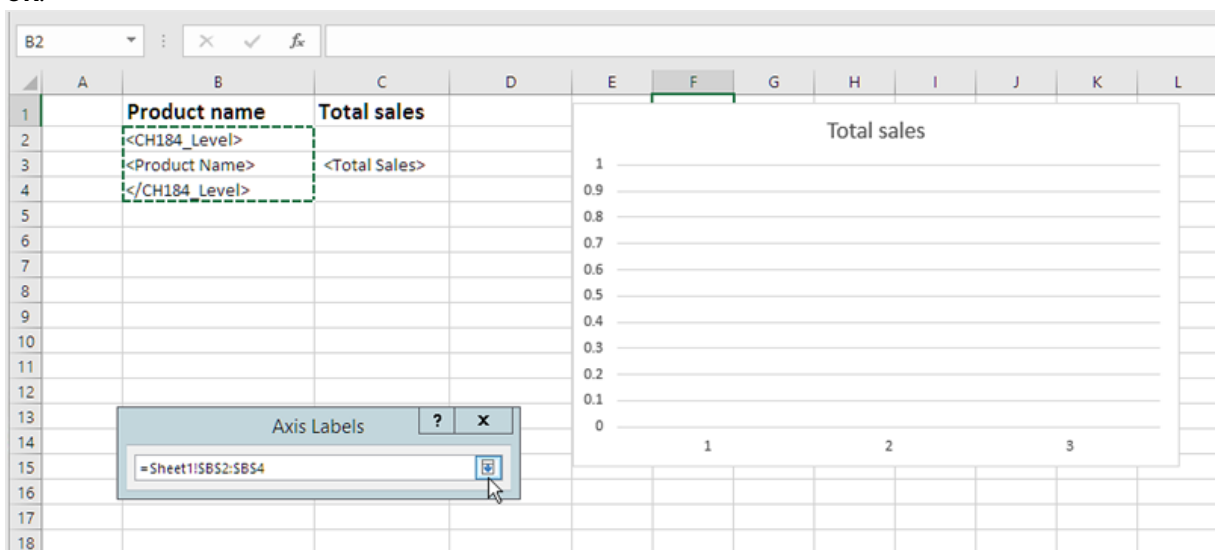
5. Click the arrow icon to the right of **Series name** field.



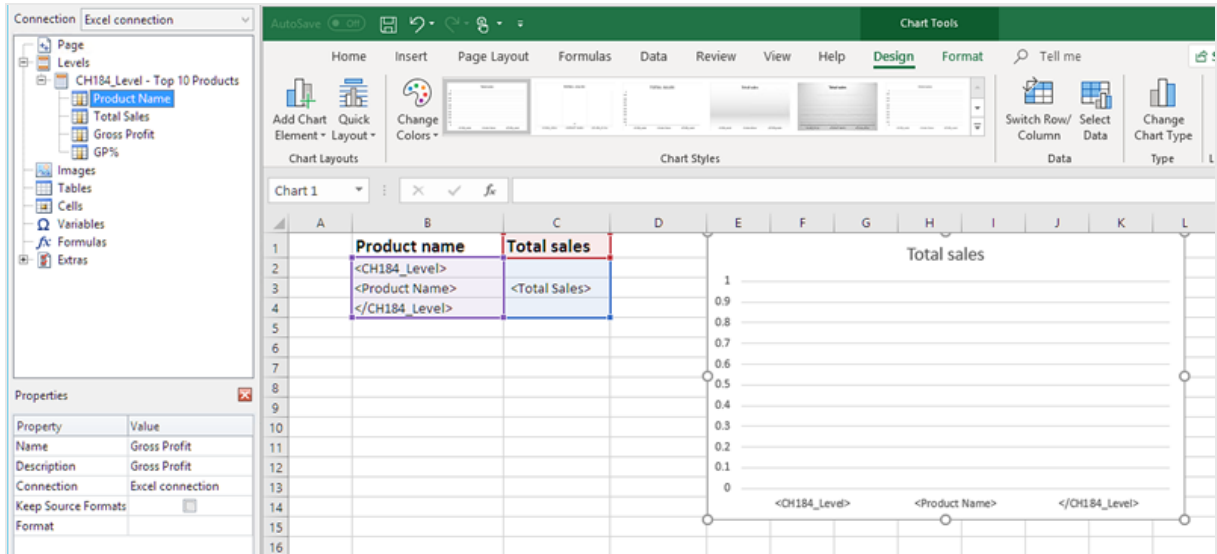
6. Select the cell with the **Total Sales** heading.
7. Confirm by clicking on the arrow icon at the right of the **Edit Series** field.
8. Click the arrow icon to the right of **Series values**.
9. Select the **Total Sales** range by including the cells in the rows containing:
  - the level opening and closing the tags
  - the cell containing the <Total Sales> tag.
10. Confirm the selection by clicking on the arrow icon to the right of the **Edit Series** field.



11. Click **OK**.
12. In the **Horizontal (Category) Axis Labels** pane, click **Edit**.
13. Select the **Product Name** range by including the cells in the rows containing:
  - the level opening and closing the tags
  - the cell containing the <ProductName> tag.
14. Confirm the selection by clicking on the icon at the right end of the **Axis label range** field, and then click **OK**.



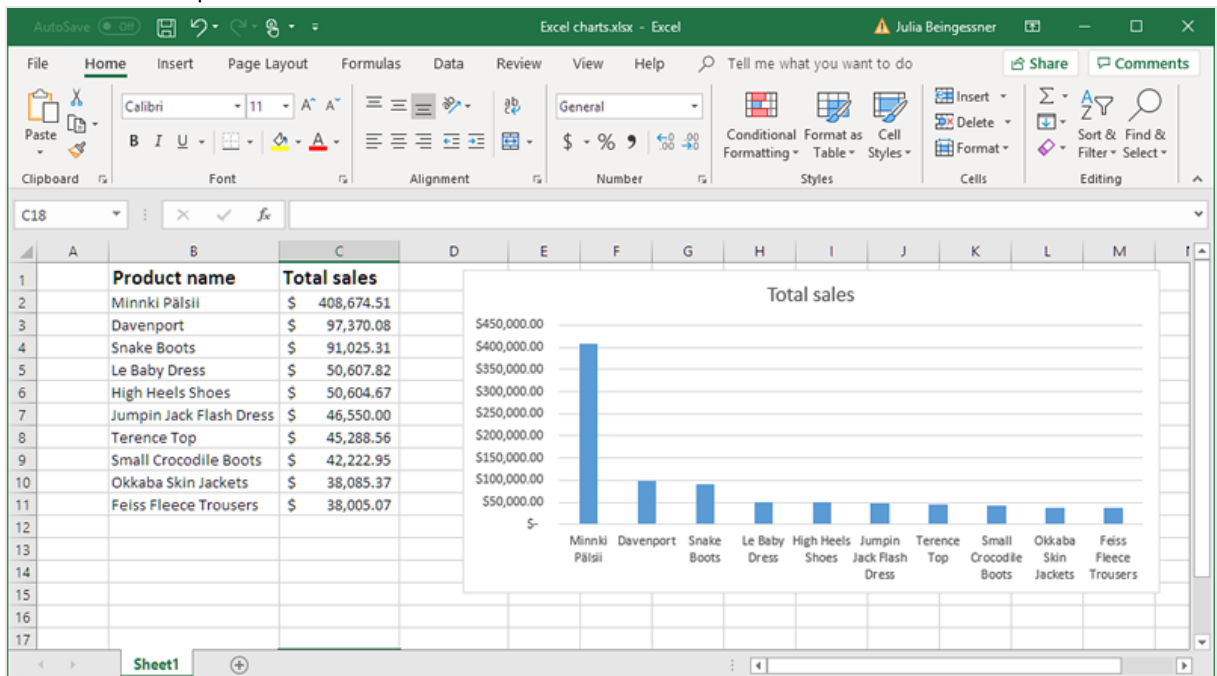
- Click **OK**. You will see a table, and an empty chart.



## Previewing the report

Do the following:

- Click **Preview**.  
Excel launches and displays your report.
- You will have a report with a table and a chart.



- Click **Save and Close** to save the template, and close the **Template Editor**.

## 6.13 Creating Excel pivot tables

You can create Excel pivot tables using Excel table columns or levels.

Qlik Sense pivot tables can only be added as images in Qlik NPrinting. QlikView pivot tables can be added as images and straight tables. Neither can be converted into an Excel pivot table in your reports. If you have a pivot table that you want to reproduce in an Excel report, you can do one of two things:

- Convert the original pivot table to a straight table.
- Clone your pivot table and convert the clone to a straight table.



*This help topic outlines the only supported ways for creating native Excel pivot tables.*

### Creating a pivot table using Excel table columns

We recommend using Excel table columns to create pivot tables in Excel reports. It is easier than using levels, and does not slow down report generation.

#### Requirements

To create a pivot table in the Qlik NPrinting Designer, you need:

- Excel 2007 or later
- A Qlik Sense or QlikView straight table

#### What you will do

You will:

1. Add a QlikView straight table as a table object to an Excel report.
2. Build a table column by column.
3. Convert that table to a pivot table.

### Creating a new Excel report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report.
3. Select **Excel** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.

### Adding a chart object as a table column by column

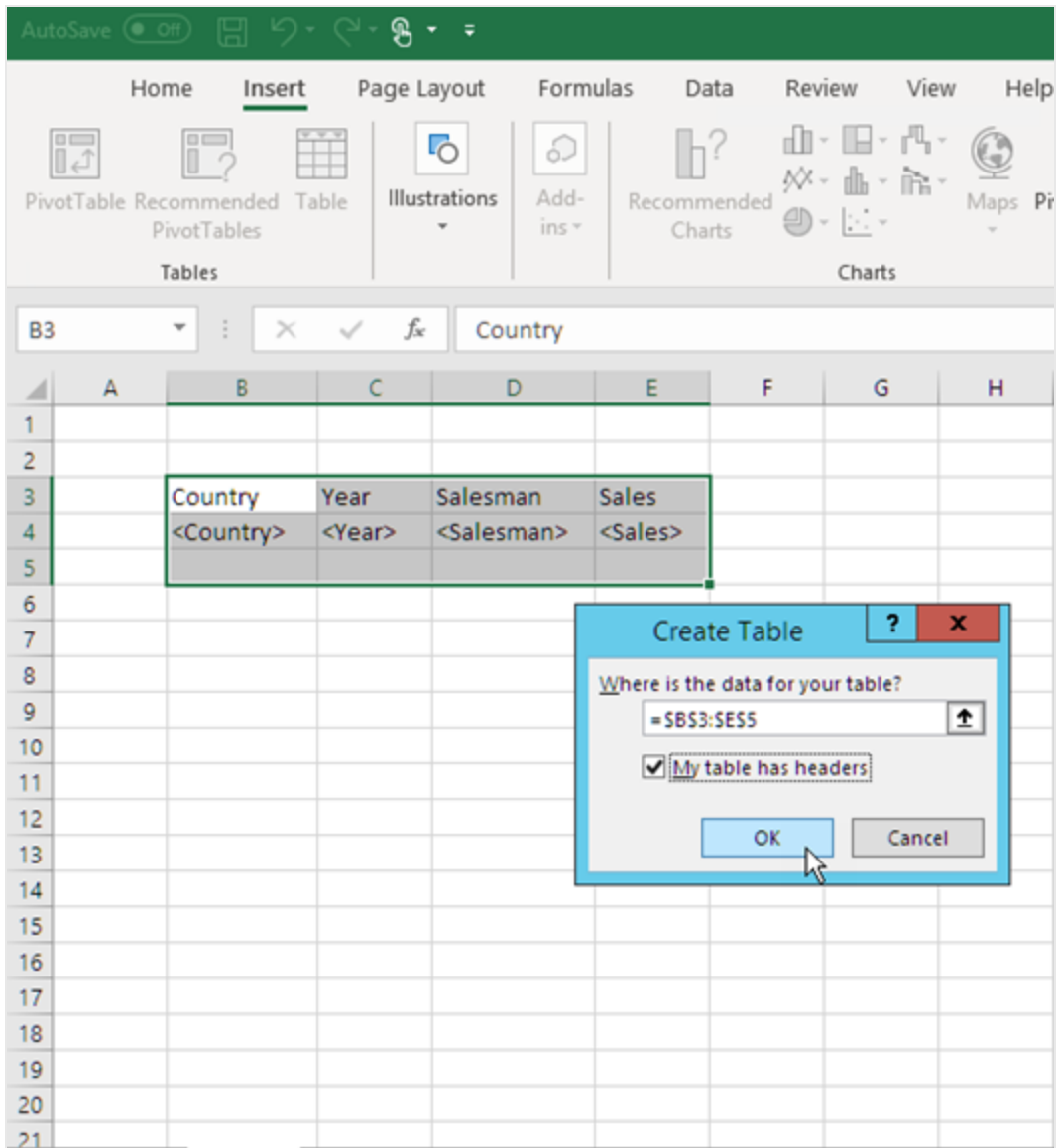
Do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Select the **Connection** that contains the straight table.
3. Select a table object. For example: **Straight Country - Salesman - Year**. Click **OK**.
4. In the **Tables** node, select **Straight Country - Salesman - Year**.
5. In the **Properties** pane, clear **Keep Source Formats**.
6. Click the + next to **Straight Country - Salesman - Year**.  
This expands the table node, and displays all table columns.
7. Hold Shift or CTRL and select the columns you want to add. In this example, select all four table fields.
8. Drag the columns onto the template.

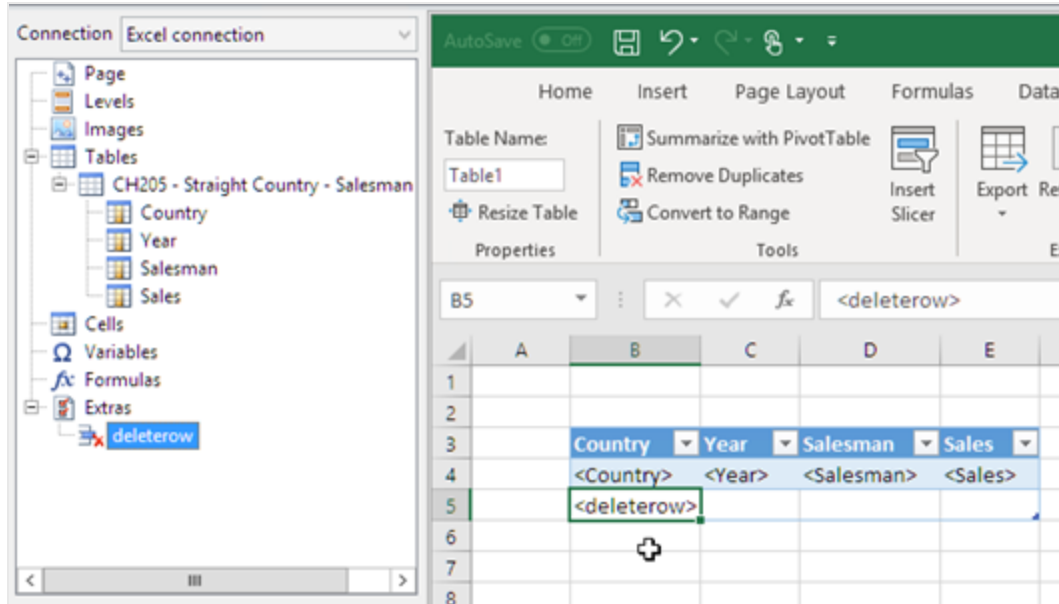
The screenshot shows the QlikView interface. On the left, the 'Tables' node is expanded to show a table named 'CH205 - Straight Country - Salesman' with columns: Country, Year, Salesman, and Sales. The 'Properties' pane for this table is open, and the 'Keep Source Formats' checkbox is unchecked. On the right, the Excel ribbon is visible, and the 'Table' button in the 'Tables' group is highlighted. The Excel spreadsheet shows a table with the following data:

Country	Year	Salesman	Sales
<Country>	<Year>	<Salesman>	<Sales>

9. Highlight the column headings, table tags, and one empty row below.
10. On the Excel ribbon, click the **Insert** tab.
11. In the **Tables** group, click **Table**.
12. Make sure the **My table headers** box is selected. Click **OK**.



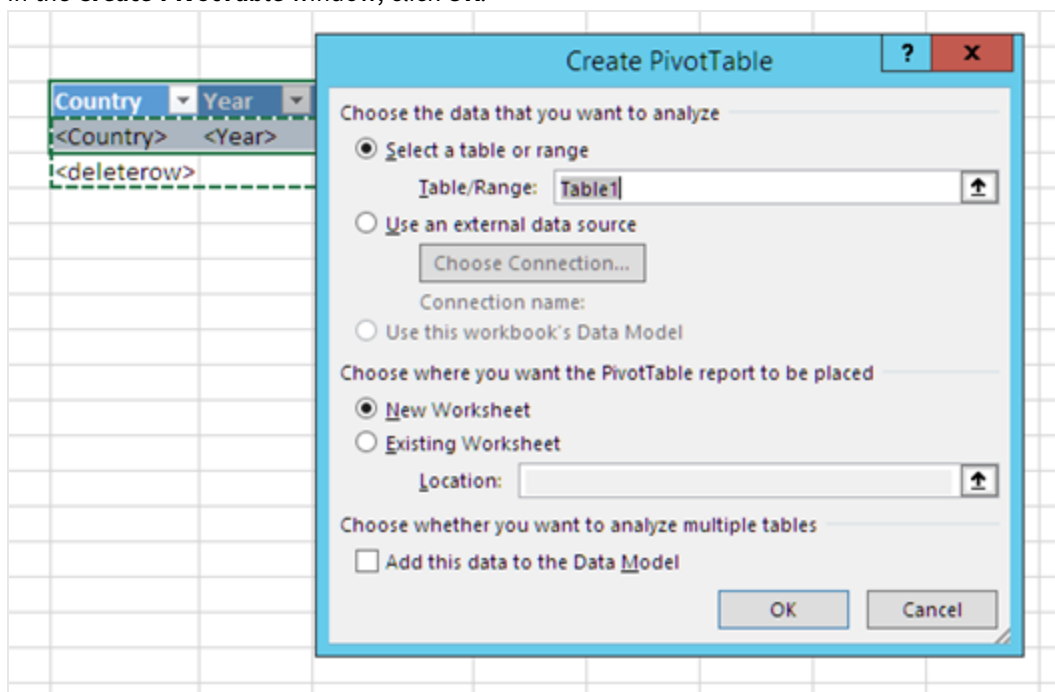
13. On the left pane, click **Extras**. Drag a **deleterow** tag onto a cell in the empty row below the table. This will remove the empty row from the final report.



## Converting to a pivot table

Do the following:

1. Highlight the heading and table field cells.
2. On the Excel ribbon, under **Table Tools**, click the **Design** tab.
3. In the **Tools** group, click **Summarize with PivotTable**.
4. In the **Create PivotTable** window, click **OK**.





A pivot table is created in a new worksheet. You can also add the pivot table to the same worksheet and hide the column with the data.

5. Drag the **Year** field into the **Columns** box.
6. Drag the **Salesman** and the **Country** fields into the **Row Labels** box.
7. Drag the **Sales** field into the **Values** box.

The screenshot shows the Excel interface with a PivotTable on Sheet2. The PivotTable is titled 'Count of Sales' and is located in the range A3:F9. The Row Labels are 'Country' and 'Salesman', and the Column Labels are 'Year'. The PivotTable data is as follows:

Count of Sales	Column Labels	(blank)	Grand Total
<Country>	<Year>	1	1
<Salesman>		1	1
<deleterow>			
(blank)			
Grand Total		1	1

The PivotTable Fields task pane is open on the right side of the screen. It shows the following fields:

- Choose fields to add to report:
  - Country
  - Year
  - Salesman
  - Sales
- Drag fields between areas below:
  - Filters: (empty)
  - Columns: Year
  - Rows: Country, Salesman
  - Values: Count of Sales

8. Click **Count of Total sales** to open the drop down menu. Select **Value Field Settings**.

The screenshot shows an Excel PivotTable on Sheet2 with the following data:

Row Labels	<Year>	(blank)	Grand Total
<Country>	1		1
<Salesman>	1		1
Grand Total	1		1

The PivotTable Fields task pane on the right shows the following configuration:

- Choose fields to add to report: Country, Year, Salesman, Sales
- Filters: (empty)
- Columns: Year
- Rows: Country
- Values: Count of Sales

The context menu for the 'Count of Sales' field is open, with 'Value Field Settings...' selected.

9. On the **Summarize Values By** tab, select **Sum**. Click **OK**.
10. Select the cells in the table that contain Sales values. Format them as currency.

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is located in the range B3:D9. The PivotTable Fields task pane is open on the right side of the screen. The task pane shows the following configuration:

- Choose fields to add to report:** Country, Year, Salesman, Sales (all checked).
- Drag fields between areas below:**
  - Filters:** (empty)
  - Columns:** Year
  - Rows:** Country, Salesman
  - Values:** Sum of Sales
- Defer Layout Update:** (unchecked)
- Update:** (button)

The PivotTable data is as follows:

Row Labels	<Year>	(blank)	Grand Total
<Country>	\$ -	\$ -	\$ -
<Salesman>	\$ -	\$ -	\$ -
<deleterow>			
(blank)			
Grand Total	\$ -	\$ -	\$ -

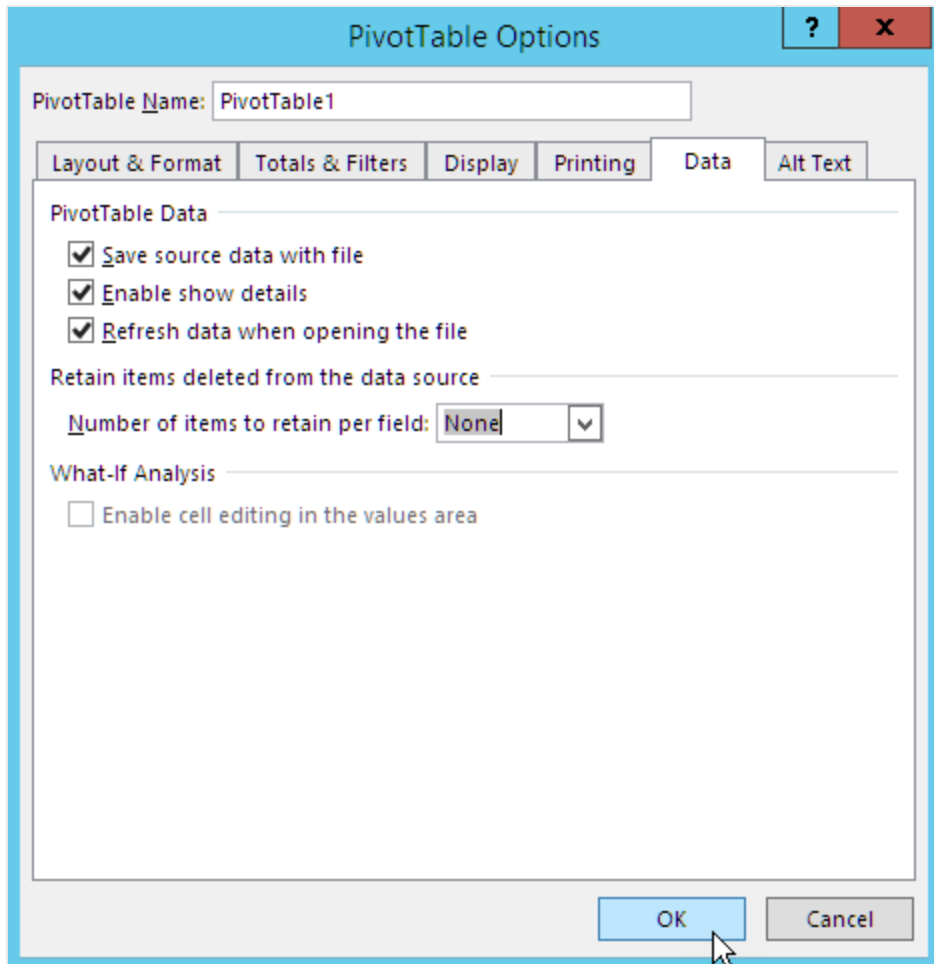
## Ensuring data is refreshed when report is opened

If you do not perform these steps, you will see an empty pivot table in the generated report.

Do the following:

1. Under the **PivotTable Tools - Analyze** tab. On the left, click the **Options** drop down menu .
2. Select the **Data** tab.
3. Click the **Refresh data when opening the file** check box.
4. Set **Number of items to retain per field** to **None**.

5. Click **OK**.



## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will have a report with a pivot table.

The screenshot shows the Microsoft Excel interface with a pivot table. The ribbon includes File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Help. The Home ribbon is active, showing options for Paste, Font, Alignment, Number, Conditional Formatting, Format as Table, and Cell Styles. The formula bar shows 'G10'. The pivot table is structured as follows:

Sum of Sales	Column Labels			
Row Labels	2012	2013	2014	Grand Total
<b>Argentina</b>	\$ 618.18	\$ 1,043.11	\$ 8,691.78	\$ 10,353.07
Elvis Presley	\$ 191.70	\$ 1,034.92	\$ 225.19	\$ 1,451.81
Rob Carsson	\$ 426.48		\$ 6,586.11	\$ 7,012.59
Helen Brolin		\$ 8.19	\$ 1,880.48	\$ 1,888.67
<b>Austria</b>	\$ 27,415.13	\$ 11,028.11	\$ 16,025.25	\$ 54,468.49
Joan Callins	\$ 27,415.13	\$ 1,597.45	\$ 5,328.32	\$ 34,340.90
Ingrid Hendrix		\$ 9,430.65	\$ 10,696.94	\$ 20,127.59
<b>Belgium</b>		\$ 3,406.40	\$ 10,546.31	\$ 13,952.71
Joan Callins		\$ 2,274.95	\$ 4,407.22	\$ 6,682.17
Ingrid Hendrix		\$ 1,131.45	\$ 6,139.09	\$ 7,270.54
<b>Brazil</b>	\$ 9,083.27	\$ 40,263.41	\$ 63,069.21	\$ 112,415.89
Elvis Presley	\$ 5,421.42	\$ 10,353.32	\$ 12,899.61	\$ 28,674.36
Rob Carsson	\$ 1,456.82	\$ 19,012.59	\$ 40,712.27	\$ 61,181.68
Helen Brolin	\$ 2,205.02	\$ 10,897.50	\$ 9,457.32	\$ 22,559.85
<b>Canada</b>	\$ 5,598.14	\$ 15,857.43	\$ 21,265.97	\$ 42,721.55
Rock Roll	\$ 5,598.14	\$ 15,857.43	\$ 21,265.97	\$ 42,721.55
<b>Denmark</b>	\$ 5,873.99	\$ 13,312.20	\$ 38,357.66	\$ 57,543.85
Rob Carsson	\$ 281.28	\$ 10,260.79	\$ 6,449.19	\$ 16,991.25
Helen Brolin	\$ 5,592.71	\$ 3,051.42	\$ 31,908.47	\$ 40,552.60
<b>Finland</b>	\$ 560.78	\$ 2,263.71	\$ 3,633.18	\$ 6,457.66
Helen Brolin			\$ 442.77	\$ 442.77
Leif Shine	\$ 560.78	\$ 942.60	\$ 128.02	\$ 1,631.40
Tom Lindwall		\$ 1,321.11	\$ 3,062.39	\$ 4,383.50

3. Click **Save and Close** to save the template, and close the **Template Editor**.

## Creating a pivot table using levels

You can use levels to make pivot tables, but this will slow down report generation time. You should only use this method if you have a version of Excel (2003 and earlier) that does not support adding table columns.

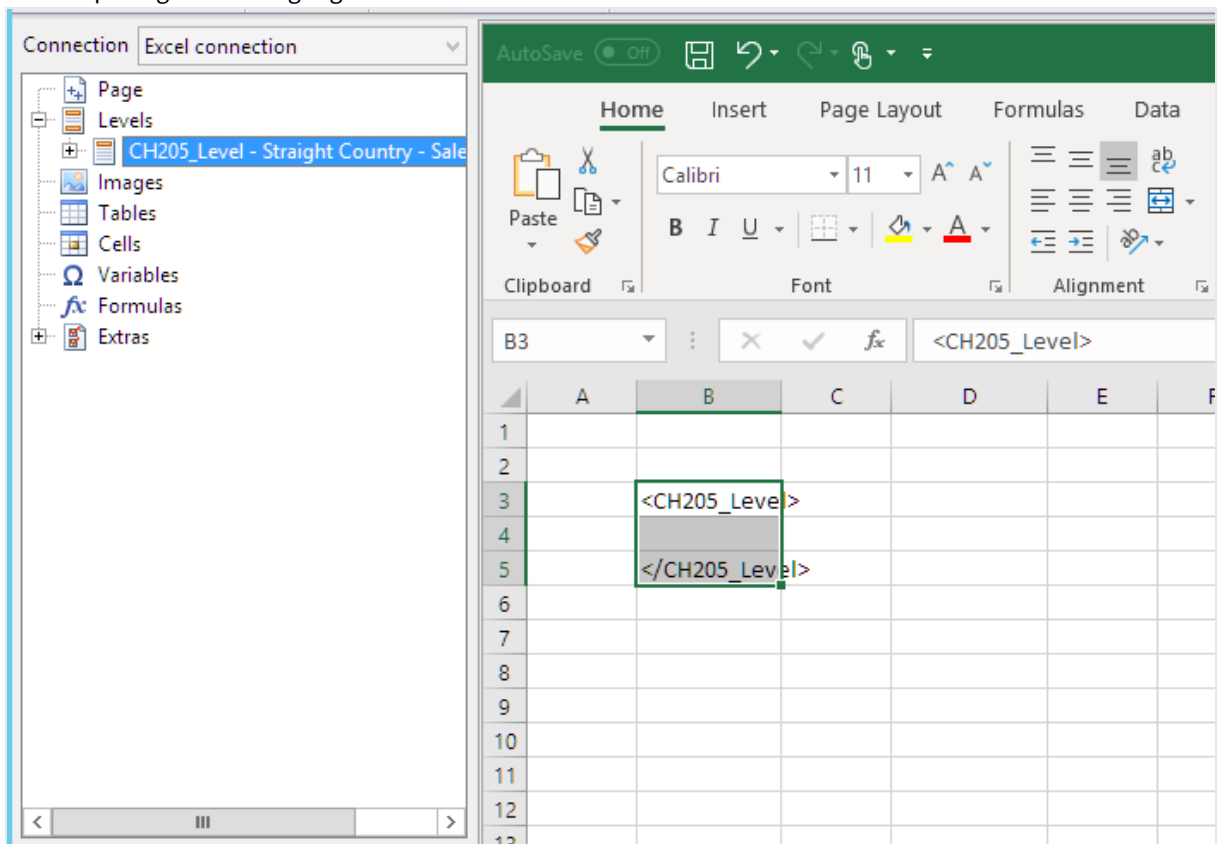
## What you will do

1. Add a QlikView straight table as a level object to an Excel report.
2. Build a table using levels.
3. Convert that table to a pivot table.

## Adding levels to the template

Do the following:

1. Open an existing Excel report, or create a new one.  
See: [Creating](#)
2. Right-click the **Levels** node, and select **Add levels**.
3. Select **Straight Country - Salesman - Year** in the levels list. Click **OK**.
4. Drag the **CH205\_Level - Straight Country-Salesman-Year** node onto empty template cells. This will create opening and closing tags for the level.



5. Click the **+** next to the **CH205\_Level - Straight Country-Salesman-Year** node.
6. Drag the **Country**, **Salesman**, **Year**, and **Sales** nodes onto empty cells on rows between the <CH205\_Level> and </CH205\_Level> tags.  
In the **Properties** pane, ensure that **Keep Sources Formats** is unchecked for all four of these objects.

The screenshot shows the Microsoft Excel interface. On the left, the 'Connection' pane displays a tree view under 'Excel connection'. The tree includes 'Page', 'Levels', and 'CH205\_Level - Straight Country - Sales'. Under 'CH205\_Level - Straight Country - Sales', there are sub-items for 'Country', 'Year', 'Salesman', and 'Sales'. Below the tree is a 'Properties' table:

Property	Value
Name	Sales
Description	Sales
Connection	Excel connection
Keep Source Formats	<input type="checkbox"/>
Format	

The main workspace shows a grid with columns A through G and rows 1 through 21. The formula bar at the top displays '<Country>'. The grid contains the following content:

	A	B	C	D	E	F	G
1							
2							
3		<CH205_Level>					
4		<Country>	<Year>	<Salesman>	<Sales>		
5		</CH205_Level>					
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

7. Type in headings for the columns in the row above the <CH205\_Level> tag.

The screenshot displays the Excel interface with a QlikView connection. The left-hand pane shows a tree view under 'Levels' with a folder named 'CH205\_Level - Straight Country - Sales'. Inside this folder are four items: 'Country', 'Year', 'Salesman', and 'Sales'. The main grid shows a pivot table with the following structure:

	Country	Year	Salesman	Sales
1				
2				
3	<CH205_Level>			
4	<Country>	<Year>	<Salesman>	<Sales>
5	</CH205_Level>			
6				
7				
8				
9				
10				
11				
12				



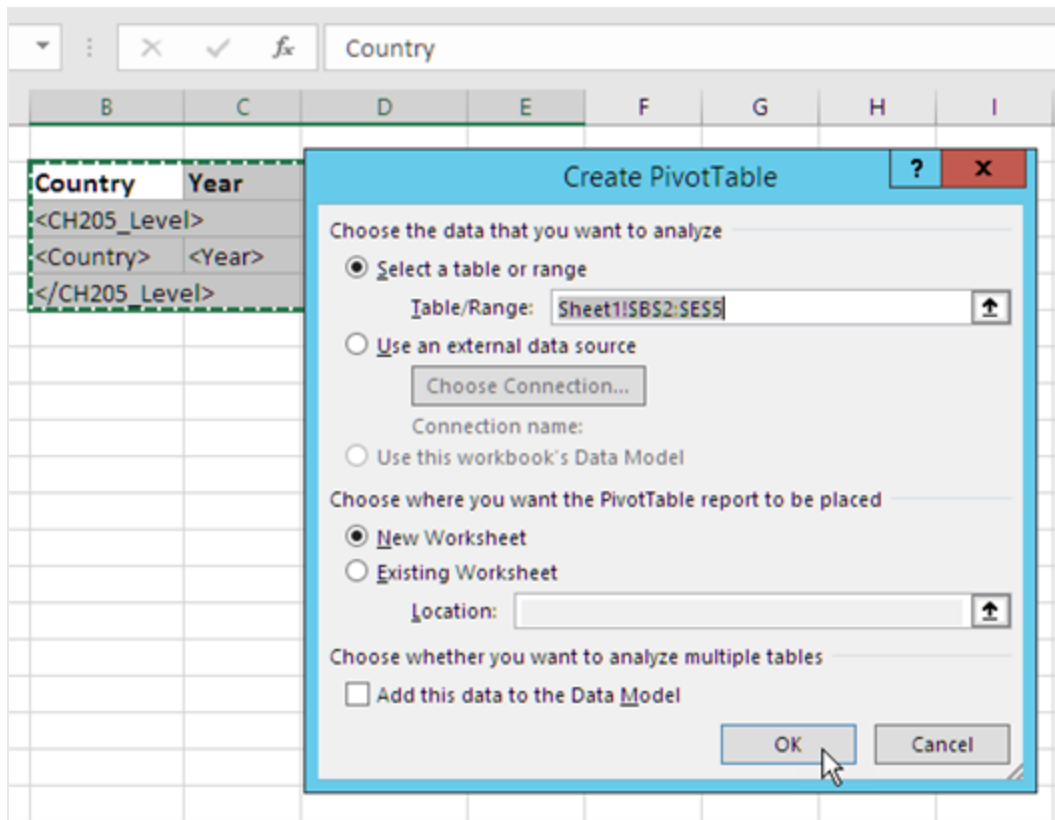
You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.

