Managing a Qlik Sense Site

Qlik® Sense
1.1

Contents

1 Introduction

This document describes how to use the Qlik Management Console (QMC) to perform common Qlik Sense site tasks. This document does not cover every possible way of performing a task, but rather explains and gives examples of the following:

- Initial configuration of the Qlik Sense environment
- Administration of the Qlik Sense environment

Please use the Installation Guide document to plan the deployment and make the Qlik Sense site operational. It also documents the system requirements and the supported browsers.

1.1 Style coding

- Menu commands and dialog options are written in **bold**.
- File names and paths are written in *italic*.
- Sample code is written in `Lucida Console`.

1.2 Environment variable

The paths described in this document use the environment variable *%ProgramData%*. The equivalent path in the Microsoft Windows operating system is *C:\ProgramData*.

1.3 Additional server documentation

The following documentation is also available for Qlik Sense in a server deployment:

- Server Deployment and Configuration: Describes Qlik Sense Server and provides reference information on the architecture, security, logging, and licensing.
- Installation Guide: Describes how to install the Qlik Sense site and what you may want to consider before installing Qlik Sense.
- Managing a Qlik Sense Site: Provides a description of the Qlik Management Console (QMC) user interface.
- Qlik Sense Repository Service API: Provides reference information on the Qlik Sense Repository Service API.
- Qlik Sense Proxy Service API: Provides reference information on the Qlik Sense Proxy Service API.
- Qlik Sense User Directory Connector API: Provides reference information on the Qlik Sense User Directory Connector API.

1.4 Support services

Contact Qlik for product support, additional training, or consultation concerning application development. Consult the Qlik website for current information on how to get in touch with the support services:

www.qlik.com

Global headquarters:

Qlik Technologies, Inc.
150 N. Radnor Chester Road
Suite E220
Radnor, PA 19087
USA

Phone: +1 (888) 828-9768

Fax: +1 (610) 975-5987

For other locations, visit the Qlik website (see above).

1.5 Managing a Qlik Sense site

The Qlik Management Console (QMC) is a web-based application for configuring and administrating your Qlik Sense site. The QMC always connects to the central Qlik Sense node where all system data is stored and with which all local nodes synchronize. So even if you have a multi-node, geographically distributed Qlik Sense installation, the QMC enables you to handle the following activities from one location:

- Managing licenses
- Managing tokens and access types
- Configuring nodes
- Managing data connections
- Managing content security (by security rules)
- Managing tasks and triggers
- Synchronizing content
- Synchronizing users

In a multi-node installation you manage the whole Qlik Sense site from the QMC on the central node.

The QMC provides you with a set of very powerful tools to create different access patterns for different QMC administrators and for the different user groups that access the hub:

- Security rules
- Admin roles
- Custom properties

Important concepts in the QMC

Apps

The user can create an app from the Qlik Sensehub (if the user has the appropriate access rights). Apps are published to streams from the QMC (used in server deployments of Qlik Sense). If you want to publish an app that is created in a Qlik Sense Desktop installation it must first be imported, using the QMC. The security

rules applied to the app, stream or user determine who can access the content and what the user is allowed to do. The app is locked when published. Content can be added to a published app via the Qlik Sensehub in a server deployment, but content that was published with the original app cannot be edited. Apps can only be deleted from the apps overview page of the QMC.

An app (qvf file) replaces the document (the .qvw container file) used in previous versions of Qlik Sense.

Associated items

The resources in the QMC have an associative structure. This makes it easy for you to navigate between the different resources in the QMC. Because of the associative structure of the QMC, you can select a resource in more than one way. For example, you can select an app either from the apps overview or from the **Associated items** tab for the stream that the app belongs to. Similarly, you can select a task either from the tasks overview or from the **Associated items** tab for the app that the task belongs to.

Audit

The QMC audit page enables you to query for, and audit, the security or sync rules that have been defined in the Qlik Sense system.

Custom properties and QMC tags

The QMC enables you to create customized properties that you can connect to resources. The main purpose is to use the custom properties in the security rules. You can also create and connect QMC tags that you can filter with on a resource's overview page. Tags cannot be used in the security rules.

Examples of applications for custom properties:

- **Grouping nodes by geography**
  Create a custom property called *Countries* and set the values to names of countries. Apply the custom property to your nodes and you can then create and deploy synchronization rules to countries instead of individual nodes.
- **Grouping streams by department**
  Create a custom property called *Departments* with values appropriate to your organization. Apply the custom property to your streams and you can then apply security rules to streams according to their *Departments* property instead of managing security rules for individual streams.

Group memberships are uploaded to the central repository when you create and synchronize a user directory connector. This means that you can apply security rules to group memberships instead of defining and applying custom properties to users.

Data connections

You can manage security rules for all data connections from the QMC. Users can create data connections from Qlik Sense but sharing data connections (security rules) is managed from the QMC.

Multiple selections

You can select several resources from the overview. By doing this, you can edit or delete multiple resources at the same time. This makes your QMC administration work more efficient.

Publish to stream

The user can create an app from the Qlik Sensehub (if the user has the appropriate access rights). Apps are published to streams from the QMC (used in server deployments of Qlik Sense). If you want to publish an app that is created in a Qlik Sense Desktop installation it must first be imported, using the QMC. The security rules applied to the app, stream or user determine who can access the content and what the user is allowed to do. The app is locked when published. Content can be added to a published app via the Qlik Sensehub in a server deployment, but content that was published with the original app cannot be edited.

By default, Qlik Sense includes a stream called **Everyone**.

*All authenticated users have read and publish rights to the **Everyone** stream and all anonymous users read-only rights.*

Security rules

Content security is a critical aspect of setting up and managing your Qlik Sense system. The QMC enables you to centrally create and manage security rules for all your Qlik Sense resources. Security rules define what a user is allowed to do with a resource, for example read, update, create or delete.

By design, security rules are written to include, not exclude, users. Users who are not included in security rules will be denied access. So security rules must be created to enable users to interact with Qlik Sense content, data connections, and other resources.

The QMC includes pre-defined administrator roles, including the RootAdmin user who has full access rights to the Qlik Sense system, which allows the RootAdmin user to setup security rules.

Tokens and access types

The License Enabling File (LEF) determines the number of tokens that you can allocate to different access types. An access type allows the users to access streams and apps within a Qlik Sense site. You can adjust the token usage according to the usage need over time. Each access type provides the Qlik Sense user with a certain type of access to Qlik Sense apps. A user with no access type cannot see any streams.

Users

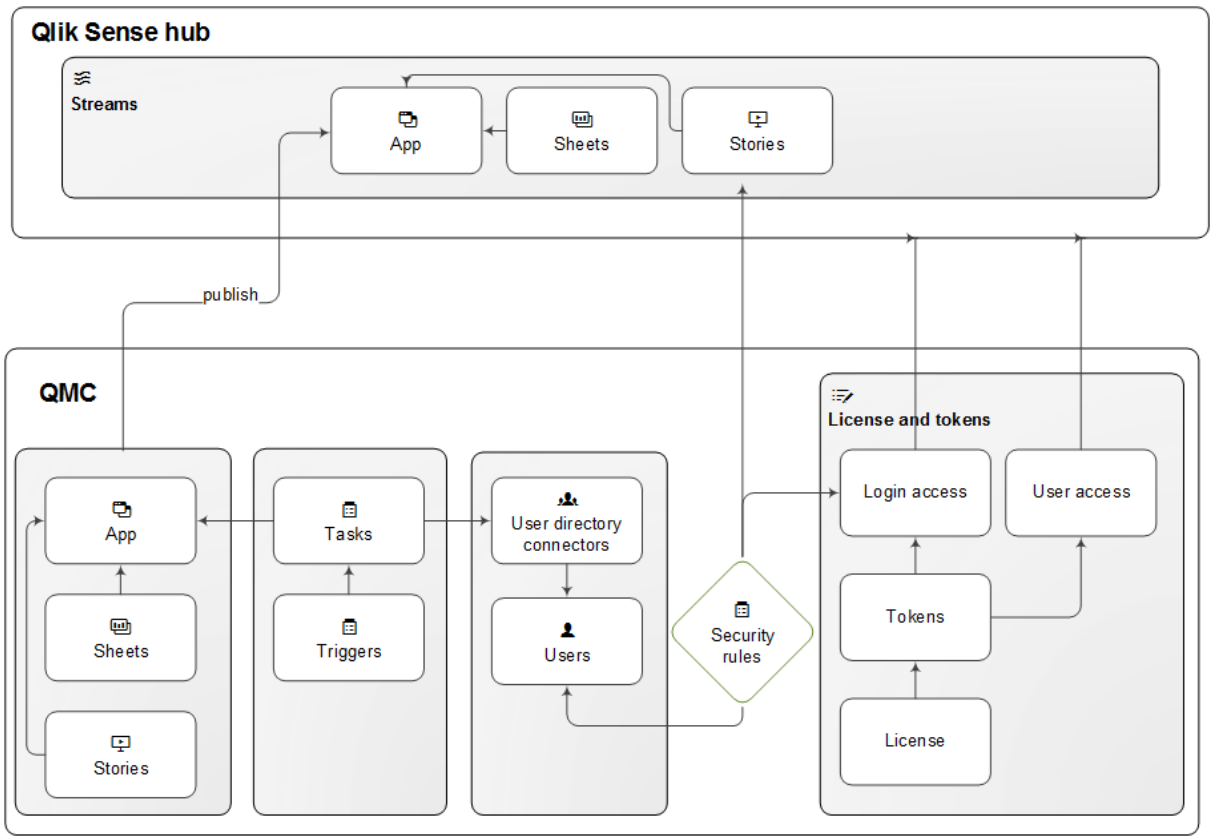
All user data is stored in the Qlik Sense Repository Service (QRS) database. You create user directory connectors in the QMC to be able to synchronize and retrieve the user data from a configured directory service. When a user logs in to Qlik Sense or the QMC the user data is automatically retrieved. You can change the authentication method that handles the authentication of the Qlik Sense users.

Resource owners

The creator of a resource (for example an app or a stream) is by default the owner of the resource. You can change the ownership for resources in the QMC.

Resources interaction

The illustration below gives an overview of how the resources interact.



Resources overview and interaction

The apps, sheets and stories are created from the hub and published to a stream from the QMC.

Tasks are available for apps and user directory connectors. The reload tasks reload apps to fully reload the data in an app from the source. The user sync task is applied to a user directory connector to synchronize the users from a user directory. Triggers can execute tasks.

A stream security rule is applied to the stream and affects the access rights for the users.

The site license provides for a number of tokens that are allocated to access types. Users are given access to streams and apps on the hub by login access or user access. A security rule is applied to the login access to specify which users the login access is available for.

The hub is not a part of the QMC. The hub is where Qlik Sense apps and sheets are opened and managed.

See also:

- *Configuring Qlik Sense (page 28)*
- *Writing security rules (page 54)*
- *Auditing access control (page 113)*
- *Authentication (page 34)*

1.6 Starting the QMC

A new session is started when you log in to the Qlik Management Console (QMC). You can start from one of the following situations:

- If the Internet browser tab with your previous session is still open you should see a **Login** dialog in the middle of the page. Click the **Login** button to start a new session.
- Otherwise, start the QMC from the Qlik Sense program group in the **Start menu** or enter the address of the QMC in the address field of your Internet browser.
  - By default the QMC address is *https://<QPS server name>/qmc*.
  - Unencrypted communication is allowed if the proxy property **Allow HTTP** is checked; this means that both https (secure communication) and (http) unencrypted communication is allowed. Then the QMC address is *https://<QPS server name>:Service listen port HTTP/qmc* (where *https* can be replaced by *http*).

