

Qlik Cloud® Data Integration

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1 Qlik Cloud overview

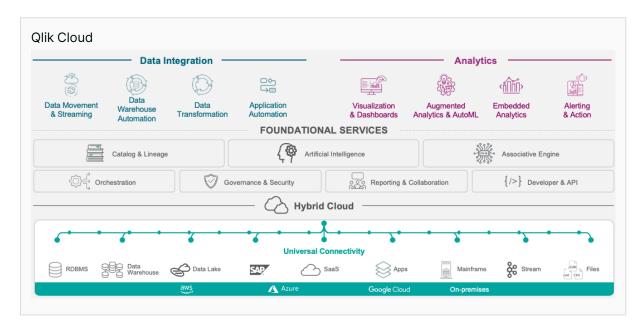
Qlik is a leader in data and analytics with a core mission to provide solutions that ensure organizations can work smarter and use data as a competitive edge. Qlik Cloud is a powerful end-to-end solution for data and analytics services. Our platform empowers curiosity-driven exploration offering everyone – at any skill level – the ability to use data to make transformative change for their organization.

Through several data-focused services, the Qlik Cloud platform supports a full range of users and use-cases across the lifecycle from data integration to insight generation. These services include change data capture, transformation, data cataloging, application automation, self-service analytics and dashboards, conversational analytics, custom and embedded analytics, and alerting.

This document highlights key aspects of the Qlik Cloud platform, including architecture, security, governance, and reliability. It is designed to complement the technical documents for the Qlik solutions that run on the Qlik Cloud platform.

1.1 Architecture overview

All of Qlik's SaaS offerings and services, known collectively as the Qlik Active Intelligence Platform, run on the Qlik Cloud platform. The platform delivers the underlying compute, storage security, and governance features to provide services to our customers. The Qlik Active Intelligence Platform enables the creation of the analytics data pipeline. Powered by Qlik Cloud and a rich set of foundational services, it provides all the data integration and analytics services you need to transform raw data into informed action.



A customer's instance of the Qlik Cloud platform is called a tenant. It is logically separated from other tenants by using unique encryption keys. Access to the platform is controlled by the customer's configured identity provider and any access to functions within the platform is based on the entitlements the customer has assigned across roles and users. A number of services are available on the Qlik Cloud platform:

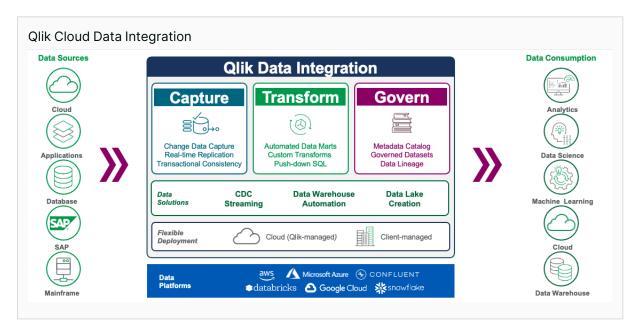
- Analytics provides a complete third-generation analytics solution including Qlik Sense Enterprise SaaS
- Data Integration provides the ability to manage your data assets and utilize change data capture to provide real-time access to your data, as well as application automation to automate integrations between cloud applications.

Qlik Cloud Analytics

Incorporating our premier offering Qlik Sense, Qlik Cloud Analytics sets the benchmark for third-generation analytics platforms, empowering everyone in your organization to make data-driven decisions. Built on our unique Associative Engine, it supports a full range of users and use-cases across the lifecycle from data to insight: self-service analytics, interactive dashboards, conversational analytics, custom and embedded analytics, mobile analytics, reporting, and alerting. It augments and enhances human intuition with Al-powered insight suggestions, automation, and natural language interaction.

Qlik Cloud Data Integration

Qlik Cloud Data Integration is Qlik's hosted and managed data integration platform as a service (iPaaS). Our vision is to provide a broad variety of data integration services aimed at helping you move from passive to active Bl. Qlik Cloud Data Integration is architected for real-time data capture, transformation, and analytics-ready data delivery leveraging a variety of methods in our unique change data capture approach.



Real-time data movement

Replicate data from on-premises or cloud sources into Qlik Cloud and other leading cloud data platforms. Automatically and continuously ingest data without the need for job scheduling or scripting. Your data is updated without manual intervention to drive insights and actions of important business moments.