## Creating a pivot table

Do the following:

1. Select the range of cells that includes:
  - the headings
  - the <CH205\_Level> opening tag
  - the column tags
  - the </CH205\_Level> closing tag
2. On the Excel ribbon, select the **Insert** tab. In the **Tables** group, select **PivotTable**.
3. In the **Create PivotTable** window, click **OK**.





A pivot table is created in a new worksheet. You can also add the pivot table to the same worksheet and hide the column with the data.

4. Drag the **Country** and **Salesman** fields into the **Row Labels** box.
5. Drag the **Year** field into the **Column Labels** box.
6. Drag the **Sales** field into the **Values** box.

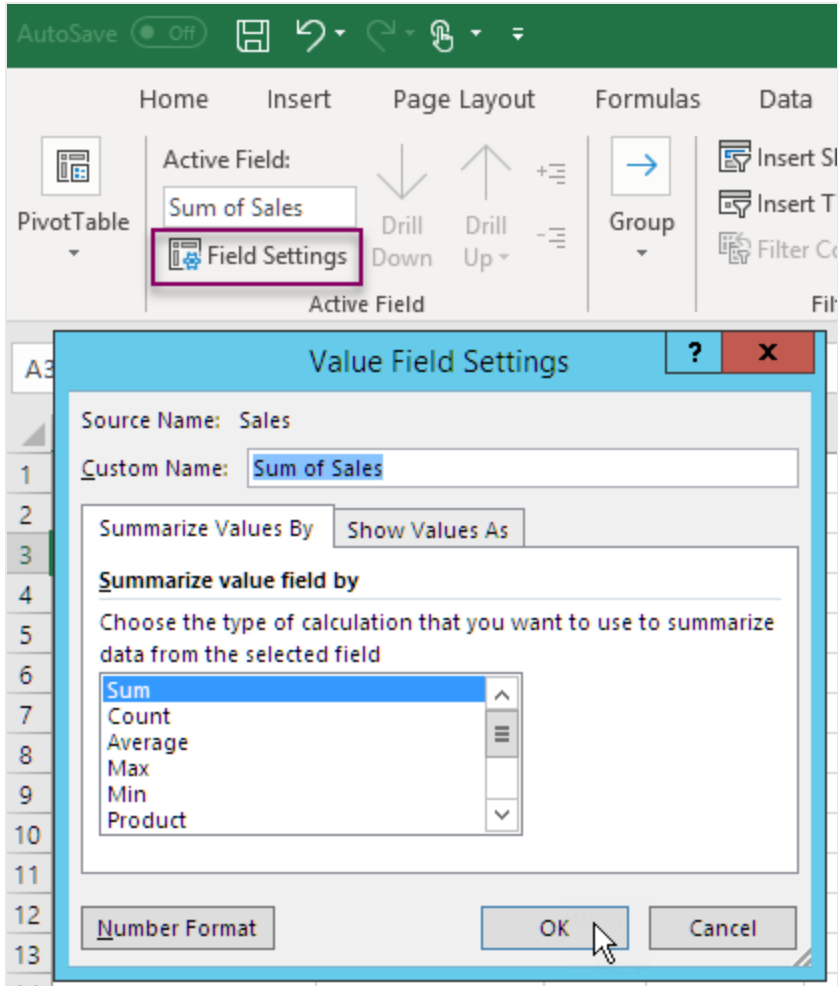
The screenshot shows the Excel interface with a PivotTable titled "Count of Sales". The PivotTable Fields task pane is open on the right, showing the following configuration:

- Filters:** (Empty)
- Columns:** Year
- Rows:** Country, Salesman
- Values:** Count of Sales

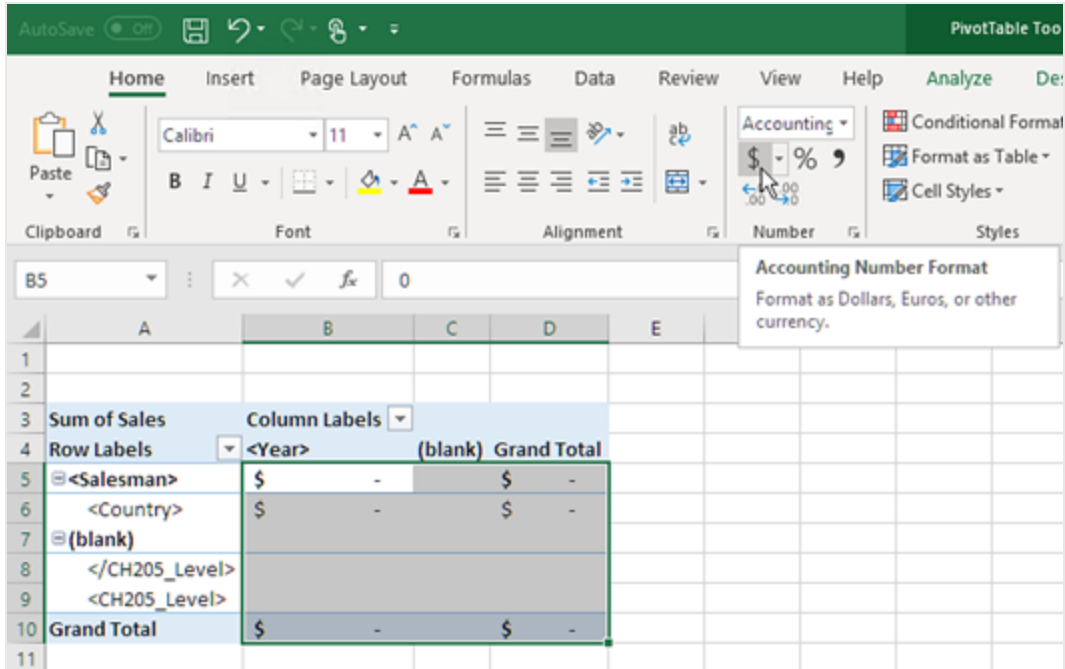
The PivotTable data is as follows:

Row Labels	<Year>	(blank)	Grand Total
<Country>	1		1
<Salesman>	1		1
<deleterow>			
(blank)			
<b>Grand Total</b>	<b>1</b>		<b>1</b>

7. In the **Active Field** group, click the **Field Settings** button.
8. Change the value in the **Summarize Values By** tab to **Sum**. Click **OK**.



9. Select the cells in the table that contain Sales values. Format them as currency.



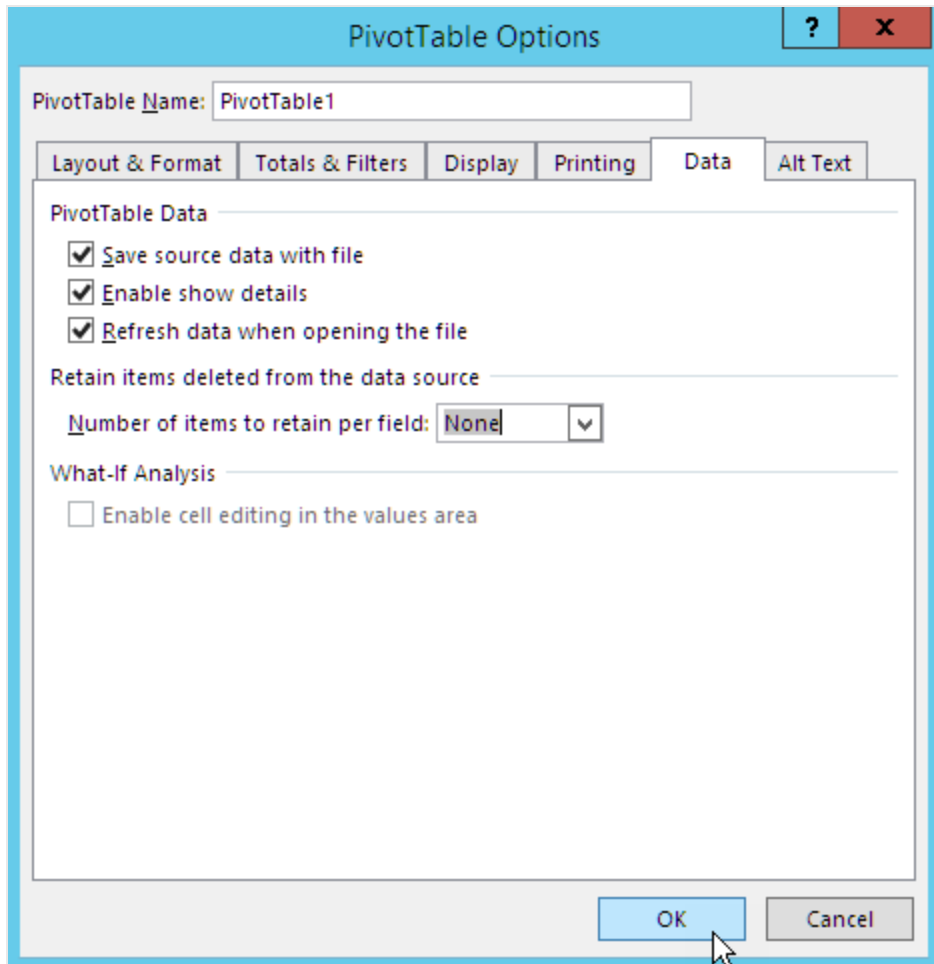
### Ensuring data is refreshed when report is opened

If you do not perform these steps, you will see an empty pivot table in the generated report.

Do the following:

1. Under the **PivotTable Tools - Analyze** tab. On the left, click the **Options** drop down menu .
2. Select the **Data** tab.
3. Click the **Refresh data when opening the file** check box.
4. Set **Number of items to retain per field** to **None**.

5. Click **OK**.



## Previewing the report

Do the following:

1. Click **Preview**.  
Excel launches and displays your report.
2. You will have a report with a pivot table.

The screenshot shows the Microsoft Excel interface with a PivotTable. The PivotTable is set to show sales data by country (Argentina, Austria, Belgium, Brazil, Canada, Denmark, Finland) and year (2012, 2013, 2014), with a Grand Total column. The data is displayed in a table format with currency symbols and numerical values.

Row Labels	2012	2013	2014	Grand Total
<b>Argentina</b>	\$ 618.18	\$ 1,043.11	\$ 8,691.78	\$ 10,353.07
Elvis Presley	\$ 191.70	\$ 1,034.92	\$ 225.19	\$ 1,451.81
Rob Carsson	\$ 426.48		\$ 6,586.11	\$ 7,012.59
Helen Brolin		\$ 8.19	\$ 1,880.48	\$ 1,888.67
<b>Austria</b>	\$ 27,415.13	\$ 11,028.11	\$ 16,025.25	\$ 54,468.49
Joan Callins	\$ 27,415.13	\$ 1,597.45	\$ 5,328.32	\$ 34,340.90
Ingrid Hendrix		\$ 9,430.65	\$ 10,696.94	\$ 20,127.59
<b>Belgium</b>		\$ 3,406.40	\$ 10,546.31	\$ 13,952.71
Joan Callins		\$ 2,274.95	\$ 4,407.22	\$ 6,682.17
Ingrid Hendrix		\$ 1,131.45	\$ 6,139.09	\$ 7,270.54
<b>Brazil</b>	\$ 9,083.27	\$ 40,263.41	\$ 63,069.21	\$ 112,415.89
Elvis Presley	\$ 5,421.42	\$ 10,353.32	\$ 12,899.61	\$ 28,674.36
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Helen Brolin	\$ 2,205.02	\$ 10,897.50	\$ 9,457.32	\$ 22,559.85
<b>Canada</b>	\$ 5,598.14	\$ 15,857.43	\$ 21,265.97	\$ 42,721.55
Rock Roll	\$ 5,598.14	\$ 15,857.43	\$ 21,265.97	\$ 42,721.55
<b>Denmark</b>	\$ 5,873.99	\$ 13,312.20	\$ 38,357.66	\$ 57,543.85
Rob Carsson	\$ 281.28	\$ 10,260.79	\$ 6,449.19	\$ 16,991.25
Helen Brolin	\$ 5,592.71	\$ 3,051.42	\$ 31,908.47	\$ 40,552.60
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Leif Shine	\$ 560.78	\$ 942.60	\$ 128.02	\$ 1,631.40
Tom Lindwall		\$ 1,321.11	\$ 3,062.39	\$ 4,383.50

3. Click **Save and Close** to save the template, and close the **Template Editor**.

## 7 Word reports

With Qlik NPrinting, you can create reports based on Word templates, filled with data from your QlikView documents or Qlik Sense apps.

The templates for generating Word reports use QlikView or Qlik Sense formatting as the default formatting setting. However, you can also use the Word formatting tools.

### 7.1 Creating Word reports

In Qlik NPrinting, you can create reports based on Word templates, filled with data from your QlikView documents or Qlik Sense apps, and then export the reports as .docx, .doc, .html, or .pdf.

In this example, you will embed the data of one QlikView object and the images of two others in a Word report, and then use two QlikView variables in a heading.

You can open an existing QlikView document or create a new one with at least one connection to the QlikView document *SalesDemo.qvw*. You can also customize the connection to use your own .qvw file. Word reports support MultiDoc.

#### Create new Word report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *Simple Word Report*
3. Select **Word** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Select a **Template** from the options available:
  - **Empty template** - uses an empty template
  - **Default template** - use the default template (only available if a default template has been set in **Report settings**.  
See [Load an Office, HTML or PixelPerfect file as a template](#))
  - **Custom** - Choose a file to use as a template.
6. Keep the **Enabled** check box selected.
7. Click **Create**.  
If you click **Cancel**, the settings are deleted. If you instead want to save the report for future use, clear the **Enabled** check box and then click **Create**.
8. Click **Edit template** to open the **Template Editor**.

#### Select QlikView objects to add as images

Do the following:

1. If you want to use a connection different than the default one, open the **Connection** drop-down list and select the connection. You must have created the connection and the related cache to see it here.
2. Right-click the **Images** node, and select **Add objects**.
3. Select QlikView objects, for example **CH186** and **CH212**, to be included in your template as images. You can select multiple objects.
4. Click **OK**.

### Embed images in template

Do the following:

1. If necessary, expand the **Images** node.
2. Drag the **CH186** node token onto the page, and then drag the **CH212** node token onto the page.

After dragging an image onto the template, Qlik NPrinting drops a standard gray-scale image with the original object ID overlapped. You can then resize and/or move it onto the page just like in any Word document.

### Add variables for heading

Do the following:

1. If necessary, change the connection to the QlikView document that contains the variables that you want to use.
2. Right-click **Variables** and select **Add variables**. The **Select Variable** window appears.
3. Select the **vCurrentYear** and **vLastYear** variables from the list in the **Select Variables** window.
4. Click **OK**.

### Create and format heading

Do the following:

1. Right-click anywhere at the top of the page, and then click **Edit Header** to start creating header content.
2. Expand the **Variables** node in the left pane.
3. Drag the **vCurrentYear** and **vLastYear** node tokens into the header section of the page, and then compose the heading.
4. Highlight the heading, and then format it using the Word formatting tools.
5. Select the **Design** tab.
6. Click **Close Header and Footer** in the **Close** group.

### Select object to add as table

Do the following:

1. If necessary, change the **Connection** to the QlikView document that contains the entities you want.
2. Right-click **Tables** in the left pane, and then select **Add objects**.



3. Select the **CH184** from *Sales Demo* in the **Select Objects** window.
4. Click **OK**.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

## Embed table

Do the following:

1. Expand the **Tables** node.
2. Drag the **CH184** node token onto an empty space on the page.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 7.2 Formatting Word reports

When creating templates to generate Word reports, the default formatting setting is the QlikView or Qlik Sense formatting. However, you can also use the Word formatting tools.



*Table formatting using Word tools only works if you save your template in .docx format, and not in .doc. Save Word templates in .doc format only if necessary for backward compatibility.*

## Allow application of Word formatting for whole chart

After you have added a QlikView object as a table, for example **CH184** in [Creating Word reports \(page 399\)](#), do the following:

1. In the **Template Editor**, click the **CH184** node of the object that you just added.
2. In the **Properties** window, clear the **Keep Source Formats** check box.  
This will cause the contents of all cells in all columns of the table to be exported from QlikView without formatting.
3. Click the **Toolbar** button.

## Wrap text feature

Selecting **Wrap Text** causes Qlik NPrinting to automatically create two lines if the cell is too small. This works only when **Keep Source Formats** is not selected. **Wrap Text** is a table property that affects all columns of the table.

## Apply Word formatting to entire table

Before adding the table to the template, do the following:

1. Select the **Insert** tab on the toolbar.
2. Select **Table**.
3. Select the uppermost left cell to insert a 1x1 table into the template.

## Add your table to the template

Do the following:

1. Expand the **CH184** node.
2. Drag and drop them into the table cell in the template. You can select multiple values by keeping Ctrl or Shift pressed during the columns selection.  
This will create all tags and insert them into a horizontal series of cells. The cells may exceed the page layout but this will be addressed in the following subsection.

## Set table to AutoFit columns

Do the following:

1. Select the **Layout** tab in the **Table Tools** section of the toolbar.
2. Click **AutoFit** in the **Cell Size** section of the toolbar.
3. Select **AutoFit Contents**.

## Apply table style

After selecting the table, do the following:

1. Select the **Design** tab in the **Table Tools** section of the toolbar.
2. Select a general style in the **Table Styles** section of the toolbar.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 8 PowerPoint reports

Qlik NPrinting supports exporting QlikView and Qlik Sense data to PowerPoint slides. PowerPoint slides are automatically updated when a report is generated. Data is filtered according to recipient, report, and task. Only filtered data is saved in generated reports.

### 8.1 Feature overview

#### PowerPoint report templates

Create reports and report templates, where you embed QlikView objects and variables. You can preview the result and make changes before saving.

#### Page feature in report templates

Use the page feature to create separate slides in PowerPoint for each field value. You can have more than one page field in a presentation, but on separate slides.

#### Individual slides for multiple field values

Create a PowerPoint slide for every combination of values from two or more fields. The first steps are taken in QlikView. You can rearrange the order of the generated slides.

#### Native tables and charts

Embed QlikView tables and columns in your PowerPoint report templates and apply new styling. Create a PowerPoint chart using native QlikView tables. You can create new charts, or replicate QlikView ones, by adding column tags as the chart data source in the Table node.

### 8.2 Troubleshooting

#### Excel worksheets in PowerPoint report templates

You cannot embed an Excel worksheet in a PowerPoint report template. This will cause Qlik NPrinting Designer to crash. You can insert the worksheet without using the Qlik NPrinting Designer.

#### New template

Create a .pptx file in PowerPoint without using the Qlik NPrinting Designer. Insert the worksheet and save the .pptx. Then use the .pptx file as a report template.

#### Existing template

If you have already created the PowerPoint template, export it, open the .zip file generated by Qlik NPrinting and double-click the .pptx file inside. Insert the Excel worksheet, save the resulting PowerPoint and overwrite the existing Qlik NPrinting template by uploading the updated .zip.

## 8.3 Creating PowerPoint reports

This tutorial illustrates the basics of creating PowerPoint reports. It is presumed that you are familiar with common Qlik NPrinting procedures.

You have to first open an existing Qlik NPrinting document , or create a new one. We will use a sample QlikView document, *SalesDemo.qvw*, for this tutorial.

Images of three QlikView objects and a QlikView variable will be embedded the PowerPoint report.

### Create a new PowerPoint report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PowerPoint Report (Sales)*.
3. Select **PowerPoint** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Select a **Template** from the options available:
  - **Empty template** - uses an empty template
  - **Default template** - use the default template (only available if a default template has been set in **Report settings**.  
See [Load an Office, HTML or PixelPerfect file as a template](#))
  - **Custom** - Choose a file to use as a template.
6. Keep the **Enabled** check box selected.
7. Click **Create** to create the report.

### Create the report template

You will now create a new report template

Do the following:

1. Click **Edit template** to open the **Template Editor**.
2. Delete the title and subtitle boxes from the PowerPoint slide.
3. Right-click the **Images** node, and select **Add objects**.
4. Select QlikView objects **CH16** and **CH184** in the **Select Objects** window that opens.  
Use Ctrl+Click to select more than one object.
5. Click **Ok**.
6. Expand the **Images** node in the left pane by clicking on the **+** to its left.
7. Drag the **CH16** and **CH184** node tokens and drop them onto the slide.  
Arrange and format the tokens using the controls in the PowerPoint ribbon.
8. Right-click the **Variables** node, and then select **Add variables**.

9. Enter *y* in the **Search** field, to reduce the number of candidate variables.
10. Select **vCurrentYear**.
11. Click **Ok**.
12. Drag and drop the **vCurrentYear** node token onto the slide in the position you require.

### Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 8.4 Using the page feature in PowerPoint reports

The level feature causes cycling of a field on the same page. The page feature causes a separate slide to be created in PowerPoint for each field value. While levels can be nested, you cannot have more than one page per slide.

### Adding a page field to the template

This report contains only one slide, so only that slide can be the active slide. If your report has more than one slide, you must select the slide to be active and be cycled over the **Page** field before adding the page.

Do the following:

1. Open the PowerPoint report template you want to edit.
2. Right-click the **Page** node, and then select **Add page to current sheet**.
3. Select a field in the window that opens.
4. Click **Ok**.
5. Drag the field you selected onto the template, and then format the slide as desired.
6. Click on the upper part of the **Preview** icon.  
Note that there is a labeled slide for each **Salesman**.
7. Close PowerPoint without saving the report.
8. Click **Save and Close** to save your work in the template.

### Customizing the Slides property

You can have more than one page field in a presentation, but on separate slides. For example: You have a Year field that covers 2012, 2013, and 2014. You can add the Year field on the first slide, but have each Year to span over three slides.

Do the following:

1. Create a new PowerPoint report template.
2. Right-click the **Page** node, and then select **Add page to current sheet**.
3. Select a field in the window that opens. For example: Year.
4. Click **Ok**.
5. Drag the field you selected onto the template, and then format the slide as desired.
6. Add two more blank slides.
7. Go the **Slides** property, and type 1-3.
8. The result will be:
  - Slide 1 - 2 - 3: filtered for 2012
  - Slide 4 - 5 - 6: filtered for 2013
  - Slide 7 - 8 - 9: filtered for 2014

### 8.5 Generating individual slides for multiple field values

You can create a PowerPoint report with a slide for every combination of values from two or more fields. This can be done with both QlikView and Qlik Sense connections.

This example illustrates the use of two fields using a QlikView connection. You can also customize the final order of the produced slides. First, you need to do some preliminary work in QlikView, and then you'll create a PowerPoint report template.

#### Preparing the table box in QlikView

Do the following:

1. Open *SalesDemo.qvw* in QlikView.
2. Select the QlikView sheet where you might want the new object to appear, and then right-click any empty part of the sheet.
3. Select **New Sheet Object**.
4. Click **Table Box...**
5. Select several fields from the list of **Available Fields**.  
For example, select **Country** and **Year**.
6. Click **Add** to transfer the chosen fields to the **Fields Displayed in Tablebox** list.
7. Click **OK** at the bottom of the **New Table Box** window.

You can customize the sort order of slides in the final PowerPoint report by setting the sort order in the original QlikView object.

#### Creating a PowerPoint report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report.

3. Select **PowerPoint** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Edit template** to open the **Template Editor**.
6. Right-click the **Page** node, and then select **Add page to current sheet**.
7. Select the **Connection** to the QlikView document that contains the object you want.
8. Select **PageTB04**.
9. Click **OK**.
10. Expand **TB04\_Page** node.
11. Compose the slide title by dragging the **Country** and **Year** node tokens and dropping them in the appropriate positions in the Title text box.
12. Add **Sales by Category - CH186** to the **Images** node.
13. Drag the **CH186 - Sales by Category** node token into the template and drop it onto the slide.
14. Click **Preview**.  
Qlik NPrinting generates a slide for each country for the years 2012 to 2014.
15. Click on **Save and Close** to save the template.

### 8.6 Inserting a native table in PowerPoint reports

You can use tables and columns in Qlik NPrinting PowerPoint reports.

#### Creating a new PowerPoint report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PowerPoint Native Tables*.
3. Select **PowerPoint** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Keep the **Enabled** check box selected.
6. Click **Create** to create the report.

#### Adding QlikView objects as tables to the template

Do the following:

1. Click **Edit template** to open the **Template Editor**.
2. Right-click the **Tables** node, and select **Add objects**.
3. Add **CH318**, **CH319**, and **CH317** from the objects list.
4. Drag and drop the **CH317** node onto the first slide.
5. Insert a new slide.
6. Expand the **CH318** node.
7. Select all four fields and drag and drop them onto the second slide.

8. Select the table in the slide.
9. Select the **Design** ribbon tab under **Table Tools**.
10. Select a table style.
11. Clear the **Keep Source Formats** check box in the **Properties** section in the left pane.
12. Insert a new slide. Expand the **CH319** node.
13. Drag and drop the **Salesman** tag onto the third slide.
14. Click **Preview** in the template editor, and view the results in the three slides.
15. Click **Save and Close** to save the template.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

There are two useful table properties that can be used to modify QlikView data displayed in the PowerPoint slides. They will not work with Qlik Sense data:

- **Custom Rows**
- **Show Totals**

**Custom Rows** is used to control the number of rows displayed in a table. For example, if you have a Sales table in QlikView that is sorted by Sales description and has 1000 rows, you may want to reduce the number of rows displayed in PowerPoint.

The range of rows that you want to display is entered in the format **x-y** (for example, 1-10 or 5-20). If **y** is greater than the maximum number of rows in the table (excluding Header and Totals rows), then only the number of rows available after **x** will be exported (total number of rows = 100, range 80-110, resulting rows displayed = 80-100).

The **Show Totals** check box allows you to export a table with or without the totals row of the QlikView table. This property is only available if the table has a totals row that can be detected by Qlik NPrinting.



*The **Custom Rows** and **ShowTotals** properties are related to tables and are not available for single columns.*



*The **Custom Rows** property is available for all object types except pivot tables.*

## 8.7 Creating a PowerPoint chart using native Qlik tables

Qlik NPrinting supports PowerPoint native charts. You can create new charts, or replicate QlikView or Qlik Sense charts.



### Limitations

- Stock charts are not supported.
- Tables are only the chart data sources.

### Supported PowerPoint charts

The following PowerPoint charts can be bound to tables in a report template:

- Clustered Bar
- 3-D Clustered Bar
- 100% Stacked Bar
- 3-D 100% Stacked Bar
- Stacked Bar
- 3-D Stacked Bar
- Clustered Column
- Stacked Column
- Stacked Column 100%
- Clustered Column 3D
- Stacked Column 3D
- 100% Stacked Column 3D
- Column 3D
- Stacked Line
- Stacked Line With Markers
- Line
- Line 3D
- Line With Markers
- 100% Stacked Line
- 100% Stacked Line With Markers
- Area
- Area 3D
- 100% Stacked Area
- 100% Stacked Area 3D
- Stacked Area
- Stacked Area 3D
- Wireframe Contour
- Wireframe Surface 3D
- Surface 3D
- Contour
- Bar Of Pie

- Pie
- Pie 3D
- Pie Of Pie
- Exploded Pie
- Exploded Pie 3D
- Doughnut
- Exploded Doughnut
- Radar
- Radar With Markers
- Filled Radar

### Create a new PowerPoint report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PowerPoint Native Chart*.
3. Select **PowerPoint** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list..
5. Keep the **Enabled** check box selected.
6. Click **Create** to create the report.

### Insert a PowerPoint chart in the template

Do the following:

1. Click **Edit template** to open the **Template Editor**.
2. Right-click the **Tables** node, and select **Add objects**.
3. Add **CH326 - Sales by YearMonthNum** from the objects list.
4. In the PowerPoint ribbon, select the **Insert** tab.
5. Click on **Chart** in the **Illustrations** section.
6. Select the first bar chart in the **Columns** option, and then click **Ok**.

An Excel sheet is opened and will be used as the data source for the chart. We will insert Qlik NPrinting tags into the sheet and re-size the data to include only the correct data set.

### Drag and drop the table tags into the Excel worksheet

Do the following:

1. Expand the **Tables** node.
2. Select the **YearMonthNum** and **Sales** tags in the **Tables** node.  
Use Ctrl+Click to select more than one object.

3. Drag and drop the **Year MonthNum** tags into the upper left corner of the Excel worksheet (cell **A1**) and the **Sales** tags into cell **B1**.

Be sure to insert the column title in the first row of the worksheet, and insert the column tag in the second row.

### Delete unnecessary data

Do the following:

1. Select and delete columns **C** and **D**.
2. Select and delete **3, 4** and **5**.
3. Close Excel.  
The changes will automatically be saved.

### Verify that the chart data sources are correct

To check that the chart data sources are correctly connected, do the following:

1. Click **Select Data** in the **Design** tab of the PowerPoint ribbon bar in the template editor.  
Excel will be opened again.
2. Click **Edit** in the **Series** column to check the correct cells are shown in the **Series name** and **Series values** fields.
3. Click **Edit** in the **Category** column to check which cells are included.
4. Modify the data source ranges, if necessary, then close the editor and Excel.
5. Click on **Preview** .  
You will see a native chart inside the slide.

### Add pages by category

All other features, like pages, can be added.

Do the following:

1. Add the **CategoryName** field in the **Pages** node.
2. Drag and drop the **CategoryName** tag into the slide.
3. Click **Preview** .  
You will see a slide for each category.
4. Click on **Save and Close** to save the template.

## 9 HTML reports

This section explains how to create HTML reports, how to add tables in HTML reports, and how to embed the resulting report in an email message.

You can also apply HTML styles to get the look and feel you want, and the resulting HTML code can be manually customized.

HTML reports can contain many HTML and images files. They are delivered to users as .zip files.

HTML reports are supported for both QlikView and Qlik Sense objects.



*The final output of emails with embedded HTML reports may differ depending on the email clients and permissions of the recipient. Some systems automatically block images, or show them as attachments.*

- *Creating HTML reports (page 412)-->HTML reports containing tables (page 414)*
- *HTML reports containing tables (page 414)-->Applying HTML formatting (page 417)*
- *Applying HTML formatting (page 417)-.->Filters (page 304)*
- *Applying HTML formatting (page 417)-->Distributing reports by email (page 479)*
- *Filters (page 304)-.->Distributing reports by email (page 479)*

### 9.1 Creating HTML reports

HTML reports contain HTML and image files. They are delivered to users as .zip files.

This tutorial shows how to:

- create an HTML
- embed images in an HTML report
- add a level
- add a level variable tag as a label

The end report will have an appropriate title and images in a frame for each of three years. HTML reports support most Qlik Sense objects. See: *Working with Qlik objects (page 292)*

#### Creating a new HTML report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report.
3. Select **HTML** from the **Type** drop-down list.

4. Select an app from the **App** drop-down list.
5. Select a **Template** from the options available:
  - **Empty template** - uses an empty template
  - **Default template** - use the default template (only available if a default template has been set in **Report settings**.  
See [Load an Office, HTML or PixelPerfect file as a template](#))
  - **Custom** - Choose a file to use as a template.
6. Click **Create** to create the report.

## Selecting connections and objects

Do the following:

1. Click **Edit template** to open the **Template Editor**.
2. Right-click the **Images** node, and select **Add objects**.
3. Select the objects you want to add as images.
4. Click **OK**.
5. Drag and drop your image objects onto lines between the <body> and </body> tags.
6. Click **Preview**.
7. Check the report, close it, and then edit the template again if necessary.
8. Click **Save and Close** to save the template and close the **Template Editor**.

## Resulting report

```
<html>
  <body style="text-align: center;">
    <h3 style="text-align: center; font: 21px verdana;">
      Top 10 countries
    </h3>
    
    <h3 style="text-align: center; font: 21px verdana;">
      Top 10 products
    </h3>
    
  </body>
</html>
```

## Opening the select levels window

You can produce an HTML report with levels that cycle through each year.

Do the following:

1. Right-click the **Levels** node, and select **Add levels**.
2. Select **Year** from the levels list.
3. Click **OK**.
4. Expand the **Levels** node.

5. Drag and drop the **Year\_Level** node token onto a line between the <body> and </body> tags.  
Add lines if necessary.  
The result is three new lines, %%Year\_Level1%%, %%/Year\_Level1%%, and a blank line between the lines.
6. Arrange the %%Year\_Level1%% line before the elements that you want to be included in the level cycle, and the %%Year\_Level1%% line after the elements that you want to be included in the level cycle.
7. Expand the year\_Level1 node.
8. Drag and drop the **Year** node token onto a line between the %%Year\_Level1%% and the %%Year\_Level1%% lines.
9. Add inline style elements. See the code examples below.

## Resulting report

The following HTML code, for example, creates a corresponding HTML report. The report will have three titled sections, one for each year.

```
<html>
  <body style="text-align: center;">
    %%Year_Level1%%
    <h2 style="font: 24px verdana;font-weight: bold;">%%Year%%</h2>
    <h3 style="text-align: center; font: 21px verdana;">Top 10 countries</h3>
    
    <h3 style="text-align: center; font: 21px verdana;">Top 10 products</h3>
    
    %%/Year_Level1%%
  </body>
</html>
```

## 9.2 HTML reports containing tables

Tables exported from QlikView or Qlik Sense can be displayed with or without the original headings. You can hide the headings that were exported, and then create your own custom headings. This is also true for tables constructed by putting together columns generated from data fields.

The following example shows how to create an HTML report with tables.

### Adding tables to an HTML template

Do the following:

1. Click **Edit template** to open the **Template Editor**.
2. Right-click the **Tables** node, and select **Add objects**.
3. Select an object from the list.
4. Click **OK**.

- Right-click the object node, and then select **Properties**.



If the **Properties** window is already in view, the **Properties** option will not be shown when you right-click a node.

- Select the **Keep Source Formats** and **Show Headers** check boxes in the **Properties** panel.
- Drag the table node tag into the template and drop it onto an empty table data container.

```
<html>
  <body>
    <table>
      <tr>
        <td>
          <h1 style="text-align:center">
            Top 10 Products<br />
            with Qlikview Heading
          </h1>
          %%yourtableobject%%
        </td>
        <td>
          <h1 style="text-align:center">
            Top 10 Products<br > </br>
            Hidden Qlikview Heading
          </h1>
        </td>
      </tr>
    </table>
    ...
```

Two versions of the table are displayed side by side. The left table has headings visible, and the right table has the headings hidden. The table is embedded as a unit in both cases.