You may be prompted to enter your user name and password.

*For non-Windows users, a login window will open in your browser. The **User name** should be entered in the format DOMAIN\user.*

The QMC opens at the **Start** page.

Starting the QMC for the first time after installation

The first time you access the Qlik Management Console (QMC) after a Qlik Sense installation you must activate the license.

Do the following:

1. Enter the address of the QMC in the address field of your Internet browser.
   The QMC opens at the **Site license** page.

You may be prompted to enter your user name and password.

2. Activate your license.
   This makes you the root administrator for the Qlik Sense site that is assigned to the RootAdmin role. Also, a number of tokens become available.
   The License Enabling File (LEF) determines the number of tokens that you can allocate to different access types. An access type allows the users to access streams and apps within a Qlik Sense site. You can adjust the token usage according to the usage need over time.

You have now started the your first QMC session. The next step is to allocate user access to yourself.

See also:

- *Creating a root administrator user (page 206)*
- *Activating license (page 122)*
- *Allocating user access (page 186)*
- *Logging out from the QMC (page 17)*

Logging out from the QMC

You can either logout from the QMC manually or be automatically logged out. Automatic logout occurs when you have been inactive in your QMC session for longer than a predefined time limit. This time limit is set per virtual proxy in the **Virtual proxy edit** page.

Do the following:

1. Click **username** ▼ in the top right of the page.
   Logout is displayed in the drop-down list.
2. Click **Logout**.
   The QMC welcome page is shown including a **Login** button.

*Clicking **Login** on the welcome page will open the QMC start page. You may be prompted to enter your user name and password.*

1.7 Navigate in the QMC

Because of the associative structure of the QMC, you can select a resource in more than one way. For example, you can select an app either from the apps overview or from the **Associated items** tab for the stream that the app belongs to. Similarly, you can select a task either from the tasks overview or from the **Associated items** tab for the app that the task belongs to.

You can use the back and forward buttons of your Internet browser to move between the pages in the QMC. It is also possible to type the URL in the address field. For example, type *https://<QPS server name>/qmc/Users* to open the users overview page. Also, you can bookmark QMC pages in your Internet browser.

If you manage a certain resource often, it's a good idea to bookmark the page. For example, bookmark the apps overview page.

Keyboard shortcuts

Keyboard shortcuts are expressed assuming that you are working in Windows. For Mac OS use Cmd instead of Ctrl.

Shortcut	Action
Esc	Close a filter dialog
Up arrow	Scroll up in tables
Down arrow	Scroll down in tables
Tab	Move to the next field on an edit page
Shift+Tab	Move to the previous field on an edit page
Esc	Close a dialog box
Ctrl+C	Copy selected text to clipboard
Ctrl+V	Paste last copied text from clipboard
Ctrl+X	Cut selected text and copy to clipboard
Ctrl+Z	Undo action (copy, paste, cut)
Ctrl+Y	Redo action (copy, paste, cut)
Backspace	Go back in navigation
	Mac OS only: Delete selected item

UI icons and symbols

A symbol can be used in more than one context. Here is a list of the icons and symbols used throughout the Qlik Management Console (QMC) user interface.

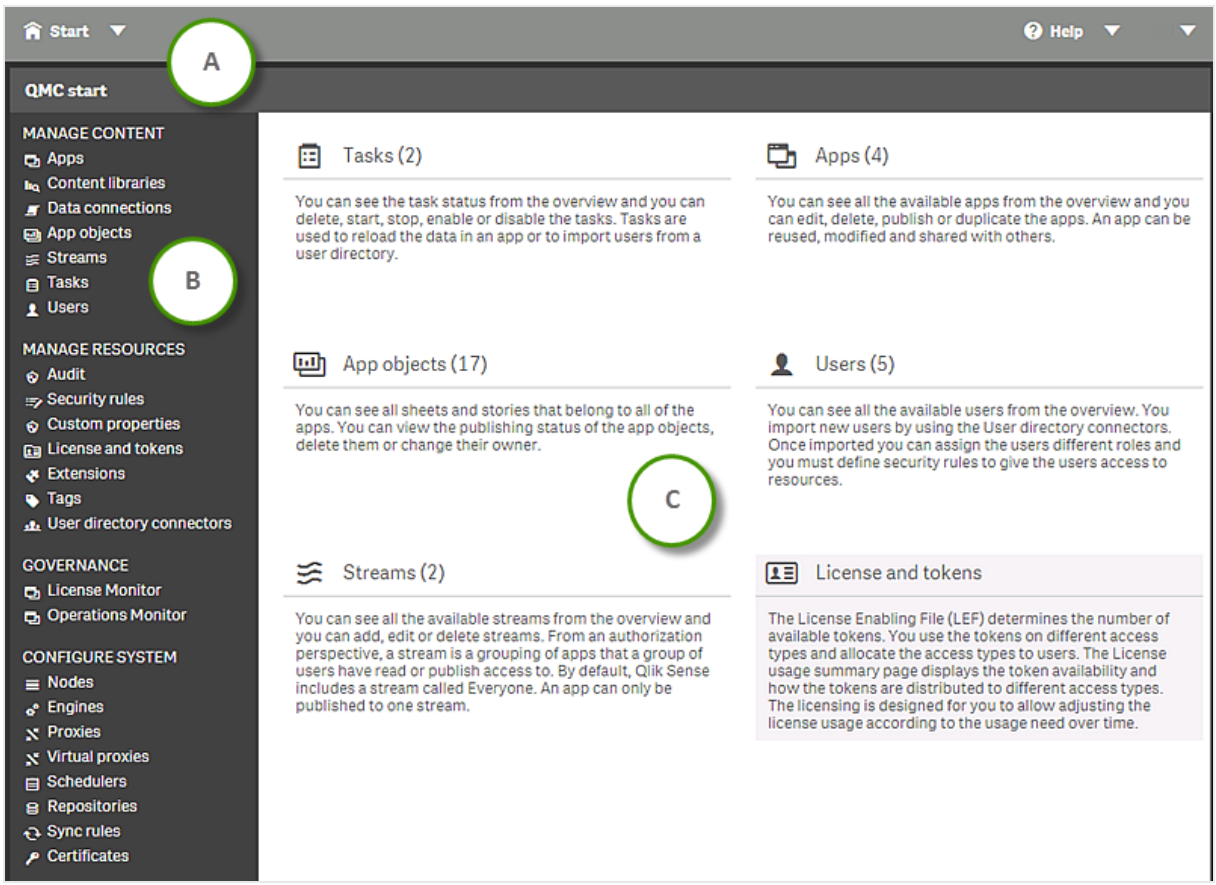
	Create new
	Apps
	Content libraries
	Data connections
	App objects
	Streams
	Tasks

	Users
	Audit
	Security rules
	Custom properties
	License and tokens
	Extensions
	Tags
	User directory connectors
	License Monitor/Operations Monitor
	Nodes
	Engines
	Proxies
	Virtual proxies
	Schedulers
	Repositories
	Sync rules
	Certificates
	Task chain
	Task status: Never started, Skipped, Reset
	Task status: Triggered, Started, Abort initiated, Aborting, Retrying
	Task status: Queued
	Task status: Aborted
	Task status: Success
‰	Task status: Failed, Error
	Read access (by security rule)
	Update and/or Write and/or Edit access (by security rule)
	Delete access (by security rule), Logout, Cancel, Close, Exit
	Other access (by security rule), for example Create, ChangeOwner and/or Export
	Filter
	Help
	Information

	Information
	Locked
	Unlocked
	Search
	Undo
	Settings
	Arrow up
	Arrow down
	Arrow left
	Arrow right

The QMC start page

The start page in the Qlik Management Console (QMC) contains all the resources that you can manage in the Qlik Sense site. The resources you can manage depend on your access rights.



The QMC start page

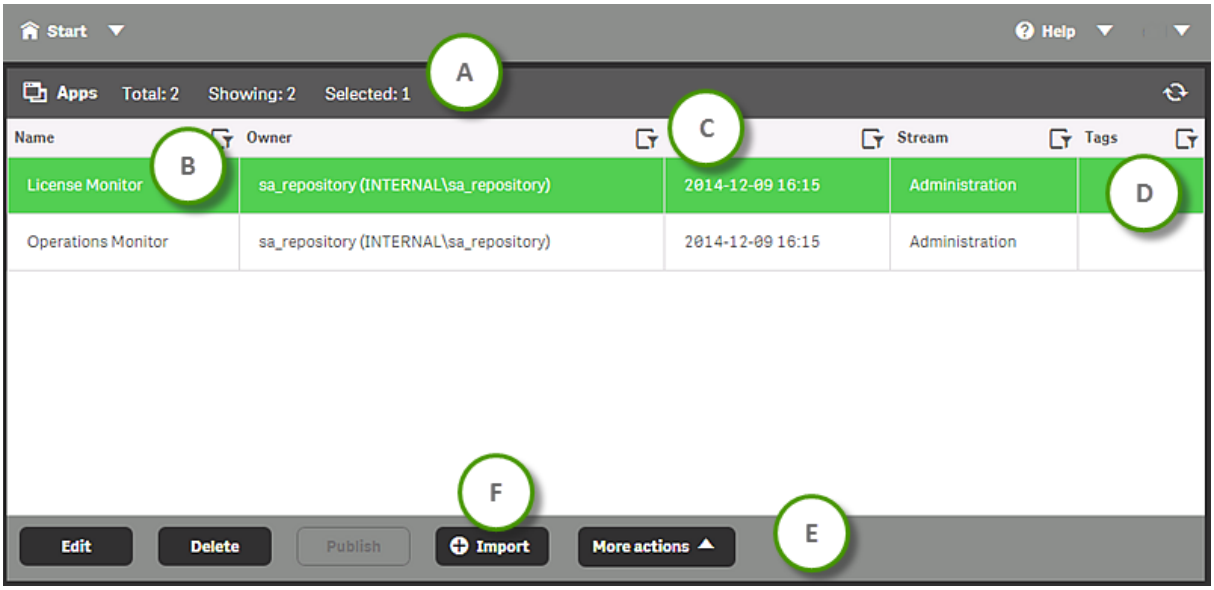
QMC start	
A	The top bar is displayed from all pages to enable you to navigate the Qlik Management Console (QMC) efficiently. The following is possible: Click **Start** to access the QMC start page. Click ▼ next to **Start** to display a drop-down list of all resources. This enables you to select another resource without having to first access the start page. Click **Help** to access the Qlik Management Console (QMC) help. The top right corner displays who is logged in to the Qlik Management Console (QMC). Click the drop-down ▼ next to the login name and click **Logout** in the dialog to log out.
B	The left panel contains all QMC resources in groups. If any of the Qlik Sense services are down, the number of services that are not running is displayed with a numeral.
C	The basic resources are also available from the middle of the start page. The number in parentheses indicates the number of occurrences of the resource.

See also:

- *Providing administrators with access using roles (page 209)*

Resource overview page

When you select a resource from the start page, the resource overview is displayed. The overview shows a set number of items by default. To show more items, scroll to the end of the list and click **Show more items**. Sorting and filtering of items is always done on the full database list of items, not only the items that are on display.