Data transformation

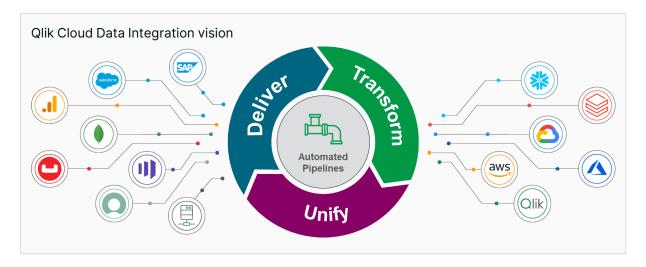
Quickly turn raw transaction records into consumption-ready data via auto-generated, push-down SQL. Our no-code interface helps you create reusable transformation pipelines that intelligently conform data to dimensional models or custom formats.

Qlik Application Automation

Qlik Application Automation is an integration platform to build integrations and automation flows between cloud applications. Closely integrated with the other Qlik Cloud services, Qlik Application Automation is able to build workflows between your cloud applications using a no-code approach by connecting data sources, applying conditions, calling webhooks, adding loops, scheduling runs, and setting up triggers. For example, a webhook in your CRM system could initialize a reload of your sales performance Qlik Sense application.

2 Qlik Cloud Data Integration

Qlik Cloud Data Integration is a powerful data integration fabric that helps data engineers deliver, transform, and unify enterprise data in real-time via automated, governed, and reusable data pipelines.

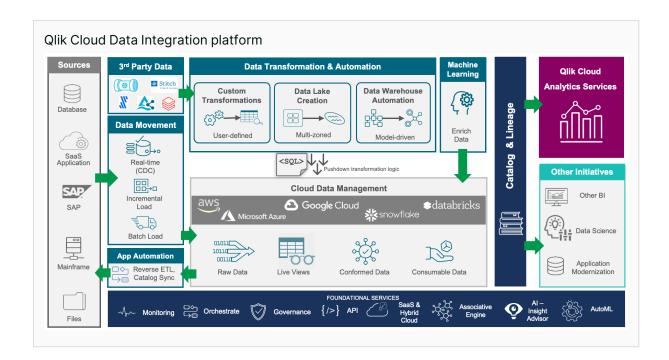


This cloud service provides the ability to create data pipelines to perform a variety of data integration tasks in support of your data architecture and analytics requirements. Onboarding data lets you automate incremental data movement and use delayed merging to reduce costs. You can leverage real-time, log-based change data capture and full load capabilities, with a secure connection to on-premise and private cloud data sources behind firewalls.

Once you have onboarded data, you can apply transformations for fit-for-purpose output, or automate patterns like data mart facts and dimensions. External views and live views are generated for data consumption, and historical data is tracked as full Type 2 data store (HDS).

Qlik Cloud Data Integration pipelines support many data architectures including custom output, lakehouse medallion, and data warehouse architectures. The refined output can be used for many purposes, such as:

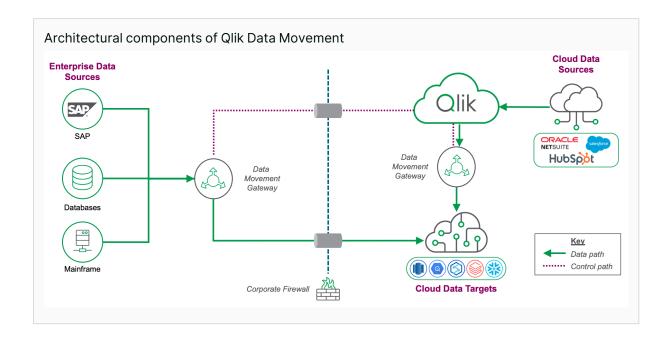
- Data mining
- · Automated creation of data for analytics in the cloud
- · Modernization of your data repository to support machine learning and other initiatives



These services rely on the underlying platform services provided by the Qlik Cloud platform. For more information, see the Qlik Cloud platform evaluation guide.

2.1 Data movement

Qlik Data Movement helps customers onboard their data rapidly and securely from their on-premise and cloud-based data sources to cloud data warehouses and data lakes. An end-to-end solution for data movement, this service securely accesses data sources, automatically replicates in real-time to cloud targets, and catalogs data sets without manual scripting.



The data movement process in Qlik Cloud Data Integration is managed from the Qlik Cloud hub. It initializes and monitors the rocess of capturing data from Enterprise and Cloud application data sources.

Data from on-premise systems or running in a customer's cloud does not pass through, nor is it stored in Qlik Cloud, unless Qlik Cloud is the chosen destination for the data. SaaS application source data is captured by Qlik Cloud and stored transiently while data flows from source to target via Qlik Data Gateway - Data Movement.



A note on Qlik Data Gateway - Direct Access This paper will not detail the functionality of Qlik Data Gateway - Direct Access. This gateway has a different purpose and helps solve different use cases than does the Qlik Data Gateway - Data Movement. The Direct Access gateway is considered an Analytics component, where users can connect directly to on-premise data sources from an app in Qlik Cloud Analytics and load data from there. It is not technically speaking a data integration tool, which means it will not be covered here.