- Add the same table to the template again.
- Open the **Properties** pane for the new table object, and then set the **Show Headers** property to **Hide**.
- Drag the table node tag into the template and drop it onto the appropriate empty line:

```
<html>
  <body>
    <table>
      <tr>
        <td>
          <h1 style="text-align:center">
            Top 10 Products<br />
            with Qlikview Heading
          </h1>
          %%yourtableobject%%
        </td>
        <td>
          <h1 style="text-align:center">
            Top 10 Products<br />
            Hidden Qlikview Heading
          </h1>
```

```

                %%yourtableobject_1%%
            </td>
        </tr>
    </table>

```

...

11. Expand the table node.
12. Drag and drop each column, one at a time, onto the template in the appropriate HTML container. This third version of the table is reconstructed column-by-column in a separate HTML table. Each table heading and table data cell can have inline style elements added individually. The inline style elements for each table data cell will have an effect on the whole column below the heading.
13. Add custom headings.

Here is the HTML code for the reconstruction of the last version of *CH184\_1 - Top 10 Products* in another table:

```

<table>
  <tr>
    <th style="width:125px;">
      Product
    </th>
    <th style="width:60px;">
      Sales
    </th>
    <th style="width:60px;">
      Profit
    </th>
    <th style="width:100px;">
      Profit Percentage of Sales
    </th>
  </tr>
  <tr>
    <td>
    </td>
    <td style="width:125px;">
      %%ProductName_1%%
    </td>
    <td style="width:60px;">
      %%Total Sales_1%%
    </td>
    <td style="width:60px;">
      %%Gross Profit_1%%
    </td>
    <td style="width:100px;">
      %%GP%_1%%
    </td>
    <td>
    </td>
  </tr>
</table>
</body>
</html>

```





You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 9.3 Applying HTML formatting

You can apply CSS inline style elements as you create templates in the HTML template editor.

### Allow application of CSS inline style elements for a whole chart

After you have added an object as a table:

Do the following:

1. If **Properties** are visible, jump to step 3, otherwise right-click the **Tables** node.
2. Select **Properties**.
3. Deselect the **Keep Source Formats** check box.

This will cause the content for all cells in all columns of the table to be exported from QlikView without formatting. The application of CSS inline style elements that you set in the HTML template will be applied. Compare the output with and without **Keep Source Formats** selected.

### Allow application of CSS inline style elements for specific columns

Be sure that your table object is a straight table in QlikView. QlikView pivot tables must be converted to straight tables before selecting them to be included under the Qlik NPrinting **Tables** node or you will not have access to individual fields/columns. If you want to keep source formatting for the majority of columns, leave the **Keep Source Formats** check box selected for the table as a whole and do the following:

1. Expand the table node.
2. Click on the column(s) that you want to apply CSS inline style elements to.
3. Deselect the **Keep Source Formats** check box.
4. When the **HTML Encode** check box is selected, any non-alphanumeric symbols (such as < and />) that could be interpreted as HTML tag elements will be converted to HTML entities.

When the **HTML Encode** check box is cleared, any non-alphanumeric symbols that could be interpreted as HTML tag elements will be rendered by the underlying HTML code used in the Qlik NPrinting HTML template editor.

This will cause the content for all cells in the selected column of the table to be exported from QlikView without formatting, but they will contain the application of any CSS inline style elements you have applied within the HTML template. You can do this for as many individual columns as you need.

## Apply a format to a column

Do the following:

1. In *HTML Report (Sales)*, select **Gross Profit**.
2. Enter `$#.##,00` in the **Format** field.

## Build your table

Do the following:

1. Construct an HTML table with one row of data cells. The source code should look like this:
 

```
<table>
  <tr>
    <td></td> <td></td> <td></td>
  </tr>
</table>
```
2. Drag the table column node icons between the table data cell tags. You can select multiple values by keeping Ctrl or Shift pressed during the columns selection, and then drag and drop them into the template. This will create all tags and insert them into a horizontal series of cells.
 

The **Keep Source Formats** check box has been cleared for the **Gross Profit** column.
3. Insert another row above the first.
4. Insert table heading cells in the new row.
5. Enter the headings that you want.
6. Reopen the **Properties** dialog window for each column that you have added to the template, one at a time.
7. Click in the **Value** column of the **Show Header** row. The cell will have the value **Show**.
8. Click on the drop-down menu button that appears, and select **Hide**.

This is the original table with the **Keep Source Formats** check box cleared for two columns, a heading row added, and the original table headings hidden for every column.

## Apply inline style elements

In this case, the sample output is simple but it gives you an idea of the possibilities.

Here is the code in full:

```
<html>
  <body>
    <table cellspacing=0 style="border-collapse:collapse;">
```

```

<tr style="width:0*;
        font-family:Verdana;
        font-size:small;
        font-variant:small-caps;">
  <th style="border:grey dashed 1px;">
    Product Name
  </th>
  <th style="border:grey dashed 1px;">
    Total Sales
  </th>
  <th style="border:grey dashed 1px;">
    Gross Profit
  </th>
  <th style="border:grey dashed 1px;">
    GP%
  </th>
  <th style="border:grey dashed 1px;">
    Quantity
  </th>
</tr>
<tr>
  <td style="width:0*;
        font-family:Verdana;
        font-size:small;
        font-weight:bold;
        font-variant:small-caps;">
    %%ProductName%%
  </td>
  <td>
    %%Total Sales%%
  </td>
  <td>
    %%Gross Profit%%
  </td>
  <td>
    %%GP%_1%%
  </td>
  <td style="width:0*;
        color:red;
        font-family:Georgia;
        font-size-adjust:0.40;
        background-color:yellow;
        border:green solid 2px;
        text-align:right;">
    %%Quantity_1%%
  </td>
</tr>
</table>
</body>
</html>

```

## 10 PixelPerfect reports

PixelPerfect lets you produce attractive reports while maintaining complete control of the printed output.

There are a wide range of formatting options:

- Embedding and formatting data in a template
- Creating and ordering data columns
- Formatting cell contents
- Adding and nesting levels
- Rendering borders visible and eliminating white space

### 10.1 Limitations

- You cannot add QlikView or Qlik Sense pivot tables to PixelPerfect reports.
- Open Type Fonts (.otf) are not supported in report templates. Generated reports will use a different font, and not look as expected.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

### 10.2 Understanding PixelPerfect features

PixelPerfect is the Qlik NPrinting solution to create aesthetically perfect reports from QlikView or Qlik Sense data, and to then export the reports to PDF. PixelPerfect is an implementation of band reporting, which gives you pixel level control over layout and appearance.

For example, you can set font size, color, image positioning, and dimensions, chart types, options, and much more.

### 10.3 Description of features

#### Template editor

You can use the PixelPerfect template editor to design structured templates. Using the **Field** list tree view, you can drag and drop images, cells, variables, and formulas.

You can also add levels to create tables, or to repeat a segment of the report for each value of the field or the table used as a level. Levels can be nested within one another to create a hierarchical view.

You can configure the appearance and behavior of each object using its properties. They are entered in the **Property Grid** panel in the bottom of the editor.

### Level

To add levels, do the following:

1. Right-click the **Levels** node, and select **Add levels**.
2. Choose an object from the list that appears.
  - If you insert a QlikView field, the report segment will be repeated for each value of the field. For example, if you select the field *Year*, you will get a segment for each year that is present in your dataset.
  - If you select a QlikView table, the report segment will be repeated for each row in the table. You can repeat a segment for many different combinations of a group of fields. For example, if you select a table with a country and a sales representative column, you will get a segment for each combination of Country/Sales representative values visible in the table.

Levels can be made hierarchical. To add a sub-level, do the following:

1. Right-click the name of an existing level, and then select **Add Level**.
2. Choose the field or the table that you want to insert. For example, you can add a level for **Year** and nest the **Product Category** under it. You can have a segment repeated for each year, with many segments inside repeated for each product category.
3. Before adding a level to the template, select the destination band and right-click it.
4. Click **Insert Detail Report** and select the name of the level you want to add. A new band will be created and it will be cycled by each value of the level.
5. Drag and drop the level content to the band that will be transferred to the final report. A new label containing the field information is created.  
If you want to create a table in the final report, you have to use levels.

### Table

In PixelPerfect templates, tables are data sources for charts and sparklines. If you want to create a table in your report, you must use levels. You do not add the source QlikView table in the Tables node.

To add a table, do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Click on the desired object from the list that appears.

### Images

You can add QlikView objects as images to your template.

Do the following:

1. Right-click the **Images** node, and select **Add objects**.
2. Select a QlikView object from the list that appears, and then drag and drop the new image onto the template.  
A new picture box is created.
3. To specify the image position, select the image area with the mouse and move it until you reach the desired position.
4. To change the image area, select one of the blue squares in the corner or in the middle of a side and adjust to desired position.
5. Use the **Sizing** property to set the image behavior.  
Possible values are:
  - **Normal:** the image is inserted with the original size. If the area is too small the image will be clipped, maintaining the alignment with the upper left corner.
  - **Stretch Image:** the image is stretched to fill the width and height of the content area. Aspect ratio will be changed.
  - **AutoSize:** the final image keeps the original size of the image exported from QlikView. Other data in the final report will be moved in order to maintain integrity of the report.
  - **Center Image:** the image is displayed in the center (horizontally and vertically) of the area with the QlikView dimensions. If the image is larger than the area, the image is cropped.
  - **Zoom Image:** the image is proportionally re-sized to fill the area, while keeping the aspect ratio. The image view can zoom in or out.
  - **Squeeze:** if the area exceeds the image size, the image is centered and shown at full-size. Otherwise, the image is re-sized to fit into the area.

To set other properties of the image, use the **Property Grid**.

## Variables

You can add QlikView variables to your template. QlikView variables will be replaced with their value at the time of report generation.

Do the following:

1. Right-click the **Variables** node, and then select **Add Objects**.
2. Select the variable that you want to add from the list that appears.  
A new label containing the information about the variable is created when you drag and drop the variable.

You can set other variable properties using the **Property Grid**.

## Formulas

You can add QlikView formulas to your template.

Each formula:

- Will be evaluated at time of report generation.
- Must use the QlikView formula syntax.
- Must return a single value.

To add a formula, do the following:

1. Right-click on the **Formulas** node in the **Field** List.
2. Choose **Add Formula**, then insert a name and the formula using QlikView syntax.
3. Drag and drop it onto the template.  
A new label containing the information about the formula is created.
4. You can edit the formula by right-clicking on the formula name and selecting **Edit Formula**.

## Cells

You can add specific cells from a QlikView object to your template.

Do the following:

1. Right-click the **Cells** node, and then select **Add Cells**.
2. To insert a name, click on the dots to the right of the **Object** label.
3. Select a QlikView object from those that appear.
4. Insert the number of desired rows on the top and bottom, in addition to the number of columns.
5. Drag and drop each cell onto the **Report** area.  
A new label containing the information for each cell is created. You can set other cell properties using the **Property Grid**.

Note that cells with a 0 in the row number refer to the QlikView table header.

If the original QlikView object has totals on the first row, the cells with 1 as the row number will contain the total. In this case, the first cells with data are those with 2 as the row number.

## Multiple drag and drop

Do the following:

1. Select more than one entity in the **Field** list by pressing the Shift or Ctrl buttons.
2. Drag the items onto the template.  
When you drop them, a table containing your selected entities will be created.
3. To drag and drop only the column headers, select the columns and drag them by pressing Shift or by right-clicking the mouse.

You can also use Shift and Ctrl to select multiple objects from a list to a node. For example you can add many images by pressing Ctrl during the selection from the list of images.

## Remove an entity

Do the following:

- Right-click on the entity and select either **Remove Object** or **Remove Levels** to remove an entity from the **Field** list.

## Using ToolBox controls

The toolbox on the right side of the editor allows you to insert some control objects into the template. For example, you can insert charts, sparklines, page breaks, labels, and many other objects.

To insert a control in your template, select it from the toolbox, and then drag and drop it into the template.

You can set control properties using the **Property Grid**.

## Labels

Labels are used to insert fixed text or bind it to a source. For example, you can insert dynamic text from fields, variables, or formulas.

To insert a new label, do the following:

1. Select the label from the **Toolbar** then drag and drop it into the template.
2. Insert your own text by double-clicking on the control and entering the text.  
You can bind a label to a data source by selecting it and clicking on the smart tag (the small arrow in the top right corner), then by opening the **Data Binding** menu. Be sure to select the proper data source. You can set other label properties using the **Property Grid**.

## Charts

You can develop charts from your QlikView data with PixelPerfect. A chart does not need to exist in a QlikView document to add it. PixelPerfect uses QlikView tables as data sources for charts. You can also choose from a great variety of chart types to customize the appearance.

To add a new chart, do the following:

1. Drag a chart object from the **Toolbox** onto the template.  
A wizard appears. Follow the steps to select the data series and set the properties. A data series can be bound by going to the **Data** tab, selecting **Series Binding**, and then selecting the argument and the values for each series.
2. Click on the columns of the tables already inserted in the **Field** List.  
Following the other steps will help you customize presentation properties. You can also change properties by using the **Property Grid** panel, or by reopening the wizard and clicking on the smart tag and selecting **Run Wizard**. To jump to a specific property in the wizard, click on its name on the left side column. You can insert a chart inside a level.

## Sparklines

A sparkline is a very small line chart (typically drawn without axis) that presents the variation of a measurement, typically over time. PixelPerfect supports sparklines, so that they can be inserted into your reports.



Sparklines need a table as the data source. You first add a table in the **Tables** node, select the sparkline object from the **Toolbar**, and drag and drop it into the template. To bind it with your data, click on the smart tag (the small arrow in the top right corner), and then set the **Data Member** and **Value Member** properties.

You can display a sparkline for each row of a table by inserting a sparkline inside a level.

### Rich text

You can use Rich text to display information in different formats.

- Select the **Rich Text** button from the **Toolbar**, drag and drop it into your template, and then double-click on it to input data in edit mode.

In edit mode, you can type fixed text or drag and drop entities from the **Field** list: a field between square brackets will appear. You can drag and drop variables, fields, formulas, images, and cell values. You can set other **Rich Text** properties using the **Property Grid** or the ribbon bar. Rich Text also supports nested levels.

### Other controls

Use page break, zip code, panel, or line to customize your template.





### Export formats

PixelPerfect supports PDF, HTML, Xls, Xlsx, Png, Gif, jpg and Tiff formats. The default is PDF, which is the best choice when you want total control of appearance. If your goal is to create an Excel or HTML report, we recommend using an Excel or HTML template.

To display the preview in another format, click on the arrow under the lens, or set a specific output format in the task.

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#### See also:

-  [How to use sparklines in PixelPerfect reports](#)
-  [How to create PixelPerfect charts](#)
-  [How to create a well formatted PixelPerfect chart](#)
-  [Properties of PixelPerfect labels, table and charts](#)

## 10.4 PixelPerfect common properties

This page describes the properties for the most commonly used PixelPerfect objects. Some properties are also available in the **Formatting** toolbar.

You can use this information to do the following:

- Search for the property that you want to change under **Property Name**, and then check for the objects for which it is available.
- Find which properties are customizable for each object.
- Learn precisely what each specific property controls.

## Appearance

Appearance properties

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Appearance Name</b>	Specifies one of the available appearances, to be used to draw the chart's elements ( <b>Diagram</b> , <b>Axes</b> , <b>Legend</b> , etc.).	No	No	No	No	Yes
<b>Background Color</b>	Specifies the background color for the control.	Yes	Yes	Yes	Yes	Yes
<b>Background Image</b>	Allows you to load a background image to a chart (or define its URL), and also define whether it should be stretched to fit the entire chart's area.	No	No	No	No	Yes
<b>Borders, Border Color, Dash Style and Border Width</b>	Specifies the border settings for the control.	Yes	Yes	Yes	Yes	Yes
<b>Fill Style</b>	Specifies the fill style of a chart's background ( <b>Empty</b> , <b>Solid</b> , <b>Gradient</b> , or <b>Hatch</b> ) and define other fill options as required.	No	No	No	No	Yes
<b>Font</b>	Specifies the font settings for the control.	Yes	Yes	Yes	Yes	No
<b>Foreground Color</b>	Specifies the text color for the control.	Yes	Yes	Yes	Yes	No
<b>Formatting Rules</b>	Invokes the <b>Formatting Rules</b> editor, allowing you to choose which rules should be applied to the control during report generation, and define the precedence of the applied rules.	Yes	Yes	Yes	Yes	Yes

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Image Type</b>	Specifies whether a chart should be internally rendered as a meta file in a report (the quality of the rendered image is always good, but in particular cases some details of the control may be lost), or as a bitmap (the quality of the rendered image is sometimes poor, but it allows a control to be drawn more precisely).	No	No	No	No	Yes
<b>Indicators Palette Name</b>	Specifies the palette that is used to paint all indicators that exist in a chart.	No	No	No	No	Yes
<b>Padding</b>	Specifies the indent values which are used to render the contents of a label.	Yes	Yes	Yes	Yes	Yes
<b>Palette Name</b>	Specifies one of the built-in palettes to be used to draw a chart's series.	No	No	No	No	Yes
<b>Palette's Base Color Number</b>	Specifies an integer index determining the base color for the palette defined by the chart's palette name property.	No	No	No	No	Yes
<b>Style Priority</b>	Specifies the priority of various style elements (such as <b>Background color</b> , <b>Border color</b> , etc.).	Yes	Yes	Yes	Yes	Yes
<b>Styles</b>	Specifies odd and even styles for the control, as well as assigns an existing style to the control (or a newly created one).	Yes	Yes	Yes	Yes	No
<b>Text Alignment</b>	Specifies the alignment of the control's text.	Yes	Yes	Yes	Yes	No

## Data

Data properties

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>(Data Bindings)</b>	If the current report is bound to data, this property allows you to bind some of the control properties ( <b>Bookmark</b> , <b>Navigation URL</b> , <b>Tag</b> , and <b>Text</b> ) to a data field obtained from the data source for a report, and to apply a format string to it.	Yes	Yes	No	Yes	Yes
<b>Data Member</b>	Specifies the data source member which supplies data to a chart.	No	No	No	No	Yes
<b>Data Source</b>	Specifies the data source for a chart.	No	No	No	No	Yes
<b>Lines</b>	Provides access to the text property of a label in the multiline mode.	Yes	No	No	Yes	No

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Series Data Member</b>	<p>Specifies the name of the data field whose values are used to generate and populate a series for a chart. The template settings for the created series are defined by the properties in the <b>SeriesTemplate</b> property of a chart. In particular, the <b>Argument Data Member</b> and <b>Value Data Members</b> properties specify the data fields from which the arguments and data values of the series data points are obtained.</p> <p>Each series gets its name from the data field specified by the <b>Series Data Member</b> property. For example, this name is used to identify a series within the legend for a chart control. The names of all generated series can be supplemented with the same prefix and suffix defined by the settings which are available via the series name template property.</p> <p>When chart binding is used to generate series within a chart control based upon the data obtained from the associated data source (defined by the data source property), a rule needs to be defined that helps the chart recognize the data records whose values are used to construct individual series objects. To do this, the <b>Series Data Member</b> property, which specifies the data field whose values are used when series objects are created and populated, can be used.</p>	No	No	No	No	Yes

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Series name template</b>	Specifies the settings used to name data bound series, defining the prefix and suffix texts for the names of series which are dynamically created as a result of binding a chart to data (using the <b>Data Source</b> , <b>Series Data Member</b> , <b>Argument Data Member</b> and <b>Value Data Members</b> properties). The names of series, to which these prefixes and suffixes are added, are taken by each series from the data field defined by the <b>Series Data Member</b> property.	No	No	No	No	Yes
<b>Series sorting</b>	Specifies the sort mode of a series for a chart ( <b>None</b> by default, <b>Descending</b> or <b>Ascending</b> ).	No	No	No	No	Yes
<b>Series template</b>	Allows you to customize a template for series which are created dynamically as a result of binding a chart to data (via the <b>Data Source</b> and <b>Series Data Member</b> properties). The settings, which are available via the series template property, are common to all such data bound series. These settings allow you to provide centralized customization of all dynamically created data bound series.	No	No	No	No	Yes
<b>Summary</b>	Allows you to perform calculations ( <b>Summary</b> , <b>Max</b> , <b>Min</b> , <b>Average</b> , etc.) over a data field.	Yes	No	No	Yes	No

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Tag</b>	Allows you to add additional information to the control; for example its id, by which it can then be accessible via scripts. If the current report has a data source, the <b>Tag</b> property can be bound to a data field obtained from the data source. To do this, expand the <b>(Data Bindings)</b> property, and then select the required data field in the <b>Tag.Binding</b> drop-down list.	Yes	Yes	Yes	Yes	Yes
<b>Text</b>	Allows you to define a line of static text to be displayed. When a label is selected in the designer, you may simply start typing the text, and it will be automatically entered into the <b>In-place</b> editor. If the current report has a data source, the text property can be bound to a data field obtained from the data source. To do this, expand the <b>(Data Bindings)</b> property and in the <b>Text.Binding</b> drop-down list, and then select the required data field.	Yes	No	No	Yes	No
<b>Xlsx Format String</b>	Specifies the native XLSX format string for the content of a control, which is preserved when the report is being exported to XLSX. This format string is independent from the general value formatting.	Yes	No	No	Yes	No

## Design

### Design properties

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>(Name)</b>	Specifies the name for a control, by which it can be accessed in the <b>Report Explorer</b> , <b>Property Grid</b> , or via scripts.	Yes	Yes	Yes	Yes	Yes

## Layout

Layout properties

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Height</b>	Specifies the height of a row, in report measurement units.	No	No	Yes	No	No
<b>Location</b>	Specifies the location of a control, in report measurement units.	Yes	Yes	No	No	Yes
<b>Size</b>	Specifies the size of a control, in report measurement units.	Yes	Yes	No	No	Yes
<b>Snap Line Margin</b>	Specifies the margin (in report measurement units) that is preserved around the control when it is aligned using <b>Snap Lines</b> , or when other controls are aligned next to it.	Yes	Yes	Yes	Yes	Yes
<b>Width</b>	Specifies the width of a cell, in report measurement units.	No	No	No	Yes	No

## Elements

Elements properties

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Annotation repository</b>	Provides centralized access to all annotations that are present in the chart.	No	No	No	No	Yes
<b>Annotations</b>	Provides access to the annotations collection of the chart.	No	No	No	No	Yes



Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Diagram</b>	Allows you to customize the diagram elements for the main and secondary axes and panes. By default, a chart is displayed in the <b>Default Pane</b> , but if necessary, you can display the series for each chart in a separate pane. To do this, click the <b>Pane's ellipsis</b> button to invoke the <b>Pane Collection</b> editor, allowing you to manage and customize panes. Then, select the required series within the chart and set its <b>View.Pane</b> property to the required pane.	No	No	No	No	Yes
<b>Legend</b>	Allows you to customize the legend for a chart by defining such properties as <b>Text alignment</b> and <b>Antialiasing</b> , <b>Font style</b> , <b>Background color</b> or <b>Image</b> , <b>Border options</b> , <b>Markers' size</b> and <b>Visibility</b> , <b>Shadow options</b> , and so on.	No	No	No	No	Yes
<b>Series</b>	Invokes the <b>Series Collection</b> editor, which allows you to manage and customize the series for a chart. Note that series which are bound to data at the level of a chart control (in particular, using the <b>Data Source</b> , <b>Series Data Member</b> , and both the <b>Argument Data Member</b> and <b>Value Data Members</b> properties), are created dynamically, based upon the data obtained from the specified data source, and they are not presented within the <b>Series</b> collection. To perform a centralized customization of such a series, use the settings which are available via the <b>Series Template</b> property.	No	No	No	No	Yes

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Titles</b>	Invokes the <b>Chart Title Collection</b> editor, which allows you to manage and customize the titles for a chart.	No	No	No	No	Yes

## Navigation

### Navigation properties

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Bookmark and Parent bookmark</b>	Allows you to create a hierarchical structure within a report called a document map. If the current report has a data source, the <b>Bookmark</b> property can be bound to a data field, obtained from the data source. To do this, expand the <b>(Data Bindings)</b> property, and then select the required data field in the <b>Bookmark.Binding</b> drop-down list.	Yes	Yes	No	Yes	Yes

Property name	Property explanation	Label	Table	Table rows	Table cells	Charts
<b>Navigation URL and Navigation Target</b>	<p><b>Navigation URL</b> allows you to specify a URL for web browser navigation when a user clicks a label. The web browser displays a page in a window or a frame as specified by the <b>Navigation Target</b> property. A URL should have an appropriate prefix (e.g. "http://").</p> <p>You can create cross-references within the report by assigning the name of the target control to the <b>Navigation URL</b> property, and setting the <b>Navigation Target</b> property to <i>_self</i>. If the current report has a data source, the <b>Navigation URL</b> property can be bound to a data field obtained from the data source. To do this, expand the <b>(Data Bindings)</b> property, and then select the required data field in the <b>Navigation URL.Binding</b> drop-down list.</p>	Yes	No	No	Yes	Yes

## 10.5 Creating a simple PixelPerfect report

### Create a new PixelPerfect report template

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *Simple PixelPerfect Report*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Select a **Template** from the options available:
  - **Empty template** - uses an empty template
  - **Default template** - use the default template (only available if a default template has been set in **Report settings**.  
See [Load an Office, HTML or PixelPerfect file as a template](#))
  - **Custom** - Choose a file to use as a template.
6. Click **Create** to create the report.

7. Click **Edit template** to open the **Template Editor**.
8. Right-click the **Levels** node, and select **Add levels**.

## Insert a QlikView table as level

Do the following:

1. Select the **Connection** to the QlikView document that contains the object you want.
2. Enter *1* and *8* into the search field to reduce the number of candidate objects to five.  
If **Top 25 Products - CH184** is the only object visible, press Enter to add it to the **Levels** node. Otherwise, select it in the list.
3. Click **OK**.  
**CH184** will be added to the **Levels** node.

## Create level details

Do the following:

1. Right-click on the **Detail** area in the middle of the page.
2. Select **Insert Detail Report**.
3. Choose **CH184\_Level** from the list.

## Create data columns

Do the following:

1. Expand the **CH184** node.
2. Press Shift or Ctrl and select the four columns of the **CH184** from the **Levels** node.
3. Drag and drop the selected columns into the **DetailReport - CH184\_Level** area.



*Columns are added to the report template in the order you select them.*

## Set column order

To change the order of the columns, do the following:

1. Click in a cell to select it, for instance the first **GP%**.
2. Click on the small arrow that appears in the upper right corner to open the **Table Cell Tasks** menu.
3. Open the **Data Binding** drop-down list and expand the **CH184\_Level.GP%** node.
4. Select **Product Name** to set this field as the first column.
5. Repeat 1 through 4 for the other columns in the order **Total Sales**, **Gross Profit** and **GP%**.

To eliminate inter-row white space, select the dotted line below the table and overlap it with the bottom line of the **CH184\_level** table.

## Create table headings

Do the following:

1. To add column headings, drag and drop the **Table** object from the **Tool Box** on the right.
2. Align the new table with the upper left corner of the **Detail** area.

## Insert a fourth column

It is necessary to create a new column to match the data structure.

Do the following:

1. Right-click the third cell, select **Insert**, and then click **Column to Left**.
2. Select the right border of the fourth cell and drag it until the guideline overlaps with the right border of the fourth cell of the **CH184\_Level** table.
3. Repeat this action with the other cells until they are aligned with the corresponding cells in the **CH184\_Level** table.
4. Double-click the first column on the left to edit the text and enter **Product Name**.
5. Repeat the process with the second column and enter **Total Sales**.
6. Enter *Gross Profit* in the third cell and *Gross Profit %* in the last cell.
7. Select the entire table by clicking on the upper left corner.
8. Set the font type, dimension, alignment, and so on, as you prefer. For example, select **Sans serif, 14px, Bold** and **Centered**.
9. Select the row of table headings and then find **Borders** in the **Property Grid** in the lower left corner.
10. Select **All** in the drop-down list.
11. Click the drop-down button to accept the updated borders.
12. Select the bottom border of the **Detail** area and align it with the bottom border of the table to eliminate the empty space.

## Set table data borders

Do the following:

1. Select the entire data table in the **DetailReport - CH184\_Level** area.
2. Find **Borders** in the **Property Grid**.
3. Select **All** in the drop-down list. The **Border** icons become yellow.
4. Click the drop-down list to accept the updated borders.
5. Keep the data table selected.
6. Set the font format you prefer. For example, select **Sans serif, 11px**.

## Set data alignment

Do the following:

1. Select the **ProductName** cell.
2. Find **Text Alignment** in the **Property Grid**.
3. Click the drop-down list, and then set text alignment to **Middle Left**.
4. Select the **Total Sales** cell.
5. Set text alignment to **Middle Right** in the **Property Grid**.
6. Repeat steps 5 and 6 for columns **Gross Profit** and **Gross Profit %**.

## Format numbers

To set the number formatting to Dollar currency, do the following:

1. Select the **Total Sales** cell, and then click on the upper right arrow >.
2. Click on the dots on the right of **Format String** in the new window, and then select **Currency**.
3. Click on the **Custom** tab.
4. Select the **\$0.00** format.
5. Click **OK**.
6. Repeat steps 1 to 5 for the **Gross Profit** cell.
7. Format **Gross Profit %** as **Percent 0.00%**.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

### See also:

 [How to create Pixel Perfect reports with a level](#)

## 10.6 Creating PixelPerfect reports with a level

You can create PixelPerfect reports with a level to repeat the content of a part of the report for each value of the field or table added to the **Levels** node.

You can add chart objects (images, tables, and charts) in the repeated report part. In this example, you will create a report that shows a page for each year with two different charts from QlikView.



*You can use QlikView objects that have calculated dimensions or null values as levels. However, you cannot nest other objects inside them, except for fields from that sheet object. Qlik Sense visualizations with calculated dimensions cannot be used as levels.*

## Creating a new PixelPerfect report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PixelPerfect Report with Level*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.
7. Right-click the **Levels** node, and select **Add levels**.
8. If necessary, select the **Connection** to the QlikView document that contains the object you want. In this case, select *Sales Demo*.
9. Enter *Year - F\Year* in the **Search** box, and then select **Year** from the objects list.
10. Click **OK**.
11. Right-click in the **Detail** area.
12. Select **Insert Detail Report**.
13. Click **Year\_Level**.
14. Expand the **Year\_Level** node.
15. Drag and drop the **Year** field under the **Levels - Year\_Level** node into the **DetailReport - Year\_Level** area.
16. Configure the text by using the **Font** menu in the ribbon bar.  
For example, set it to **Open Sans,16px, Bold, Centered**.
17. Center the **[Year]** cell between the left and right margins using either:
  - the **Location** control under **Layout** in the **Property Grid** or;
  - the **Center Horizontally** control in the **Layout** group of the toolbar.

## Add two QlikView objects as images

Do the following:

1. Right-click the **Images** node, and select **Add objects**.
2. Select the **Connection** to the QlikView document that contains the object you want.
3. Type the number *1* in the **Search** field and both **Top 25 Products - CH184** and **Top 10 Salesmen - CH192** are visible.
4. Select **Top 25 Products - CH184** and **CH319 - Top 5 Salesman** from the QlikView object list by holding down the Ctrl key.
5. Click **OK** to add them to the **Images** node.
6. Select the bottom dotted line of the **DetailReport - Year\_Level** area, and then move it down to obtain a more ample workspace.
7. Drag the **CH184** node token into the template, and then drop it flush with the left margin.
8. Open the drop-down list for the **Sizing** attribute under **Behavior** in the **Property Grid**, and then select **Auto-Size**.

9. Drag **CH192** from the **Images** node and drop it under **CH184**, flush with the left margin.
10. Once again, select **Auto-Size** from the drop-down list.
11. Drag the **Page Break** object from the **Tool Box**, which is typically docked on the right side of the **Template Editor**, and then drop it onto the bottom of the page.

### Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 10.7 Adding totals and subtotals to PixelPerfect reports

You can add totals to columns in a PixelPerfect report with at least one table. If the report has nested levels, you can add subtotals for some levels.

### Create new PixelPerfect report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *Report with Totals and SubTotals on levels.*
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.

### Add levels to template

Do the following: Right-click the **Levels** node, and select **Add levels**.

### Select object for level

Do the following:

1. Select the **Connection** to the QlikView document that contains the object you want.
2. Select **CategoryName** from the objects list.
3. Click **OK**.

### Begin nesting levels

Do the following:



1. Right-click the **CategoryName\_Level** node, and then select **Add levels**.

## Select object for sublevel

Do the following:

1. Select the **Connection** to the QlikView document that contains the object you want.
2. Select the **CH184 - Top 10 Products** chart.
3. Click **OK**.

## Begin creating levels in templates

Do the following:

1. Right-click in the **Detail** area.
2. Select **Insert Detail Report**.
3. Select "**CategoryName\_Level**".

## Embed field in Detail1 band

Do the following:

- Click and drag the **CategoryName** node token from the **Levels** hierarchy, and drop it into the **Detail1** open template area.

## Format category heading

Do the following:

1. Drag the label left and right borders to cover the entire width of the range from margin to margin.
2. Set the font to **Arial, 16pt, Bold, Centered**, or format it as is appropriate for a category heading.

## Create the CH184 sublevel

Do the following:

1. Right-click on the **DetailReport - "CategoryName\_Level"** bar.
2. Select **Insert Detail Report**.
3. Select "**CH184\_Level**".  
The **DetailReport1 - CategoryName\_Level.CH184\_Level** bar appears.

## Add group header

Do the following:

1. Right-click on the **DetailReport - "CategoryName\_Level.CH184\_Level"** bar.
2. Select **Insert Band**.
3. Select **GroupHeader**.  
The **GroupHeader1** bar appears.

## Add group footer

Do the following:

1. Right-click on the **DetailReport** - “**CategoryName\_Level.CH184\_Level**” bar.
2. Select **Insert Band**.
3. Select **GroupFooter**.  
The **GroupFooter1** bar appears.

## Embed headings in template

Do the following:

1. Expand the **CH184\_Level**.
2. Press the Ctrl or Shift key and select the following fields in the following order specified: **ProductName**, **Total Sales**, **Gross Profit** and **GP%**.
3. Release the Ctrl or the Shift key.
4. Right-click the selected fields, then drag and drop them into the **GroupHeader1** range so that the upper border of the fields is aligned with the lower border of the **GroupHeader1** bar.  
Qlik NPrinting automatically creates a table with the column names in the selected order.

## Format heading text and borders

Do the following:

1. Select the entire header table in **GroupHeader1**.
2. Format the text **Arial, 16px, Bold, Centered**, or as appropriate.
3. Select the **Borders** option in **Property Grid** in the lower left pane.
4. Open the drop-down list by clicking on the down-pointing triangle at the right of the field.
5. Click on **All** to render all cell borders visible.
6. To eliminate the white space between the headings and the data in the final report, drag the **Detail2** bar upper border until it reaches with the lower border of the **GroupHeader1** border.