Apps overview page

Apps overview	
A	**Total** shows the total number of resources. **Showing** shows the number of resources currently displayed. **Selected** shows the number of selected resources.
B	Click a column heading to sort that column ascending ▼ or descending ▲ .
C	Click ☞ next to the column heading to display the filter dialog for the column. Type your filter criteria in the filter dialog. You can only use one filter criteria at a time. All rows that match your filter criteria are displayed. Click ⊗ in the filter dialog to remove your criteria. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog. You can use the filters on multiple columns simultaneously to narrow your search. If a filter is applied to a column ☞ is displayed (that is, the icon is inverted).
D	You can create QMC tags and apply them to resources so that you can search and manage the QMC content efficiently.
E	The action bar at the bottom of the page contains different action buttons depending on selected resource type. For example, select an app in the overview and click **Edit** to open the **App edit** page. If you don't have update rights for the selected items, **Edit** is replaced by **View**. If you don't have delete rights for selected items **Delete** is disabled.If a resource is deleted, all sync and security rules associated with that resource are deleted automatically.
F	Click ⊕ in the action bar to create a new instance of a resource. In this example, click ⊕ **Import** to open the **Import app** dialog.

Selections

The selection you previously made is still active when you display a resource overview, even if you have worked on another resource type in between.

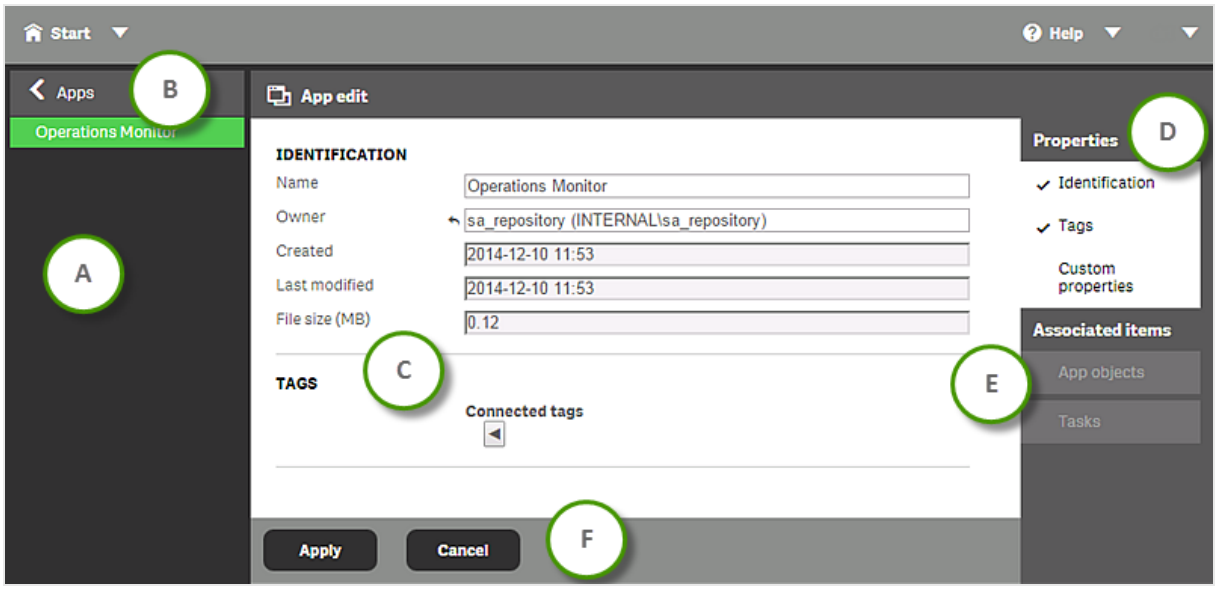
Double-click an item in the overview to open the resource's edit page. For multiple selections, hold down **Ctrl** while single-clicking the items or hold down the left mouse button while dragging the mouse cursor over items. Then click **Edit** in the action bar to open the edit page.

See also:

- *Filtering by tags (page 277)*
- *Filtering apps (page 148)*
- *Filtering tasks (page 226)*

Resource edit page

You edit resources from the edit page. You must have update right to be able to edit. If you don't have update rights you can view the page but you cannot edit. In this example you see the **App edit** page.



Example: The App edit page

App edit	
A	The selections panel, to the left, displays the resources you are currently editing. You can edit several resources at the same time to manage the QMC content efficiently.
B	Click **Apps** to return to the overview page where you can change your selection.
C	The edit page displays the properties that you select from the property groups in the left panel. If you select several items from the overview and they have different values for a specific field, then *Multiple values* is displayed as the field value. When you edit a field, an asterisk (*) is displayed next to the property name to indicate that the property value has been changed. Clicking ↰ next to a field cancels the changes in that field. If the communication with the QRS fails, the edit page is locked. Use the top bar to leave the page.
D	The **Properties** tab displays the property groups containing the properties for the resource. You can select to display or hide properties on the edit page.
E	Select associated items on the **Associated items** tab. You can select an associated item and click **Edit** to open the edit page.
F	The action bar at the bottom of the page contains the **Apply**and **Cancel** buttons. Clicking **Cancel** resets all field values. **Apply** is disabled if a mandatory field is empty. The unsaved changes dialog is displayed if you leave the edited page without clicking **Apply**. Choose **Continue** to leave the edit page and undo all your changes or **Cancel** to stay on the edit page. If the communication with the QRS fails when you click **Apply**, an error message is displayed. You can continue editing or try clicking **Apply** again.

1.8 QMC resources overview

All resources that are available in the QMC are described briefly below.

Resource	Description
Apps	A Qlik Sense app is a task-specific, purpose-built application. The user who creates an app is automatically designated as the owner of the app. An app can be reused, modified and shared with others. The user can create an app from the Qlik Sensehub (if the user has the appropriate access rights). Apps are published to streams from the QMC (used in server deployments of Qlik Sense). If you want to publish an app that is created in a Qlik Sense Desktop installation it must first be imported, using the QMC. The security rules applied to the app, stream or user determine who can access the content and what the user is allowed to do. The app is locked when published. Content can be added to a published app via the Qlik Sensehub in a server deployment, but content that was published with the original app cannot be edited.
Content libraries	A content library is a storage that enables the Qlik Sense users to add shared contents to their apps. The user who creates the content library automatically becomes the owner of that library. The library and the library objects can be shared with others through security rules defined in the QMC.
Data connections	Data connections enable you to select and load data from a data source. All data connections are managed centrally from the QMC. Data connections are created in the Qlik Sense data load editor. The user who creates a data connection automatically becomes the owner of that connection and is by default the only user who can access the data connection. The data connection can be shared with others through security rules defined in the QMC. When you import an app, existing data connections are imported to the QMC. *If the name of a data connection in the imported app is the same as the name of an existing data connection, the data connection will not be imported. This means that the imported app will use the existing data connection with an identical name, not the data connection in the imported app.*

App objects	You can manage the following app objects: • Sheets • Stories The user who creates an app is automatically designated as the owner of the app and its app objects. The app objects are published when the app they belong to is published. The users can add private app objects to the apps and share them by publishing the app objects from Qlik Sense.
Streams	A stream enables the user to read and/or publish apps, sheets and stories. The users who have publish access to a stream create the content for that specific stream. The stream access pattern in a Qlik Sense site is determined by the security rules for every stream. By default, Qlik Sense includes a stream called Everyone. An app can be published to only one stream. To published to another stream, the app must be duplicated and thereafter published to the other stream. *All authenticated users have read and publish rights to the **Everyone** stream and all anonymous users read-only rights.*
Tasks	Tasks are used to perform a wide variety of operations and can be chained together in just any pattern. The tasks are handled by the Qlik Sense Scheduler Service (QSS). There are two types of tasks: • Reload • User synchronization Execution of a task is initiated by a trigger or manually from the tasks overview page. You can create additional triggers to execute the task and there are two types of triggers: • Scheduled • Task event
Users	Users are imported from a user directory via a user directory connector in the QMC.
Audit	The QMC audit page enables you to query for, and audit, the security or sync rules that have been defined in the Qlik Sense system.
Security rules	The Qlik Sense system includes an attribute-based security rules engine that uses rules as expressions to evaluate what type of access a user or users should be granted for a resource.
Custom properties	You create a custom property to allow using your own values in security rules. When you create a custom property you define one or more values for the custom property, which you can use in the security rule for a resource.

License and Tokens	The License Enabling File (LEF) determines the number of tokens that you can allocate to different access types. An access type allows the users to access streams and apps within a Qlik Sense site. You can adjust the token usage according to the usage need over time.
Extensions	Extensions can be used to, amongst other things, add visualizations to data. For example using a graphic to represent a unit of data or adding a clickable map that users can use to select geographies.
Tags	You create QMC tags and apply them to resources to be able to search and manage the environment efficiently from the resource overview pages in the QMC.
User directory connectors	The user directory connector (UDC) connects to a configured directory service to retrieve users. The UDCs supplied with the Qlik Sense installation are Generic LDAP, Microsoft Active Directory, Local Users and ODBC. You create new user directory connectors in the QMC.
License Monitor	The governance apps presents data from the Qlik Sense log files.
Operations monitor	The governance apps presents data from the Qlik Sense log files.
Nodes	A node is a server that is using the configured Qlik Sense services. There is always a central node in a deployment and nodes can be added for different service configurations. There is always a repository on every node. A Qlik Sense site is a collection of one or more server machines (that is, nodes) connected to a common logical repository or central node. *In a multi-node installation, you manage the whole Qlik Sense site from the QMC on the central node.*
Engines	The Qlik Sense Engine Service (QES) is the application service that handles all application calculations and logic.
Proxies	The Qlik Sense Proxy Service (QPS) manages the Qlik Sense authentication, session handling, and load balancing.
Virtual proxies	One or more virtual proxies run on each Qlik Sense Proxy Service (QPS), making it possible to support several sets of site authentication, session handling, and load balancing strategies on a single proxy node.
Schedulers	The Qlik Sense Scheduler Service (QSS) manages the scheduled tasks (reload of Qlik Sense apps or user synchronization) and task chaining. Depending on the type of Qlik Sense deployment, the Qlik Sense Scheduler Service (QSS) runs as master, slave, or both on a node.