Qlik Data Gateway - Data Movement

A challenge for many customers when moving to SaaS is providing access to their on-premise and private cloud data sources without compromising security. Qlik's solution to this is Qlik Data Gateway - Data Movement. This allows customers to access data sources in their data center and private cloud, without exposing them to the public internet

Qlik Data Gateway - Data Movement is a component controlled from Qlik Cloud, but physically located near to your data. It initiates connections to your source and target systems, orchestrating both full loads and change data capture (CDC). For simplicity we will refer to this simply as the Data Movement Gateway going forward.

Source data is onboarded directly into and persisted to the target cloud platform by the Qlik Data Movement Gateway, removing the need to expose data sources to the internet.

When started, the Data Movement Gateway makes an outbound connection to Qlik Cloud, which then initiates a reverse tunnel back to the gateway for command and control.

From on-premise to cloud data warehousing

Delivering data from on-premise data sources to cloud data warehouses is achieved with the Data Movement Gateway:

- Source The data source types available in the Data Movement Gateway will govern what
- sources of data can be delivered from For more information, see Data sources in the help.

 The target data warehouse will heed to be one of the supported ones in Qilk Cloud

 Data Integration (see Connecting to cloud data platforms in your data projects in the help).

 Currently, those targets are:
 - Snowflake[®]
 - Azure Synapse Analytics[®]
 - Databricks[®]
 - Google BigQuery[®]
 - Amazon Redshift[®]
 - Microsoft SQL Server[®]

Both staging and storage will happen in the target system when data is delivered via the pipeline. It is possible to use targets in a private cloud; these connections will be proxied via the Data Movement Gateway.

Delivering your data to Qlik Cloud

You can deliver data from on-premise and cloud data sources directly to Qlik Cloud and store as QVD files (Qlik's proprietary file format, designed for fast loading into memory) with the Data Movement Gateway.

- **Source** The data source types available in the Data Movement Gateway will govern what sources data can be delivered from. We are regularly adding new sources. See Data sources in the help for details on the latest available sources.
- **Target** There are two options for target storage of these files, Qlik-managed storage and Customer-managed storage:
 - The Qlik-managed storage option requires customers to bring their own Amazon S3 bucket for the staging area. This storage is configured, maintained, and financed by the customer. Qlik will however provide storage for the storage area once the files have passed staging and are stored at rest. This is recommended if your goal is to make the data available for Qlik Cloud Analytics.
 - The Customer-managed storage option means the customer brings their own Amazon S3 bucket for both the staging area and the storage area, which means configuring, maintaining, and financing them. This is recommended if you need to make the data available to sources in addition to Qlik Cloud Analytics.

From cloud sources to cloud data warehouses or Qlik Cloud

Delivering data from cloud sources and storing it directly in cloud data warehouses is also possible with Qlik Cloud Data Integration. This still requires the Data Movement Gateway. This allows us to support public and private cloud data warehouses and data lakes as source and target.

2.2 Data pipeline

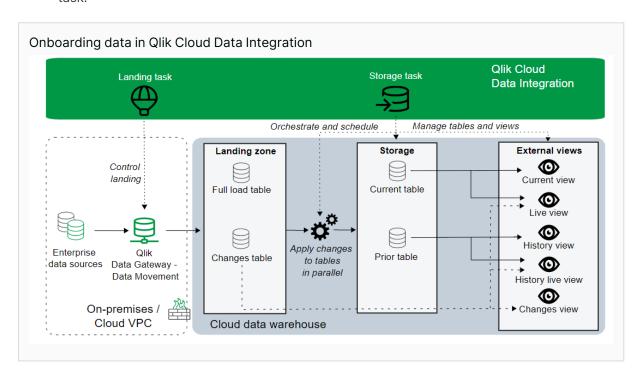
A data pipeline is an end-to-end process to move data from source to target including any required transformations. A pipeline could be as simple as a straight mirroring of data from source to target, or as complex as a complete enterprise data warehouse solution including multiple data marts serving a diverse range of requirements.

Data projects

The first step to create a data pipeline in Qlik Cloud Data Integration is to create a project. A project defines the source and onboarding of the data. This is sufficient for a complete pipeline for some use cases.

The initial focus of a data project is onboarding the data. This involves transferring the data continuously from the on-premise or cloud data source and generating datasets in read-optimized format. Onboarding involves two steps: landing and storing

- Landing the data involves transferring the data continuously from the data source to a landing area, using a Landing data task.
- **Storing** data involves generating datasets based on the landing data, using a Storage data task.