## Embed data in template

Do the following:

1. Press the Ctrl key and select the following fields from “**CH184\_Level**” in the following order:  
**ProductName**, **Total Sales**, **Gross Profit** and **GP%**.
2. Release the Ctrl key.
3. Left click and drag the collection of highlighted data fields and drop them into the **Detail2** range so that the upper border of the fields are aligned with the lower border of the **Detail2** bar.  
Qlik NPrinting automatically creates a table with the tags for the columns of data in the order that they are selected.

## Format data in template

Do the following:

1. Select the entire row of data field tags.
2. Format them to **Arial** and **12pt**.

## Render borders visible and eliminate white space

Do the following:

1. Select the **Borders** option in **Property Grid** in the lower left pane.
2. Open the drop-down list by clicking on the down-pointing triangle at the right of the field.
3. Click on **All** to render all cell borders visible.
4. Deselect the top border.
5. To eliminate the white space between the footer and the data in the final report, drag the **GroupFooter1** bar upper border until it reaches the lower border of the **Detail2** range border.

## Open table cell tasks and Format string editor

Do the following:

1. Select the **CH184\_Level.Total Sales** cell by clicking on it.
2. Click on the small arrow above the upper right corner of the cell.
3. Click on the browse button at the far right of the **Format String** field.

## Format CH184\_Level.Total Sales and CH184\_Level.Gross Profit cell

Do the following:

1. Select **Currency**.
2. Select **Custom**.
3. Enter \$ 0.  
You can use one of the preset formats or create a custom one.
4. Click **OK**.
5. Right-justify the text.
6. Repeat steps 1-5 for the **CH184\_Level.Gross Profit** cell.

## Format CH184\_Level.GP% cell

Do the following:

1. Select the **CH184\_Level.GP%** cell.
2. Open the **Format string** editor.
3. Select **Percent**.
4. Click on **0.00%**.

5. Click **OK**.
6. Right-justify the text.

## Start creating subtotals

Do the following:

1. Press the Ctrl key and select the following fields from “**CH184\_Level**” in the following order: **Total Sales** and **Gross Profit**.
2. Release the Ctrl key.  
Both fields in the level are selected.
3. Drag the collection of highlighted data field node tokens into the **GroupFooter1** range so that the upper border of the fields are aligned with the lower border of the **GroupFooter1** bar.

## Adapt cells

Do the following:

- Drag the left border of the **CH184\_Level.Total Sales** cell and the right border of the **CH184\_Level.Gross Profit** cell in **GroupFooter1** until they line up with those of the corresponding cells in **Detail2**.

## Open summary editor for CH184\_Level.Total Sales cell

Do the following:

1. Select the **CH184\_Level.Total Sales** cell in **GroupFooter1**.
2. Click on the small arrow above the upper right corner of the cell.
3. Click on the browse button at the far right of the **Summary** field.

## Set summary running and open Format string editor

Do the following:

If necessary, open the **Summary function** drop-down list, and then click on **Sum**.

With this menu, you can set the summary function from the available list.

1. Set the **Summary Running** radio button to **Group**.  
This sets the level for which the summary function is calculated.
2. Click on the browse button at the far right of the **Format string** field.

## Format cell content and close

Do the following:

1. Select **Currency**.
2. Select the **Custom** tab.
3. Choose the **\$0** format.
4. Click **OK**.

5. Click **OK** again.  
Note that the cell content has become **Sum([CH184\_Level.Total Sales])**.
6. Repeat steps from step 1 of *Open summary editor for CH184\_Level.Total Sales cell* to the previous step for the **CH184\_Level.Gross Profit** cell.

## Format subtotal cell content

Do the following:

1. Select the two subtotal cells by drawing a rectangle that includes both while holding the left mouse button down.
2. Format the text as **Arial, 12px, Bold, Right justified**.

## Render subtotal cell borders visible and eliminate white spaces

Do the following:

1. Select the **Borders** option in **Property Grid** in the lower left pane.
2. Open the drop-down list by clicking on the down-pointing triangle at the extreme right of the field.
3. Click on **All** to render all cell borders visible.
4. Deselect the top border.
5. To eliminate the white space below the footer in the final report, drag the **GroupFooter1** range lower border till it coincides with the lower border of the subtotal cell lower border.

## Begin creating reports totals

Do the following:

1. Right click on the **DetailReport - "CategoryName\_Level"** bar.
2. Select **Insert Band**.
3. Select **ReportFooter**.

The **ReportFooter1** bar appears.

## Copy and paste subtotal cells

Do the following:

1. Select both sum cells in **GroupFooter1**, and then copy the cells by pressing Ctrl+C.
2. Paste the cells into **ReportFooter** by selecting the **ReportFooter** range, and then pressing Ctrl+V.

## Open summary editor

Do the following:

1. Select the **Sum([CH184\_Level.Total Sales])** cell in **ReportFooter**.
2. Click on the small arrow above the upper right corner of the cell.
3. Click on the browse button at the far right of the **Summary** field.

## Set summary running and open Format string editor

Do the following:

1. Set the **Summary Running** radio button to **Report**.
2. Click on the browse button at the far right of the **Format string** field.

## Format cell data content

Do the following:

1. Select **Currency**.
2. Select the **Custom** tab.
3. Choose the **\$0** format.
4. Click **OK**.

## Close summary editor

Do the following:

1. Click **OK**.
2. Repeat the process from *Open summary editor* for the **Sum([CH184\_Level.Total Sales])** cell in **ReportFooter**.

## Format report total cell contents

Do the following:

1. Format the text as **Arial, 14px, Bold, Right justified**.
2. Select the **Borders** option in **Property Grid** in the lower left pane.
3. Open the drop-down list by clicking on the down-pointing triangle at the extreme right of the field.
4. Click **All** to render all cell borders visible.
5. To eliminate the white space at the bottom of the report, drag the **ReportFooter** range lower border up to coincide with the **Report Total** cell lower border.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 10.8 Creating a calculated column in a PixelPerfect report

You can create a calculated column in a PixelPerfect report by creating a formula that uses data from available fields. Note that formulas are calculated during report generation. If this takes too long, we recommend moving the value calculations into the QlikView script.

### Create new PixelPerfect report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PixelPerfect report with a calculated column*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.
7. Right-click the **Levels** node, and select **Add levels**.
8. Select the **Connection** to the QlikView document that contains the object you want.
9. Select **CH184**.

### Add calculated field

In this example, you will create the cost column by calculating the difference between total sales and gross profit. You can use the formula editor to create more complex formulas.

Do the following:

1. Right-click the **CH184\_Level**, and then select **Add Calculated Field** from the drop-down list.
2. Enter *Cost* as the name in the **Property Grid**.
3. Click the browse button at the extreme right of the **Expression** field.  
The **Expression** editor appears.

### Enter the expression

Do the following:

1. Click **Fields** in the left column.  
The list of available fields appears in the center column.
2. Double-click **Total Sales** to insert it into the expression.
3. Click on the - symbol, or type it.
4. Double-click **Gross Profit** to insert it into the expression.
5. The final expression is **[Total Sales] - [Gross Profit]**
6. Click **OK**.  
The calculated column, **Cost**, appears at the top of **CH184\_Level** list of fields.

## Create a table with CH184\_Level

Do the following:

1. Right-click the **Detail** bar.
2. Select **Insert Detail Report**.
3. Select **CH184\_Level**.  
The result is the **DetailReport1 - CH184\_Level** bar.

## Create table cells

Do the following:

1. Press the Ctrl key and select the following fields in order:
  - **ProductName**
  - **Total Sales**
  - **Gross Profit**
  - **Cost**
2. Left-click the selection
3. Drag and drop the selection into the **DetailReport - CH184\_Level - Detail1** band.
4. Drag and drop the lower dashed line upward to the **Detail1** bar, to eliminate the white space.

## Format the CH184\_Level cell

After clicking the desired cell, do the following:

1. Click the smart tag, which is the small arrow above the upper right corner of the cell.
2. Click the browse button at the extreme right of the **Format String** field.
3. Select **Currency**.
4. Click **\$0.00** from the list.
5. Click **OK**.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 10.9 Adding tables of contents to PixelPerfect reports

In PixelPerfect reports, you can add a table of contents that is linked and automatically updated. A table of contents can also be added to existing PixelPerfect reports. You should create a report as described in *Adding totals and subtotals to PixelPerfect reports (page 440)* before performing the



procedures on this page.

## Create new PixelPerfect report with two levels

You can create a new PixelPerfect report with **Year** and **CategoryName** levels by repeating the process explained in *Adding totals and subtotals to PixelPerfect reports (page 440)*. Level values will be rows of table of contents.

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PixelPerfectReport with Table of Contents*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.
7. Right-click the **Levels** node, and select **Add levels**.
8. Select the **Connection** to the QlikView document that contains the object you want.
9. Select **Year** from the objects list.
10. Right-click **Year\_Level**, click **Add levels**, and then select the **CategoryName** field.
11. Right-click **CategoryName\_Level**, click **Add levels**, and then select the **CH184** chart.
12. Right-click the **Detail** band, select **Insert Detail Report**, and then click **Year\_Level**.
13. Drag and drop the **Year** field from the **Levels** node to the **Detail1** band.
14. Format the cell as you prefer.
15. Right-click the **Detail1** band, select **Insert Detail Report**, and then click **CategoryName\_Level**.
16. Drag and drop the **CategoryName** field from the **Levels** node to the **Detail2** band.
17. Format the cell as you prefer.
18. Right-click the **Detail2** band, select **Insert Detail Report**, and then click **CH184\_Level**.
19. If necessary, expand all **Levels** node details, and then select the **CH184** columns, and then drag and drop them in the **Detail3** band.  
Format created cells as you prefer, and then remove the white space under the cells.
20. Select the **CH184** columns by keeping Shift pressed, and then do a right-click and drag and drop the columns on the bottom of band **Detail 2**. This creates table headers.
21. Format the created cells as you prefer.
22. Right-click the **Detail3** band, select **Insert Band**, and then click on **GroupFooter**.
23. Add **Total Sales** and **Gross Profit** totals to the **GroupFooter1** band as explained in *Adding totals and subtotals to PixelPerfect reports (page 440)*.
24. Click **Save** to save the template.

## Create primary and secondary bookmarks

The first task is to set the headings as bookmarks. **Year** will be the primary bookmark and **Category Name** will be the secondary bookmark.

Do the following:

1. Select the **Year** heading in the **Detail1** range.
2. Find the **Data** group in the **Property Grid** in the left lower pane.
3. Expand the (**Data Bindings**) and **Bookmark** nodes.
4. Select the **Binding** node.
5. Open the **Binding** drop-down list by clicking on the down pointing triangle at the extreme right of the **Binding** field.
6. Expand the **Levels** and **Year\_Level** nodes.
7. Select the **Year** node by clicking on it.  
This procedure creates a top level bookmark.
8. Select [**CategoryName\_Level.CategoryName**] in **Detail2**.
9. Repeat step 1-8, adding the expansion of the **CategoryName\_Level** node and clicking the **CategoryName** node instead.

## Begin defining bookmark hierarchy

This procedure defines this level as a child of **Detail1**. The table of contents will be indented at this level.

Do the following:

1. Scroll down the **Property Grid** until you reach the **Navigation** group.
2. Select **Parent Bookmark**.
3. Open the **Parent Bookmark** menu by clicking on the triangle pointing downwards at the far right of the **Parent Bookmark** field.
4. Expand the **DetailReport** and **Detail1** nodes.
5. Select the **Label1** node by clicking on it.  
The **Year** cell in the template will be highlighted.

## Create ReportHeader bar

The table of contents must be in the **ReportHeader**.

Do the following:

1. Right-click the **Detail** bar.
2. Select **Insert Band**.
3. Click on **ReportHeader**.  
This creates the **ReportHeader** bar and range.

## Insert the table of contents into the Report header

Do the following:

1. Drag the **Table of Contents** icon from the **ToolBox** on the right into the template, and then drop it into the **ReportHeader** range.

## Customize table of contents fonts

Do the following:

1. Widen the **Property Grid** on the left side of the window.
2. Go to the **Behavior** group.
3. Expand the **Level Default** node.
4. Click on the browse button at the far right of the **Font** field.
5. Set the **Font** to **Arial, Regular**, and **11pt**, and then click on the **OK** button.  
This sets the font for the rows in the table of contents.
6. Expand the **Level Title** node.  
This sets the font for the table of contents title.
7. Set the **Font** to **Arial, Bold** and **12pt**, then click on the **OK** button.

## Customize table of contents title

Do the following:

1. In the **Behavior** section of the **Property Grid**, expand the **Level Title** node.
2. Enter *Table of Contents* in the **Text** form.


## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

---

### See also:

 [Adding totals and subtotals to PixelPerfect reports \(page 440\)](#)

## 10.10 Creating PixelPerfect charts

You can create native PixelPerfect charts filled with QlikView or Qlik Sense data. In this example, the data source is a QlikView table. It is not necessary that the chart exist in the original .qvw file.

## Create new template

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *Top 10 Countries Sales*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.

5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.
7. Click the triangle in the corner between the two rulers.
8. Open the drop-down list of the **Measure Units** field.
9. Select **Pixels** from the menu.
10. To increase the area of the report reserved for the chart, click the bottom margin dotted line and drag it to the **550** pixel mark.
11. Read the height on the vertical ruler.

## Add QlikView object

Do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Select the **Connection** to the QlikView document that contains the object you want.
3. Enter 32 in the **Select Tables search** field.
4. Select the **Top 10 Countries Sales in** chart from the *SalesDemo* connection.
5. Click **OK**.

## Embed new chart

Do the following:

1. Select the **Chart** object from the **Tool box**, and then drag and drop it into the **Detail** area. The chart wizard will open.
2. Leave the **Bar** type chart selected .
3. Click the **Next** button at the bottom of the wizard.
4. Click the **Next** button again to reach the **Series** window.
5. Select **Series 2**.
6. Click the **Remove** button at the bottom of the **Series** pane. **Series 1** will be selected automatically.
7. Enter *Sales* as in the **Series name** field.
8. Click **Next** at the bottom of the wizard.
9. Select the **Series Binding** tab.
10. Open the **Argument** drop-down list in the **Argument Properties** area.
11. Expand the **CH320** node, and then double-click the **Country** field to select it.
12. Open the **Value** drop-down list in the **Value Properties** area .
13. Double-click the **Sales** field.
14. Click **Next**.
15. Click **Point Labels** in the **Presentation** area at the left.
16. Remove the **Visible** flag.

17. Click **Finish** in the bottom right corner.
18. Drag the bottom right corner of the chart to fill all the available space.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 10.11 Creating a well-formatted PixelPerfect chart

You can create PixelPerfect charts based on QlikView or Qlik Sense data. You can also create a PixelPerfect chart if the chart does not exist in the source document. In this example, QlikView objects are used to show how to work with advanced graphic attributes.

### Create a new PixelPerfect report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *Top 10 Countries Sales*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.
7. Open the **Report Tasks** window by clicking on the triangle at the corner between the two rulers.
8. In the **Measure Units** drop-down list, select **Pixels**.

### Configure workspace format

Do the following:

1. Go to the **Property Grid**, which is typically docked at the lower left of the work area.
2. Navigate to the **Page Settings** group of attribute controls.
3. Change the **Paper Kind** to the size that you normally use.
4. Set **Margins** as appropriate.
5. Click the bottom margin dotted line and drag it to the **350** pixel mark.

### Add object to template as table

Data sources for PixelPerfect charts are QlikView tables added to the tables node of the template editor.

Do the following:

1. Right-click the **Tables** node, and select **Add objects**.
2. Select **CH186** from the objects list.
3. Click **OK**.

## Embed chart object

Do the following:

1. Drag the **Chart** object from the **Tool Box** into the template and drop it into the upper left corner of the **Detail** range, aligned with the left margin and the bottom border of the **Detail** bar.  
The chart wizard opens to the **Chart Type** page.
2. Select **Bar** for the **Chart Type**, and then click **Next >>** at the bottom of the window.  
The **Appearance** window appears.
3. Open the Palette drop-down list, and then select a color palette.  
To create your own palette, select **Edit palettes**
4. Click **Next** to open the **Series** window.

## Create and configure series

Do the following:

1. In the **Series** window, select **Series 2**.
2. Click **Remove** at the bottom of the **Series** pane.
3. Enter *Sales* for the **Series name** for **Series 1**.
4. Click the **Series Options** tab.
5. Set **Point sort order** to **Ascending**.
6. Set **Sort points by** to **Value**.  
You can also list points by category names in alphabetical order by setting **Sort points by** to **Argument**.  
This creates a simple chart displaying one series sorted by value of sales in ascending order.

## Configure legend points

You can customize the formats of the legends.

Do the following:

1. Click the **Legend Point Options** tab.
2. Deselect **Synchronize with point options**.
3. Open the **Point view** drop-down list, and then select **Argument and Values**.
4. Set **Value format** to **Currency**.
5. Set **Value precision** to **0**.  
This sets the number of significant digits to the right of the decimal point to none.
6. Click **Next** to open the **Data** window appears.

## Bind argument and value

Do the following:

1. In the **Data** window, click the **Series Binding** tab.
2. Open the **Argument** drop-down list in the **Argument Properties** box.
3. Expand the **CH186** node.
4. Double-click the **CategoryName** node.
5. Open the **Value** field drop-down list under **Value Properties**.
6. Double-click the **Sales** node under the **CH186** node.
7. Click **Next** to open the **Chart** window.
8. Click **Next** again to accept the default **Chart** settings, and to open the **Diagram** window.

## Inspect pages

Do the following:

1. The **Diagram** window allows you to set options related to the diagram. For example, rotate the diagram by checking **Rotate**.
2. Click **Next** to accept the default **Diagram** settings, and to open the **Panes** window.
3. Click **Next** to accept the default **Panes** settings, and to open the **Axes** window.

## Label X axis

Do the following:

1. In the **Axes** window, click the **Elements** tab.
2. Select the **Visible** check box.  
**Antialiasing** will also be activated automatically.
3. Enter *Category* in the text field.  
It appears on the vertical axis because the diagram has been rotated.

## Label Y axis

Do the following:

1. Change from **Primary AxisX** to **Primary AxisY** in the drop-down list at the top.
2. Make sure the **Elements** tab on the right is still selected.
3. Select the **Visible** check box.  
**Antialiasing** will also be activated automatically.
4. Enter *Sales* in the text field.  
It appears on the horizontal axis because the diagram has been rotated.

## Format label content

Do the following:

1. Select the **Labels** tab on the right.
2. Select the **Auto** tab.
3. Set **Format** to **Currency**.
4. Set **Precision** to **0**.
5. Click **Next >>**  
The **Series Views** window opens.

## Set bar color

The **Series Views** window lets you customize some visualization options.

Do the following:

1. Click the **Appearance** tab.
2. Select pure, saturated blue (**0, 0, 255**) from the **Color** drop-down list.
3. Click **Next** to open the **Point Labels** window.

## Antialias point labels

The **Point Labels** window lets you customize the labels of points in a chart.

Do the following:

1. In the **Point Labels** window, customize point display.
2. Put a check mark in the **Antialiasing** box under **Text Settings** on the **General** tab.

## Configure point label content

Do the following:

1. Click the **Point Options** tab.
2. Leave **Point view** set to **Values**.
3. Select **Currency** for **Value format**.
4. Set **Value precision** to **0**.
5. Click **Next** to open the **Chart Titles** window.

## Add chart title

Do the following:

1. In the **Chart Titles** window, click **Add** to create a new title.
2. Enter *Sales by Category* as the heading.
3. Click **Next** to open the **Legend** window.

## Configure chart legend

Do the following:



1. Configure a chart legend in the **Legend** window. You can set whether or not a legend is displayed, and how the legend is displayed. A legend is not necessary for a simple chart, so ensure that there is no check mark in the **Visible** box.
2. Click the **Next** button to open the **Annotations** window. No annotations are added.
3. Click **Finish** button to close the chart wizard.
4. Drag the bottom right corner of the chart to fill all the available space.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

---

### See also:

 [Create PixelPerfect charts](#)

## 10.12 Creating a PixelPerfect chart with two different scales for the Y axis

You can use the rich options of PixelPerfect to create complex charts that do not exist in the original documents. For example, you can display two measures with different units on the Y axis on the same chart. In this example, QlikView objects are used to show how to create a chart to display category sales as a currency on the left scale, and as a quantity on the right scale.

### Create a new PixelPerfect template and add a chart data source

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PixelPerfect Two Scales Chart*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.
7. Right-click the **Tables** node, and select **Add objects**.
8. Select the **Connection** to the QlikView document that contains the object you want.
9. Select **CH184** from the objects list.

### Create a new chart

Do the following:

1. Drag and drop a **Chart** object from the **Tool Box** into the **Detail** area template.  
The **Chart Wizard** opens.
2. Select the **Bar** chart, and then click **Next**.
3. In the **Appearance** window, click **Next**.
4. Change the name of **Series 1** to *Gross Profit \$* by entering it in the **Series name** box.
5. Set **Point sort order** as **Descending**, and then set **Sort points by** to **Value**.
6. Change the name of **Series 2** to *Gross Profit %* by entering it in the **Series name** box.
7. Click **Next** to open the **Data** window.

## Bind data source

Do the following:

1. In the **Data** window, click the **Series Binding** tab.
2. Select the **Gross Profit \$** series.
3. On the **Argument** drop-down list, expand the **CH184** node, and then select the **ProductName** column.
4. On the **Value** drop-down list, select the **Gross Profit** column.
5. Select the **Gross Profit %** series.
6. On the **Argument** drop-down list, select the **ProductName** column.
7. On the **Value** drop-down list, select the **GP%** column.
8. Click **Next** to open the **Chart** window.
9. Click **Next** again to accept the default **Chart** settings, and to open the **Diagram** window.

## Create a secondary Y-axis

Do the following:

1. In the **Diagram** window, click the **Elements** tab.
2. Click **Add** in the **Secondary Y-Axis** area.  
The **Secondary AxisY 1** pane appears.
3. Click **Next**.
4. Click **Next** again to accept the default **Panes** settings, and to open the **Axes** window.

## Set the primary X-axis options

Do the following:

1. In the **Axes** window, click the **Elements** tab.
2. Select **Primary AxisX** from the drop-down list.
3. Enter *Product Name* into the **Text** box.
4. Select the **Visibility** check box.
5. Select the **Antialiasing** check box.

## Set the primary Y-axis

Do the following:

1. Select **Primary AxisY** from the drop-down list.
2. Click the **Elements** tab.
3. Enter *Gross Profit \$* in the **Text** box.
4. Select the **Visibility** check box
5. Select the **Antialiasing** check box

## Set the primary Y-axis number format

Do the following:

1. Click the **Labels** tab.
2. Select the **Auto** tab.
3. Select **Currency** from the **Format** drop-down list.
4. Set the **Precision** to **0**.

## Set the secondary Axis-Y 1 option

Do the following:

1. Select **Secondary AxisY 1** from the drop-down list.
2. Click the **Elements** tab.
3. Enter *Gross Profit %* in the **Text** box.
4. Select the **Visible** check box.
5. Select the **Antialiasing** check box.

## Set the secondary Axis-Y 1 number format

Do the following:

1. Click the **Labels** tab.
2. Click the **Auto** tab.
3. Select **Percent** from the **Format** drop-down list.
4. Set the **Precision** to **1**.
5. Click **Next** to open the **Series Views** window.

## Connect Total Sales series with primary Axis-Y

Do the following:

- In the **Series Views** window, leave the default **Linked Elements** for the **Gross Profit \$** series. This will connect the **Gross Profit \$** series with **Primary AxisY**.

## Connect Quantity series with secondary Axis-Y 1

Do the following:

1. Select the **Gross Profit %** series from the drop-down list.
2. Select **Secondary AxisY 1** from **Axis Y** drop-down list in **Linked Elements**.  
This will connect the **Gross Profit %** series to the **Secondary AxisY 1**.
3. Click **Next** to open the **Point Labels** window.

## Remove the point labels (values)

Do the following:

1. In the **Point Labels** window, clear the **Visible** check box for **Gross Profit \$**.  
This will remove the **Point Labels** (the values you see on the bars).
2. From the top drop-down list, select **Gross Profit %**.
3. Clear the **Visible** check box again.
4. Click **Finish** to close the chart wizard.




## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

---

### See also:

-  [How to create PixelPerfect charts](#)
-  [How to create a well formatted PixelPerfect chart](#)
-  [How to create a simple PixelPerfect report](#)

## 10.13 Using sparklines in PixelPerfect reports

You can create a PixelPerfect report with sparklines. A sparkline is a very small line chart, usually drawn with neither axes nor coordinates. It presents the movement of some measurement, typically with respect to time.

Following this example, you will create a table displaying a row for each salesman, presenting the salesman's total sales and a sparkline for monthly sales. A level for Salesman and his total sales will be added to create a table in the report. The sparkline object will be embedded in the level details range, and will take data from a QlikView table for sales by YearMonth.

## Create a new PixelPerfect report in the report editor

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PixelPerfect Report Displaying Sparklines*
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.
6. Click **Edit template** to open the **Template Editor**.

### Open select levels window

First, create a **Salesman** level.

Do the following:

1. Right-click the **Levels** node, and select **Add levels**.
2. Select the **Connection** to the QlikView document that contains the object you want.
3. Select **Total Salesman Sales - CH327** from the objects list.
4. Click **OK**.

### Add sparklines data source as table

Next, add the data source for the sparklines.

Do the following:

1. Right-click the **Tables** node, and select **Add objects**.

### Select object as table

Do the following:

1. Select the **Connection** to the QlikView document that contains the object you want.
2. Select **Sales by YearMonthNum - CH326**.
3. Click **OK**.

### Create detail level in template

Do the following:

1. Right-click on the **Detail** drop-down list in the **Detail** bar, and then select **Insert Detail Report**.
2. Select **CH327\_Level**.

### Create table header bar and range

Do the following:

1. Right-click the **Detail Report - "CH327\_Level"** drop-down list, and then select **Insert Band**.
2. Click **GroupHeader**.

## Create table row

Do the following:

1. Expand the **CH327\_Level** node.
2. Select the **Salesman** and **Total Sales** fields, and then drag and drop them into the **Detail1** range.
3. Drag the right border of the selected block of cells to the left to leave space for a sparkline cell.

## Render cell borders visible

Do the following:

1. Select the **Borders** attribute under **Appearance** in the **Property Grid**.
2. Open the drop-down list and clicking on the drop-down button, and then select **All**.
3. Click the drop-down button again to accept the change.

## Open FormatString window

Do the following:

1. Select the **[CH327\_Level.Total Sales]** cell.
2. Click the angle bracket > above the upper right corner of the cell.
3. Click the browse button at the extreme right of **Format String** field.

## Format total sales column

Do the following:

1. Select **Currency**, under **Category**.
2. Select the **Custom** tab.
3. Enter **\$ #,##0**.
4. Click **OK**.

## Embed sparkline element

You can create a sparkline in your template by using the sparkline tool. In the **Property Grid**, you can customize the appearance of the sparkline.

Do the following:

1. Select the **Sparkline** object from the **Tool Box**, which is generally docked on the right but can be floated and positioned for convenience.
2. Drag it into the **Detail** range and drop it to the right of the previously embedded cells.
3. Drag the right border of the **Sparkline** cell to the right margin.
4. Click the angle bracket > above the upper right corner of the **Sparkline** cell to open the **Sparkline Tasks** window.
5. Open the **Data Member** drop-down list, and then select **CH326**.

6. Open the **Value Member** drop-down list, and then select **Sales1** under **CH326**.
7. Leave **View** set to **Line**.
8. To close the **Sparkline Tasks** pop-up window, click again on the angle bracket < above the upper right corner of the **Sparkline** cell.

## Render bottom and right borders visible

Do the following:

1. Make sure the **Sparkline** cell is still selected.
2. Select the **Borders** attribute under **Appearance** in the **Property Grid**.
3. Open the drop-down list by clicking on the down-pointing triangle at the far right of the **Borders** field.
4. Select the **Bottom** and **Right** borders and click the drop-down button (as shown in the previous step) to accept the changes.

## Configure view

Do the following:

1. Expand the **View** group list of attributes in the **Appearance** section.
2. Set **Highlight Max Point** to **Yes**.
3. Set **Highlight Min Point** to **Yes**.
4. Set **Max Point Color** to **Green (0, 192, 0)**, or the color of your choice.
5. Set **Min Point Color** to **Red (192, 0, 0)**, or the color of your choice.

## Create table header

Do the following:

1. Drag the **Table** object from the **Tool Box** and drop it into **GroupHeader1** range.
2. Set the font to **Arial, 12px, Bold, Centered**.
3. Drag the cell right borders so that they line up with those in the **Detail1** range.
4. Add **All** cell borders using the **Borders** property (as described earlier in this section).
5. Enter the following column headings: *Salesman, Total Sales, Monthly Sales Chart*.
6. Drag the lower borders of the **GroupHeader1** and **Detail1** ranges up to coincide with the lower border of the **Heading** and **Data** cells, respectively, to eliminate white space in the final report.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 10.14 Managing PixelPerfect conditional output using formatting rules

You can use formatting rules to conditionally change the format of objects in a PixelPerfect report. For example, you can create a report that shows a chart only for each country where the sales are more than a selected threshold. You can also highlight cells in a table that match specific conditions.

When using formatting rules, you set criteria by using a formula, and then create a related format. The format that you specified is applied when the formula is true. A rule can be associated with many different objects on the same report, and you can also associate many rules to the same report object.

We recommend using the built-in formula editor to avoid errors when creating the criteria formulas.

### Create a new filter

First create a new filter before creating the report. Filters must be created before they can be applied to a report.

Do the following:

1. Click **Filters** under the **Apps** menu.
2. Click **Create filter** to create a new filter.
3. Enter a name for the filter.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the filter.
6. Click **Fields**.
7. Click **Add field**.
8. Select the **Connection** to the QlikView document that contains the object you want.
9. Select **Salesman** from the **Name** drop-down list.
10. Select **Value is** from the drop-down list in the **Values** pane.
11. Select an existing user in the right box.  
To learn how to create users, see: *Creating users (page 240)*.
12. Click **Create** to confirm.

### Create new PixelPerfect report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report. *PixelPerfect Report Conditional Table Display*.
3. Select **PixelPerfect** from the **Type** drop-down list.
4. Select an app from the **App** drop-down list.
5. Click **Create** to create the report.

### Apply the filter

Do the following:



1. In the report window, click **Filters**.
2. Move the filter you created earlier from **Available Items** to **Selected Items**.
3. Click **Add Filters**.
4. Click **Overview** to return to report overview window.

## Create a new PixelPerfect report template

Do the following:

1. Click **Edit template** to open the **Template Editor**.
2. Right-click the **Levels** node, and select **Add levels**.

## Insert a QlikView table as a level

Do the following:

1. Select the **Connection** to the QlikView document that contains the object you want.
2. Select **Sales by Country - CH304** from the objects list.
3. Click **OK**.

## Change the visible property in the details band

Do the following:

1. Create a new table, as you would normally in a PixelPerfect report, based on **CH304**.
2. Select **DetailReport - "CH304\_Level"**.
3. Change the **Visible** property from **Yes** to **No**.

The detail band will not normally be visible. The formatting rule will make the band visible only for countries with sales over the selected threshold.

## Create new rule and apply it to the table

This form shows all the available rules in a report.

Do the following:

1. Click the smart tag arrow > of the **Detail1** band.
2. Click the three dots on the right of **Formatting Rules**.  
The **Formatting Rules Editor** window appears.
3. Click **Edit Rule Sheet** to open the **Formatting Rule Sheet Editor**.
4. Click the **+** button to add a new rule.
5. Select **CH304\_Level** from the **Data Member** drop-down list.
6. Click the **Condition** form, and then open the **Conditional Editor** by clicking on the dots that appear on the right.  
In the bottom left column, you can see the list of categories of objects that you can use to create the condition

7. Click on **Fields** to see the list of fields available in the **Data Member**.
8. Double-click **Sales** to add it to the condition.
9. Click on the > symbol to add it.
10. Type *30000*, so the final formula will be *[Sales] > 30000*.  
Only charts related to countries with sales over 30000 will be displayed.
11. You can also insert *[Sales] > 30000* by typing it in the **Condition** property.
12. Set the **Visible** property to **Yes** from the drop-down list.  
The objects with the condition applied will be made visible when the condition is true.
13. Click **OK** to confirm the condition.
14. Enter *ShowSalesOverThreshold* as the **Name**.  
Use a meaningful name for when you need to maintain the report template. Spaces are not allowed.
15. Click **Close**.

## Apply the formatting rule to the report object

Do the following:

1. Click on **ShowSalesOverThreshold** in the **Rules available in a report** column to select it.
2. Move the rule to the **Rules applied to a control** column by clicking on the > arrow.  
Only formatting rules added to this column will be applied to the control.
3. Click **OK**.

## Add the chart as an image

Do the following:

1. Add the **Sales by Categories - CH212** to the **Images** node.
2. Increase the height of the **Detail1** band by selecting the bottom border line and dragging it down.
3. Drag and drop the **CH212** into the **Detail1** band, and then enlarge its dimensions by selecting and dragging the bottom right corner.
4. Click the smart tag arrow > to open the **Picture Box Tasks**.
5. Select **Squeeze** from the **Sizing** drop-down list to fill the available space with the chart image.
6. Close the **Picture Box Tasks** window by clicking on the template area.

## Preview and save

Do the following:

1. Click **Preview**.
2. Check the report, close it, and then edit the template again if necessary.
3. Click **Save and Close** to save the template and close the **Template Editor**.

## 10 QlikEntity reports

You can create reports based on QlikView and Qlik Sense chart objects. You can also export specific objects as images to .csv files.

You can use existing entities like reports, tables, or charts and distribute them as .pdfs or images.

### 10.15 Creating QlikEntity reports

You can distribute visualizations from QlikView and Qlik Sense as .pdf or image files.

You can add filters to QlikEntity reports. Because they are .pdf or image files, you cannot edit or preview an entity report in Qlik NPrinting Designer.

#### Output formats

The available outputs depend on your reports and objects:

- QlikView reports: .pdf or .tiff.
- QlikView objects (such as charts, sheets, or text boxes): .bmp, .gif, .jpeg, .csv, .skv, .tab, and .png. If objects are printable in QlikView, they can also be exported as: .pdf or .tiff.
- Qlik Sense objects: .bmp, .gif, .jpeg, .csv, .skv, .tab, and .png.

See: *Report output formats (page 469)* and *Working with Qlik objects (page 292)*.