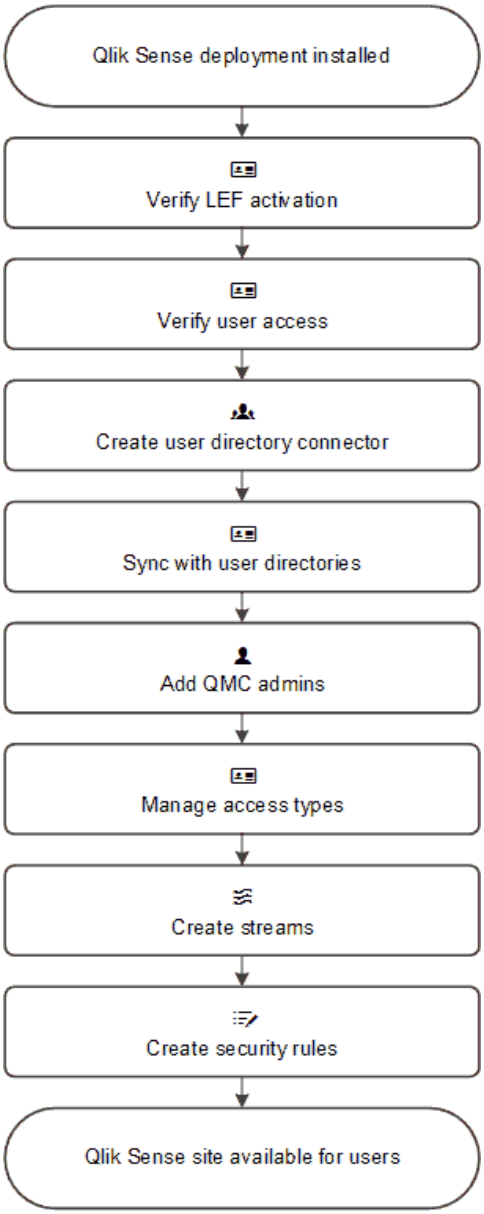
Repositories	The Qlik Sense Repository Service (QRS) manages persistence and synchronization of Qlik Sense apps, licensing, security, and service configuration data. The QRS attaches to a Qlik Sense Repository Database and is needed by all other Qlik Sense services to run and to serve Qlik Sense apps. The QRS also manages the synchronization in multi-node Qlik Sense sites. In addition, the QRS stores the Qlik Sense app structures and the paths to the binary files (that is, the app data stored in the local file system).
Sync rules	The sync rules define the nodes' access rights to resources.
Certificates	Qlik Sense uses certificates for authentication. A certificate provides trust between nodes within a Qlik Sense site. The certificates are used within a Qlik Sense site to authenticate communication between services that reside on multiple nodes.

See also:

- *Providing administrators with access using roles (page 209)*

2 Configuring Qlik Sense

When Qlik Sense is installed, the site must be prepared for the Qlik Sense users to be able to access the hub and start using Qlik Sense. This is the recommended workflow when you configure Qlik Sense after installation:



Do the following:

1. If not performed during the installation, activate the license. This will:
   - Make you the root admin for the site.
   - Provide tokens that can be used on access types.
2. If not performed during the installation, allocate user access to yourself.

3. Add a user directory connector in the QMC to prepare for import of users.
4. Synchronize with user directories to retrieve users from the directory service configured by the user directory connector.
5. Add additional admin users, if more administrators than the root admin are to be given access to the QMC.
6. Provide the users with an access type (**User access** or **Login access**) so that they can access streams and apps in the hub.
7. Create new streams.
8. Create the security rules for the streams to enable the users to read from and/or publish to the streams.

The Qlik Sense environment is now available for the Qlik Sense users.

*By default all Qlik Sense users have read and publish rights to the default stream called **Everyone**.*

See also:

- *Activating license (page 122)*
- *Creating login access (page 188)*
- *Setting up a user directory connector and schedule by task (page 169)*
- *Synchronizing with user directories (page 185)*
- *Adding root admin and admin users (page 31)*
- *Allocating user access (page 186)*
- *Creating login access (page 188)*
- *Creating streams (page 159)*
- *Writing security rules (page 54)*
- *Managing apps (page 126)*

2.1 Default configuration

A Qlik Sense installation includes the **Everyone** stream and 5 administrator roles: **RootAdmin**, **AuditAdmin**, **ContentAdmin**, **DeploymentAdmin** and **SecurityAdmin**.

The default configuration of a Qlik Sense installation is as follows:

- All authenticated users have read and publish rights to the **Everyone** stream.
- Anonymous users have read rights to the **Everyone** stream.
- The **RootAdmin** has full access rights to all Qlik Sense resources.
- The other administrators can access subsets of the Qlik Sense resources.
- Proxy load balances to local engine.
- An anonymous user is not allowed to create content.
- There can only be one owner of an owned object.
- Only the owner of an unpublished app can see it.
- A published app is locked for editing.
- Authenticated users (not anonymous) can:
  - Create new private app objects for not published apps.
  - Create new private app objects for published apps (sheets, bookmarks, snapshots and stories).
  - Export the app data they are allowed to see.
- Everyone can manage data connections from Qlik Sense, but only **RootAdmin**, **ContentAdmin**, and **SecurityAdmin** can manage data connections of this type: Folder directory.
- Everyone can view extensions.
- Everyone with update rights for a content library can manage its corresponding files.

See also:

- *Providing administrators with access using roles (page 209)*

2.2 Configuring security

You manage the following Qlik Sense security settings from the QMC:

- Admin roles to grant users QMC administrator access of various extent.
- Authentication for different user authentication methods.
- Proxy certificate for communication between the web browser and the proxy.
- Virtual proxies to allow different modules based on the URI to be used to access Qlik Sense.
- Custom properties to allow using your own values in security rules.
- Access control and security rules to grant user access to Qlik Sense resources.

See also:

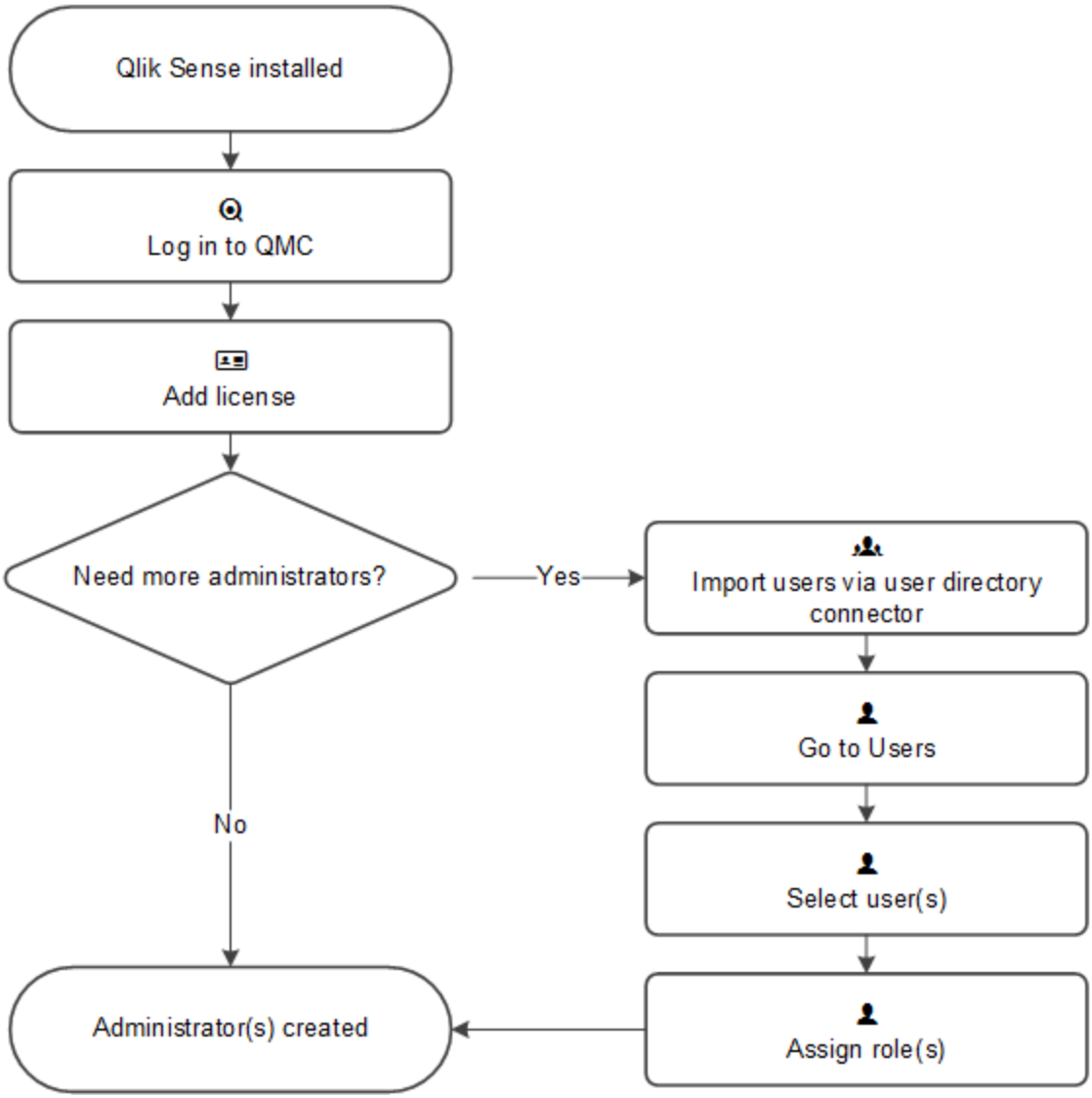
- *Adding root admin and admin users (page 31)*
- *Authentication (page 34)*
- *Changing proxy certificate (page 38)*
- *Creating virtual proxy (page 247)*

- *Using custom properties (page 267)*
- *Designing access control (page 47)*
- *Writing security rules (page 54)*
- *Security rules examples (page 82)*

Adding root admin and admin users

The first user that is accessing the Qlik Management Console (QMC) and adding the server license obtains the role root administrator (RootAdmin) for the Qlik Sense system. This user has full access rights for all resources in the site: security rules, streams, nodes and so on. Additional users can be assigned as RootAdmin if needed or assigned to other admin roles with other administrative rights.

This workflow illustrates adding QMC administrators:



Setup workflow for root administrator (RootAdmin)

Do the following:

1. Verify that Qlik Sense is installed.
2. Login to Qlik Management Console (QMC) using the Windows account you want to use as root administrator (RootAdmin).
3. Add the LEF license to the QMC.

   Adding the LEF makes you the root administrator for the Qlik Sense site.

4. To add more administrators, see *Setup workflow admin user (page 32)*.

The root administrator role is now created.

Setup workflow admin user

Do the following:

1. Login as root administrator (RootAdmin).
2. Import users with the user directory connector.
3. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
4. Select the users that should have administrative rights and click **Edit**.
5. Assign the role using the **Admin roles** attribute by clicking ⊕ and entering the name of the administration role in the text box that appears.

   You can assign several administration roles to a user.

   You cannot remove the root administrator role from yourself. This is to prevent you from accidentally blocking the RootAdmin from using the QMC.

Administrators roles are now created.

As in Qlik Sense, if a user does not have access to a resource in the QMC the user cannot access it in the QMC interface. For example, if you change a user's role from RootAdmin to DeploymentAdmin, the user can no longer access the apps, sheets, streams or data connection pages in the QMC (amongst others).

*The root administrator cannot change or delete the security rules that are delivered with the Qlik Sense system. These security rules are listed in the **Security rules** overview page with **Type** set to **Default**.*

Default administration roles

The QMC is delivered with a set of predefined administration roles. Each role is associated with security rules tailored for specific purposes as described in the following table:

Property	Description
RootAdmin	Created on installation. This role is automatically assigned to the user who provided the first valid license key to the QMC. The RootAdmin has full access rights to all Qlik Sense resources.
AuditAdmin	Has read access to all resources to enable auditing of access rights. Has read and publish rights on Administration stream.
ContentAdmin	Has create, read, update and delete rights for all resources except nodes, engines, repositories, schedulers, proxies, virtual proxies, and syncs. Has read and publish rights on Administration stream.
DeploymentAdmin	Has create, read, update and delete rights for apps, tasks, users, licenses, nodes, repositories, schedulers, proxies, virtual proxies, and engines. Has read and publish rights on Administration stream.
SecurityAdmin	Same as ContentAdmin but with create, read, update and delete rights for proxies and virtual proxies, and no access rights on tasks. Has read rights on server node configuration. Has read and publish rights on Administration stream.