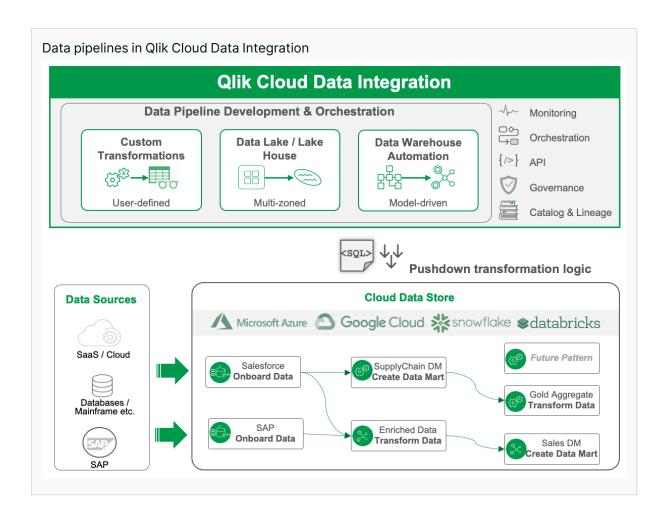
Key Concepts in a data integration project

A data integration project is how we build, run, and monitor data pipelines.

Concept	Relationship to project	Description
Data tasks	Component	Data tasks are a fit-for-purpose collection of tables or files and an associated operation on those files. It is the main unit of work within a project in the data project. Examples of data tasks include transform and data mart.
Data spaces	Dependency	Data spaces are governed areas of your Qlik Cloud tenant that are used to manage projects and their data assets. Access to a data space is determined by membership to the space. Access to projects and their data assets inside a data space is determined by roles assigned to members of the space. This means that a user must first be a member of the data space, and second, have the required roles to create, manage, or monitor data assets and resources in a data space. Members with the roles to consume data assets can also use data assets from a data space when building apps in personal, shared, and managed spaces.
Data Gateway	Dependency	Data Gateway is used by the landing data asset for associating a replication task with it, as well as for control and basic monitoring of this task.
Data connection	Dependency	A data connection is used by the storage data asset for connecting to AWS S3 buckets or cloud data warehouses, for the purpose of either reading from the staging area or writing to the customer-managed storage area.
Registered data	Component	Registered data is similar to a data task, however it does not perform and actions against the data directly. It is designed to expose data landed outside of Qlik Cloud to the data project, so it can then be used in the data pipeline.

2.3 Data transformation

The data transformation service in Qlik Cloud Data Integration provides ELT capabilities to cloud data warehouses and data lakes. It is a key part of Qlik's vision to provide our customers with a raw to ready data pipeline.



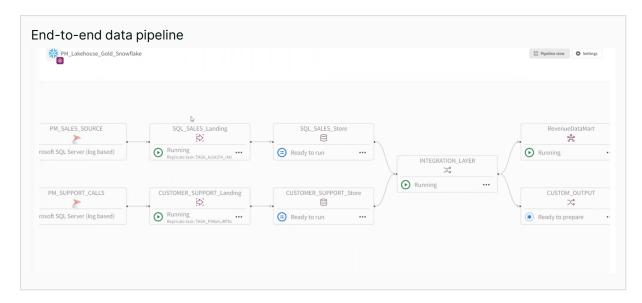
The data transformation service is:

- **Cloud-based:** Customers will design, deploy, and monitor data pipelines in Qlik Cloud with transformations executed via SQL in popular cloud targets.
- **Flexible, template-driven approach:** Customers can define reusable transformations, set policies, and create custom design templates to simplify and accelerate the development of their data projects.
- **Automated:** Automation of common methodologies and DataOps best practices allow customers to operationalize their transformation workloads quickly and reliably.
- **Integrated:** Pipeline tasks are integrated with the data movement service to transform data in near real-time to analytics-ready data in your target cloud platform

The data transformation service contains the following functionality:

- Creation of flexible, fit-for-purpose data pipelines
- Rule-based, row-level transformations
- Creation of new derived objects based on:
 - Source to target mappings
 - Custom SQL for more complex logic

- Automated generation of star schema data marts
- · Define logical relationships between data sets
- Choice to materialize data sets as tables or create as views
- · CDC (change data capture) support for low latency and incremental data movement
- Push-down SQL execution to cloud DW platforms (Snowflake, Azure Synapse, Google BigQuery, Microsoft SQL Server)



Third party data transformation

Third-party data transformation in Qlik Cloud Data Integration refers to the process of registering already existing data that has been landed in the chosen cloud platform by external tools (including Qlik Replicate and Talend).

This means that customers can build workflows on top of and incorporate existing data into data pipelines without having to duplicate existing processes and consume the data twice. This includes to create transformation tasks, data cleansing, and data warehouse automation.