#### Creating a new QlikEntity report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report.
3. Select **QlikEntity** from the **Type** drop-down list. Related fields appear.
4. Select an app from the **App** drop-down list.
5. Select a **Connection**.
6. Open the **Qlik object id** drop-down list, and then select an object.
7. Leave the **Enable** check box selected. If you clear the check box, the report will be ignored by the Qlik NPrinting scheduler service.
8. The following selections are optional:
  - **Enable On-Demand and API report generation**: allows your report to be created using On-Demand. See: *On-Demand reports (page 490)*
  - **Enable cycle**: allows your report to be cycled. See: *Cycling your reports (page 324)*

- **Enable dynamic naming:** allows your report to have dynamically generated custom names. See: *Dynamic report names (page 322)*

9. Click **Create**.

Your report is ready to be added to a publish task. See: *Creating publish tasks (page 471)*.

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#### See also:

- *Embedding sheets in reports (page 468)*

## 10.16 Embedding sheets in reports

QlikView and Qlik Sense sheets can be added as images to Qlik NPrinting reports.

Sheets can be added as images to Microsoft Office, HTML, or PixelPerfect report templates. Supported formats are .bmp, .gif, .jpeg, and .png. QlikView and Qlik Sense set the image dimensions to include the entire sheet.

### Limitations

Qlik Sense custom size sheets and extended sheet features will not be maintained on export.

### Adding a sheet to a report

Do the following:

1. Select **Reports** in the Qlik NPrinting main menu, and then click **Create report**.
2. Enter a **Title** for the report.
3. From the **Type** drop down, select a report type.
4. Select an app from the **App** drop-down list.
5. Leave the **Enabled** flag checked.
6. Click **Create** to create the report.
7. Click **Edit template** to open the **Template Editor**.
8. Right-click the **Images** node, and select **Add objects**.
9. Select a sheet from the list. Click **OK**.
10. Drag the sheet onto the template.
11. To check the result, click **Preview**.  
The sheet will be exported as a single image.



*The aspect ratio and content of the preview image depends on the aspect ratio and visible content of the sheet in QlikView or Qlik Sense.*

12. To store the template in the repository, click **Save and Close**.

# 11 Publishing reports

Qlik NPrinting generates reports based on templates, or on QlikView and Qlik Sense entities. You can deliver reports at scheduled times or when they are requested by individual users. Final reports are static files that contain copies of the original QlikView and Qlik Sense data as it was at the time the report was generated.

Qlik NPrinting can distribute the workload across multiple multi-threaded engines to ensure high availability and fast performance. All metadata is saved in a database system that makes it easy to manage backups, and allows multiple developers to work concurrently. Qlik NPrinting applies task, report, and user filters before distributing reports. Each recipient receives reports with data that has been filtered for them.

## 11.1 Report output formats

The output format of a published report depends on a number of factors. Each report type has different output format options. If a report is cycled, it will be published as a .zip file.

### Single reports

A single uncompressed report will be published as a *filename.format* file. For example, you have an Excel report called *GlobalSales* with the output format set to PDF in the publish task. The output file will be *global sales.pdf*. The same *filename.format* naming structure applies to compressed files, except that .zip is added as the file extension: *global sales.pdf.zip*.

Each report type has different output format options:

- Excel: .xlsx, .xls, .xlsm, .tiff, .pdf, .html
  - Word: .docx, .doc, .html, .pdf
  - PowerPoint: .pptx, .pdf
  - HTML: .html, .htm
  - PixelPerfect: .pdf, .html, .xls, .xlsx, .png, .gif, .jpeg, .tiff
  - QlikEntity: .bmp, .gif, .jpeg, .png, .csv, .skv, .tab
- If they are printable in QlikView, they can also be exported as .pdf or .tiff.



If you choose .htm or .html as your output, you will always receive a .zip file containing all the file types needed to generate HTML.

### Cycled reports

Cycled reports are compressed as .zip files, regardless of report type. For example, you have an Excel report called *SalesData* that you want to cycle by country and year. Your data covers 3 countries and 2 years, and the output format is set to .xlsx. You will get 6 .xlsx files in a zip file:

1. SalesData\_Country1\_Year1.xlsx
2. SalesData\_Country1\_Year2.xlsx
3. SalesData\_Country2\_Year1.xlsx
4. SalesData\_Country2\_Year2.xlsx
5. SalesData\_Country3\_Year1.xlsx
6. SalesData\_Country3\_Year2.xlsx

Cycled HTML reports are processed a little differently. When HTML reports have cycling enabled, the output format is one .zip file for each report cycle. For example, you have a report with three fiscal years, and you set the **Field to cycle** in the publish task to fiscal year, you will get three *filename.html.zip* published reports.

### Adding password protection to reports

You can password protect the following report output types. The original template type does not matter:

- .pptx
- .doc, .docx
- .xls, .xlsx, .xlsm
- .pdf

If you password protect cycled reports, the reports will be password protected, but not the .zip archive.

### Published output type by report type

#### Excel reports

Type	Folder	Email	NewsStand	Hub
Single	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>
Cycled	<i>filename.format</i>	.zip	.zip	.zip

#### Word reports

Type	Folder	Email	NewsStand	Hub
Single	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>
Cycled	<i>filename.format</i>	.zip	.zip	.zip

#### PowerPoint reports

Type	Folder	Email	NewsStand	Hub
Single	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>
Cycled	<i>filename.format</i>	.zip	.zip	.zip

## HTML reports

Type	Folder	Email	NewsStand	Hub
Single	.zip	.zip	.zip	.zip
Cycled	.zip	.zip	.zip	.zip

## PixelPerfect reports

Type	Folder	Email	NewsStand	Hub
Single	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>
Cycled	<i>filename.format</i>	.zip	.zip	.zip

## Qlik entity reports

Type	Folder	Email	NewsStand	Hub
Single	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>	<i>filename.format</i>
Cycled	<i>filename.format</i>	.zip	.zip	.zip

## 11.2 Creating publish tasks

Publish tasks ensure that your reports are distributed to the right place and the right people.

Qlik NPrinting can apply task, report, and user filters before distributing reports. Each recipient receives reports with data that has been filtered for them. Reports can be published to the NewsStand, folders, Qlik Sense hub, and by email. You can also set up an automatic distribution schedule.

On the **Publish tasks** page, you can click the black triangles next to the header titles of any column to sort column items alphabetically.

Publish task times are displayed relative to the time zone of the logged in user. These may be different than the time zone of the Qlik NPrinting Server. You can change your time zone by clicking on your user name in the top right, and selecting **Settings**.

### Reloading connection metadata

Metadata must be updated whenever you change the data structure or content of QlikView documents or Qlik Sense apps connected to Qlik NPrinting. This ensures that Qlik NPrinting is aware of these changes.



*In order to have correct, up-to-date data in your reports, you must schedule a reload of the metadata before running the publish task. This can be done with a scheduled trigger, see [Creating publish tasks](#) (page 471). You can also call an API from a Qlik Sense app.*

### Creating new publish tasks

Do the following:

1. Select **Tasks**, and then select **Publish tasks**.
2. Click **Create task**.
3. Enter a **Name** for the task.
4. Select an **App** from the drop-down list.
5. Leave **Days to keep** as 1.  
This is the number of days that reports are kept on the server.
6. Leave **Reports to keep** as 1.  
This is the number of versions of the reports that are kept on the server.
7. Under **Report security**, you can input a **Password to open**, a **Password to write**, or both.
8. Under **Notifications**, you can select **Send task notifications**. See: *Task execution notifications (page 268)*
9. Click **Create**.  
More task buttons appear.

### Understanding **Days to keep** and **Reports to keep**

**Days to keep** and **Reports to keep** control how many copies of a report stay visible on the NewsStand, and for how long.

Rules:

- Every 30 minutes Qlik NPrinting searches for reports to be deleted, and removes them if needed.
- If within the **Days to keep** more reports are produced than **Reports to keep**, a deletion will be performed on the first check after midnight of the **Days to keep** plus one.
- If within the **Days to keep** fewer reports are produced than **Reports to keep**, a deletion will be performed on the first check after reaching **Reports to keep** plus one.
- If fewer reports are produced than **Reports to keep**, they will all be kept, even after the limit of **Days to keep** is reached.
- The oldest reports that exceed the maximum amount of **Reports to keep** are deleted.
- You cannot manually delete reports stored in the NewsStand. Deleting the file of reports from the storage folder does not remove reports from the NewsStand. You have to wait for automatic deletion.
- A report in different formats is considered as a single report. For example, if a task runs the same report in PDF and Excel format and **Reports to keep** is set to 1, only one of the reports will be saved on the NewsStand. The other report is considered a copy of the same report. To publish both reports, the **Reports to keep** option must be set to 2.

### Example

- One task with one report which is run manually multiple times a day.
- **Days to keep** is set to 2.
- **Reports to keep** is set to 50.



Scenario 1: **Reports to keep** is exceeded

Number of reports	Day 1	Day 2	Day 3	Day 4
<b>Reports produced during the day</b>	30	30	20	10
<b>Total reports in NewsStand</b>	30	60	70	60
<b>Deleted reports</b>	0	0	10	20
<b>Action</b>	None	None	Oldest 10 reports produced in Day 1 are deleted because total exceeds 50.	Oldest 20 reports produced in Day 1 deleted because total exceeds 50.

Scenario 2: **Reports to keep** is not exceeded

Number of reports	Day 1	Day 2	Day 3	Day 4
<b>Reports produced during the day</b>	10	10	10	10
<b>Total reports in NewsStand</b>	10	20	30	40
<b>Deleted reports</b>	0	0	0	0
<b>Action</b>	None	None	Total number of reports is under 50, so no reports are deleted even if the 2 days to keep limit is reached.	Same as Day 3

## Selecting reports to add

Do the following:

1. Click **Reports** in the main task menu.
2. Click **Add report** on the right.
3. Select a report from the **Choose reports** drop-down list.
4. Leave the proposed **Friendly name**.  
This is the text that will be displayed in the user interface to identify this report for this task.
5. Select an **Output format**. The drop-down list displays only formats that are compatible with the type of the report selected.
6. Use **Quality** to set the overall report quality.
7. Leave the **Attach to email** check box selected if you want to send this report as an email attachment.

By default, Qlik NPrinting will attach all reports to the email message, including those with **Attach to email** disabled. To force Qlik NPrinting to attach only reports with the **Attach to email** check box selected, you must select **Choose attachments** in the **Attachments** drop-down list of the **Email** tab. You can disable attachments, for example, if you are adding an HTML report that will be embedded in the email body.

8. Leave the **Enabled** check box selected.  
If you clear the check box, the report will be added, but will be ignored by the scheduler.
9. Click **Add report** to confirm.

You can add as many reports as you want. You can also add the same report many times in different output formats or quality levels.

### Adding users and groups

You can add as many users and groups to a task as you want. Output that is filtered for each recipient will be created. You have to create users or groups prior to performing this procedure. See: *Creating users (page 240)*.

If you want to use a Qlik NPrinting user as a recipient of reports in Qlik Sense hub, you must connect it with a domain account to grant it access to the Qlik Sense apps. This is mandatory because Qlik Sense relies on the domain account to identify the user and Qlik NPrinting needs to impersonate the Qlik Sense user when opening the apps (apply security settings, section access, etc).

Do the following:


1. Click **Users/groups** in the main task menu.
2. Click **Add user or group**.
3. Select a user or a group from the **Choose recipient** drop-down list.
4. Leave the **Enabled** check box selected.  
If you clear the check box, the user or group will be added, but will be ignored by the scheduler.
5. Leave the **NewsStand destination** check box selected if you want to publish the report into the NewsStand profile of the selected user and group.
6. Select the **Email destination** check box to send the report via email to the selected user and group.
7. Click **Add recipient**.

### Adding filters

You can add as many filters to your task as needed. All task output will be filtered using the task filters. This is in addition to report filters and user filters which are applied to specific reports or users.

You have to create filters before performing this procedure.

Do the following:

1. Click **Filters** in the main task menu.
2. Select one or more filters in the **Available items** column. You can use Shift or Ctrl for multiple selections.
3. Click the  to move selected filters into the **Selected items** column.

4. **Filter priority** lets you to set the order in which Qlik NPrinting will apply filters.  
Note that applying the same filters in a different order could produce different results.  
To verify, open the .qvw with QlikView Desktop and apply the filters manually to test the result. Select the filter that you want to move and drag and drop it in its final position.
5. Click **Add filters** to store the filters.

## Setting destinations

The **Destinations** tab lets you customize how reports will be delivered to each user or group. The page has at least two columns, **NewsStand** and **Email**, and a row for each user and group selected. Select or clear check boxes to enable or disable how reports are delivered to each user or group.

These are the available report destinations:

- *NewsStand overview (page 476)*
- *Distributing reports by email (page 479)*
- *Distributing reports to folders (page 485)*
- *Distributing reports to the Qlik Sense hub (page 487)*

## Creating a distribution schedule

You can create triggers to schedule the automatic execution of publish tasks.



*Your metadata connection reload triggers must finish running before your publish tasks are set to trigger.*

Do the following:

1. Click **Triggers** in the main task menu.
2. Click **Create trigger**.
3. Enter a **Name**.
4. In the **Schedule** section, select the **Schedule type**:
  - **Once**: The task will be executed once as specified by **Time** and **Start Date**.
  - **Daily**: The task will be executed every (n) days, or every weekday, at time specified in **Daily frequency** section:
    - **Once**: The task will be executed at the specified hour.
    - **Multiple times**: The task will be executed after the specified time, between the starting and finishing hours.
  - **Weekly**: The task will be executed on the specified days of the week.
  - **Monthly**: The task will be executed on the specified day of the month.
  - **Yearly**: The task will be executed on the specified day of the year.
5. In the **Start** section, you can set the **Start date** and **Time zone** of the hours specified in the trigger.

6. In the **End** section, you can set when to stop the task execution:

- **Event count:** The schedule will be stopped after the specified number of executions.



*Enabling, disabling, or changing the event count for a task does not reset the count of how many times the task was triggered. If you want to increase the number of times a task runs, you must increment the current number by the additional number of times you want the task to run.*

- **End date and End time:** The schedule will be stopped at the specified date and time.

7. Click **Create** to save the new trigger in the repository.

You can add as many triggers as you want to a task.

### Running the publish task manually

You can publish your reports manually. This can be done in addition to publishing tasks that you have scheduled.

Do the following:

1. Click **Overview** in the task main menu.
2. Click **Run now**. A message indicates when the task is started.

### Testing a publish task

You may want to test a publish task before you send reports to recipients. For example, you may want to ensure permissions are working.

## 11.3 NewsStand overview

Qlik NPrinting NewsStand is a web portal that allows users to preview and download reports. Users can also subscribe to automatic updates.

### Opening NewsStand

The NewsStand web portal uses the generic web address, *https://YourServerName:4994*. In a web browser, replace *YourServerName* with the name or the IP address of the server where NewsStand is installed. You must use the HTTPS protocol and port number 4994 for the standard installation.

The SSL web certificates distributed with the Qlik NPrinting setup are not valid and should be used for demonstration purposes only. You can also use your own certificates. Your browser may notify you of a possible security issue. You must accept the SSL certificate to be able to open the website. See: *Installing Qlik NPrinting certificates (page 206)*.

NewsStand supports Windows and Qlik NPrinting authentication.

### Report access

Administrators can control user report access. Access control in Qlik NPrinting is defined at the app level.

The default NewsStand user role can access all apps and can subscribe to all reports. Administrators can restrict access by creating new user roles that only have permission to access certain apps. You can also block users from creating subscriptions.

Do the following:

1. Go to **Admin > Security roles**.
2. Open a role, or create a new one.
3. Under **Apps**, deselect the **All apps** check box.
4. Move the apps these users should access from **Available items** to **Selected items**.
5. To block users from creating subscriptions, scroll down to the **Reports** list box and deselect **Subscribe**.
6. Click **Save**.

### Downloading a report

To log into NewsStand using Qlik NPrinting authentication, you need to be given access by a Qlik NPrinting administrator. See: *Defining user roles (page 243)*

Do the following:

1. Enter your user name.
2. Enter your password.
3. Click **Qlik NPrinting login**.  
The Qlik NPrinting NewsStand homepage appears, with list of your reports.
4. Click a report title to open the preview window. You can scroll down by clicking the **>|** arrow.
5. Click **Download** to download a report.  
You can then open the report as you would any other file.

### Subscribing to a report

You can create personal subscriptions to the reports that you are allowed to see. Subscriptions are publish tasks owned by you, the NewsStand user.

Do the following:

1. Click **Subscriptions** in the top menu.
2. Click **Create subscription**.
3. Use the **Report** drop-down list to select a report.
  1. Use **Format** to choose the output format.
  4. Use **Quality** to set the image resolution.
  5. Enter a **Name** for your subscription.

6. Under **Schedule**, set a **Schedule type**:
  - Once
  - Daily
  - Weekly
  - Monthly
  - Yearly
7. Set your **Repeat every**, **Daily frequency**, **Start**, and **End** options. These options will change slightly depending on **Schedule type**.
8. You can set your subscription to stop based on the following criteria:
  - **Event count**: the subscription is executed for the number of times specified.



*Enabling, disabling, or changing the event count for a task does not reset the count of how many times the task was triggered. If you want to increase the number of times a task runs, you must increment the current number by the additional number of times you want the task to run.*

- **End date** and **End time**: the subscription is executed until the date and time specified is reached. In this case, leave the options blank.
9. Click **Create**.

## Filtering the subscription list


In the **View** list for subscriptions, you have the following filter options:

- **All**: includes all "My subscriptions" and "Corporate subscriptions".
- **My subscriptions**: reports that you have personally subscribed to through the NewsStand.
- **Corporate subscriptions**: reports that a Qlik NPrinting Administrator has subscribed you to.

## Deleting a report

You can delete reports from the **Reports** list, if the reports fail to publish, or if you do not need them.

Do the following:

1. Click **Reports** in the top menu.
2. Click the check box next to a report preview to select it for deletion.  
You can select multiple reports, or click the check box above the list header to select all reports. The number of selected reports will be indicated next to the check box.
3. Click the  icon above the list header to delete the selected reports.

## Troubleshooting

There is a warning sign in the Preview section of a NewsStand report

### Possible cause

The report has not been correctly generated.

### Proposed action

- Verify that the scheduler and engine services are running correctly. Restart them and check if the warning message disappears.
- Verify that one or more templates have been added to your report. You cannot create a new report, and leave it empty without adding a template.

## 11.4 Distributing reports by email

Emails can be customized so that your reporting is personalized, consistent, and easy to maintain. Recipients can access reports directly from their inbox, without having to log into the NewsStand.

You can distribute all report types as email attachments. HTML reports and QlikEntity reports can be embedded directly into the body of emails. This means users can quickly scan your report without having to download and open an attachment. You can also embed a summary of your data in the email body, and include the full report as an attachment.

### Limitations

- You must configure your SMTP mail server in order to send emails from Qlik NPrinting. See: *Configuring SMTP server (page 268)*.
- By default, the To, CC, and BCC fields can only contain 100 email addresses. You can change this limitation by editing the `webengine.config` file. See: *Configuring the email address limits (page 485)*.
- If you want to configure a custom sender address, your SMTP server settings must allow users to send emails using addresses other than their assigned ones.
- Users that are exclusively members of the Developer role cannot receive emails.
- By default, Qlik NPrinting will attach all reports to email messages, including those with **Attach to email** disabled. To force Qlik NPrinting to only attach reports with the **Attach to email** check box selected, you must select **Choose attachments** in the **Attachments** drop-down list of the **Email** tab.



*Some SMTP providers impose size limits on email attachments. The maximum allowed size varies among providers. If the size of an attached file exceeds the limit, the email is not delivered. A warning is added in the logs.*



Due to Windows file systems limitations, you cannot attach files with file names longer than 255 characters to Qlik NPrinting emails. If you attach a file with a name that is too long, recipients will see a message listing which reports failed to be generated. The following error message is added to the Qlik NPrinting logs: "Path with value name is exceeding windows limitations, the fully qualified file name must be less than 260 characters."

## About dynamic text and variables in emails

### Variables

You can add variables to the following fields:

- To
- CC
- BCC
- Subject
- Body

You can insert variables created in Qlik Sense or QlikView. The Qlik NPrinting app that contains the publish task must also contain connections to the Qlik Sense app or QlikView document that contains the variable. If you create a new variable, you will have to reload your connection metadata.

Variable strings are automatically replaced with the values of corresponding variables when emails are generated. This replacement happens after the filters associated with users and tasks have been applied.

### In Recipient fields

You can click the **Add variable** button next to the To, CC, and BCC fields. You can choose the following from the drop down:

- **User email:** Taken from user profiles.
- **Alternate email 1:** Taken from user profiles.
- **Alternate email 2:** Taken from user profiles.
- **Alternate email 3:** Taken from user profiles.
- **Qlik variable:** This will display variables created in Qlik Sense or QlikView. See: *Variables (page 317)*

For information on creating or editing user profiles, see: *Creating users (page 240)*.



## Email message

- Overview
- Reports
- Users/groups
- Filters
- Destinations
- Email message**
- Triggers
- Conditions

### In **Subject** and **Body** fields

When you add a variable to an email, you can use the search box to find a variable from the list. You can also apply a user or task filter to the variable.

For example:

You have a QlikView variable called `vTotalSales` with a value of `=money(sum(Sales),'$ #,##0.00')`. You add the variable `%%Variable_User_SalesDemo_vTotalSales%%` to an email message. When you send the email to your recipients, recipient filters will be applied before the value of the variable is calculated. If your recipients have filters based on their sales territories, then the expression `=money(sum(Sales),'$ #,##0.00')` will show sales in the appropriate territory for each sales person.

When a variable value is extracted from QlikView or Qlik Sense, the following settings are used depending on the selection made by the user:

Identity and filter settings for variables

Variable filter settings	Applied filters	Applied identity
No filter	Empty filter sequence	Connection default identity.
Task filter	Task filters	Connection default identity.
User filter	Task filters and user filters	If "use section access for reports" is selected: user domain account. Otherwise: connection default identity.

You cannot add report filters, because multiple reports can be added to the same task.

### Dynamic text

You can add dynamic text related to user profiles or report names to the email subject or body.

For example, if you add the User tag "User company", you will see this string: `%%User_Company%%`. It is replaced with the name of the recipient's company when the email is generated.

Report name tags are based on your report name settings. For example, you have a "Sales Demo" report that uses dynamic naming that includes report name, date, and user name. The dynamic name will look like this: `%%Report_Name%%YYYY-MM-DD%%User_Name%%`. You will see this string when you embed the report name in the email body: `%%ReportName_SalesDemo_f7a6494a-d5d6-4d3f-a363-e5605fdb9d10%%`. But your recipient Jane Doe will see "SalesDemo\_20190524\_JaneDoe" in the email. See: *Dynamic report names (page 322)*.

### Creating an email message

You can customize emails that are sent to users and groups. You can include dynamic text using tags and variables.

Do the following:

1. From the top menu, select **Tasks**, and then select **Publish tasks**.
2. Choose an existing publish task, or create a new one.
3. Click **Reports** in the main task menu.
4. Click **Add report** on the right.
  - a. Select a report from the **Choose reports** drop-down list.
  - b. The **Friendly name** is the file name recipients see. It can be customized.
  - c. Select an **Output format**. The drop-down list only displays formats that are compatible with the type of report selected.
  - d. Use **Quality** to set the image resolution.
  - e. Leave the **Attach to email** check box selected.
  - f. Leave the **Enabled** check box selected.  
If you clear the check box, the report will be added, but will be ignored by the scheduler.
  - g. Click **Add report** to confirm.
5. Click **Email message** in the main task menu.
  - a. Under **From**, select one of the following:
    - **Default sender**: Administrators can set the **Default sender** under **Admin > Settings > Email**.
    - **User**: Select a sender email from the drop-down list. You can also use the search form to filter the list.
    - **Custom**: Enter a valid email address.
  - b. Under **To**, **CC**, and **BCC** you can input email addresses manually, separated by a semicolon. Or you can click **Add variable** to add a dynamic email list or variable.
  - c. Enter a **Subject**.
  - d. Select the email **Format** by clicking on **HTML**, which supports formatted text, or **Text**.  
You must select **HTML** if you want to add dynamic text, or variables, or if you want to embed HTML reports and QlikEntity reports.

- e. Under **Body**, you will see formatting tools, and the following options:
- **Toggle HTML/Rich Text:** switch between HTML and rich text editor.
  - **Insert image:** insert an image into the email text. You can only insert an image as URL address.
  - **Insert/edit link:** insert a URL address.
  - **Words** and **Characters** count
- f. You can add dynamic tags and variables:
- **Users:** insert a dynamic User tag from a list.
  - **Reports:** insert a dynamic Report name tag. Select one of the available tags under **Embed report names**.
  - **Variables:** insert a variable from a Qlik Sense or QlikView connection that exists in your Qlik NPrinting app.



*You can insert dynamic tags and variables in the email subject. Once you select the desired tag or variable, copy it from the email body to the subject field. Make sure to include the %% delimiters.*

- g. Under **Attachments**, you can select:
- **All reports attached**
  - **No reports attached**
  - **Selected attachments**
- Click the paperclip on the left to select which attachments to include. Click **Close** when finished. You will see the included attachments listed below.

6. Click **Save**.

You will now be in the **Overview** menu, where you can click the **Run now** button to publish your report.

## Embedding HTML and QlikEntity reports in emails

You can embed HTML reports and QlikEntity reports directly in emails. The same report can be embedded several times. For example, you may want to embed a report in .jpg and .png, at different DPI levels.

Cycled reports can be embedded in emails. However, cycling can create a large number of reports, and embedding them may make email size too large for some email clients. See: *Cycling your reports (page 324)*.



*The final output of emails with embedded HTML reports may differ depending on the email clients and permissions of the recipient. Some systems automatically block images, or show them as attachments.*

The procedure for creating emails with embedded objects is similar to the one above, with some exceptions.

Do the following:

1. Select **Tasks**, and then select **Publish tasks**.
2. Choose an existing publish task, or create a new one.
3. Click **Reports** in the main task menu.
4. Click **Add report** on the right.
  - a. Select a report from the **Choose reports** drop-down list. You must select an HTML or QlikEntity report.
  - b. The **Friendly name** is the file name recipients see. It can be customized.
  - c. Select an **Output format**.
    - For HTML reports: select **HTML** or **HTM**.
    - For QlikEntity reports: select **JPEG** or **PNG**.
  - d. Use **Quality** to set the image resolution.
  - e. Leave the **Attach to email** check box selected if you also want to send this report as an email attachment. You may want to disable this if you are embedding a large report directly into the email body.
  - f. Leave the **Enabled** check box selected.
  - g. Click **Add report** to confirm.
5. Click **Email message** in the main task menu.
  - a. Fill out the fields the same as above. Make sure to select **HTML** under **Format**.
  - b. Click on the body of your email where you would like to embed your report. Click the **Reports** button.
  - c. Under **Embed reports**, click on the report that you want. This screen will only show compatible reports.

You will see a string of code in your email. This will either display as an image or HTML/HTM when the email is sent. You cannot format this string with the email formatting tools. For example, you cannot use the Center button to center a QlikEntity .jpeg.
  - d. To embed the report name, click the **Reports** button again, and then click on **Embed report name**.

You will see a string of code in your email. This will be replaced by the report name.
  - e. Under **Attachments**, your options are the same as above.
  - f. Click **Save**.

You will now be on the **Overview** menu, where you can click the **Run now** button to publish your report.

### Sending emails if reports fail

By default, if report generation fails, recipients still receive scheduled emails. Instead of the report, users see an error message and instructions to contact an administrator. Administrators can disable this behavior so that emails are not sent when reports fail. Report failure appears as an error in the log files.

If you disable this behavior, emails are still sent if at least one report was created successfully.

For example:

You have 3 users in a single task. The task has 2 reports for each user, which are sent via e-mail.

- User A: report generation successful.
- User B: one report fails to generate.
- User C: all reports fail to generate.

In this case:

- User A receives the email with the two attachments.
- User B receives the email with a single attachment. There will be no mention of the report that failed.
- User C will not receive any email.

Do the following:

1. In the main menu, go to **Admin > Settings**.
2. Click the **Task** button.
3. Under **Email distribution errors**, go to **When a publish task cannot generate one or more reports**.

Choose from the following options:

- Recipients will receive successful reports, with a message listing reports that failed
- Recipients will receive successful reports, with no error message



*If all reports fail, recipients will not receive an email.*

4. Click **Update**.

### Configuring the email address limits

By default, you can only insert 100 email addresses in the To, CC, and BCC fields. You can change this by editing a config file.

Do the following:

1. Open the *webengine.config* file.  
By default it is stored under: `%Program Files%\NPrintingServer\NPrinting\WebEngine\webengine.config`.
2. Find this section:  

```
<!-- The maximum number of emails on email list input fields. The value 0 means unlimited. -->  
<!--<add key="email-list-limit" value="100"/>-->
```
3. Change the number after `value="`
4. Save the file, and restart the web engine service.

## 11.5 Distributing reports to folders

The Qlik NPrinting Server can deliver reports to a specified folder location.

You can create destination folders and use them in publish tasks. All folder paths are referenced to the Qlik NPrinting Server hard disks.

## Requirements

- Your Qlik NPrinting user account which runs the Qlik NPrinting scheduler service must have full NTFS file and folder network access in order to share network folder resources.
- The Qlik NPrinting user must have the Developer or Administrator security role to create destination folders.



*Mapped network drives, like Z:\NPrintingServer\QlikViewDocuments, are not supported by Qlik NPrinting. You must use Universal Naming Convention (UNC) paths, such as \\ServerName\NPrintingServer\QlikViewDocuments.*

## Entering user folder and subfolder

Do the following:

1. Select **Admin** from the Qlik NPrinting main menu, and then select **Users**.
2. Select the user that should receive the report.  
To learn how to create users, see *Creating users (page 240)*.
3. In the **Folder** field, enter C:\QlikReportingTraining\Output\<username>.
4. In the **Subfolder** field, enter the name of the user that should receive the report.  
This value will be concatenated with another parameter to obtain the complete final path.
5. Save the changes.

## Creating a new destination folder

Do the following:


1. Select **Destinations** in the main menu, and then select **Folders**.
2. Click **Create folder**.
3. Type a folder name.
4. In the **App** drop-down list, select an app.

## Folder path options

In the drop-down list, under the **Path** option, you can select which parts to use for the final path. The following options are available:

- **Custom path:** type a fixed part of the path.
- **Separator:** insert a separator between the folders.
- **User name:** insert a user name.
- **User folder:** use the path entered in the **Folder** field of the user profile.
- **User subfolder:** use the path entered in the **Subfolder** field of the user profile.
- **Qlik variable:** the list of available Qlik variables in all .qvw files connected to the app.

You can use the plus sign (+) to concatenate other parts of the final path.

Clicking  removes the related part of the path.

## Setting the folder path

Do the following:

1. In the **Path** section, click **Select type**, and then select **Custom path** in the drop-down list.
2. Enter `C:\QlikReportingTraining\Output\` in the text box.
3. Click the plus sign (+) to add a new piece of the path.
4. Click **Select type**, and then select **User subfolder** from the drop-down list.  
`%%User_Subfolder%%` is inserted automatically. The **Preview** field shows the final structure of the folder.
5. Click **Create** to confirm and save.

## Adding destination folders in the task

Do the following:

1. In the main menu bar, click **Tasks**, and then select **Publish task**.
2. Click on the task you want to edit.
3. Click the **Destinations** tab.
4. Click the plus sign (+) to add a folder column.
5. Click **Select folder**, and then select the destination folder.
6. Click **Add** to confirm the new destination.  
 The name of the destination folder is displayed in the user interface.  
 By selecting the check boxes for **NewsStand**, **Email**, and **<destination folder>**, you can specify which folders will contain the final reports.
7. Click **Save**.
8. Click **Overview** in the **Task** main menu. Click **Run now** to run the task manually.

The reports are available in their designated folders.



*Note: If you publish one report with two different Image quality (page 302) levels to a folder, the newer file will overwrite the older one. This can be avoided by applying a **Friendly name** via Dynamic report names (page 322).*

## 11.6 Distributing reports to the Qlik Sense hub

You can distribute Qlik NPrinting reports to the Qlik Sense hub for Windows domain users who have been configured in both Qlik NPrinting and Qlik Sense.

### Limitations

- Reports are private and can only be viewed by the intended user.
- You can have only one Qlik Sense hub destination for a Qlik NPrinting deployment.
- In the Qlik Sense hub, users will only see the latest version of a report. They will not be able to access older versions of reports like they can in the **NewsStand**.

### Requirements

To enable distribution of Qlik NPrinting reports to the Qlik Sense hub the following is required:

- Recipients must be Windows domain users configured in both Qlik NPrinting and Qlik Sense.
- Qlik Sense certificates exported from the Qlik Management Console (QMC) and installed on Qlik NPrinting Server and all Qlik NPrinting Engine machines. For more information, see *Validating the connection to Qlik Sense (page 173)*.
- The central node computer name of the Qlik Sense installation.  
This information is available in the QMC, in the **Nodes** tab.

### Setting the Qlik Sense hub as a destination

Do the following:

1. Select **Destinations** in the main menu, and then select **Hub**.
2. Type a name for the hub.
3. Under **Central node address**, enter the central node computer name of the Qlik Sense hub.
4. Click **Save**.

### Opening the Publish tasks page

Do the following:

1. In the main menu bar, click **Tasks**, and then select **Publish task**.
2. Create a new publish task, or click an existing publish task to edit it.
3. Type a name for the task.
4. Select a Qlik NPrinting app from the **App** drop-down list.
5. Set **Days to keep** and **Reports to keep**.  
*See: Understanding Days to keep and Reports to keep (page 472).*
6. Click **Create**.

### Adding reports

Do the following:

1. Click the **Reports** tab.
2. Choose a report, and then configure the output format.
3. Click **Add report**.



### Adding users

To distribute reports to a Qlik Sense hub user, you must add the user to the **Publish** task. The user must be a Windows domain user who has been configured in both Qlik NPrinting and Qlik Sense.

Do the following:

1. Click the **Users/groups** tab.
2. Click **Add user or group**, and then add a user.
3. Click **Add recipient**.

### Adding the hub as a destination in the publish task

Do the following:

1. Click the **Destinations** tab.
2. Select a **Recipient** and then select the **Hub** check box.  
To distribute reports for all users, select the **Upload for all Hub** check box.
3. Click **Save**.
4. Click the **Overview** tab, and then click **Run now** to manually run the task.

You can open the Qlik Sense hub to verify that the report has been delivered.

### Scheduling distribution

You can create triggers to schedule the execution of publish tasks.

Do the following:

1. Click the **Triggers** tab.
2. Configure a schedule.
3. Click the **Enabled** button.
4. Click the **Create** button.

## 12 On-Demand reports

You can generate On-Demand reports using the QlikView AccessPoint interface or the Qlik Sense reporting control. On-Demand reports are created in Qlik NPrinting.

You can download reports directly from the On-Demand interface.

### 12.1 Install

Deploy and configure On-Demand components.

### 12.2 Generate

Learn how to generate On-Demand reports.

### 12.3 Administer

Learn how to change report generation settings.

### 12.4 Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint

You must install the Qlik NPrinting On-Demand Add-on on your QlikView Web Service to create On-Demand reports from the QlikView AccessPoint interface.