As RootAdmin or SecurityAdmin you have the possibility to create new roles to suit your purposes.

The QMC looks for changes in the user roles definitions every 20 seconds.
The table below displays an overview of the default QMC administrator roles (in addition to the RootAdmin) and which parts of the QMC they can manage.

QMC	SecurityAdmin	DeploymentAdmin	ContentAdmin	AuditAdmin
Apps	x	x	x	
Content libraries	x		x	
Data connections	x		x	
App objects	x		x	
Streams	x		x	
Tasks		x	x	
Users	x	x	x	
Audit	x	x	x	x

QMC	SecurityAdmin	DeploymentAdmin	ContentAdmin	AuditAdmin
Security rules	x			
Custom properties	x	x	x	
License and tokens		x		
Extensions			x	
Tags	x	x	x	x
User directory connectors		x		
Nodes		x		
Engines		x		
Proxies	x	x		
Virtual proxies	x	x		
Schedulers		x		
Repositories		x		
Sync rules		x		
Certificates	x	x		
Reload tasks		x	x	
User sync task		x	x	
Triggers		x	x	

Authentication

After a standard Qlik Sense installation the Qlik Sense Proxy Service (QPS) includes a module that handles authentication of Microsoft Windows users.

You can choose to use other authentication methods, and it is also possible to implement customized solutions for authentication.

Anonymous authentication

You can allow users to access Qlik Sense without supplying the user identity and credentials. This is done by editing the virtual proxy property **Anonymous access mode**. There are various levels of anonymous use; see the descriptions in the procedure below.

Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the virtual proxy that handles the authentication and click **Edit**.
3. Edit **Anonymous access mode** in the **Authentication** property group:
   - Select **Allow anonymous user** in the drop-down list if you would like a user to enter as anonymous and then be able to switch to a user account.
   - Select **Always anonymous user** if all users always should be anonymous.

   The default value is **No anonymous user** and the Qlik Sense users must supply the user identity and credentials.

   You can display or hide property groups using the panel to the far right.

   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
4. Click **Apply** in the action bar to apply and save your changes.
   Successfully updated is displayed at the bottom of the page.

For the anonymous authentication method to be operational, you need to create a login access rule that allows anonymous users.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click on **Login access rules**.
3. Select a rule to edit and click **Edit** in the action bar.
4. Click on **License rules** in **Associated items**.
5. Select the license rule you want to edit and click **Edit** in the action bar.
6. In the **Advanced** section, add *user.isAnonymous()* in the **Conditions** text field.

Anonymous use of Qlik Sense is now allowed.

Header authentication

Header authentication is often used in conjunction with a Single Sign On (SSO) system that supplies a reverse proxy or filter for authenticating the user.

Header authentication cannot be used for a default virtual proxy. If you only have a default virtual proxy you will need to create a new virtual proxy for the header authentication.

Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

You can apply a filter to a column by clicking ⊡▾.

2. Select the virtual proxy that handles the authentication and click **Edit**.
3. Edit the following properties in the **Authentication** property group:
   a. Use the dropdown for **Header authentication mode** and select either **Static user directory** or **Dynamic user directory**.
   b. At **Header authentication header name**, enter the name of the HTTP header that identifies users.

Header authentication only supports US-ASCII (UTF-8 is not supported).

   c. At either **Header authentication static user directory** or **Header authentication dynamic user directory**, enter the name of the user directory where additional information can be fetched for header authenticated users.

*The **Header authentication header name** as well as either **Header authentication static user directory** or **Header authentication dynamic user directory** must be set when header authentication is allowed.*

Property	Description	Default value
Header authentication mode	Authentication method: • **Not allowed**: header authentication is not allowed. • **Static user directory**: allows static header authentication, where the user directory is set in the QMC. • **Dynamic user directory**: allows dynamic header authentication, where the user directory is fetched from the header.	Not allowed

Property	Description	Default value
Header authentication header name	The name of the HTTP header that identifies users, when header authentication is allowed. Mandatory if you allow header authentication (by selecting either **Static user directory** or **Dynamic user directory** for the **Header authentication mode** property).  *Header authentication only supports US-ASCII (UTF-8 is not supported).*	Blank
Header authentication static user directory	The name of the user directory where additional information can be fetched for header authenticated users. Mandatory if you allow static header authentication (by selecting **Static user directory** for the **Header authentication mode** property).	Blank

Property	Description	Default value
Header authentication dynamic user directory	Mandatory if you allow dynamic header authentication (by selecting **Dynamic user directory** for the **Header authentication mode** property). The pattern you supply must contain '$ud', '$id' and a way to separate them. **Example setting and matching header:** `$ud\\$id` – matches USERDIRECTORY\userid (backslashes must be escaped with an additional \) `$id@$ud` – matches userid@USERDIRECTORY ($id and $ud can be in any order) `$ud:::$id` – matches USERDIRECTORY:::userid	Blank
Anonymous access mode	How to handle anonymous access: • **No anonymous user** • **Allow anonymous user** • **Always anonymous user**	No anonymous user
Windows authentication pattern	The chosen authentication pattern for logging in.	Windows

You can display or hide property groups using the panel to the far right.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to apply and save your changes.
   Successfully updated is displayed at the bottom of the page.

Header authentication is now allowed.

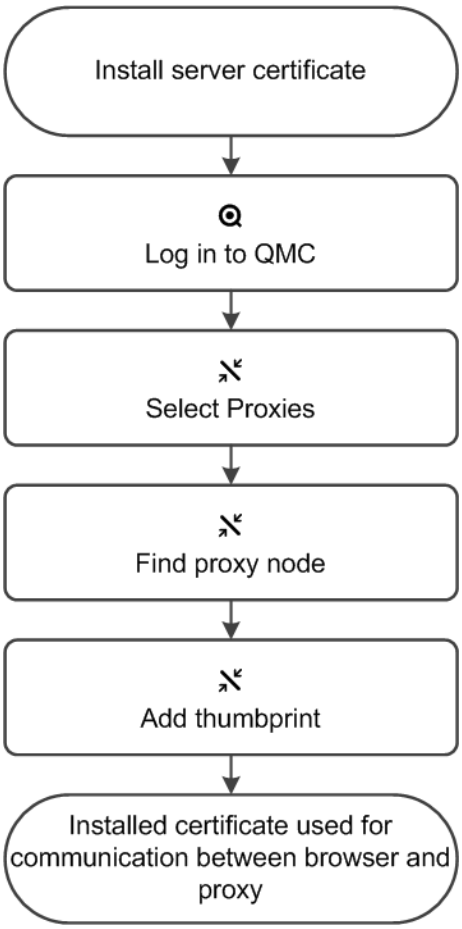
Changing proxy certificate

In Qlik Sense, all communication between services and the Qlik Sense web clients is based on web protocols. The web protocols use Secure Sockets Layer (SSL) for:

- Encryption and exchange of information and keys
- Certificates for authentication of the communicating parties

After a standard Qlik Sense installation the Qlik Sense Proxy Service (QPS) includes a module that handles the encryption of traffic from the browser to the proxy. The certificate for communication between the web browser and the proxy can be replaced.

This flow describes changing proxy certificate:



Do the following:

1. Install the new server certificate:
    a. Note down the thumbprint for the new certificate.
    b. Install the new server certificate on the proxy node, in the Windows Certificate Store in *Local Machine/Personal*.
2. Log into the Qlik Management Console (QMC).
3. Select **Proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

You can apply a filter to a column by clicking .

4. Find the relevant proxy in the overview and select **Edit**.
5. Edit the **SSL browser certificate thumbprint** found in the **Security** property group by adding the thumbprint of the installed server certificate, from step 1 in this procedure.

You can display or hide property groups using the panel to the far right.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

6. Click **Apply** in the action bar to apply and save your changes.
Successfully updated is displayed at the bottom of the page.
7. Restart proxy.

The installed certificate is now used for communication between the web browser and the proxy. A green padlock (or similar icon depending on browser) is displayed when entering the address of the QMC in your Internet browser. This means that the browser trusts the certificate and has identified the server machine. By default the QMC address is *https://<QPS server name>/qmc*.

Exporting certificates

If you want to add a third-party tool to your Qlik Sense installation, you need to export certificates.

You can use the exported certificates if you want to do the following:

- Use an external authentication module.
- Move the certificates manually to a node, instead of using the QMC functionality when creating a new node.

Do the following:

1. Select **Certificates** on the **QMC start** page or from the ▼ menu.
The **Export** page for **Certificates** is displayed.
2. In the **Machine name** box, type the full computer name of the computer that you are creating the certificates for: *MYMACHINE.mydomain.com* or the *IP address*.

   You can export certificates for more than one computer. Click ⊕ **Add machine name** to add a new box. You cannot add the same computer name more than once. Click ⊗ to delete a box.
3. Using a password is optional. If you choose to use a password, the same password applies to all exported certificates.

Certificates that are to be used in the Qlik Deployment Console (QDC) must be password protected.

   a. Type a password in the **Certificate password** box.
   b. Repeat the password in the **Retype password** box.

The passwords must match.

4. Select **Include secrets key** if you want to add a secret key to the public key.

The secret key must be included if you are exporting certificates for a new node.

5. Click **Export certificates** in the action bar.
   The export of certificates is initiated and **Exporting certificates** is displayed.
   When the export is finished, the dialog **Certificates exported** is displayed.
   Certificates will be exported to this disk location displays the target directory where one folder for each computer is added. In every folder the following certificates are created: client.pfx, root.cer, server.pfx. If the export fails, the dialog displays **Certificates export could not complete**.

You have now exported the certificates.

2.3 Configuring sync rules

Within a multi-node site, one instance of the Qlik Sense Repository Service (QRS) runs on each node. The QRS running on the central node is considered to be the master. The master QRS synchronizes the central repository database and the local repository databases.

You set up rules for the synchronization of Qlik Sense apps.

Getting to know the sync rules edit page

You can define new rules or edit existing rules from the **Security rules** page. Select **Security rules** or **Sync rules** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview. Select a rule and click **Edit** to open the edit page.

The following views are available in the **Properties** tab:

Identification

Here you will see the name of the rule, if the rule is disabled, and you can enter a description.

Advanced

Enables you to define all aspects of the security rule in a text based rule editor.

Basic

Enables you to select target resources, attributes, and actions from drop-down lists.

*You can choose to hide or display the basic view by clicking it in the **Properties** tab.*

There is a dynamic relationship between the **Basic** and the **Advanced** views, so that updates made in one view are automatically updated in the other view.

Tags

Under the **Associated items** tab, you can select **Preview** to view the access rights that your rule will create and the users they will apply to.

Creating sync rules

> *If you define a rule without specifying at least one **Resource** or **User** condition, your rule will apply to all resources and/or users as indicated by **(ALL)** next to the condition heading.*

You can create sync rules.

Do the following:

1. Select **Sync rules** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
3. Under **Identification**, give the rule a name and a description.
4. Click **Disabled** if you do not want to enable the rule at this time.
5. In the **Basic** view, select the type of actions you want to create a rule for.
6. Select a resource condition in the drop-down lists.
   For example selecting the resource condition **`name`** and setting **`name`** equal to *MyApp* means that the rule applies to the app named *MyApp* while setting it equal to *MyApp** will apply the rule to all apps with names beginning with *MyApp*.