Use-cases for third party transformation include:

- A temporary process during migration from legacy tools to Qlik Cloud Data Integration
- · Leveraging an existing cloud data warehouse or data lake for a new requirement
- Allowing Qlik Cloud Data Integration to work with a propriety solution where connectivity is not available

Third party transformation supports key principles of Qlik: leave the data where it is, register it, understand it, make it qualitative, and start delivering it.

2.4 Security and governance

A Qlik Cloud Data Integration deployment is made up of three key components:

- · Qlik Cloud Data Integration
- Cloud-storage: S3 bucket(s) or data warehouse tables
- Data Gateway Data Movement

There are several aspects of how we secure different data delivery strategies, which we will discuss here.

Connection and perimeter security

All the connections from on-premise to the cloud are outbound. This means there is no need to open any port through the corporate firewall, nor to provide a publicly resolvable IP address. The connection is initiated by the data movement gateway and promoted to a web socket secure (WSS) connection, which allows Qlik Cloud to send command and control to initiate the data synchronization. All data in transit is secured by the TLS 1.2 and 1.3 protocol. Command and control plane communication is additionally encrypted with a random channel key which is changed every time the gateway connects to Qlik Cloud.

Data storage

Qlik Cloud Data Integration does not transfer data into Qlik Cloud for the purposes of running a data pipeline, nor does it cache this data in Qlik Cloud. Data is only stored in Qlik Cloud if either of the following is true:

- · Qlik Cloud is the target platform
- It is metadata

Qlik Cloud as a target

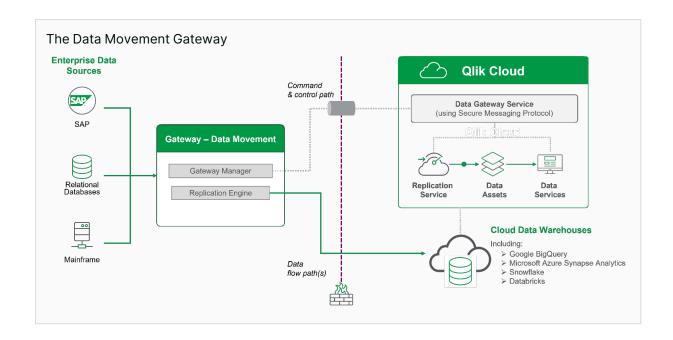
Data from source systems can be stored either in Qlik-managed or customer-managed storage. The only time data is stored in Qlik Cloud is when choosing Qlik Cloud – Qlik-managed storage as data platform (target) for a data project. This means that the landed data will reside in a Qlik data space encrypted with the customer's unique encryption keys. Customer must still provide a separate S3 storage area for the landing of the data (staging).

All other targets

If you choose Qlik Cloud – customer-managed storage as data platform (target), one or two S3 buckets must be connected for staging and storage. The same S3 bucket can be used for both connections.

If the data platform is any one of the cloud targets, such as Snowflake, Azure Synapse Analytics, Microsoft SQL Server, Databricks or Google BigQuery, the data will be both staged and landed there, and never in Qlik Cloud.

The Data Movement Gateway's replication engine will directly push source data from on-premise / VPC source systems to the cloud target, only involving Qlik Cloud if the source is a SaaS application (or Qlik Cloud is the target) . The gateway manager will be responsible for metadata and command and control, but never data transfer.



Metadata storage

Metadata about the data source and connections are stored in Qlik Cloud Data Integration and are not persisted in the Data Movement Gateway. Metadata required to run a job is transferred securely to the gateway, but is kept in-memory and not persisted to the gateway server.

Data encryption

The Data Movement Gateway communicates with the source and target endpoints (typically databases) using either the vendor-provided client package or via a standard ODBC driver. For this reason, the Data Movement Gateway relies on the source/target endpoint's vendors for the intransit encryption. While the majority of vendors all support encrypted connections, it is out of scope for this document to cover the specifics of other vendor software.

Databases are assumed to sit on a private high-secure network with limited access from other applications. The Data Movement Gateway requires access to the source databases. Data landing on the client-managed cloud storage can be encrypted using server-side encryption.

Qlik Cloud offers data at rest encrypted with the tenant private key or optionally with the customer's own managed keys. For more information about encryption, see the Qlik Cloud platform evaluation guide.

Service-to-service authentication and authorization

The Data Movement Gateway uses a JWT-based token to communicate with Qlik Cloud. Communication between the Data Movement Gateway and Qlik Cloud is always encrypted with TLS 1.2 or higher.

Client-managed cloud storage (S3 bucket) requires a key and secret and is subject to IAM control. This allows customers to set the read/write permissions for different buckets. See What is IAM? for more details.