If your QlikView Servers are in a cluster, or you performed a custom installation of QlikView Server components, you must install On-Demand on each QlikView Web Service in the cluster.



*On-Demand reports in Qlik Sense are created using the reporting control.*

### Requirements

- QlikView Server May 2021 or later.



*If you are using QlikView Server May 2024, then Qlik NPrinting February 2024 SR2 or later is required.*

- QlikView Server is installed and configured to use Microsoft IIS with ASP.NET 4.5 (or higher) as web server.

- Qlik NPrinting is configured to use JWT authentication. See: *JWT authentication (page 222)*. The certificate with private key used to configure JWT authentication must be installed on the Microsoft IIS local machine personal certificate store. Certificates generated using CNG compatible algorithms are not compatible with the On-Demand Add-on.
- Microsoft Internet Explorer is not supported by Qlik NPrinting. However, if Microsoft Internet Explorer Enhanced Security Configuration is turned on, it may cause errors. For more information, see *Microsoft Internet Explorer Enhanced Security Configuration is blocking QV.exe (QlikView) and reporting\_web\_renderer.exe (Qlik Sense) (page 550)*.


## JWT settings

JWT must be configured as specified:

JWT attribute configurations

Attribute	Configuration
JWT attribute mapping	Match user by Domain\Name
JWT attribute for user ID	uid
JWT attribute for user directory	dom

## Downloading the installation file

Download *Qlik NPrinting On-Demand Add-on.exe* from  [Product Downloads](#) and save it to a folder on the IIS server.

*Downloading installation files (page 154)*

## Installing On-Demand

Do the following:

1. Double-click *Qlik NPrinting On-Demand Add-on.exe* to launch the installation.
2. If the QlikView Server requirements are not met, you will see an error message. Check the logs for more information.
3. Click **Install** to proceed.
4. If the **User Account Control** window appears, click **Yes**.
5. Click **Next** when the welcome message appears.
6. Accept the terms and conditions.
7. Click **Next** to proceed.
8. Enter your Qlik NPrinting Server URL in the following format: *https://YourServerName:PortNumber*.



*Make sure there is no slash (the character “/”) following the port number. The default port number is 4993.*



*If your Qlik NPrinting Server and Qlik NPrinting Engine are installed on different computers, use the Qlik NPrinting Server URL.*

9. Enter the certificate thumbprint used to configure JWT authentication on the Qlik NPrinting Server. To find the certificate thumbprint:
  - a. Navigate to the location where the certificate is installed.
  - b. Double-click on the certificate and go to the details page.
  - c. Copy the value from the certificate thumbprint, and paste it into the field in the Qlik NPrinting On-Demand Add-on setup.

**Qlik NPrinting February 2018 On-Demand Add-On 64-bit Setup**

Enter the URL for the Qlik NPrinting server to be used with this add-on in the following format:  
https://YourServerName:port

Enter the certificate thumbprint for the Qlik NPrinting server. The certificate thumbprint is used to authenticate the add-on client against the server.

Back Next Cancel

10. Click **Next**.
11. Click **Install**.
12. Click **Finish** to close the setup window.

## Configuring On-Demand settings on Qlik NPrinting Server

You must configure these settings on your Qlik NPrinting Server:

- You must have a connection to a QlikView Server or a Qlik Sense server. QlikView Server and QlikView Cluster connections are supported with On-Demand. Local connections are not supported. See: [Creating connections](#).
- If you are connecting to a QlikView Server or Cluster with a QlikView Server Extranet License, the following options must be enabled when configuring the connection:
  - Connection requires authentication
  - Apply user section access for reports
- You must enable your Qlik NPrinting reports for On-Demand.
- You can limit On-Demand report creation through security roles. See: [Role based security](#).



*On-Demand is compatible with Chrome, Firefox, and Explorer. It will not run in Microsoft Edge, because the certificates will not download.*

### Enabling Qlik NPrinting reports for On-Demand creation

Qlik NPrinting reports must be manually enabled for On-Demand creation. Reports must be assigned to the QlikView document or Qlik Sense app with which you want to generate On-Demand reports. On-Demand creation can be enabled during the creation of a new report.

Do the following:

1. In Qlik NPrinting web console, click **Reports**.
2. Open a report or create a new report.
3. Select an app from the **App** drop-down list is connected to the QlikView document or Qlik Sense app for which you want to generate a report.



*On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.*

4. Select the **Enable On-Demand** check box.
5. Click **Save**.

The report template is now available.

## 12.5 Installing On-Demand on a QlikView Web Server

You can install the On-Demand Add-on on a QlikView Web Server hosted QlikView AccessPoint.



*As a best practice, you should install On-Demand on a Microsoft IIS hosted QlikView AccessPoint. It is a simpler and more secure deployment. See: [Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint \(page 490\)](#).*

You must install the Qlik NPrinting On-Demand Add-on on your QlikView Web Service to create On-Demand reports from the QlikView AccessPoint interface.

If your QlikView Servers are in a cluster, or you performed a custom installation of QlikView Server components, you must install On-Demand on each QlikView Web Service in the cluster.



*On-Demand reports in Qlik Sense are created using the reporting control.*


### Requirements

- The following versions of QlikView are supported for connection with Qlik NPrinting. Note that your Qlik NPrinting version must be equal to or higher than your QlikView version:
  - QlikView April 2020 SR2 (12.50 SR2) or later
  - QlikView May 2021 (12.60) or higher
  - QlikView May 2022 (12.70) or higher
- Windows login must be enabled, working, and used as the authentication system in Qlik NPrinting.
- NTFS must be enabled on the QlikView Server or QlikView Server cluster that serves the QlikView Web Server where you are installing On-Demand.
- QlikView Server is installed and configured to use QlikView Webserver.
- QlikView Server is connected to Qlik NPrinting. See: *Connecting Qlik NPrinting with QlikView (page 178)*.
- In a multi-server environment, On-Demand needs to be installed on all servers running QlikView Web Server (QVWS) services in the environment.
- Microsoft Internet Explorer is not supported by Qlik NPrinting. However, if Microsoft Internet Explorer Enhanced Security Configuration is turned on, it may cause errors. For more information, see *Microsoft Internet Explorer Enhanced Security Configuration is blocking QV.exe (QlikView) and reporting\_web\_renderer.exe (Qlik Sense) (page 550)*.
- The Qlik NPrinting services Windows domain user must be a member of two groups on the QlikView Server (as well as the AccessPoint server, if installed on a separate computer):
  - QlikView Administrators
  - QlikView Management API



*You must restart QlikView and Qlik NPrinting services after adding the Qlik NPrinting services Windows domain user to the QlikView Administrators and QlikView Management API groups.*

### Downloading the installation file


Download *Qlik NPrinting On-Demand Add-on.exe* from  [Product Downloads](#) and save it to a folder on the server.

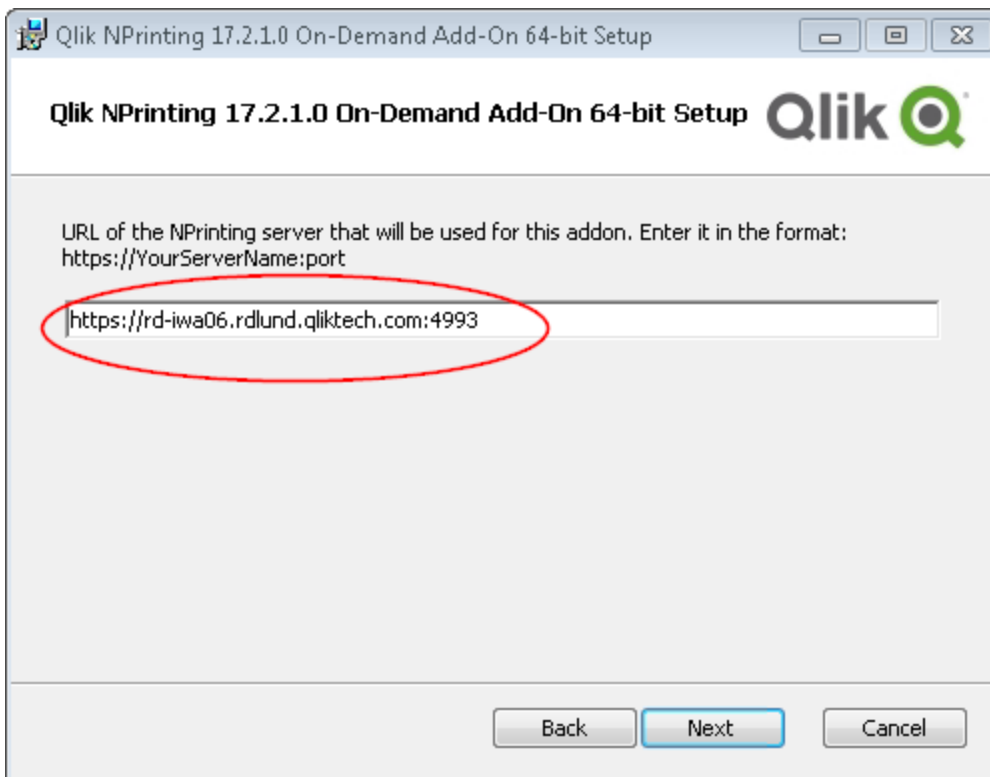
*Downloading installation files (page 154)*


## Installing On-Demand

Do the following:

1. Double-click *Qlik NPrinting On-Demand Add-on.exe* to launch the installation.
2. If the QlikView Server requirements are not met, you will see an error message. Check the logs for more information.
3. Click **Install** to proceed.
4. If the **User Account Control** window appears, click **Yes** to proceed.
5. Click **Next** when the welcome message appears.
6. Accept the terms and conditions.
7. Click **Next** to proceed. Setup progress will start.
8. Enter your Qlik NPrinting Server URL in the following format: *https://YourServerName:PortNumber*.

 *Make sure there is no slash (the character "/") following the port number. The default port number is 4993.*



 *If your Qlik NPrinting Server and Qlik NPrinting Engine are installed on different computers, use the Qlik NPrinting Server URL.*

9. Click **Next** to proceed.

10. Click **Install** to begin the installation.
11. When complete, click **Finish** to close the setup window.

## Adding a server as a trusted origin

If you are creating On-Demand reports in Qlik Sense or a QlikView Web Server hosted QlikView AccessPoint, you must add these servers as a trusted origin in Qlik NPrinting web console.

For each server path used to access the Qlik NPrinting web console, you must add a trusted origin. For example, if your server can be accessed through a local domain, a shortened host, or fully qualified URLs, a trusted origin must be added for each of those server paths.

How you enter the server paths in the **Address** field of the trusted origin depends on your security configuration.

### Configuration 1: SSL security not setup with Qlik NPrinting web console

A trusted origin is required for each server path used to log onto the Qlik NPrinting web console. For example, if your server is *qlikserver1* and has an IP address of 192.168.0.101, you would add the following trusted origins:

- *http://qlikserver1*
- *http://qlikserver1.domain.local*
- *http://192.168.0.101*

### Configuration 2: SSL security setup with Qlik NPrinting web console and third-party

A trusted origin is required for each server path used to log onto the Qlik NPrinting web console. URLs must use HTTPS. For example, if your server is *qlikserver1* and has an IP address of 192.168.0.101, you would add the following trusted origins:

- *https://qlikserver1*
- *https://qlikserver1.domain.local*
- *https://192.168.0.101*

## Adding a trusted origin

Do the following:

1. In Qlik NPrinting, click **Admin > Settings**.
2. Click **On-Demand Settings**.
3. Click **Add trusted origin**.
4. After **Name**, enter a name for the trusted origin.
5. After **Description**, enter a description for the trusted origin.
6. After **Address**, enter the URL for the QlikView Server.  
The URL must be the base URL (scheme and host) only. For example, `http://qlikserver1` rather than `http://qlikserver1/qlikview/index.htm`.
7. Click **Create**.



## Configuring On-Demand settings on Qlik NPrinting Server

You must configure these settings on your Qlik NPrinting Server:

- You must have a connection to a QlikView Server or a Qlik Sense server. QlikView Server and QlikView Cluster connections are supported with On-Demand. Local connections are not supported. See: [Creating connections](#).
- If you are connecting to a QlikView Server or Cluster with a QlikView Server Extranet License, the following options must be enabled when configuring the connection:
  - Connection requires authentication
  - Apply user section access for reports
- You must enable your Qlik NPrinting reports for On-Demand.
- You can limit On-Demand report creation through security roles. See: [Role based security](#).



*On-Demand is compatible with Chrome, Firefox, and Explorer. It will not run in Microsoft Edge, because the certificates will not download.*

## Enabling Qlik NPrinting reports for On-Demand creation

Qlik NPrinting reports must be manually enabled for On-Demand creation. Reports must be assigned to the QlikView document or Qlik Sense app with which you want to generate On-Demand reports. On-Demand creation can be enabled during the creation of a new report.

Do the following:

1. In Qlik NPrinting web console, click **Reports**.
2. Open a report or create a new report.
3. Select an app from the **App** drop-down list is connected to the QlikView document or Qlik Sense app for which you want to generate a report.



*On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.*

4. Select the **Enable On-Demand** check box.
5. Click **Save**.

The report template is now available.

## 12.6 Installing Qlik Sense On-Demand reporting control

The On-Demand reporting control adds a button that generates Qlik NPrinting reports on demand. It is included in Dashboard bundle.

The On-Demand reporting control is useful when you want the user to be able to print predefined Qlik NPrinting reports within Qlik Sense, using their selections in the app as a filter.

### Requirements

- Qlik NPrinting Server (September 2019 or later) with a Qlik NPrinting app that is connected to the Qlik Sense app that you are designing. This Qlik NPrinting app contains your report templates.
- Qlik Sense Enterprise on Windows September 2019 or later.
- All users generating On-Demand reports need to be added as users in Qlik NPrinting, with a security role that supports running On-Demand reports.
- Users must be logged into Qlik Sense via NTML (Windows) authentication in order to generate reports or create reporting buttons.



*You must enable Windows authentication to use the Qlik NPrinting On-Demand Add-on on QlikView Web server and Qlik Sense.*

*If you only want to use JWT authentication, then you must install the Qlik NPrinting On-Demand Add-on on a QlikView Server configured on a Microsoft IIS Web Server.*

*Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint (page 490)*

### Limitations

- If the Qlik NPrinting report template contains a filter, you cannot make conflicting selections in the Qlik Sense app, or the report will fail.

### Installing the Dashboard bundle

You can install the Dashboard bundle when you install Qlik Sense.

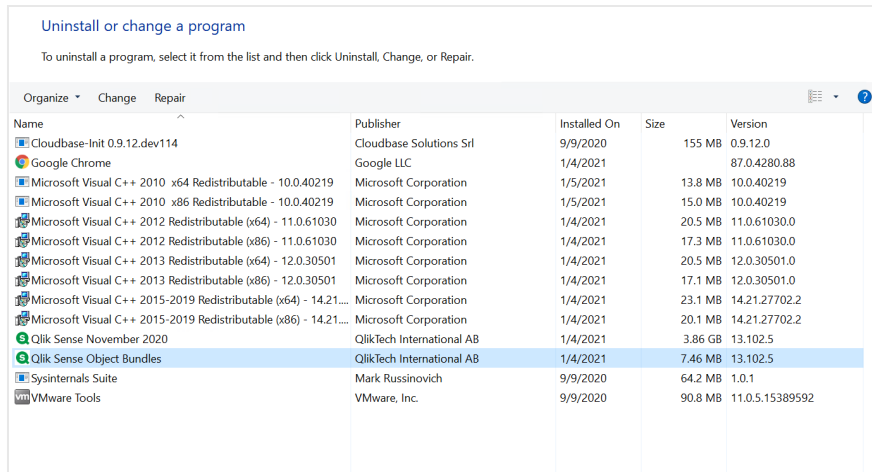
You can add or remove object bundles from your Qlik Sense deployment at any moment. If you have a multi-node installation, object bundles are installed on the central node.



*You can see which extensions are installed in your deployment by checking the **Extensions** section in the Qlik Management Console (QMC).*

#### Do the following:

1. In **Windows Control Panel**, open **Programs and Features**.
2. In the list of programs, double-click the object bundle that you want to modify.



3. The Object Bundle Setup Wizard opens. Click **Next**.
4. Select **Change**.
5. On the **Custom setup** screen, click on the bundle icon to select how to modify the bundle installation:
  - If the bundle is installed, select **Entire feature will be unavailable** to uninstall it.
  - If the bundle is not installed, select **Entire feature will be installed on local hard drive** to install it.
 Then, click **Next**.
6. Click **Change**.  
Once the modification is complete, you are required to manually restart the Qlik Sense Repository Service.
7. Click **Finish** to close the Object Bundle Setup Wizard.
8. Manually restart the Qlik Sense Repository Service to apply the changes.

You can verify that the changes have been correctly applied by checking the **Extensions** section in the QMC.

## Adding a server as a trusted origin

If you are creating On-Demand reports in Qlik Sense or a QlikView Web Server hosted QlikView AccessPoint, you must add these servers as a trusted origin in Qlik NPrinting web console.

For each server path used to access the Qlik NPrinting web console, you must add a trusted origin. For example, if your server can be accessed through a local domain, a shortened host, or fully qualified URLs, a trusted origin must be added for each of those server paths.

How you enter the server paths in the **Address** field of the trusted origin depends on your security configuration.

### Configuration 1: SSL security not setup with Qlik NPrinting web console

A trusted origin is required for each server path used to log onto the Qlik NPrinting web console. For example, if your server is *qlikserver1* and has an IP address of 192.168.0.101, you would add the following trusted origins:

- *http://qlikserver1*
- *http://qlikserver1.domain.local*
- *http://192.168.0.101*

## Configuration 2: SSL security setup with Qlik NPrinting web console and third-party

A trusted origin is required for each server path used to log onto the Qlik NPrinting web console. URLs must use HTTPS. For example, if your server is *qlikserver1* and has an IP address of 192.168.0.101, you would add the following trusted origins:

- `https://qlikserver1`
- `https://qlikserver1.domain.local`
- `https://192.168.0.101`

### Adding a trusted origin

Do the following:

1. In Qlik NPrinting, click **Admin > Settings**.
2. Click **On-Demand Settings**.
3. Click **Add trusted origin**.
4. After **Name**, enter a name for the trusted origin.
5. After **Description**, enter a description for the trusted origin.
6. After **Address**, enter the URL for the QlikView Server.  
The URL must be the base URL (scheme and host) only. For example, `http://qlikserver1` rather than `http://qlikserver1/qlikview/index.htm`.
7. Click **Create**.

## Configuring On-Demand settings on Qlik NPrinting Server

You must configure these settings on your Qlik NPrinting Server:

- You must have a connection to a QlikView Server or a Qlik Sense server.  
QlikView Server and QlikView Cluster connections are supported with On-Demand. Local connections are not supported. See: [Creating connections](#).
- If you are connecting to a QlikView Server or Cluster with a QlikView Server Extranet License, the following options must be enabled when configuring the connection:
  - Connection requires authentication
  - Apply user section access for reports
- You must enable your Qlik NPrinting reports for On-Demand.
- You can limit On-Demand report creation through security roles. See: [Role based security](#).



*On-Demand is compatible with Chrome, Firefox, and Explorer. It will not run in Microsoft Edge, because the certificates will not download.*

## Enabling Qlik NPrinting reports for On-Demand creation

Qlik NPrinting reports must be manually enabled for On-Demand creation. Reports must be assigned to the QlikView document or Qlik Sense app with which you want to generate On-Demand reports. On-Demand creation can be enabled during the creation of a new report.

Do the following:

1. In Qlik NPrinting web console, click **Reports**.
2. Open a report or create a new report.
3. Select an app from the **App** drop-down list is connected to the QlikView document or Qlik Sense app for which you want to generate a report.



*On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.*

4. Select the **Enable On-Demand** check box.
5. Click **Save**.

The report template is now available.

## 12.7 Generating On-Demand reports in QlikView AccessPoint

On-Demand reports are created in the **Qlik NPrinting** window in the QlikView AccessPoint interface. The **Qlik NPrinting** window also displays completed reports for download and reports in queue.

When you create an On-Demand report, the report is added to the report creation queue on the Qlik NPrinting Server. Once a report is complete, it is stored in the Qlik NPrinting repository, but can be downloaded in QlikView. Reports can be accessed from the **Qlik NPrinting** window in QlikView AccessPoint until deleted. Reports and reports in queue are automatically deleted from the Qlik NPrinting Server after 30 days. Failed reports are deleted after 6 days.



*On-Demand reports in Qlik Sense are created using the reporting control.*

You can access all reports enabled for On-Demand on the Qlik NPrinting Server, prepared on the QlikView document you are using in QlikView AccessPoint.



*You should use a different Qlik NPrinting app on the Qlik NPrinting Server for each QlikView document. If you use one app for multiple documents, you will be able to see reports from other QlikView documents, but they will fail.*



*Access to On-Demand reporting is set via security roles and is applied at the app level. This limits access to On-Demand reports on an app-by-app basis.*



*On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.*

## Requirements

- Qlik NPrinting On-Demand Add-on must be installed on the QlikView Server. See: *Installing On-Demand Add-on on a Microsoft IIS hosted QlikView AccessPoint (page 490)*.
- Qlik NPrinting administrator must assign On-Demand users a security role with **On-Demand Create** authorization.
- Users creating On-Demand reports in QlikView must have their Windows Active Directory user account associated with their Qlik NPrinting web console user account. *Creating users (page 240)*.
- Users creating On-Demand reports in QlikView must have a domain and user associated to their Qlik NPrinting web console user account that matches the domain and user of their QlikView Server Windows Active Directory user account.
- Users working on a QlikView Server or Cluster with a QV Server Extranet License must be correctly configured with an Identity, and must be logged into both Qlik NPrinting and QlikView AccessPoint. Otherwise, bookmarks will not be available.
- Applying section access and current selections present in the QlikView document is supported.
- On-Demand sessions appear in the QVS Statistics tab of the QlikView Server, but do not count against session CAL totals.
- On-Demand will not work with locally saved .qvw files. Files must be available on a QlikView Publisher (QVP) connection.
- On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.

## Accepting the Qlik NPrinting web console certificate

The default installation certificate for Qlik NPrinting web console may be registered as invalid by your browser. If your browser registers the Qlik NPrinting web console certificate as invalid, you must accept the certificate before you can use On-Demand in QlikView AccessPoint or Qlik Sense.



*If you switch to a different browser or clear your browser's cache, you will have to re-accept the Qlik NPrinting certificate. On-Demand works in Chrome, Firefox, and Explorer. It does not run in Microsoft Edge, because the certificates will not download.*

Do the following:

1. Open the Qlik NPrinting web console.
2. Depending on your browser, do one of the following:
  - Choose to continue to the Qlik NPrinting web console.
  - Add a security exception and continue to the Qlik NPrinting web console.
3. Log into your Qlik NPrinting web console.

You can now use Qlik NPrintingOn-Demand using this browser.

## Creating a Qlik NPrinting report in QlikView

Do the following:

1. In the QlikView AccessPoint 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.  
Any QlikView Server selections you have made will be applied to your report output. For example, if you set a filter to only show sales in a certain region, only that region's data will appear.
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. You can cancel a report while it is **In queue**.

Your report may have object or report filters in Qlik NPrinting Server. These filters are also applied to your On-Demand report, in addition to the filters in the QlikView document.

## Downloading an On-Demand report

Do the following:


1. In the **Qlik NPrinting** window, click the report you want to download.
2. Click **Download**.

## Deleting and canceling reports in queue

Finished reports can be deleted. Deleting a report removes it from the available reports to download in **On-Demand**. Reports in queue can be canceled.

### Deleting an On-Demand report

Do the following:

1. In the **Qlik NPrinting** window, click the report you want to delete.
2. Click .

### Canceling a single report in queue

Do the following:

1. In the **Qlik NPrinting** window, click the report you want to cancel.
2. Click the **X** button.
3. Click **Abort task**.

## Canceling all reports in queue

Do the following:

1. In the **Qlik NPrinting** window, click **Abort all**.
2. Click **Abort all tasks**.

Administrators with access to the Qlik NPrinting web console can manage On-Demand report requests from all users. See: *Managing On-Demand requests (page 508)*.

## 12.8 Generating On-Demand reports in Qlik Sense

On-Demand reports are created using the On-Demand reporting button.

When you create an On-Demand report, the report is added to the report creation queue on the Qlik NPrinting Server. Once a report is complete, it is stored in the Qlik NPrinting repository. Reports can be accessed from the **Qlik NPrinting** window in QlikView AccessPoint until deleted. Reports and reports in queue are automatically deleted from the Qlik NPrinting Server after 30 days. Failed reports are deleted after 6 days.

To enable On-Demand reporting in Qlik Sense, see: *Installing Qlik Sense On-Demand reporting control (page 497)*.



*On-Demand requests only work with reports based on a single connection. MultiDoc reports are not supported.*

## Documentation for the Qlik Sense On-Demand reporting control

For documentation describing the On-Demand reporting control in Qlik Sense, including limitations and other considerations, see [On-Demand reporting control](#).

## Requirements

- Users must be logged into Qlik Sense via NTLM (Windows) authentication in order to generate reports or create reporting buttons.

## Accepting the Qlik NPrinting web console certificate

The default installation certificate for Qlik NPrinting web console may be registered as invalid by your browser. If your browser registers the Qlik NPrinting web console certificate as invalid, you must accept the certificate before you can use On-Demand in QlikView AccessPoint or Qlik Sense.





*If you switch to a different browser or clear your browser's cache, you will have to re-accept the Qlik NPrinting certificate. On-Demand works in Chrome, Firefox, and Explorer. It does not run in Microsoft Edge, because the certificates will not download.*

Do the following:

1. Open the Qlik NPrinting web console.
2. Depending on your browser, do one of the following:
  - Choose to continue to the Qlik NPrinting web console.
  - Add a security exception and continue to the Qlik NPrinting web console.
3. Log into your Qlik NPrinting web console.

You can now use Qlik NPrinting On-Demand using this browser.

## Creating an On-Demand reporting button

You can create an On-Demand reporting button on the sheet you are editing.

**Do the following:**

1. From the assets panel, under **Custom objects > Dashboard bundle** drag **On-demand reporting** to the sheet.
2. In the property panel, under **NPrinting Connection > NPrinting server URL**, set the server connection. The URL must end with `/`.  
For example: `https://<server name>:4993/`
3. Under **NPrinting App**, select the Qlik NPrinting app that contains the report template.
4. Under **NPrinting connection**, select the Qlik NPrinting connection.  
As the default, the list only shows Qlik NPrinting connections to the Qlik Sense app you are working in. You can use the **App/Connection filter** toggle to display connections not associated with the current Qlik Sense app.
5. Under **Report Configuration > Choose Report**, select the report you want to connect to the button.
6. In **Default Export Format**, select a default export format.
7. Under **Appearances > Button Label**, set the button label. For example: *Generate report*.

You have now created an On-Demand reporting button.

## Generating a report

You can generate a report that is filtered according to the current selections in the Qlik Sense app. You need to be in analysis mode.



*You can only filter on fields that are included in the Qlik NPrinting report template, or the report will fail. It is not possible to filter on selections using an expression.*

**Do the following:**

1. Click on the button that you created.  
The **Export** dialog opens.
2. There are two buttons to choose from:
  - a. **Quick Report:** generates a single report with the default output format.
  - b. **New Report:** choose from a list of reports that have been made available to you. You can also choose the output format.
3. When the report is generated a download button is activated. Click the **Download** button to download the report.

## 12.9 Administering On-Demand Add-on

Administrators can configure Qlik NPrinting On-Demand Add-on settings.

Administrators with access to the Qlik NPrinting web console can manage On-Demand report requests from all users. See: *Managing On-Demand requests (page 508)*.

### Security roles

Access to On-Demand reporting is set via security roles and is applied at the app level. This limits access to On-Demand reports on an app-by-app basis.

For information on creating security roles, see *Setting app permissions (page 230)*.

An admin that manages On-Demand requests needs the following rights:

- **Admin > On-Demand requests.** This will automatically select:
  - View
  - Abort
  - Delete
- The role will also automatically get **Apps > View access.** This is required.

### Configuring image quality in On-Demand reports

You can update the *scheduler.config* file to change the image quality of your On-Demand reports.

You can set your On-Demand reports to have higher image quality, the same as from a publish task. As soon as you change this, all On-Demand reports will be affected. This will also affect report previews in Qlik NPrinting Designer. Task reports will not be affected.

Report type and output format combinations that are not supported in tasks are still not supported in this case. For example, you cannot set an image quality level on a report from a task if you are exporting a PixelPerfect report as a .jpeg. If you run an On-Demand PixelPerfect report, setting this flag to "Veryhigh", it will look the same as a "Normal" report. See: *Image quality (page 302)*.

The following combinations are not supported:

- Excel to .tiff
- PixelPerfect to .gif, .jpeg, .png, .tiff
- QlikEntiy to .csv, .skv, .tab, .tiff



*You should always backup your Qlik NPrinting repository before editing a .config file. For more information, see [Backing up Qlik NPrinting \(page 193\)](#).*

Do the following:

1. Stop the Qlik NPrinting scheduler service.
2. Open the *scheduler.config* configuration file.  
The default path is: `C:\Program Files\NPrintingServer\NPrinting\Scheduler\scheduler.config`
3. Uncomment the following string: `<!-- <add key="ondemand-image-quality" value="Normal" /> -->`  
"Normal" is the default value.
4. You can set value to: "Normal", "High", or "Veryhigh". These are case sensitive, and have the following DPI values:
  - a. Normal: 96 DPI
  - b. High: 192 DPI
  - c. Veryhigh: 384 DPI
5. Save the file and restart the service.

## Configuring automatic report deletion

When you create an On-Demand report, it is added to the report creation queue on the Qlik NPrinting Server. Once a report is complete, it is stored in the Qlik NPrinting repository, but can be downloaded in QlikView. Reports can be accessed from the **Qlik NPrinting** window in QlikView AccessPoint until deleted. Reports and reports in queue are automatically deleted from the Qlik NPrinting Server after 30 days. Failed reports are deleted after 6 days. They can also be deleted manually.

You can change how long reports are saved by editing *scheduler.config*.



*You should always backup your Qlik NPrinting repository before editing a .config file. For more information, see [Backing up Qlik NPrinting \(page 193\)](#).*

Do the following:

1. Stop the Qlik NPrinting scheduler service.
2. Open the *scheduler.config* configuration file.  
The default path is: `C:\Program Files\NPrintingServer\NPrinting\Scheduler\scheduler.config`
3. Add the following two strings to file. They are not present in the default file, and can be inserted at any point:
  - `<add key="completed-days-to-keep" value="30" />`
  - `<add key="aborted-days-to-keep" value="6" />`

4. You can set value to any number.
5. Save the file and restart the service.

## 12.10 Managing On-Demand requests

Administrators can manage the execution of On-Demand report requests.

You can open the On-Demand requests page by clicking on **Admin** and selecting **On-Demand requests**, or by typing the URL `https://YourServer:4993/#/admin/ondemand` in your browser.

### Filtering requests

By default, all in-progress or finished requests are displayed. You can filter requests by **View** or **Date range**. You can also search by user name. Clicking the black triangles next to the header titles of any column will sort column items alphabetically.

The **View** drop-down list has the following options:

- **All executions**
- **In progress**
- **Finished**

There are two **Date range** drop-down lists:

- **Created:**
  - **Created**
- **All time:**
  - **All time**
  - **Today**
  - **Yesterday**
  - **This week**
  - **This month**
  - **Last 7 days**
  - **Last 30 days**
  - **Custom:** Lets you set a specific date range.

To search by user, type the user name you are looking for into the search form on the right. The list of requests will be dynamically filtered.

## Request status

Request fields

Field	Description
<b>Report</b>	The name of the report.
<b>User</b>	The name of the user.
<b>Status</b>	A blinking status means that the request is running. A fixed status means that the request has finished, or stopped with Warning, Failed, or Aborted.
<b>Created</b>	Date and time the request was created.
<b>Elapsed time</b>	The amount of time the request has been processing.
<b>Actions</b>	An <b>Abort</b> button will appear in this field when a report is running.

You can change the number of visible rows by clicking on the numbered buttons at the bottom of the page.

There are several types of **Status**:

- **Warning**: some reports are created correctly, but some have problems.
- **Failed**: all reports have problems.
- **Running** (only blinking): everything is going well, but the request is still in execution.
- **Completed** (only fixed): all reports have been correctly created and delivered.
- **Queued**: request is waiting to start its execution.
- **Aborted**: request execution was manually stopped because the user pressed the **Abort** button in the request detail page.

## Aborting requests

To abort a single running request, go to **Actions**, and click **Abort**.

You can also abort several requests at once.

Do the following:

1. Select one or more boxes to the left of the report names.  
To select all reports, click the top or bottom box.
2. At the bottom of the list, click the **Abort** drop-down.
3. Click **Go**.  
This will abort all selected requests. A green message for each request appears above the request list.

## 13 Extending Qlik NPrinting

Qlik NPrinting exposes a set of REST APIs that enables you to generate reports from other software. For example, the QlikView user interface (On-Demand), or software that is developed by a third party.

### 13.1 User settings

A Qlik NPrinting administrator can configure the API user with Windows NTLM authentication. This is done by adding the **Domain account** in the format `<Domain>\<Username>` in the user profile. The Qlik NPrinting users can only perform the actions that are defined in their profiles. For example, in the list of apps you will see only the apps for which the connected user is authorized. If the user is not authorized to any app, you will get an error message or an empty list.



*The API user can also be set up with JWT authentication. However, JWT authentication only works with Qlik NPrinting and is not supported for the Qlik Sense On-Demand reporting control.*

For more information on:

- Using JWT authentication with NPrinting, see *JWT authentication (page 222)*.
- Using JWT as an API authentication method, see [How to configure and call APIs with JWT authentication](#).
- Using Qlik Sense On-Demand reporting control, see [On-Demand reporting control](#).

### Required role

Set the privileges for **On-Demand reports** in the **Roles** administration page:

- **Create:** user can request the creation of reports using APIs.

APIs are always enabled for all users and roles. You cannot disable APIs.

### 13.2 Report settings

The **Enable On-Demand** check box must be selected to run a report using APIs.

### 13.3 APIs capabilities

Available APIs are a subset of the user interface features that allows the implementation of the On-Demand reporting. So, On-Demand add-on uses APIs.

With Qlik NPrinting APIs you can:

- Get the list of all available apps with descriptions.
- Get the list of all available reports with descriptions.
- Get the list of all available filters with descriptions.
- Use the On-Demand feature.

Lists are filtered based on user's roles rights. For example, the list of apps contains only apps that the user is authorized to see.

### 13.4 Requests and response details

All API requests require the content-type application/x-www-form-urlencoded unless otherwise specified.

All responses will be in JSON format.

All endpoints also support the HTTP OPTIONS verb, and will respond with the correct CORS headers (cross-origin resource sharing) based on the Qlik NPrinting Server settings.

### 13.5 Date and time format

Qlik NPrinting APIs supports the ISO 8601 (RfC 3339) date and time format for requests and responses.