   > *When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.*

   > *Changing the **Create from template** selection automatically clears all **Actions**, and changes the **Advanced > Conditions** text box accordingly.*

   Resource

Property name	Description
@<customproperty>	The custom property associated with the resource.
name	The name of the associated app.
owner.@<customproperty>	Owner property associated with the app. See the corresponding owner property for a description.

Property name	Description
owner.environment.browser	Owner property associated with the app. See corresponding owner property for description.
owner.environment.context	Owner property associated with the app. See corresponding owner property for description.
owner.environment.device	Owner property associated with the app. See corresponding owner property for description.
owner.environment.ip	Owner property associated with the app. See corresponding owner property for description.
owner.environment.os	Owner property associated with the app. See corresponding owner property for description.
owner.environment.secureRequest	Owner property associated with the app. See corresponding owner property for description.
owner.name	The user name of the owner of the resource.
owner.userDirectory	The user directory of the owner of the resource.
owner.userId	The user id of the owner of the resource.
stream.@<customproperty>	Owner property associated with the app. See corresponding owner property for description.
stream.name	The name of the associated stream.

7. Click the **Preview** tab under **Associated items** to view the access rights that your rule will create and the resources they apply to.

*You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.*

8. Click **Apply** in the action bar to create and save the rule or click **Cancel** to discard changes. **Successfully added** is displayed at the bottom of the page.

You have now created a new sync rule.

See also:

- *Resource edit page (page 23)*
- *Creating streams (page 159)*
- *Writing security rules (page 54)*
- *Security rule conventions (page 55)*

Previewing how sync rules affect node privileges

The **Preview** tab in the **Sync rules** page is similar to the search results page in the **Audit** page. The Preview tab shows the nodes' access rights to resources as defined by the sync rule that you are defining in the **Properties** tab.

Inactive users will not be shown.

Do the following:

1. Define a rule in the **Sync rule > Properties** tab and click **Preview**.
   The results are displayed in **Grid** mode by default, but you can toggle between the **List** and **Grid** views at any time.
   By default, the first round of query results are presented for 10 resources and 20 users. To see more click **See more items** at the bottom of the page.
2. Select a property to filter the results on from one or more of the drop-down lists above the search results.
   The list or grid is automatically filtered according to your selections.
   The default selection for all properties, with the exception of **Display**, is **All**. Next to **All** you see the number of available property items, if any.
3. Select further properties to filter on as required.

   *You can see the number of resources that the query returned in the drop-down filter that has the resource's name. To reset the filtering, set all the properties to **All**.*
4. In **Grid** display mode the types of access that apply to each resource and user are shown using a set of icons. See *Audit grid icons (page 120)*.
5. In **Grid** display mode, clicking on an item in the matrix opens the **Applicable rules** window.
   The **Applicable rules** window includes a series of tabs each containing more details on the rules, resources, and users associated with the user and resource you selected. The rules are color coded.

Color	Description
Green	Successful validation of the rule.
Yellow	Successful validation of the rule. But the rule is disabled.
Red	Invalid rule due to invalid conditions in the system rule setup.

   Click **Edit** to go to the Edit view of the selected resource or **OK** to close the window.

   Items that can be clicked on are highlighted in green when you move the cursor over them.
6. In **Grid** display mode, selecting an **Action** to filter on shows you the number of rules that exist per

resource and user.
Click on a number to open the **Applicable rules** window for more details on those rules.

7. In **List** display mode, clicking on an item opens a separate window with more details on the selected item.
Click **Edit** to go to the edit view of the selected resource or **OK** to close the window.

You have now previewed and filtered a sync rule.

See also:

- *Action (page 119)*
- *Display (page 119)*
- *Audit grid icons (page 120)*
- *Resources (page 119)*
- *Rule filter (page 118)*
- *Status (page 119)*
- *User (page 118)*

Creating sync rules with custom properties

Your company has a number of multi-node Qlik Sense installations that are spread out geographically across several countries. You need to create synchronization rules for all of your nodes.

You can set sync rules on individual nodes. However, given the multi-node scenario it will be easier to manage synchronization if you group nodes. Here you can consider grouping nodes by country, by function or both.

The following example will show how you can group nodes by both geography and function. Let's assume that you have one multi-node installation per geography. Here you want to create sync rules to synchronize each department node with the apps published on the corresponding departments' streams on the central node.

The same method can be applied to schedulers, proxies and engines.

Do the following:

1. Create a custom property called **Geographies**.
    a. Apply the custom property to the **Resource types Nodes**.
    b. Create the following values for the custom property **Geographies**: *USA*, *Canada*, and *Mexico*.
2. Add the custom property **Geographies** and **Departments** to the appropriate nodes.

*In this example the nodes with names including *F001 are located in Canada, *F002 in the USA and *F003 in Mexico.*

a. Select the appropriate nodes in the **Nodes** overview (using multi-select).
b. For example, set custom property **Geographies** to *Canada* and set the property **Departments** to *Sales*.
c. Repeat for all geographies and departments.

3. Create a sync rule that enables *Sales* nodes to synchronize apps in the sales streams on the **Central** node.
   a. Create a sync rule for **Resource** *App* and **Resuource type** *resource.stream.@department* = *Sales*.
      This means that the sync rule will apply to all apps in streams that have the custom property **Departments** set to the value *Sales*.
   b. Set the Node access conditions to @Geographies = Canada and @Departments = Sales.
      This means that the sync rule will only apply to nodes with the custom properties **Geographies** set to *Canada* and **Departments** set to *Sales*.
   c. Repeat for all geographies and departments.

You have now made it possible to administer node synchronization using geographies and departments.

3 Designing access control

There are concepts that are fundamental to understanding how to design access control in Qlik Sense. The following sections describe these concepts together with the conventions, rule syntax and editor with which you build and activate your attribute-based security rules:

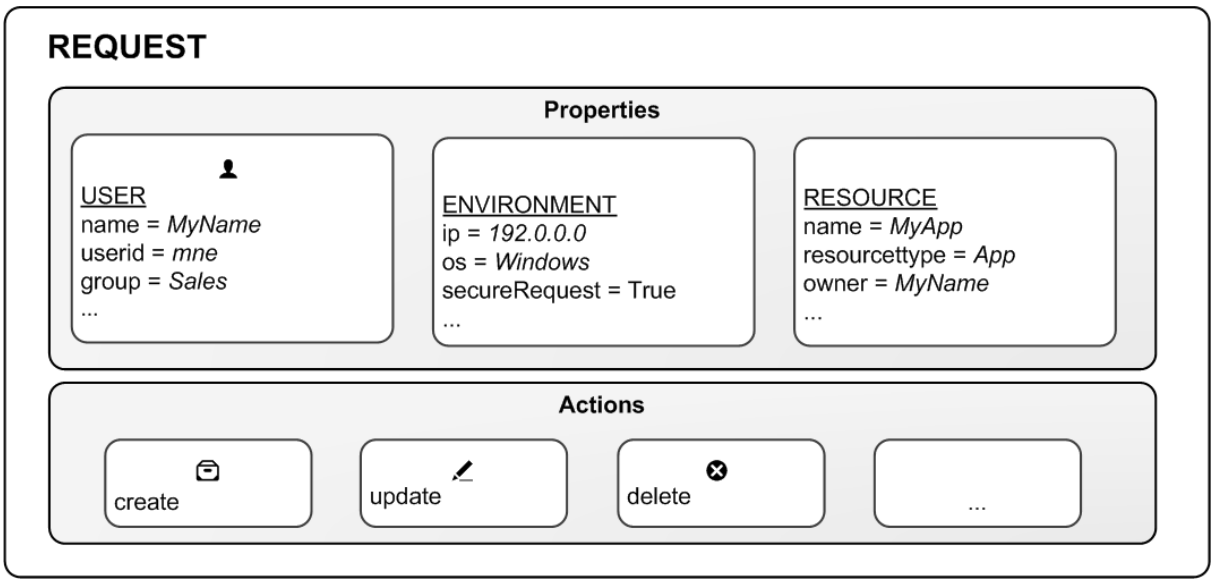
- Access control is property-based
- Security rules are inclusive by design

3.1 Property-based access control

Access control is property-based and the properties are used to describe the parties involved in an access request. In this case the parties involved are the:

- **User** making the request
- **Environment** the request is made from
- **Resource** the request applies to

Each property is defined by a value in a so called property-value pair such as "group = Sales" or "resourcetype = App". Each request in turn includes the property-value pairs for the users, environments and resources involved in the request together with the action that the requester wishes to perform on the resource, for example create, update or delete.



Access request

Evaluating access using rules

You can create rules based on the property-value pairs. By this we mean that requests for an action on a resource is granted only if the property value of the requester matches the property-value conditions defined in a security rule for that resource.

In general a rule can read as a sentence:

```
"Allow the requester to [action] the [resource] provided that
[conditions]."
```

Each rule must describe the action and the resource or resources the action should be applied to. If you don't define any rules for a resource then no users will have access to that resource.

You are not required to provide conditions. However, not doing this will result in the rule applying to all users and /or resources.

Having received the request the QMC's rule engine will evaluate the request against all rules that are applicable. Applicable rules are those that apply to the same resource type as the request. Each rule comes with a resource filter to save the engine from having to evaluate the request against all resources. Finally you can specify exactly which resource a rule applies to by providing resource property conditions in the condition.

The rule evaluation workflow

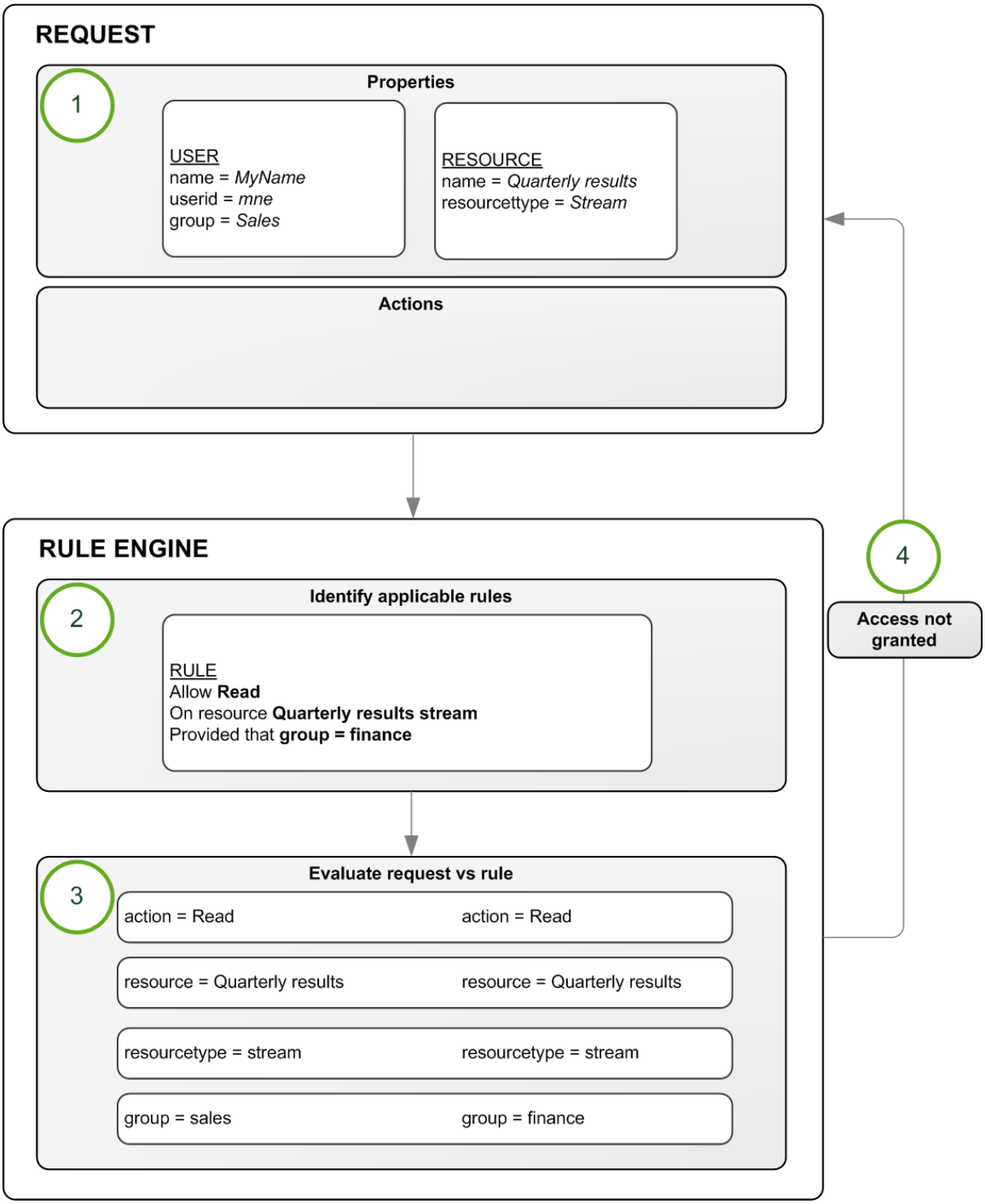
Example: One property-value pair in conditions:

For example, assume that you work in the sales department at your company and want to read the **Quarterly results** stream published by the financial department. In this case there is a rule on that stream that states that only users who belong to the Active Directory group finance are allowed to read that stream.

Translating this into a rule could look like this:

```
"Allow the user to [read] the [Quarterly results stream] provided that
[group=finance]."
```

In this example the rule will evaluate to False, that is to say you do not have read access because group does not equal finance for this user. In practice you will not even see the stream icon.



Rule evaluation

The rule evaluation workflow is:

1. Request to **[read]** the **[Quarterly results stream]** sent by user
2. The rule engine identifies which rules to evaluate the request against

3. The request is evaluated by the rule engine
4. If any criteria is not met, you are not granted access

Example: More than one property-value pair in conditions:

The rule evaluation workflow example was basic in that it has one action on one resource with one condition. However, the strength of the Qlik Sense security rules is that you can apply several actions to multiple resources with different conditions in **one rule**. Looking at the **Quarterly results** example, we could extend the rule to provide read and update access to both the finance and the management departments using their Active Directory groups as input:

```
"Allow the user to read AND update the [Quarterly results stream] provided
that group = finance OR group = management."
```

Predefined security rules in Qlik Sense

Qlik Sense is supplied with predefined sets of rules called **ReadOnly** and **Default** rules. These rules are supplied to make it possible for QMC administrators to maintain the Qlik Sense system and create, update and maintain security rules. ReadOnly rules are ones that are critical to the security of the QMC and cannot be edited. Default rules can be edited to suit your company and system requirements.

*If you edit a default rule, that is a rule that is supplied with Qlik Sense, the rule type definition changes from **Default** to **Custom**. Please keep in mind that changing a default rule, or adding a new rule that affects default rules, may cause unexpected behaviour in Qlik Sense. Use the rule preview feature to check rule behavior before implementing changes to default rules. Also keep in mind that only read only and default rules are automatically updated when you upgrade to a new Qlik Sense version.*

See also:

- *Security rules evaluation (page 50)*
- *Writing security rules (page 54)*

3.2 Security rules evaluation

Each time a user requests access to a resource, Qlik Sense evaluates the request against the security rules in the Qlik Sense system. If at least one rule evaluates to True then Qlik Sense will provide the user with access according to the conditions and actions described in the security rule. If no rules evaluate to True then the user will be denied access. The fact that Qlik Sense security rules are property-based makes Qlik Sense very scalable as you can build rules based on properties that apply to groups of users.

This inclusive method of security rule evaluation means that you should keep the following principles in mind when designing security for resources in Qlik Sense:

- Access is provided if at least one rule for the resource in question includes access rights for the user who is requesting access.
- You do not need to write rules that explicitly exclude users.
- Use roles, user types and group properties as far as possible when designing rules.

The rule preview and auditing tools can then be used to verify and validate that your rules work in practice.

Example 1: Only one rule required to provide user access

Your Finance department publishes financial results to a stream called *Quarterly results*. To begin with you only want users from the finance department to be able to read from this stream. In this case you need only create a security rule for finance department users that provides the Read action for the *Quarterly results* stream.

The easiest way to create this security rule is to go to the **Streams** overview in the QMC, select the stream from the list, click **Edit** and then add a user condition for **Read** to the stream in the **System rules** under the **Associated items** tab. You can either edit an existing rule, or create a new rule with the user condition for **Read**. As a condition you would preferably use either group property from the directory service. If available, these properties are shown in the drop-down menus in the **Basic** view. If the directory service does not include an appropriate group property you can create a custom property in the QMC, for example, the custom property **Departments** with the value **Finance**.

Example 2: More than one rule applies to the user

In the *Quarterly results* example we created a rule (Rule 1) that allows users belonging to Active Directory group Finance to read the Quarterly results stream. Assume that another rule (Rule 2) giving users belonging to the Active Directory (AD) group Management read access to the Quarterly results steam.

Finally, assume that the Sales director belongs to both Active Directory groups Sales and Management.

	Rule 1	**Rule 2**
Allow users to	Read	Read
On resource	Quarterly results stream	Quarterly results stream
Provided that	group=Finance	group=Management
Evaluates to	FALSE	True
Resulting access for Sales director	Provide read access	

Example 3: More than one rule with different access rights

In the Quarterly results example we created a rule (Rule 1) that allows users belonging to Active Directory group Finance to read the Quarterly results stream. Assume that another rule (Rule 2) giving users belonging to the Active Directory (AD) group Management read access to the Quarterly results stream. Finally, Rule 3 allows Management users to update apps in streams that they have read access to.

Assume that the Sales director belongs to both Active Directory groups Sales and Management.

	Rule 1	Rule 2	Rule 3
Allow users to	Read	Read	Update
On resource	Quarterly results stream	Quarterly results stream	All apps and sheets if user has read access to stream
Provided that	group=Finance	group=Management	group=Management
Evaluates to	FALSE	True	True
Resulting access for Sales director	Provide read and update access		

Example 4: Out-of-the-box Qlik Sense rules

The Finance office in the UK has published an app to the Quarterly results stream called UK quarterly report. They want Finance users in the UK office to be the only users with read access to that app. For this purpose the UK administrator creates Rule 3 that explicitly states that only users belonging to AD group Finance and UK office have read access. Also assume that Rule 2 from Example 1 and the out-of-the-box Stream rule are also in place.

In this case Finance in the UK may have assumed that the Sales director would not be able to read the UK quarterly report app. However, this is not True since Rule 2 allows management to read the Quarterly reports stream and the Stream rule allows all users that have read access to the Quarterly reports stream to read all apps on that stream.

	Rule 2	Rule 3	Stream rule
Allow users to	Read	Read	Read
On resource	Quarterly reports stream	UK quarterly report app published on Quarterly reports stream	All apps and sheets in a stream
Provided that	group=Management	group=Finance AND office=UK	User has read access to the stream
Evaluates to	True	FALSE	True
Resulting access for Sales director	Provide read access		

See also:

- *Property-based access control (page 47)*
- *Writing security rules (page 54)*
- *Auditing access control (page 113)*
- *Previewing rules (page 120)*

- *Defining customized roles in the QMC (page 209)*

Overlapping rules

As you develop rules you will eventually have rules that overlap. By this we mean that conditions in two or more rules target the same user or users. If rules overlap, the rule that provides access will prevail.

Qlik Sense evaluates each rule in turn. If one rule provides access of a certain type, Qlik Sense provides that access.

If we consider two rules that overlap the following types of overlap can typically occur:

- **Identical**
  Both rules provide read access to the user. In this case read access will be provided.
- **Complementary**
  One rule provides read and the other provides update. In this case, the user is provided with both read and update access.

You can view which user security rules apply to a resource using the Audit page in the QMC. See *Audit (page 114)*. You can also preview the effects of a rule. See *Previewing how security rules affect user privileges (page 79)*.

Example 1:

In the example *One property-value pair in conditions: (page 48)* we created a rule (Rule 1) that allows users belonging to Active Directory group Finance to read the Quarterly results stream. Assume that another rule (Rule 2) giving users belonging to the Active Directory (AD) group Management read access to the Quarterly results steam.

Finally, assume that the Sales director belongs to both Active Directory groups Sales and Management.

	Rule 1	**Rule 2**
Allow users to	Read	Read
On resource	Quarterly reports stream	Quarterly reports stream
Provided that	group=Finance	group=Management
Evaluates to	FALSE	TRUE
Resulting access for Sales director	**Provide** read access	

Example 2:

The Finance office in the UK have published an app to the Quarterly reports stream called **UK quarterly outlook**. They want Finance users in the UK office to be the only users with read access to that app. For this

purpose the UK administrator creates Rule 3 that explicitly states that only users belonging to AD group Finance and UK office have read access. Also assume that Rule 2 from Example 1 and the out-of-the-box **Stream** rule are also in place.

In this case Finance in the UK may have assumed that the Sales director would not be able to read the UK quarterly outlook app. However, this is not true since Rule 2 allows management to read the Quarterly reports stream and the Stream rule allows all users that have read access to a stream to read all apps on that stream.

	Rule 3	**Rule 2**	**Stream rule**
Allow users to	Read	Read	Read
On resource	UK quarterly report published on Quarterly reports stream	Quarterly reports stream	All apps and sheets in a stream
Provided that	group=Finance OR office=UK	group=Management	User has read access to the stream
Evaluates to	FALSE	TRUE	TRUE
Resulting access for Sales director	**Provide** read access		

3.3 Writing security rules

Security rules are written in the security rules editor.

*You can specify where a security rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**. This is done using the **Context** property when creating or editing a security rule. For example, the RootAdmin rule applies in the QMC only as the RootAdmin would otherwise have access, and see, all content in Qlik Sense.*

The following describes the:

- The security rule editor
- Security rule conventions
- Security rule examples

The security rule editor

You can create new security rules in the Security rule editor.

Do the following:

1. Select **Security rules** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** or select an existing rule and click **Edit**.

The security rules editor has several properties. You can create basic security rules, or use the **Conditions** field in the **Advanced** section to edit the rule details and create more advanced security rules, or you can write the rule directly in the **Conditions** text box.

*If you create rules using the **Advanced** section, please note that you will need to specify the **Actions** using the checkboxes in the **Basic** section.*

*Rules that are specific to streams and data connections can be created and changed from the **Streams** and **Data connections** pages.*

When do I use the **Basic** section?