User authentication and authorization

Authentication

Authentication of users on the Qlik Cloud platform is handled by the configured identity provider:

- Qlik Account This is the default mechanism and is managed by Qlik. It provides a secure
 but basic authentication solution for customers, however is not configurable and does not
 integrate with a customer's existing solutions.
- Third party identity provider Qlik Cloud supports configuring third party identity providers that support the OpenID Connect (OIDC) protocol.

For more information about authentication, see the Qlik Cloud platform evaluation guide.

Authorization

Users of Qlik Cloud Data Integration are managed using the same role based access control system as is used for the rest of Qlik Cloud. The available roles are described in the following table:

Data space role	Summary
Is owner	Full permissions on the space including the ability to grant others access
Can view	Monitor, but not alter the data pipeline
Can consume	Consume data from data tasks in the data space
Can manage	Manage the space details and members
Can operate	View data tasks with basic details and perform actions, such as run, stop, and resume
Can edit	View and edit data tasks in this space, as well as create new data assets

For more information about platform level authentication and authorization, see the Qlik Cloud platform evaluation guide.

2.5 Qlik Application Automation

Qlik Application Automation is a no-code visual design tool for automating manual work. Instead of writing code, users combine configurable blocks that they drag and drop onto a canvas, forming a sequence of action steps from a variety of SaaS applications, including Qlik Cloud.

These steps run like a program to automate business processes, using analytics to direct the flow of data through a multitude of applications.

Automations can be executed manually, run on a schedule, listen to webhook events, and be triggered using an API endpoint. Automations are compiled into native code that runs in Kubernetes pods on Qlik Cloud to automatically provide the scalability you need to scale and automate your business processes.

Qlik Application Automation provides blocks to implement conditions, work with loops, use variables, and a wide range of other building blocks to implement automation flows.

Architecture

Qlik Application Automation is an integral part of Qlik Cloud and is available in a Qlik Cloud tenant alongside other capabilities such as analytics applications, connectivity to your data sources, and notes.

The elastic nature of the underlying technology allows Qlik Application Automation, as well as the other Qlik Cloud services, to scale horizontally as needed.

Qlik Application Automation shares access to common services, such as authentication services and file storage, to ensure an integrated experience with the other data analytics and data integration capabilities within Qlik Cloud.

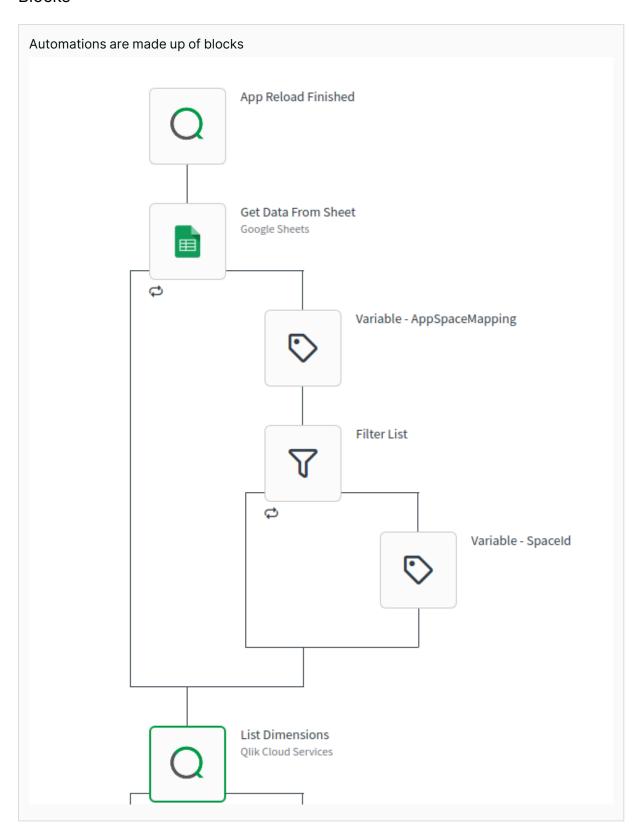
For more information about the Qlik Cloud architecture, see the The Qlik Cloud platform technical paper evaluation guide.

Reliability

As part of the Qlik Cloud platform, Qlik Application Automation is built on a resilient, autoscaling architecture to handle any customer workload. Qlik Application Automation is subject to the same uptime commitment policy reported in the Service Level Agreement (Section 7, point 7.2).