### 13.6 Detailed documentation for developers

Detailed Qlik NPrinting APIs documentation for developers is available.

### 13.7 Getting started

The Qlik NPrinting API is a REST API that you use to manage your Qlik NPrinting objects programmatically. A subset of the functionality that you find in the Qlik NPrinting Web Console is available through the API.

The objects you manipulate in the Qlik NPrinting Web Console are represented in the API as JSON entities. These entities have properties that correspond to the settings you find in the Qlik NPrinting Web Console. The API has a set of endpoints that allow you to create, retrieve, update, and delete entities for apps, users, groups, reports, and so on. For all requests, the data returned is filtered based on user permissions, that is, if a user is not authorized to access a certain entity, that entity is not returned in the response.


A user must have an associated domain account to log into the API as an authenticated Windows user. For more information about configuring a domain account, see *Creating users (page 240)*.

To help familiarize you with the API, we will walk through some simple examples using a REST client called Postman. You will learn how to:

- Connect and authenticate your user credentials
- Retrieve a list of apps

- Update an entity
- Create a filter

Before you start, you will need to:

- Install Postman from:  
 <http://www.getpostman.com/>
- Know the URL for the computer where Qlik NPrinting Server is installed.



*Depending on your environment, you may need to configure Chrome to accept self-signed certificates. See the Chrome documentation for additional information and instructions.*

### Windows authentication

Windows authentication must be turned on in order to allow external connections such as GET and POST REST connections to work normally. This setting can be toggled in the Qlik NPrinting web console under **Admin > Settings > Authentication**.

### Connecting to Qlik NPrinting APIs

By default, Qlik NPrinting Server listens for REST requests on port 4993, so the URL is:

```
https://NPrinting.server.name:4993/api/v1/<path>
```

### Authenticating your user credentials

Before you do anything with the NPrinting API, you must authenticate your user credentials.

In the example that follows, we will authenticate with the current Windows user name.

Open Postman and fill in the fields as shown below. Replace `NPrinting.server.name` with the URL of the computer where your Qlik NPrinting Server is installed.

```
{
  "result": "ae2f7261-7a1c-4f2f-8b5f-bf4247940dd5",
  "code": 0,
  "message": null
}
```



The screenshot shows a Postman interface for a REST client. The URL is `https://NPrinting.server.name:4993/api/v1/login/ntlm` and the method is `GET`. The response status is `200 OK` with a time of `46 ms`. The response body is displayed in a pretty JSON format:

```

1 {
2   "result": "ae2f7261-7a1c-4f2f-8b5f-bf4247940dd5",
3   "code": 0,
4   "message": null
5 }

```

## Retrieving a list of apps

The following endpoint returns a complete list of Qlik NPrinting apps that the current user has permission to see.

Open Postman and fill in the fields as shown below, replacing `NPrinting.server.name` with the URL of the computer where your Qlik NPrinting Server is installed:

```

{
  "data": {
    "items": [
      {
        "id": "270f21ea-98eb-471c-8338-5e2ad2c39e",
        "name": "Global Sales Report",
        "description": null,
        "created": "2018-03-05T18:50:16z",
        "lastUpdate": "2018-03-05T18:50:16z"
      },
      {
        "id": "450f21ea-78eh-432c-8338-5e233p9e",
        "name": "Sales&Shipping",
        "description": null,
        "created": "2018-04-05T18:50:16z",
        "lastUpdate": "2019-04-05T18:50:16z"
      }
    ],
    "totalItems": 2,
    "offset": 0,
    "limit": 50
  }
}

```

The screenshot shows a Postman interface with a GET request to `https://NPrinting.server.name:4993/api/v1/apps`. The response status is 200 OK and the time taken is 67 ms. The response body is displayed in JSON format:

```

1 {
2   "data": {
3     "items": [
4       {
5         "id": "270f21ea-98eb-471c-8338-5e2ad2c3dc9e",
6         "name": "Global Sales Report",
7         "description": null,
8         "created": "2018-03-05T18:50:16Z",
9         "lastUpdate": "2018-03-05T18:50:16Z"
10      },
11      {
12        "id": "de867383-3d6a-4f37-8fe5-387552c60d3f",
13        "name": "Sales&Shipping",
14        "description": null,
15        "created": "2018-04-02T12:04:43Z",
16        "lastUpdate": "2018-04-02T12:04:43Z"
17      }
18    ],
19    "totalItems": 2,
20    "offset": 0,
21    "limit": 50
22  }
23 }

```

The response includes the ID, title, and other details about each app.

## Updating an entity

You can update certain entities through the API by using the PUT method. When you update an entity, Qlik NPrinting Server may substitute default values for omitted properties, so we recommend that you always include the entire entity when you perform an update.

In this example, we will update the email property of the users entity.

To update the entity:

1. If you do not know the ID of the user you want to update, enter the following path in Postman and send a GET request:

`/users`

Search for the user ID in the response.

2. Append the user ID to the users path in Postman and send a GET request:

`/users/{id}`

The response should look something like this:

```

{
  "data": {
    "id": "113ac265-163e-4feb-854e-ade3cdafc837",

```

```

    "email": "abc@example.com",
    "created": "2018-02-22T16:17:18Z",
    "lastUpdate": "2018-02-28T18:20:57Z",
    "enabled": true,
    "userName": "Test",
    "domainAccount": "domain\\test",
    "timezone": "Europe/Rome",
    "locale": "En",
    "folder": "test folder",
    "subFolder": "test subFolder"
  }
}

```

3. Copy the content surrounded by the inner parentheses from the returned entity and paste it into the body of a new PUT request.
4. Change the value of `email`.
5. Add the password property and corresponding value to the entity. The body of the request should look something like this:

```

{
  "password": "test",
  "id": "113ac265-163e-4feb-854e-ade3cdafc837",
  "email": "xyz@example.com",
  "created": "2018-02-22T16:17:18Z",
  "lastUpdate": "2018-02-28T18:20:57Z",
  "enabled": true,
  "userName": "Test",
  "domainAccount": "domain\\test",
  "timezone": "Europe/Rome",
  "locale": "En",
  "folder": "test folder",
  "subFolder": "test subFolder"
}

```

6. With the updated entity in the body, send a PUT request using the following path:  
`users/{id}`  
In this example, `{id}` would be `113ac265-163e-4feb-854e-ade3cdafc837`.
7. Send a GET request using the same path to verify the change.

## Creating a filter

You can create filters for tasks, reports, users, and objects through the API by using the POST method. In this example, we create a simple filter for `categoryName`, which is a field in the data source of a sales application.

1. To create a filter, you need to know the IDs of the app and connection that you want to apply the filter to. To retrieve the IDs, send a GET request using Postman to each of the following paths:  
`/apps`  
`/connections`

For example, to get the app ID, send a GET request to `NPrinting.server.name:4993/api/v1/apps`. Search for the IDs in the responses.

2. Here is an example of the code that includes the app and connection IDs in the body of a POST `/filters` request:

```
{
  "appId": "de867383-3d6a-4f37-8fe5-387552c60d3f",
  "enabled": true,
  "name": "AverageSaleByCategory",
  "description": null,
  "fields": [
    {
      "connectionId": "9a7b1016-8d22-46ac-a384-158f715547a7",
      "name": "CategoryName",
      "overrideValues": false,
      "values": [
        {
          "value": "Bath Clothes",
          "type": "text"
        },
        {
          "value": "Men's Clothes",
          "type": "text"
        }
      ]
    }
  ]
}
```

The response includes the ID of the newly created filter, which is returned in the `Location` header.

### What to do next

Now that you have seen some requests in the Qlik NPrinting API, try some of the other API endpoints, for example, to start a new task execution.

## 13.8 Connecting using Microsoft .NET Framework

The Microsoft .NET Framework features a number of languages that have native functions for connecting to web services.

The examples in this section show how to use .NET with C# to connect to the Qlik NPrinting API and retrieve a list of apps in JSON format



*A trusted SSL certificate is required to establish an SSL/TLS connection to the server.*

## Connecting using Microsoft Windows authentication

The following example shows one way of connecting to the Qlik NPrinting Server using Microsoft Windows authentication in a .NET console application. Remember to substitute `server.name.com` with your actual Qlik NPrinting Server name.

```
static void Main(string[] args)
{
    //Create the HTTP Request (authenticate) and add required headers
    ServicePointManager.SecurityProtocol = SecurityProtocolType.Tls12;
    HttpRequest request = (HttpRequest)WebRequest.Create(@"
https://server.name.com:4993/api/v1/login/ntlm");
    request.Method = "GET";
    request.UserAgent = "Windows";
    request.Accept = "application/json";
    // specify to run as the current Microsoft Windows user
    request.UseDefaultCredentials = true;
    try
    {
        // make the web request and return the content
        HttpResponse response = (HttpResponse)request.GetResponse();
        StreamReader responseReader = new StreamReader
(response.GetResponseStream());
        string sResponseHTML = responseReader.ReadToEnd();
        Console.WriteLine(sResponseHTML);
    }
    catch (Exception ex)
    {
        Console.WriteLine(ex.Message);
    }
    Console.Read();
}
```

## Retrieving a list of Qlik NPrinting apps

The following code extends the previous example of a .NET console application by creating an authenticated connection and retrieving a list of Qlik NPrinting apps. Remember to substitute `server.name.com` with your actual Qlik NPrinting Server name.



*The JSON deserialization method in this example uses a third-party library from Newtonsoft to convert JSON to an object.*

```
static void Main(string[] args)
{
    //Create the HTTP Request (authenticate) and add required headers
    ServicePointManager.SecurityProtocol = SecurityProtocolType.Tls12;
    HttpRequest request = (HttpRequest)WebRequest.Create(@"
https://server.name.com:4993/api/v1/login/ntlm");
    CookieContainer cookies = new CookieContainer();
    request.CookieContainer = cookies;
    request.Method = "GET";
    request.UserAgent = "Windows";
    request.Accept = "application/json";
    // specify to run as the current Microsoft Windows user
    request.UseDefaultCredentials = true;
    try
    {
        // make the web request and return the content
        HttpResponse response = (HttpResponse)request.GetResponse();
        StreamReader responseReader = new StreamReader
(response.GetResponseStream());
        string sResponseHTML = responseReader.ReadToEnd();
        Console.WriteLine(sResponseHTML);
    }
    catch (Exception ex)
    {
        Console.WriteLine(ex.Message);
    }

    //Create second HTTP request (get list of apps) and add required headers
    HttpRequest secondRequest = (HttpRequest)WebRequest.Create(@"
https://server.name.com:4993/api/v1/apps");
    //assign cookie to request to maintain session
    secondRequest.CookieContainer = cookies;
    secondRequest.Method = "GET";
    secondRequest.UserAgent = "Windows";
    secondRequest.Accept = "application/json";
    // specify to run as the current Microsoft Windows user
    secondRequest.UseDefaultCredentials = true;
    try
    {
        HttpResponse response2 = (HttpResponse)secondRequest.GetResponse
();
        StreamReader responseReader2 = new StreamReader
(response2.GetResponseStream());
        string sResponseHTML2 = responseReader2.ReadToEnd();
    }
}
```

```

dynamic jsonObj = JsonConvert.DeserializeObject(sResponseHTML2);
foreach (var app in jsonObj.data.items)
{
    Console.WriteLine(app.name);
}
}
catch (Exception ex)
{
    Console.WriteLine(ex.Message);
}
Console.Read();
}

```

## Adding a new user

The following C# code creates an authenticated connection and then adds a new user to the Qlik NPrinting Server Repository database. Remember to substitute `server.name.com` with your actual Qlik NPrinting Server name.



*The JSON serialization method in this example uses a third-party library from Newtonsoft to convert an object to JSON.*

```

static void Main(string[] args)
{
    //Create the HTTP Request (authenticate) and add required headers
    ServicePointManager.SecurityProtocol = SecurityProtocolType.Tls12;
    HttpRequest request = (HttpRequest)WebRequest.Create
(@"https://server.name.com:4993/api/v1/login/ntlm");
    //Assign custom SSL certificate validation method if certificate is
    untrusted
    //request.ServerCertificateValidationCallback += (sender, certificate,
chain, sslPolicyErrors) => true;
    CookieContainer cookies = new CookieContainer();
    request.CookieContainer = cookies;
    request.Method = "GET";
    request.UserAgent = "Windows";
    request.Accept = "application/json";
    //Specify to run as the current Microsoft Windows user
    request.UseDefaultCredentials = true;
    try
    {
        // make the web request and return the content
        HttpResponse response = (HttpResponse)request.GetResponse();
        StreamReader responseReader = new StreamReader
(response.GetResponseStream());
    }
}

```

```

        string sResponseHTML = responseReader.ReadToEnd();
        Console.WriteLine(sResponseHTML);
    }
    catch (Exception ex)
    {
        Console.WriteLine(ex.Message);
    }
    //Create second HTTP request to add a new user and required headers
    HttpWebRequest secondRequest = (HttpWebRequest)WebRequest.Create
(@"https://server.name.com:4993/api/v1/users");
    //Assign custom SSL certificate validation method if certificate is
untrusted
    //secondRequest.ServerCertificateValidationCallback += (sender, certificate,
chain, sslPolicyErrors) => true;
    //Add the XSRF token
    secondRequest.Headers.Add("X-XSRF-TOKEN", cookies.GetCookies
(request.RequestUri)["NPWEBCONSOLE_XSRF-TOKEN"].Value);
    secondRequest.CookieContainer = cookies;
    secondRequest.Method = "POST";
    secondRequest.UserAgent = "Windows";
    secondRequest.Accept = "application/json";
    secondRequest.ContentType = "application/json";
    //Specify to run as the current Microsoft Windows user
    secondRequest.UseDefaultCredentials = true;

    //Prepare JSON object to send to the remote server
    JsonUser user = new JsonUser();
    user.Email = "name@domain.com";
    user.Enabled = "true";
    user.UserName = "NewUser";
    user.DomainAccount = "domain\\user";
    user.Timezone = "CET";
    user.Locale = "En";
    user.Folder = "NewUser";
    user.SubFolder = "NewUser";
    user.Password = "Password123";

    string jUserString = JsonConvert.SerializeObject(user);
    using (var streamWriter = new StreamWriter(secondRequest.GetRequestStream
()))
    {
        streamWriter.Write(jUserString);
        streamWriter.Flush();
        streamWriter.Close();
    }

```




```
    }
    try
    {
        HttpResponseMessage response2 = (HttpResponseMessage)secondRequest.GetResponse
();
        StreamReader responseReader2 = new StreamReader
(response2.GetResponseStream());
        string sResponseHTML2 = responseReader2.ReadToEnd();
    }
    catch (Exception ex)
    {
        Console.WriteLine(ex.Message);
    }
}

public class JsonUser
{
    public string Email { get; set; }
    public string Enabled { get; set; }
    public string UserName { get; set; }
    public string DomainAccount { get; set; }
    public string Timezone { get; set; }
    public string Locale { get; set; }
    public string Folder { get; set; }
    public string SubFolder { get; set; }
    public string Password { get; set; }
}
```

## 13.9 Qlik NPrinting API reference



**Access the Qlik NPrinting API reference documentation.**

 [Qlik NPrinting - API reference](#)

## 14 Troubleshooting

There are several things you can do to troubleshoot and resolve problems before logging a case with product support. The guidance here is designed to help you understand the problem, and learn where to look for possible errors and potential solutions.

Before you call support:

- *Understand the problem (page 522)*
- *Use the log files (page 523)*
- Study the Qlik NPrinting help
- Read the troubleshooting topics in this section.

If you cannot find a solution in the product help, then follow the general guidance in this topic.

### 14.1 Understand the problem

Understanding the problem may help you to find a solution, and will enable you to provide Qlik support with the information needed to process your case more effectively. Ensure that you understand the problem and can describe it as fully as possible before seeking further support:

Troubleshooting questions

Questions to ask	Answers
Who experienced the problem?	What type of users were affected and how many? This can help you to determine if it is a global issue, a configuration problem, a component problem, or due to user configuration.
What happened after an action was performed?	Pay attention to any symptoms, behavior, and error messages.  This can help you to identify which component is causing the error, and which log files to use.
When did the problem first occur?	When is it triggered, and what user action or system action causes it? For example, a scheduled Qlik NPrinting task fails, an error is thrown when attempting to edit a template, or document metadata is not generated.
Have you experienced this issue before?	If yes, how often has the problem occurred?

Questions to ask	Answers
Where did the problem occur first?	Describe where in the system or environment the problem appears? For example, in the Qlik NPrinting Designer frontend, or in the backend (scheduler or engine).
Why do you think it happened?	Gather the relevant log files. Compare log files that include the problem with those that do not. For example, compare a successful, and unsuccessful task execution of the same report. For log file locations, see the individual product help pages.

## 14.2 Use the log files

To troubleshoot and resolve issues effectively you need to understand how to use the log files. You also need to know when to use the default logs, and when to use the archived log files.

When you get an error message, the following steps can help you to identify which component has failed:

1. Read the error message carefully as it can tell you which component has failed.
2. Navigate to the default log files for the failed component.
3. When you have found the correct log file, search for errors to identify the issue.

### Default log files

These log files are stored in `C:\ProgramData\NPrinting\Logs`:

- `nprinting_scheduler.log` - log files for scheduled tasks, and scheduled reloads.
- `nprinting_webengine.log` - log files for connections to apps and Qlik Sense, QlikView servers, authentication, and licensing issues.
- `nprinting_engine.log` - log files for connections to apps, licensing issues, and metadata generation.

## 14.3 Qlik NPrinting application problems

- Was Qlik NPrinting working before the problem occurred?
- Have you reloaded the metadata?  
See: *Working with apps (page 20)*
- In Qlik NPrinting, navigate to `C:\ProgramData\NPrinting\Logs` to view the log files.  
See: *Logging (page 270)*
- Check that your Qlik NPrinting users have the appropriate users rights.  
See: *Creating connections (page 21)*
- Check if the Qlik NPrinting version is compatible with your QlikView, or Qlik Sense installation.  
See: *System requirements for Qlik NPrinting Engine (page 125)*

## 14.4 Troubleshooting logs

The log messages produced by Qlik NPrinting provide important information that can be used to detect security incidents, operational problems, and policy violations.

### Where are the log files stored?

Logs are stored in the `%ProgramData%\Nprinting\Logs` folder. The default location is `C:\ProgramData\NPrinting\Logs`.

### How to change the log level

The log level is set to INFO by default. You can change the log level to DEBUG of a Windows service.

Do the following:

1. Open the appropriate configuration file with a text editor:
  - `C:\Program Files\NPrintingServer\NPrinting\Engine\Qlik.NPrinting.Engine.exe.config`
  - `C:\Program Files\NPrintingServer\NPrinting\Scheduler\Qlik.NPrinting.Scheduler.exe.config`
  - `C:\Program Files\NPrintingServer\NPrinting\WebEngine\Qlik.NPrinting.WebEngine.exe.config`

Where `C:\Program Files\NPrintingServer` is the Qlik NPrinting Server installation path. Adapt it to your installation if necessary.

If you want to view Qlik NPrinting On-Demand logs, you need to set `Qlik.NPrinting.Engine.exe.config` to DEBUG.

2. Search for:
 

```
<root>
<level value="INFO" />
<appender-ref ref="LogFileAppender" />
<!--Uncomment the row below and set the level value above to obtain the logs in the file
nprinting_engine_dev.log-->
<!--<appender-ref ref="LogFileAppenderDev" />-->
<appender-ref ref="LogFileAppender" />
</root>
```
3. Change `level value` to "DEBUG":
 

```
<root>
<level value="DEBUG" />
<appender-ref ref="LogFileAppender" />
<!--Uncomment the row below and set the level value above to obtain the logs in the file
nprinting_engine_dev.log-->
<!--<appender-ref ref="LogFileAppenderDev" />-->
<appender-ref ref="LogFileAppender" />
</root>
```
4. Uncomment: `<!--<appender-ref ref="LogFileAppenderDev" />-->`
5. Save the edited files.
6. Restart the corresponding Windows service.

When you change a log level to DEBUG, a new log file is created. The new log file has the same name as the log file with INFO details level followed by `_dev`. For example:

- *nprinting\_scheduler\_dev.log*
- *nprinting\_webengine\_dev.log*
- *nprinting\_engine\_dev.log*

The default log files will still be present and will continue to only have INFO level information.

## 14.5 Qlik NPrinting License activation error

### Possible cause

The Qlik NPrinting 17 and newer license has not been activated correctly.

If after installation, the license has not been activated, the following message is displayed in the scheduler log file:

```
FATAL Qlik.NPrinting.Repo.Service.LicenseService - !!!!!!!!!!!!!!! LICENSE VIOLATIONS DETECTED
```

```
FATAL Qlik.NPrinting.Repo.Service.LicenseService - The number of USERS exceeds the current license limit (1 found, but 0 allowed).
```

```
INFO Qlik.NPrinting.Scheduler.SchedulerHttpService - Scheduler service started successfully
```

```
INFO Qlik.NPrinting.Repo.Service.LicenseService - License expiration is close. Checking for license update...
```

```
ERROR Qlik.NPrinting.Repo.Service.SessionManager - Error within WithSession method of SessionManager.
```

```
ERROR Qlik.NPrinting.Repo.Service.SessionManager - Invalid License key
```

```
ERROR Qlik.NPrinting.Repo.Service.LicenseService - Qlik.NPrinting.Repo.ServiceException: Invalid License key
```

```
at Qlik.NPrinting.Repo.Service.LicenseService.UpdateLicense() in
c:\Users\LED\Desktop\repo\opera\server\NPrinting\src\Repo\Service\LicenseService.cs:line 243
```

```
at Qlik.NPrinting.Repo.Service.LicenseService.AutoUpdateIfCloseToExpiration() in
c:\Users\LED\Desktop\repo\opera\server\NPrinting\src\Repo\Service\LicenseService.cs:line 331
```

```
at Qlik.NPrinting.Repo.Service.SessionManager.<>c__DisplayClass7.<WithSession>b__6(ISession s) in
c:\Users\LED\Desktop\repo\opera\server\NPrinting\src\Repo\Service\SessionManager.cs:line 57
```

```
at Qlik.NPrinting.Repo.Service.SessionManager.WithSession[T](Func`2 body, IsolationLevel isolationLevel, Boolean
readOnly) in c:\Users\LED\Desktop\repo\opera\server\NPrinting\src\Repo\Service\SessionManager.cs:line 116
```

```
at Qlik.NPrinting.Repo.Service.LicenseService.<Start>b__5() in
c:\Users\LED\Desktop\repo\opera\server\NPrinting\src\Repo\Service\LicenseService.cs:line 301
```

### Proposed action

Log into the web console as an administrator, enter <https://YourServer:4993>, and then activate your license.

## 14.6 Qlik NPrinting Engine with QlikView Desktop license error

### Possible cause

The Qlik NPrinting Engine needs QlikView Desktop installed, with a license activated for the Windows user that runs the service.

### Proposed action

Activate one of the allowed QlikView Desktop licenses.

If you use assigned CALs, you need to connect the QlikView Desktop to the QlikView Server at least once, at the beginning, using the same Windows user and computer as the Qlik NPrinting Engine service. A Named CAL license, taken from a QlikView Server, is valid only for a single QlikView Desktop user. In the case of a multiple Qlik NPrinting Engine installation, you must set a different Windows user and a different QlikView Desktop Named CAL license for each Qlik NPrinting Engine. If you use the same QlikView Desktop Named CAL license two or more times, the QlikView Server will disconnect all QlikView Desktops but one, and report generation will fail. [System requirements for Qlik NPrinting Engine](#)

Do the following:

1. Find *Qv.exe* in the installation path.
2. Press and hold SHIFT, right-click *Qv.exe*, and then select **Run as different user**.
3. Open a .qvw document in the QlikView Server by using qvp. This will bind the license.
4. Close QlikView Desktop.
5. Restart the Qlik NPrinting Engine service.

Check also that the engine is enabled.

Do the following:

1. Open the Qlik NPrinting web console.
2. Select **Admin**.
3. Click **Engine manager**.
4. Select the **Enabled** check box.

## 14.7 Qlik NPrinting Engine **Offline** status

### Possible cause

The status of a Qlik NPrinting Engine is always "Offline" on the **Engine manager** page.

### Proposed action

Do the following:

1. If an engine goes offline a few seconds after starting, check the *nprinting\_engine.log* file stored on the computer. The text *QlikView license violation detected* means that you have to activate a QlikView Desktop license for the Windows user who runs the service.
2. Check that the Qlik NPrinting Engine and the Qlik NPrinting scheduler service services and processes are running. A failure of the Qlik NPrinting scheduler service can cause the engine status to not be updated.
3. If Qlik NPrinting scheduler service and Qlik NPrinting Engine are running on different computers, or if you provided a computer name or a fully qualified domain name (FQDN) to the Qlik NPrinting Engine installer (including localhost), check that port 5672 is open for inbound connections on the Qlik NPrinting scheduler service computer.
4. If you used localhost for the computer name during the engine installation, open a command prompt (cmd.exe) and check that *ping localhost* works. Some DNS configurations prevent localhost from being resolved to the loopback network interface.
5. Check that the computer name is correct on the **Engine manager** page. Do not use a fully qualified domain name (FQDN) or localhost.
6. Check the engine and scheduler logs for connection errors or other failures. If failures appear in the logs, refer to their troubleshooting help to resolve the failure, then restart the services.

### Possible cause

Your engine is "Offline" and you recently did all of the following:

- Upgraded to Qlik NPrinting September 2019 or higher, from one of the following versions:
  - November 2018
  - February 2019
  - April 2019
  - June 2019
- Changed the services user accounts. See: *User accounts (page 136)*

### Proposed action

Do the following:

1. In the Qlik NPrinting web console, go to **Admin > Engine manager**.
2. Remove and recreate the related engine entry.
3. Fill out the certificate form to send the new certificates to the engine.

## 14.8 Qlik NPrinting Engine **Error** status

### Possible cause

The QlikView Desktop license for the **Windows** user who runs Qlik NPrinting services is not activated. An engine displays an **Error** status on the **Engine manager** page. In a single engine installation, reports are not produced.

**Proposed action**

Activate the QlikView Desktop license for the **Windows** user who runs Qlik NPrinting services.

Also check the Qlik NPrinting log files to be sure there are no other errors.

## 14.9 Qlik NPrinting messaging service (RabbitMQ) start up and connection problems

The steps below work for Qlik NPrinting versions embedding RabbitMQ version 3.8.3. You can check the correct path for your installation.

Do the following:

1. Open a new command prompt, by selecting **Run as Administrator**. Run:
  - **cd %ProgramFiles%\NPrintingServer**
  - **dir**
2. Note the RabbitMQ installation folder. It starts with rabbitmq\_server.
3. Replace the folder name with the correct folder, including the correct version number in all troubleshooting commands.

**Possible cause**

If reports are not produced, or engines never go to **Online** status, or if the Qlik NPrinting scheduler service stops after about one minute from start up, the Qlik NPrinting messaging service (RabbitMQ) may have stopped or it may be unreachable.

The scheduler log shows a message like:

```
*****
Error: RabbitMQ message broker is unreachable
Shutting down scheduler service
*****
```

Or like:

```
*****
RabbitMQ service is not connected - trying again in 3 seconds
*****
```

**Proposed action****Check the service status**

1. Check that Qlik NPrinting messaging service is running.

**Check the messaging service users and permissions**

1. Copy the **.erlang.cookie** file from the system profile folder (*C:\WINDOWS\system32\config\systemprofile\*) and replace it in the *%USERPROFILE%* folder (*C:\Users\npadmin*).



2. Open a new command prompt as Administrator.
3. Navigate to the RabbitMQ sbin folder: `%ProgramFiles%\NPrintingServer\rabbitmq_server-3.8.3\sbin`.
4. Run the following command:

```
rabbitmqctl.bat list_permissions
```

The output should be:

Listing permissions for vhost "/" ...

user	configure	write	read
client_engine	.*	.*	.*
client_webengine		.*	.*
remote	.*	.*	
client_audit	.*	.*	.*
client_scheduler		.*	.*

5. If the output is different go to [Fix the messaging service users and permissions](#).

### Check the service certificates

1. Open a new command prompt as Administrator.
2. Navigate to the certificates generator folder:  
`%ProgramFiles%\NPrintingServer\NPrinting\RabbitMQCertificatesGenerator`.

3. Run the following command:

```
RabbitMQCertificatesGenerator.exe -d -c  
"C:\ProgramData\NPrinting\certificates"
```

4. If the output has warnings or errors due to missing or invalid certificates go to [Recreate the messaging service certificates](#).

### Check the node status on the RabbitMQ console

1. Copy the **.erlang.cookie** file from the system profile folder (`C:\WINDOWS\system32\config\systemprofile`) and replace it in the `%USERPROFILE%` folder (`C:\Users\npadmin`).
2. Open a new command prompt as Administrator.
3. Navigate to the RabbitMQ sbin folder: `%ProgramFiles%\NPrintingServer\rabbitmq_server-3.8.3\sbin`.

4. Run the following command:

```
rabbitmqctl.bat status
```

5. Check the output. The main sections to check are the following:

```
Runtime  
OS PID: 12128  
OS: windows  
Uptime (seconds): 23801  
RabbitMQ version: 3.8.3  
Node name: rabbit@localhost  
Erlang configuration: Erlang/OTP 22 [erts-10.6] [64-bit] [smp:12:12] [ds:12:12:10] [async-threads:64]  
Erlang processes: 316 used, 1048576 limit  
Scheduler run queue: 1  
Cluster heartbeat timeout (net_ticktime): 60
```

Plugins

```
Enabled plugin file: c:/ProgramData/NPrinting/RabbitMQ/enabled_plugins
```

Enabled plugins:

\* rabbitmq\_auth\_mechanism\_ssl

Data directory

Node data directory: c:/ProgramData/NPrinting/RabbitMQ/db/rabbit@localhost-mnesia

Config files

\* c:/ProgramData/NPrinting/RabbitMQ/advanced.config

Listeners

Interface: [::], port: 25672, protocol: clustering, purpose: inter-node and CLI tool communication

Interface: 0.0.0.0, port: 5672, protocol: amqp/ssl, purpose: AMQP 0-9-1 and AMQP 1.0 over TLS

Interface: [::], port: 5672, protocol: amqp/ssl, purpose: AMQP 0-9-1 and AMQP 1.0 over TLS

6. If the command fails or if the output is different from the expected, go to [Recreate the Qlik NPrinting messaging service](#).

7. If you encounter command errors you can run the following command to get a more detailed error:

```
rabbitmq-server.bat
```

### Fix the messaging service users and permissions

1. Copy the **.erlang.cookie** file from the system profile folder (*C:\WINDOWS\system32\config\systemprofile\*) and replace it in the *%USERPROFILE%* folder (*C:\Users\npadmin\*).

2. Open a new command prompt as Administrator.

3. Navigate to the certificates generator folder:

```
%ProgramFiles%\NPrintingServer\NPrinting\RabbitMQCertificatesGenerator
```

4. Run the following command:

```
RabbitMQCertificatesGenerator.exe -p  
"%ProgramFiles%\NPrintingServer\rabbitmq_server-3.8.3"
```

5. Restart the services

### Recreate the Qlik NPrinting messaging service

1. Take a backup of folder *C:\Programdata\NPrinting\RabbitMQ* and place it in another location

2. Copy the **.erlang.cookie** file from the system profile folder (*C:\WINDOWS\system32\config\systemprofile\*) and replace it in the *%USERPROFILE%* folder (*C:\Users\npadmin\*).

3. Open a new command prompt as Administrator.

4. Stop all services, and close the **services.msc** window.

5. Stop the **epmd.exe** process by running the following command: `taskkill /f /im epmd.exe`

6. Navigate to the RabbitMQ sbin folder: *%ProgramFiles%\NPrintingServer\rabbitmq\_server-3.8.3\sbin*

7. Remove everything inside the folder *C:\ProgramData\NPrinting\RabbitMQ* except for the files **enabled\_plugins** and **advanced.config**.

8. Run the following command: `rabbitmq-service.bat remove`

9. Add the system environment variable **ERLANG\_HOME** (if missing) with the path to the Erlang base folder (`C:\Program Files\erl10.6`)
10. Close the command prompt and open a new one as Administrator.
11. Navigate to the RabbitMQ sbin folder: `%ProgramFiles%\NPrintingServer\rabbitmq_server-3.8.3\sbin`
12. Run the following command:
 

```
rabbitmq-service.bat install
```
13. Run the following command:
 

```
rabbitmq-service.bat start
```
14. If the service doesn't start you can try running this command to get a more detailed error: `rabbitmq-server.bat`
15. Go to [Recreate the messaging service certificates](#) and complete the steps.

### Recreate the messaging service certificates

1. Open a new command prompt as Administrator.
2. Navigate to the certificates generator folder:
 

```
%ProgramFiles%\NPrintingServer\NPrinting\RabbitMQCertificatesGenerator
```
3. Run the following command: `RabbitMQCertificatesGenerator.exe -f -c "C:\ProgramData\NPrinting\certificates" -p "%ProgramFiles%\NPrintingServer\rabbitmq_server-3.8.3"`  
This step also fixes the messaging service users and permissions
4. Reinstall the Qlik NPrinting Engines and reconfigures them from the Qlik NPrinting web console. Go to **Admin > Engine manager**) to work with the new certificates.
5. Restart the services

## 14.10 Qlik NPrinting RepoService service won't start

### Possible cause

The Qlik NPrintingRepoService may not start after restarting the host machine, or after a forced system shutdown, if the PostgreSQL file `postmaster.pid` is corrupted.

### Proposed action

If you encounter problems starting the Qlik NPrintingRepoService, complete following steps.

1. Stop all of the Qlik NPrinting services. For more information about services, see *Architecture (page 131)*.
2. Delete the `postmaster.pid` file from the `C:\ProgramData\NPrinting\data` folder.
3. Start the Qlik NPrinting services.

## 14.11 Qlik NPrinting Engine service logout failure

### Possible cause

If an Qlik NPrinting Engine uninstall fails, after the rollback, the Qlik NPrinting Engine service may be unable to start. The Windows **Services** page shows the following error:

**The service did not start due to a login failure.**

### Proposed action

To fix this issue the service credentials must to be re-entered.

Do the following:

1. Open the Windows **Services** page.
2. Right click on the Qlik NPrinting Engine service and select **Properties**.
3. Click the **Log On** tab.
4. Enter the service user account name and the password.
5. Click **OK**.
6. Start the service.

## 14.12 Firefox browsers not working with Kerberos authentication

### Possible cause

Firefox will not work correctly with Kerberos authentication if the default browser settings are applied.

### Proposed action

To enable the Kerberos authentication on Firefox you must customize the configuration.

Do the following:

1. Open your Firefox browser and enter **about:config** in the address bar.
2. In the **Filter** field, enter **negotiate**.
3. Double-click **network.negotiate-auth.trusted-uris**. This preference lists the trusted sites for Kerberos authentication.
4. Enter your domain.
5. Click **OK**.

The domain that you entered in the **network.negotiate-auth.trusted-uris** should now appear in **Value** column.



*If you have not installed the Qlik NPrinting certificates, you should also toggle the **network.negotiate-auth.allow-non-fqdn** option from **false** to **true**.*

## 14.13 Connection timeouts and long running tasks

### Possible cause

In heavy loading scenarios, several report generation tasks are scheduled every second. If you experience long run times or timeouts, it could mean that there are not enough available connections to the **PostgreSQL** database.

### Proposed action

Check the Qlik NPrinting scheduler service *nprinting\_scheduler.log* file for connection errors. If you have limit problems, you will find errors related to:

- database connection issues
- timeouts during wait from pooled connections

This means you need to increase the maximum number of connections to the **PostgreSQL** database.

Do the following:

1. Log into the computer where the Qlik NPrinting scheduler service is running. The PostgreSQL database is located on this computer.
2. Open the *%ProgramData%\NPrinting\data* folder.
3. Open the *postgresql.conf* file with a text editor.
4. Find the parameter *max\_connections*. The parameter is set to 100 by default.
5. Set *max\_connections* to a greater value.
6. Restart the Qlik NPrinting scheduler service.

## 14.14 Connection status not shown in Qlik NPrinting web console

### Possible cause

The connection status is set the first time you open a QlikView document to generate the connection cache, or a report. If a task is already in progress on the same connection, the status is not shown straight away. The task is queued and you must wait a short time before the status is updated.

### Proposed action

Typically, a status update takes 15-30 seconds after the first task has started. It can take longer if other reports are already running on other Qlik NPrinting Engines.

## 14.15 Connection status error

### Possible cause

The Qlik NPrinting Engine is unable to open a document, and you get a connection status error.

**Proposed action**

If you encounter problems when creating connections, perform the following steps.

1. Check that the local path and name of the .qvw file are correct. Remember to use the full path including the drive and file extension. Open QlikView Desktop, and then open the .qvw file by copying and pasting the path.



*It does not matter if the .qvw file is local, on a network folder, or on a server. You must be able to open the document from the QlikView Desktop.*

2. If you are using a local connection and a local path to the document, check that the document has been copied to the computer that the engine is running on and not to another scheduler or engine computer.
3. If you are using a network path in the connection, check the network share is reachable from the engine.
4. Mapping a network drive is not supported. You must use a UNC (Universal Naming Convention). For example: `\\ServerName\DocumentFolder\document.qvw`.
5. If you are using a server connection, check that the server path is correct. Remember to include any folders that are on the server in the server path.
6. If you are using a server connection, ensure that the server is reachable from the Qlik NPrinting Engine.
7. If you are using a server connection, always use the same versions of both QlikView Server and QlikView Desktop on the engine computer. If you use different versions, you may be able to open the document manually on the QlikView Desktop on the engine, but cache generation will fail.
8. Check that the QlikView Desktop has an active license for the Windows user that is running the engine service. Find the Qv.exe file in its installation path. Hold down SHIFT, and then right-click the file. Select **Run as a different user**, and then enter the credentials of the Qlik NPrinting Windows user.



*QlikView Personal Edition is not supported.*

9. If you have Windows Interactive Service Detection active, click **View the message**, and then check the status of QlikView open in session zero. Messages may contain useful information, such as a request to execute a macro in the source .qvw file.
10. Check the logs in the `%ProgramData%\NPrinting\Logs` folder for errors.

## 14.16 Connection status **Warning: One or more engines are not working**

**Possible cause**

A **Warning** connection status with the message **One or more engines are not working** happens in a multi-engine environment when the connection fails in one of the engines. Other engines may be working correctly on the same connection, or have not tried to open the connection yet.

**Proposed action**

Check the engine logs on the computers where the engines are installed to find out which one is failing.

Perform connection troubleshooting on the failing engine. Be sure that QlikView documents and network shares are accessible or QlikView Server are reachable from that particular computer.

## 14.17 Initial error in the Qlik NPrinting web engine log file (parameterless constructor)

### Possible cause

The following error appears in the Qlik NPrinting web engine log file *nprinting\_webengine.log*:

```
2016-01-11 17:39:50,430 [19] ERROR Qlik.NPrinting.WebEngine.ExceptionHandling.GenericTextExceptionHandler -
Unhandled exception in request:http://c4w07345.itcs.hpecorp.net:4996/npe/tasks/publish?count=5&orderBy=-
lastUpdate&page=1.
```

*Exception: An error occurred when trying to create a controller of type 'PublishReportTasksController'. Make sure that the controller has a parameterless public constructor.*

It is due to a path in the home page that is not accessible by users that are not logged in.

The error appears when a user that has not logged in attempts to access the Qlik NPrinting web console.

### Proposed action

Log in to the Qlik NPrinting web console and the error should disappear. This error does not cause report creation failure.

## 14.18 QlikView Navigator process stuck messages

### Possible cause

A QlikView process health check generates a report if there are processing errors that cause excessive CPU usage. When this happens, the process is monitored and terminated if it appears locked.

Example error state messages:

```
2015-12-02 18:13:58,935 [34] WARN Engine.Navigator.Qlikview.QV11.QlikviewNavigator.
[25064]::navigator=qlikview;documentpath=C:\nprinting\global\dashboard.qvw - Qlikview CPU
monitor: process seems stuck due to cpu usage of 76.05 % in 1238ms. waiting for idle for 2000ms
2015-12-02 18:13:59,111 [34] WARN Engine.Navigator.Qlikview.QV11.QlikviewNavigator.
[25064]::navigator=qlikview;documentpath=C:\nprinting\global\dashboard.qvw - Qlikview CPU
monitor: process is stuck due to cpu usage of 65.00 % in 1414ms
```

Back to normal message:

```
2015-12-02 18:13:59,111 [34] WARN Engine.Navigator.Qlikview.QV11.QlikviewNavigator.
[25064]::navigator=qlikview;documentpath=C:\nprinting\global\dashboard.qvw - Qlikview CPU
monitor: process returned to normal a normal cpu usage of 12.06 % in 1302ms
```

### Proposed action

This situation is expected to correct itself. If the monitor shows normal usage, nothing is performed, otherwise QlikView is closed and reopened to allow further report generation. If you continue to get error messages for the same document, check that the connected QlikView documents are accessible by the Qlik NPrinting Engine. Also check that no errors occur when you open the document in QlikView manually.

## 14.19 Qlik NPrinting Designer error: The RPC server is unavailable

### Possible cause

You opened a Microsoft Excel template in the Qlik NPrinting Designer while there was another Microsoft Excel file open with a cell in edit mode.

Complete error message:

*Qlik NPrinting can't find a supported reporting template editor for the file <File path/File name>*

Error message:

*The RPC server is unavailable.*

### Proposed action

Do the following:

1. Close the error message pop-up window and Qlik NPrinting Designer.
2. Exit from cell in edit mode in the other Microsoft Excel worksheet, or close Microsoft Excel.
3. Re-open the Qlik NPrinting Designer.

## 14.20 Qlik NPrinting Designer crashes when inserting spreadsheet in PowerPoint

### Possible cause

If you are working in a PowerPoint report template and click **Insert Excel spreadsheet**, Qlik NPrinting Designer may become unresponsive. It must be shut down forcefully. This issue is due to a third-party component that is used to embed PowerPoint in Qlik NPrinting Designer.

Qlik NPrinting cannot render Qlik Sense or QlikView objects inside an embedded spreadsheet.

### Proposed action

There are two workarounds.

### If you are creating a new report

Do the following:



1. Create a new .pptx file using Microsoft PowerPoint.
2. Embed the spreadsheet .
3. Save the file.
4. In Qlik NPrinting web console, create a new report. Select custom template.
5. Select the file previously created.

### If you are modifying an existing report

Do the following:

1. In Qlik NPrinting web console, export the report from the **Reports** page.
2. Extract all files from the .zip file.
3. Open the "templates" folder.
4. Open the .pptx file with Microsoft PowerPoint.
5. Embed the spreadsheet.
6. Save the file.
7. Go back to the report folder in Windows Explorer.
8. Create a new .zip file that contains the "templates" folder and the "metadata.json" file.
9. In the Qlik NPrinting web console, go to the **Reports** page.
10. Execute the **Replace** function.

## 14.21 Connection to Qlik NPrinting Server fails during Qlik NPrinting On-Demand Add-on installation

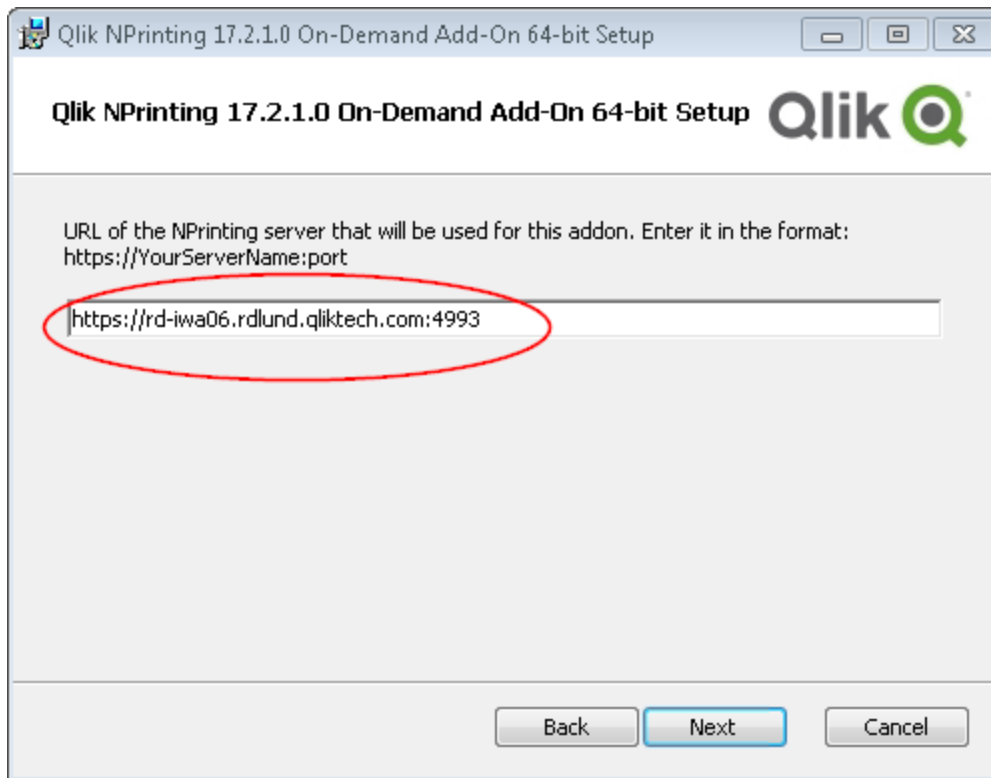
The Qlik NPrinting Server URL entered during the Qlik NPrinting On-Demand Add-on installation must be formatted correctly to be recognized.

### **Possible cause**

The Qlik NPrinting Server URL contains a slash (the character “/”) after the port number.

### **Proposed action**

Remove the slash after the Qlik NPrinting Server URL and try again.



*A correctly formatted Qlik NPrinting Server URL*

## 14.22 No connection with Qlik NPrinting Server error occurs when On-Demand is clicked in the QlikView Access Point

I installed the Qlik NPrinting On-Demand add-on and configured the On-Demand settings on the Qlik NPrinting Server. When I click On-Demand in the QlikView Access Point, I get the error message "No connection with NPrinting server. Please check your network settings or contact the administrator."

### **Possible cause**

The Qlik NPrinting web console is not trusted because you have not logged in with the Qlik NPrinting services Window domain user, and accepted the certificate.

### **Proposed action**

Log into the Qlik NPrinting web console using the Qlik NPrinting services Window domain user and accept the certificate.

## 14.23 On-Demand objects do not appear in AccessPoint

I cannot see any On-Demand objects in AccessPoint.

### Possible cause


After upgrading QlikView, you need to add two missing mime types in order to make On-Demand work. This can happen when you upgrade from:

- An earlier version of QlikView 11.20 to SR15 or SR16.
- A major new QlikView version, such as 11.20 to 12.0.

### Proposed action

Add the two new mime types in the Qlik Management Console (QMC).

Do the following:

1. In the QMC, open the **System** tab.
2. Click **Setup**.
3. Expand the **QlikView Web Server** node.
4. Click on QVWS@YourServer.
5. Click the **Web** tab.
6. In the **Mime Types** section, click the Add icon  in the upper right corner.
7. Add the following rows:
  - *.JSON application/json*
  - *.TTF application/x-font-truetype*

## 14.24 On-Demand reports work in one QlikView Access Point app but not in another

I can create On-Demand reports in one QlikView Access Point app but not another QlikView Access Point app to which I have access.

### Possible cause

Access to On-Demand reporting is set on an app-by-app basis in security roles. You may not have permission to create On-Demand reports in all QlikView Access Point apps to which you have access.

### Proposed action

If you require access to On-Demand reports, contact your Qlik NPrinting administrator.

## 14.25 Qlik Sense third-party extension does not export correctly

My visualization extension exports incorrectly, or my visualization extension works in the client, but exports incorrectly.

### Possible cause

- You may have used an undocumented Asynchronous Module Definition (AMD).
- You may have used external resources from the internet (for example JavaScript files or images).

### Proposed action

- Do not use external requireJS modules in the visualization extension.
- Ensure all JavaScript code has been evaluated before resolving the promise in the paint method.

## 14.26 Verify connection errors when setting up a connection to QlikView documents

When you create a connection to a QlikView document, use the **Verify connection** button to check that your connection is valid.

A list of checks performed will appear under **Details**. If a test fails, you will see a red **X** next to that item in the list.

### Troubleshooting QlikView Desktop verification errors

The connection parameters are formally valid.

One or more connection parameters are incorrect or missing.

QlikView Desktop is installed.

Verify that QlikView Desktop is installed locally.

The QlikView Desktop license is valid.

Verify that the QlikView Desktop license is not missing or expired.

The Windows user running the Qlik NPrinting Engine is a local administrator.

Add the user to the **Administrators** group in Windows if they are not already a local administrator.

The document exists.

The document specified does not exist. Verify that the document and path are entered correctly.

The specified identity can open the document.

The specified user does not have access to the document. Verify user permissions in QlikView.

You can also check the connection requirements for *QlikView Desktop (page 178)*

### Troubleshooting QlikView Server verification errors

The connection parameters are formally valid.

One or more connection parameters are incorrect or missing.

QlikView Desktop is installed.

Verify that QlikView Desktop is installed locally.

The QlikView Desktop license is valid.

Verify that the QlikView Desktop license is not missing or expired.

The Windows user running the Qlik NPrinting Engine is a local administrator.

Ensure that the Windows user running the Qlik NPrinting Engine is a local administrator. Add the user to the **Administrators** group in Windows if they are not already a local administrator.

The QlikView Server is reachable.

If the QlikView Server cannot be reached, verify that the port is open.

The QlikView Server version is compatible with installed QlikView Desktop

Verify that both QlikView Server and QlikView Desktop are the same version, including SR.

The account used to run Qlik NPrinting Engine belongs to the QlikViewAdministrators Windows group on the QlikView Server.

Ensure that the Windows user running Qlik NPrinting Engine is part of the QlikViewAdministrators local group on the QlikView Server computer.

The specified QlikView Server has a valid license, and contains at least one document.

- Verify that the QlikView Server license is not missing or expired.
- Ensure that QlikView Server has at least one document.

The document exists.

The document specified does not exist. Verify that the document and path are entered correctly.

The specified identity can open the document.

The specified user does not have access to the document. Verify user permissions in QlikView.

You can also check the connection requirements for *QlikView Server* (page 179).

### Troubleshooting QlikView cluster verification errors

The connection parameters are formally valid.

One or more connection parameters are wrong or missing.

QlikView Desktop is installed.

Verify that QlikView Desktop is installed locally.

The QlikView Desktop license is valid.

Verify that the QlikView Desktop license is not missing or expired.

The Windows account used to run the Qlik NPrinting Engine is a local administrator.

Ensure that the Windows user running the Qlik NPrinting Engine is a local administrator. Add the user to the **Administrators** group in Windows if they are not already a local administrator.

The QlikViewManagement Service is reachable.

If the QlikViewManagement Service cannot be reached, verify that the port (default is 4799) is open.

The QlikView Server version is compatible with installed QlikView Desktop

Verify that both QlikView Server and QlikView Desktop are the same version, including SR.

The Windows account used to run the Qlik NPrinting Engine has access to QlikViewManagement Service.

Ensure that the Windows user running the Qlik NPrinting Engine is in the QlikView Management API group, and part of the QlikView Administrators local group on the QlikView Management Service computer.

The **Cluster ID** is valid.

The **Cluster ID** as entered does not exist. Verify the **Cluster ID** and try again.

At least one QlikView Server in the cluster can open the specified document.

Verify that at least one of the QlikView Servers in the cluster can open the specified document.

The QlikView Server is reachable.

If the QlikView Server cannot be reached, verify that the port is open.

The account used to run Qlik NPrinting Engine belongs to the QlikView Administrators Windows group on the QlikView Server.

Ensure that the Windows user running Qlik NPrinting Engine is part of the QlikView Administrators local group on the QlikView Server computer.

The specified QlikView Server has a valid license, and contains at least one document.

- Verify that the QlikView Server license is not missing or expired.
- Ensure that QlikView Server has at least one document.

The document exists.

The document specified does not exist. Verify that the document and path are entered correctly.

The specified identity can open the document.

The specified user does not have access to the document. Verify user permissions in QlikView.

You can also check the connection requirements for *QlikView Cluster* (page 179).

### 14.27 **Verify connection** errors when setting up a connection to Qlik Sense apps

When you create a connection to a Qlik Sense app, use the **Verify connection** button to check that your connection is valid.

A list of checks performed will appear under **Details**. If a test fails, you will see a red **X** next to that item in the list.

#### Troubleshooting connection verification errors

The connection parameters are formally valid.

One or more connection parameters are incorrect or missing.

The QRS is reachable at the port 4242 of the "Proxy Address".

Verify that the Qlik Sense proxy address is correct and no firewalls are preventing the Qlik NPrinting Engine from reaching the Qlik Sense Repository Service on port 4242.

The http/https protocol in the Proxy address is correct.

Verify that the proxy address entered starts with either http:// or https://.

Installed certificates are valid to connect to Qlik Sense.

- Certificates must be exported from Qlik Sense using the Qlik Management Console on the Qlik Sense Server, and installed on the Qlik NPrinting Engine computers. For more information, see *Validating the connection to Qlik Sense (page 173)*.
- For Qlik Sense certificates exported from the Qlik Management Console (QMC) and installed on all Qlik NPrinting Engine computers:
  - Ensure that the correct Qlik Sense certificates for the server and version that you are connecting to are installed. If Qlik Sense server certificate validation is enabled, make sure that the *root.cer* file has been correctly installed in the certificate storage. For more information, see *Configuring server certificate validation for Qlik Sense connections (page 175)*.
  - Ensure that the correct user account was used to install the Qlik Sense certificates.
  - Ensure that you are using the Fully Qualified Domain Name for the Qlik Sense server.

The **Identity** and the Qlik NPrinting Engine service account are a Windows domain user.

- The user in the **Identity** field must be a Windows domain user, and it must be enabled in Active Directory.
- The Qlik NPrinting Engine service account is a Windows domain user.
- Qlik NPrinting and Qlik Sense must be installed on the same domain.

Get the version, proxyId, and a list of all apps from QRS on the "Proxy Address".

- Verify that the Qlik Sense proxy address is correct and no firewalls are preventing the Qlik NPrinting Engine from reaching the Qlik Sense Repository Service on port 4242.
- TLS 1.2 must be enabled on both the Qlik NPrinting Engine client and the Qlik Sense server.
- Verify that the Qlik Sense user specified in the **Identity** field is allowed to retrieve the apps list.

The Sense App ID is available.

Verify the Qlik Sense app ID is available in the QMC.

The user running the Qlik NPrinting Engine Windows service is a Qlik Sense RootAdmin.

Verify that the Qlik NPrinting Engine Windows service user is a RootAdmin in the QMC.

Get App information from QRS on the "Proxy Address" for the "Sense App ID".

Verify that the user in the **Identity** field is authorized in Qlik Sense to access the app.

The **Proxy Address**, **Sense App ID** and **Identity** can be used for a connection to a Qlik Sense Engine.

- Verify that there are no rules in the Qlik Management Console (QMC) preventing the Windows user running the Qlik NPrinting Engine service, and the user specified in the **Identity** field, from accessing the specified app.

- In the Qlik Management Console (QMC), the **Virtual Proxy** used in the Qlik NPrinting connection to Qlik Sense must have at least one **Load balancing node**.
- In the Qlik Management Console (QMC), the **Virtual Proxy** used in the Qlik NPrinting connection to Qlik Sense must have the node that is used in Qlik NPrinting in its **Proxy** list.
- Verify that in Active Directory the user defined as the **Identity** is enabled.
- You might need to manually synchronize Active Directory users.
- Qlik NPrinting and Qlik Sense must be installed in the same domain.
- Verify in the Qlik Sense Qlik Management Console (QMC) that the user who is running the Qlik NPrinting Engine service is in the **RootAdmin** group.

All Qlik Sense engines are reachable from the Qlik NPrinting Engine computers.

- Verify that the Qlik Sense proxy address is correct and no firewalls are preventing the Qlik NPrinting Engine from reaching the Qlik Sense Engine service. This Qlik Sense Engine service usually uses port 4747 (either on the Qlik Sense central node, or on dedicated Qlik Sense Engine nodes). This port can be configured in the Qlik Management Console (QMC).
- Qlik NPrinting and Qlik Sense must be installed in the same domain.
- Verify in Qlik Management Console (QMC) that the user who is running the Qlik NPrinting Engine service is in the **RootAdmin** group.

Lookup the Qlik Sense Proxy port from QRS on the "Proxy Address".

Verify that the Qlik Sense user in the **Identity** field is allowed to look up the Qlik Sense proxy address.

The Qlik Sense Proxy port is reachable on the "Proxy Address".

Verify that the Qlik Sense proxy address is correct and no firewalls are preventing the Qlik NPrinting Engine from reaching the Qlik SenseProxy Service. The Qlik SenseProxy Service usually uses port 4243 (usually on the Qlik Sense central node). This port can be configured in the Qlik Management Console (QMC).

Perform a GetTicket request to the Qlik Sense Proxy on the "Proxy Address".

Verify that user in the **Identity** field is valid, the Qlik Sense proxy address is correct, and no firewalls are preventing the Qlik NPrinting Engine from reaching the Qlik Sense Proxy Service. The Qlik Sense Proxy Service usually uses port 4243 (usually on the Qlik Sense central node). This port can be configured in the Qlik Management Console (QMC).

Qlik NPrinting webrenderer can reach Qlik Sense hub.

Verify that Qlik Sense hub is reachable by Qlik NPrinting webrenderer. The Qlik Sense hub usually uses port 443. This port can be configured in the Qlik Management Console (QMC).

### 14.28 Qlik NPrinting will not read Qlik Sense certificates

You have added your Qlik Sense certificates to the correct folder on your Qlik NPrinting Server and Qlik NPrinting Engine machines. However, the Qlik NPrinting web console will not read them.



**Possible cause**

- The Qlik Sense certificates did not export properly.
- Your security settings require certificates to be stored in the user certificates store.
- Your intranet security settings may need to be changed.

**Proposed action**

Make sure that you have followed the requirements on *Connecting Qlik NPrinting with Qlik Sense (page 172)*. If that does not solve the issue, re-export your certificates and update your intranet security settings.

## Re-exporting the certificates

A Qlik Sense administrator or a user with a RootAdmin account should follow these export instructions: *Exporting the certificates from the QMC (page 173)*.

## Installing the certificates in the user certificates store

Qlik Sense only needs the *client.pfx* certificate file to accept connections. If this certificate is copied to the Qlik NPrinting installation folder (*C:\Program Files\NPrintingServer\Settings\SenseCertificates*), it will be read and used to sign requests to the Qlik Sense server. There is no need for the *server.pfx* and *root.cer* certificates.

If your security policies require that certificates not be stored in a file system, Qlik NPrinting can read certificates from the user certificates store. You need all three certificates: *client.pfx*, *server.pfx*, and *root.cer*. You must use the *QmcCertificatesInstaller.exe* tool to install certificates in the store. It combines all three into a trust chain, and stores them in the certificate store.



*You can only connect to one Qlik Sense server if you use the certificates store. You need to install certificates to the file system if you want to connect to multiple servers.*

Do the following:

1. Receive the exported and renamed Qlik Sense certificates from your Qlik Sense system administrator.
2. Log into the Qlik NPrinting Server running the Qlik NPrinting scheduler service, as the Windows Qlik NPrinting Server services administrator.
3. Add the certificates to *C:\Program Files\NPrintingServer\Settings\SenseCertificates*. Qlik NPrinting will automatically identify the correct one to be used for each connection.



*You should only keep active Qlik Sense certificates used by Qlik NPrinting connections in the *C:\Program Files\NPrintingServer\Settings\SenseCertificates* folder. We recommend you remove any certificates that are not in use.*

4. Repeat this process on each Qlik NPrinting Engine running the Qlik NPrinting Engine service, using the Windows Qlik NPrinting Engine services administrator.

Additional user access allocation in Qlik Sense is not required for a user to view reports in the Qlik Sense hub.

## Understanding error logs for server certificate validation

If you use server certificate validation, the error logs include troubleshooting instructions for the most common configuration errors. Logs are stored in the `%ProgramData%\NPrinting\Logs` folder. The default location is `C:\ProgramData\NPrinting\Logs`.

Here are some examples:

### Qlik Sense remote server certificate validation failed with SslPolicyErrors

RemoteCertificateChainErrors and ChainStatus with 1 element(s):

[Status=UntrustedRoot, Info=A certificate chain processed, but terminated in a root certificate which is not trusted by the trust provider.]

Please be sure to have exported Sense 'root.cer' certificate from Sense server QMC (this must be repeated for each Sense server NPrinting is connected to, eventually also the one used as hub destination), then, on the NPrinting Server (if Sense hub destination is used) and on each NPrinting Engine(s), to have installed 'root.cer' certificate in the Trusted Root Certification Authorities store of NPrinting Scheduler and NPrinting Engine service user account(s) (or to the Local Machine's Trusted Root Certification Authorities store).

### Qlik Sense remote server certificate validation failed with SslPolicyErrors

RemoteCertificateNameMismatch

Please notice that certificate subject distinguished name `CN=myserver.mydomain.com` and Sense server proxy address set on NPrinting QMC must be the same. This usually means to have full FQDN set as NPrinting Sense connection proxy address (and NPrinting Sense hub central node, if hub destination is used) so that it matches the subject distinguished name of the certificate.

### Qlik Sense remote server certificate validation failed with SslPolicyErrors

RemoteCertificateNameMismatch, RemoteCertificateChainErrors and ChainStatus with 1 element(s): [Status=UntrustedRoot, Info=A certificate chain processed, but terminated in a root certificate which is not trusted by the trust provider.]

Please be sure to have exported Sense 'root.cer' certificate from Sense server QMC (this must be repeated for each Sense server NPrinting is connected to, eventually also the one used as hub destination), then, on the NPrinting Server (if Sense hub destination is used) and on each NPrinting Engine(s), to have installed 'root.cer' certificate in the Trusted Root Certification Authorities store of NPrinting Scheduler and NPrinting Engine service user account(s) (or to the Local Machine's Trusted Root Certification Authorities store). Please notice that certificate subject distinguished name `CN=rd-repo26.rdlund.qliktech.com` and Sense server proxy address set on NPrinting QMC must be the same. This usually means to have full FQDN set as NPrinting Sense connection proxy address (and NPrinting Sense hub central node, if hub destination is used) so that it matches the subject distinguished name of the certificate.

## Updating your intranet security settings

Certain intranet settings may block connections to Qlik Sense servers. If a server is not responding, you should change the intranet settings.

Do the following:

1. Log into the Qlik NPrinting Server using the Qlik NPrinting Domain User Service Account credentials that run the Qlik NPrinting scheduler service.
2. Open the Windows **Control Panel**.
3. Go to **Internet Options**.
4. Click **Change security settings**.
5. Click the **Security** tab.
6. Select **Local Intranet**.
7. Click the **Sites** button, click the **Advanced** button.
8. Add all of the Qlik Sense Proxy Server computer names to the list, including the domain name:  
*https://sense\_proxy\_computer\_name.domain\_name.*
9. Click **Close**.
10. Click **Ok** twice to close the **Internet Properties** window.
11. Repeat this process on each Qlik NPrinting Engine running the Qlik NPrinting Engine service, using the Windows Qlik NPrinting Engine services administrator.

## 14.29 Emails are not using the default or custom sender

Emails sent by my task are sent using the email address of the user authenticated to the SMTP service rather than the default sender specified in **Email settings** or the custom sender specified in my task.

### **Possible cause**

Your SMTP server authentication does not permit users to override their email address and send emails using another email address.

### **Proposed action**

Change your SMTP server settings to permit users to override their email addresses and send emails using other email addresses.

## 14.30 Variables do not expand before calculating

### **Possible cause**

Your variables may be missing an = sign at the beginning.

### **Proposed action**

The proposed action depends on where and how you are using the variable.

### **Scenario 1: Variable is being used in Qlik NPrinting Designer**

Qlik NPrinting, Qlik Sense, and QlikView treat variables the same way when used without a dollar-sign expansion. Therefore, if you need to use the evaluated result of the variable, there must be an `=` sign at the start of the variable definition. If the variable does not appear in a [Scenario 2](#) case, you can modify its definition accordingly. This is valid for:

- Dynamic naming
- Conditions
- Variables in email
- Qlik NPrinting Designer variables

### **Scenario 2: Variable is used in a dollar-sign expansion in Qlik Sense or QlikView**

Dollar-sign expansion works by inserting the evaluated value of a variable as-is, in place of the full dollar-sign expansion. The value of a variable is the interpreted string inserted in the definition. It could be:

- a string of text
- a number (if the text is compatible with a number format)
- a date (if it is a date)
- the evaluated result of an expression, if it begins with `=`.

This means that an expression inserted in a variable definition, that does not begin with an equal sign, is in fact text.

If the variable is used within a dollar-sign expansion in Qlik Sense or QlikView, then you cannot change its definition. This would change the way the dollar-sign expansion works: it would insert the evaluated value instead of the text. In this case, you must create a second, identical variable with the same formula, but a different name. Use this new variable as you would in [Scenario 1](#).

For example:

- VarApp1: where `sum(sales)` is the variable definition. This is the original variable, and remains unchanged.
- VarApp1b: where `=sum(sales)` is the variable definition. This new variable can be used in Qlik NPrinting in the cases described in Scenario 1.

If you do not want to define a new variable, but you need to use it in Qlik NPrinting Designer, you can use a formula to expand the variable as you would do in Qlik Sense or QlikView. For example `=$(VarApp1)`.

### **Scenario 3: Variable has a condition applied to it**

If you applied a condition to a variable, and the variable does not calculate, the issue could be with the condition. Add the variable to a report without the condition, and run the publish task.

In the produced report you will see what value is being extracted. You can quickly verify if the variable resolves to a string or if a value is in fact being calculated.

## 14.31 Fonts do not display properly in reports

### Possible cause

- The font is an Open Type Font (.otf). Qlik NPrinting only supports True Type Fonts (.ttf).
- The font is not installed on all Qlik NPrinting Engine computers and all Qlik NPrinting Designer computers.

### Proposed action

Ensure that all fonts are True Type Fonts (.ttf). Check that all report fonts are installed on all Qlik NPrinting Engine computers and all Qlik NPrinting Designer computers.

## 14.32 Unstable web interface with error: Session cookie signature failed

### Possible cause

The Qlik NPrinting web console or NewsStand interface become unstable if there are old cookies.

### Proposed action

If your web browser is reading old cookies, clear the browser cache.

## 14.33 Qlik NPrinting re-installation errors

### Possible cause

Incomplete uninstallation of third-party software can introduce errors during re-installation of Qlik NPrinting on the same computer.

### Proposed action

Do the following:

1. Run the uninstallation tool provided by Microsoft. See [Fix problems that block programs from being installed or removed](#) for details. Launch the tool and choose the **Installation** option. Run it for all NPrinting programs in case you see one of them in the list.
2. Open the **Microsoft Windows Control Panel** and navigate to **Program and Features**. Uninstall **Erlang OTP**. To uninstall the program, right-click it and select **Uninstall**. Wait until the uninstall finishes.
3. Remove the Erlang cookie and close processes.
  1. Open the *C:\Windows* folder. Remove the *.erlang.cookie* file.
  2. Remove the copy of the *.erlang.cookie* file saved in *C:\Windows\System32\config\systemprofile*. The *.erlang.cookie* files are created during the installation of Rabbit. The files are used to enable a communication between Rabbit and Erlang.
  3. Open the command line as admin and run the following commands:  
*taskkill /IM epmd.exe /F*

```
taskkill /IM erl.exe /F
```

The above commands close Erlang processes that may be still active. Notice that sometimes they are not active, in which case you get an error saying that the process was not found.

4. Remove the Erlang and NPrinting folders.
  1. Open the folder *C:\Program Files* and delete the *erlXX.0* folder, if present. XX is the version number, which depends on the installed NPrinting release.  
You may not be able to delete this folder because the OS shows an error message saying that there is a file in use by another process. If so, you have to reboot the computer and then you will be able to remove the folder.
  2. If present, remove the folder *C:\Program Files\NPrintingServer*.
  3. If present, remove the folder *C:\Program Files\Common Files\DESIGNER*.
  4. If present, remove the folder *C:\Program Files (x86)\NPrinting*.
  5. If present, remove the folder *C:\ProgramData\NPrinting*.
  6. Open the folder *C:\Users\<user doing the installation>\AppData\Roaming* and delete the *NPrinting Server* subfolder, if present.
5. In the registry key editor (regedit), open the HKEY\_LOCAL\_MACHINE folder > SOFTWARE and remove the *Ericsson* folder.

## 14.34 Microsoft Internet Explorer Enhanced Security Configuration is blocking QV.exe (QlikView) and reporting\_web\_renderer.exe (Qlik Sense)



*Microsoft Internet Explorer is not supported by Qlik NPrinting.*

### Possible cause

QV.exe and reporting\_web\_renderer.exe is blocked. You receive an error message stating that Microsoft Internet Explorer Enhanced Security Configuration is turned on and blocking your application.

This can occur even if you are not using Internet Explorer as your browser.

To prevent these types of blocking errors, which prevent NPrinting from generating reports normally, IE Enhanced Security Configuration must be turned off via Windows Server Manager.

### Proposed action

1. Close all instances of Microsoft Internet Explorer.
2. Go to **Control Panel > Administrative Tools**, and then click **Server Manager**.
3. If a **User Account Control** dialog is displayed, click **Continue**.
4. Under **Security Summary**, click **Configure IE ESC**.
5. Under **Administrators**, click **Off**.

6. Under **Users**, click **Off**.
7. Click **OK**.