Automations

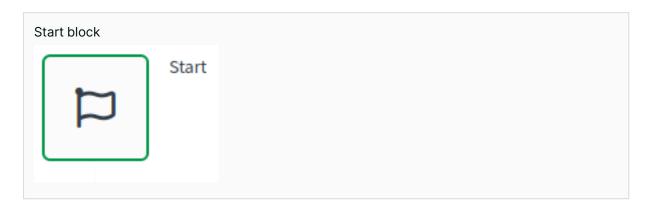
Blocks



Every automation is made of different building blocks chained together to build a flow. There are three types of building blocks:

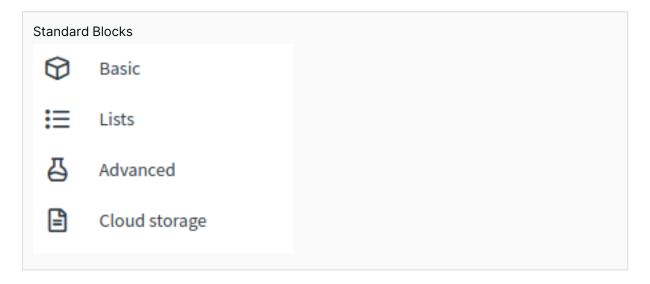
- Start block
- Standard blocks
- · Connector blocks

Start blocks



The Start block is your starting point and mandatory in each automation. It is already present on the canvas and defines the start of the automation process; any other block in the automation must be connected to the start block chain.

Standard blocks

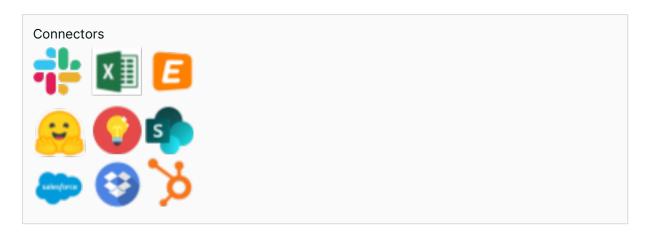


Standard blocks fall into four categories: Basic, List, Advanced, and Cloud storage. Some example uses are:

- Loop over data and conditional block
- Working with variable and user input block

Merge, filter, lookup or transform lists block

Connectors



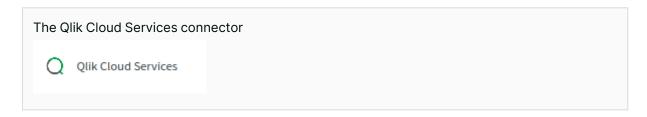
Qlik Application Automation offers a range of connectors. Connectors are the bridge between third-party applications and the automation itself. They can be used to get data from or write data to a third-party application.

There are too many connectors to cover them all here, and we regularly add new connectors to the platform. For information on all connectors available see <u>Application Automation connectors</u> in the help.

Qlik Cloud connectors

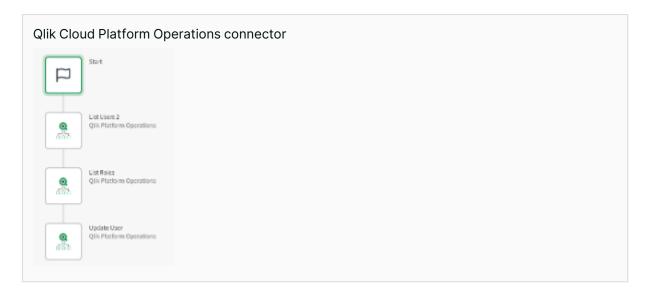
As well as connectors to other platforms and services, Qlik provides connectors to perform actions on Qlik Cloud itself. These cover the full life-cycle of Qlik Cloud from tenant provisioning to reporting.

Qlik Cloud Services connector



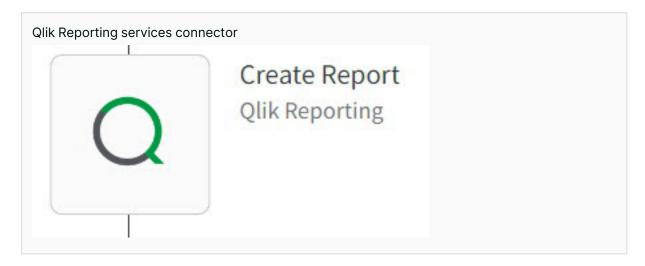
One connector of note is the Qlik Cloud Service connector, it allows the connection to the user's current tenant. It does not require authentication and comes with the same logged-in user's authorization.

Qlik Cloud Platform Operations connector



The Qlik Cloud Platform Operations connector can orchestrate one or many Qlik Cloud tenants using either tenant or subscription OAuth clients.

Qlik Reporting services connector



Qlik Reporting is a Qlik-native connector that lets you build customized, multi-page reports based on app sheets. Reports can be deliverer via e-mail as PDF or PowerPoint documents.

Run modes of automations

Automations are built by combining blocks that represent API endpoints of connected applications. Each Automation execution is called a job or run. Automations can be run either manually, or automatically. Manually an automation can be run either from he console, or directly within the automations editor.

Automations can be executed in three ways systematically:

- On a scheduled basis from every 30 seconds, up until monthly.
- Triggered from an external webhook
- · Exposed as an API Call

Use cases

Given the flexibility and wide range of connectors supported by Qlik Application Automation, several common types of use cases are possible:

- Operational automations in service of Qlik Cloud: Qlik Application Automation provides a direct visual access to various Qlik Cloud APIs to facilitate operations such as:
- Task chaining (e.g., Qlik Cloud Services app reloads)
- App versioning
- · Assign licenses, roles, spaces, rights to users
- Alerting and messaging: send messages using e-mail, Slack, and MS Teams triggered by events
- Active intelligence: Reverse ETL and write-back in business applications (such as CRM, SCM, ERP etc.) based on analytical insights

These use cases can be combined to create complex automations to support business processes, implemented in the same automation or by chaining different automations together.

Security model

Connector authorization and authentication

In general, connectors allow two types of authentication, and this is dependent on the third-party provider service:

- · Access token authentication
- OAuth authentication

The access token authentication method requires users to provide an access token (e.g., API key or secret) to the third-party application and provide it in the connector settings.

With OAuth authorization, users are forwarded to the application login page which requires user permission access to grant access to Qlik Application Automation, on behalf of Qlik Cloud. If the user agrees, Qlik Application Automation will store and refresh the access token for accessing data in the automations.

Qlik Application Automation will request both read and write permissions in OAuth flows, due to the nature of the features.

Automation owners can export automation in a JSON file format and subsequently import them in a different tenant or share with other users on the same tenant. Authentication tokens are not part of the export; thus, the import requires a re-authentication of all the connectors involved in the automation.

Governance

The Qlik Cloud platform's management console allows any administrator to manage and govern all the automations. An administrator is entitled to list all the tenant's automations, and sort and filter them based on their name, status, last run, run mode, owner or completed time. Each automation can further show the list of executions and their states.

A Qlik Cloud administrator may enable or disable automations, change owner, or delete them.

Data privacy and compliance

An automation can make API calls to connected SaaS applications (e.g. Salesforce), retrieving data for processing within the automation. For example, a user could build an automation that fetches contacts/leads from their CRM and send it on to another SaaS application. Each automation job will have a history log that shows the API calls made by each block.

Where an automation processes personally identifiable information (PII), or other private data, part of this data will also be present in the history log of the automation. History logs can be viewed in the UI for each automation. History logs have a retention of 30 days and are automatically deleted afterwards. These logs are only visible to the automation owner and can not be viewed by other users or administrators.

In cases where there is a requirement not to log this type of data, it is possible to disable the logging of information on a per-block basis within the automation. This ensures this data in never written to the logs of the automation.

3 About Qlik Evaluation Guides

The content provided herein is provided for informational purposes. Due to Qlik Cloud's continuous release process, at times the content herein may differ from actual platform functionality. Please refer to Qlik Cloud Help for the product documentation for Qlik Cloud.

Any statement about future plans or intentions for the Qlik Cloud platform contained herein is not a commitment to deliver those features or functionalities, as the development, release, and timing of any features or functionality described for Qlik's products remain at our sole discretion.

For additional information regarding Qlik Cloud, please see Qlik Cloud or contact your Qlik representative.

3.1 Document history

This content has been developed to assist customers and prospective customers to understand and evaluate the Qlik Cloud platform and its related services. Traditionally this content has been published in document format only as a PDF; however, it is now primarily published as web content with PDF files available if required.

Over its history, this content has been known by the following names:

- · Qlik Technical papers
- · Qlik White papers
- · Qlik Technical overview

This documentation supersedes the above documents.

3.2Changelog

The PDF documents are generated from the evaluation guides at <u>Qlik Help</u>. The changelog for this evaluation guide is shown below.

Changelog — Qlik Cloud Data Integration evaluation guide

October 2023

October Updates

- Cloud sources in Data movement
- · Minor updates

July 2023

Initial release to help.glik.com

· Initial release



About Qlik

Qlik's vision is a data-literate world, where everyone can use data and analytics to improve decision-making and solve their most challenging problems. Our cloud-based Qlik Active Intelligence Platform® delivers end-to-end, real-time data integration and analytics cloud solutions to close the gaps between data, insights and action. By transforming data into Active Intelligence, businesses can drive better decisions, improve revenue and profitability, and optimize customer relationships. Qlik does business in more than 100 countries and serves over 38,000 active customers around the world.

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