The **Basic** section provides an efficient way to either create:

- Rules that apply to one resource type only
- The base for more advanced rules

Creating rules for one resource type only

Using the **Create from template** drop down (in the **Identification** section) to select a resource type, will set the **Resource filter** (in the **Advanced** section) to that selection. It will also automatically generate a resource filter that explicitly points out that resource type. For example, selecting **App access rule** will set the resource filter to App_*. This means that the QMC will only evaluate the rule for apps. See *Naming resources in the Resource filter (page 63)*.

However, you cannot select more than one resource type from the basic view. If you want to add more resource types to the resource filter, or the resource conditions, you must edit the **Resource filter** and **Conditions** fields in the **Advanced** section.

Creating a base for more advanced rules

You can use the **Basic** section to quickly create the base for a rule. For example, you can define one resource type to apply the rule to and then a set of conditions that you will manipulate with operators other than AND/OR in the **Conditions** text field in the **Advanced** section. Using the **Advanced** section also enables you to use the built-in functions provided with the editor. See *Security rule conventions (page 55)*.

Backtracking between the **Advanced** and **Basic** sections

To enable synchronization between the **Basic** and **Advanced** sections (so called backtracking), extra parenthesis are added to conditions created using the **Basic** section. Similarly, a user definition with an empty condition is automatically included in the **Conditions** text field if you add a resource using the **Basic** section. However, if you create your rule using the **Advanced** section only, and do not need backtracking, you do not need to follow these conventions.

Security rule conventions

In general a rule can read as a sentence:

```
"Allow the requester to [action] the [resource] provided that
[conditions]."
```

This section describes the action, resource, conditions and other properties that can be used to build a rule.

You can create rules for users that are not yet in the system or resources that do not yet exist in the system. This enables you to proactively create rules. However, the rules cannot evaluate until the users are authenticated in the system or the resources, such as apps, actually exist.

Reading the security rule syntax notation

The security rules syntax notation is as follows:

- words written outside brackets in regular text are mandatory (required).
- words or characters written in **bold** outside or inside brackets are mandatory.
- words written in *italic* inside brackets are optional.
- words in green in the syntax descriptions are links to further information on the syntax.

Security rule properties

Actions

A mandatory definition of the actions that the user will be allowed to perform on the resources if the rule evaluates to True. (MANDATORY)

```
action [, action]
```

Resource filter

A mandatory definition of the type or types of resources that the security rule will be evaluated for. (MANDATORY)

```
resourcetype1[*][_*][, resourcetype2[*][_*], ...]
```

Context

You can specify whether the security rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**.

Name

A name to identify the security rule. (MANDATORY)

Disabled

Mark the checkbox to disable the security rule. The effect of disabled rules can still be evaluated using the Preview tab or the audit tool. (OPTIONAL)

Description

A short description of the intention with the rule. (OPTIONAL)

Tags

You can add QMC tags to the security rule. (OPTIONAL)

Conditions for security rules

Define resource and/or user conditions that should be met for the rule to apply. (OPTIONAL).

Conditions are defined using property-value pairs. You are not required to specify resource or user conditions. In fact, you can leave the **Conditions** field empty.

*If you define a rule without specifying at least one **Resource** or **User** condition, your rule will apply to all resources and/or users as indicated by **(ALL)** next to the condition heading.*

```
[resource.resourcetype = "resourcetypevalue"] [OPERAND]
[(((resource.property = propertyvalue) [OPERAND (resource.property =
propertyvalue)))]
```

See also:

- *Properties (page 68)*
- *Defining resource filters (page 63)*
- *Previewing how security rules affect user privileges (page 79)*

Operands and functions for conditions

The QMC includes several pre-defined functions that can be used to return property values from targeted resources.

AND

This operand compares two expressions and returns True only if both evaluate to True.

Syntax:

```
(EXPRESSION) && (EXPRESSION)
(EXPRESSION) and (EXPRESSION)
```

Examples and results:

Example	Result
`(resource.@org = "UK") && (user.name = "John Doe")`	Evaluates to True only if both expressions are True.
`(resource.@org = "UK") and (user.name = "John Doe")`	Same as above but using "and" notation instead of "&&".

EQUAL

This operand is not case sensitive and returns True if the compared expressions are equal. The full list does not have to match when a value used in an expression exists in a list.

Syntax:

```
(EXPRESSION) = (EXPRESSION)
```

Examples and results:

Example	Result
Given that **@org = "uk"** in the access request.	resource.@org = "UK" evaluates to True because the operand is not case sensitive.
Given that **@org = "UK"** in the access request.	resource.@org = "UK" evaluates to True.
Given that **@org = "United Kingdom"** in the access request.	resource.@org = "UK" evaluates to False.
`resource.groups = user.groups`	Evaluates to True if the properties for the groups are the same, irrespective of case. Otherwise False.

LIKE

The security rules editor supports the regular expression operator "like". This operand is not case sensitive.

For more information, see applicable javascript documentation.

Syntax:

```
(EXPRESSION) like (EXPRESSION)
```

Examples and results:

Example	Result
resource.name like "mya*"	Evaluates all resources with names beginning with "*mya*" irrespective of case to True.  *Entering an asterisk at the end of the condition in the Basic view automatically translates to "like" in the condition in the Advanced view.*

NOT

This operand inverts the Boolean value of an expression and returns True if the expression is False and returns False if the expression is True.

Syntax:

```
!(EXPRESSION)
```

Examples and results:

Example	Result
Given that @org = "UK" in access request	!(resource.@org = "UK") evaluates to False.
Given that @org = "US" in access request	!(resource.@org = "UK") evaluates to True.

MATCHES

The security rules editor supports the regular expression operator "matches". This operand is case sensitive and returns only results that exactly match your expression.

For more information see applicable javascript documentation.

Syntax:

```
(EXPRESSION) matches (EXPRESSION)
```

Examples and results:

Example	Result
resource.name matches ".*yAp.*"	Evaluates all resources with names containing "*yAp*" to True.
resource.resourcefilter matches Stream_\\w{8}-\\w{4}-\\w{4}-\\w{4}-\\w{12}	Evaluates to True if the access request resource filter has the correct format.

NOT EQUAL

This operand is not case sensitive and returns True if the compared expressions are not equal. The full list does not have to match when a value used in an expression exists in a list.

Syntax:

```
(EXPRESSION) != (EXPRESSION)
```

Examples and results:

Example	Result
Given that **@org = "uk"** in the access request	resource.@org != "UK" evaluates to False because the operand is not case sensitive.
Given that **@org = "UK"** in the access request	resource.@org != "UK" evaluates to False.

Example	Result
Given that **@org = "United Kingdom"** in the access request	resource.@org != "UK" evaluates to True.
`resource.groups = user.groups`	Evaluates to False if the properties of the groups are the same irrespective of case. Otherwise True.

OR

This operand compares two expressions and returns True if one or both evaluate to True.

Syntax:

```
(EXPRESSION) || (EXPRESSION)
(EXPRESSION) or (EXPRESSION)
```

Examples and results:

Example	Result
`(resource.@org = "UK") || (resource.@org = "US")`	Evaluates to True only if any of the expressions are True.
`(resource.@org = "UK") or (resource.@org = "US")`	Same as above but using "or" notation instead of "||".

STRICT EQUAL

This operand is case sensitive and returns True if the compared expressions are exactly equal. The full list does not have to match when a value used in an expression exists in a list.

Syntax:

```
(EXPRESSION) == (EXPRESSION)
```

Examples and results:

Example	Result
Given that **@org = "united States"** in the access request	resource.@org == "United States" evaluates to False because operand is case sensitive.
Given that **@org = "United States"** in the access request	resource.@org == "United States" evaluates to True
Given that **@org = "US"** in the access request	resource.@org == "United States" evaluates to False

STRICT NOT EQUAL

This operand is case sensitive and returns True if the compared expressions are exactly not equal. The full list does not have to match when a value used in an expression exists in a list.

Syntax:

```
(EXPRESSION) !== (EXPRESSION)
```

Examples and results:

Example	Result
Given that **org = "united States"** in the access request	resource.org !== "United States" evaluates to True because operand is case sensitive.
Given that **org = "United States"** in the access request	resource.org !== "United States" evaluates to False
Given that **org = "US"** in the access request	resource.org !== "United States" evaluates to True

HasPrivilege

Boolean function for resource conditions that returns True if the user making the request has the specified access right for the targeted resource or resources. Otherwise returns False.

Syntax:

```
resource.HasPrivilege("action")
```

Properties:

Property	Description
action	MANDATORY. The action that you want to evaluate access right for.

Examples and results:

Example	Result
Resource filter: `*` **Conditions:** `resource.resourcetype = "App"` `and resource.Stream.HasPrivilege("read")` **Action:** `read`	The user will be given read access to the app provided that the user has read privileges to the stream that the resource is published to.

IsAnonymous

Boolean function for user conditions that returns True if the user requesting access has logged in as anonymous. Otherwise returns False.

Syntax:

```
user.IsAnonymous()
```

Examples and results:

Example	Result
Resource filter: `Stream_*` **Conditions:** `user.IsAnonymous()` **Action:** `read`	Anonymous users are allowed to read streams.
Resource filter: `Stream_*` **Conditions:** `!user.IsAnonymous()` **Action:** `read, publish`	All users that are **not anonymous** (notice the NOT operator, !, in front of the condition) are allowed to read and publish streams. Anonymous users will have no access to streams.

Empty

Boolean function for resource conditions that returns True if the specified resource has no connections. Otherwise returns False.

Syntax:

```
resource.resourcetype.Empty()
```

Examples and results:

Example	Result
Resource filter: `App_*` **Conditions:** `resource.stream.Empty()` **Action:** `update`	This rule lets the user update an app, provided that the app is not connected (published) to a stream.
Resource filter: `App.Sheet_*` **Conditions:** `resource.app.stream.Empty()` **Action:** `update`	This rule lets the user update sheets, provided that the app that the sheet belongs to is not published to a stream.

IsOwned

Boolean function **for resource conditions** that returns True if the specified resource has an owner. Otherwise returns False.

Syntax:

```
resource.IsOwned()
```

Examples and results:

Example	Result
Resource filter: `*` **Conditions:** `resource.IsOwned() and resource.owner = user` **Action:** `read, export, publish`	The owner of a resource should be able to read, export and publish his / her resources. Here the conditions specify that the resource must be owned and the owner must be the requesting user for the rule to apply. *This is the definition of the OwnerNonModificationActions rule, a custom rule supplied with the QMC. Complements the Owner rule that provides resource owners with all actions provided that the resource is not published to a stream.*

Defining resource filters

To make applying rules as efficient as possible it is advised that you narrow the number of resources for which the rule editor will evaluate rules. This is done by applying a resource filter to the security rule. The resource filter either explicitly or implicitly defines the types of resources that the rule should be applied to.

You can narrow the number of resources by adding resources and / or user conditions. You can see which resource filters have been used in a security rules either in the Audit page, the Security rules overview or Security rule edit page.

Naming resources in the Resource filter

The following conventions are available when defining resource filters:

- **Explicit naming**
  Define the resource using the resource GUID.
  For example "Stream_88ee46c6-5e9a-41a7-a66a-f5d8995454ec"

  You can see the GUID for data connections, login access and streams in the Security rules overview page > Resource filter provided that you have created access rights for those resources using their respective overview pages.

- **Explicit type naming using wildcard (_*)**
  Use the "_*" wildcard to explicitly define the type of resource to apply the rule to.
  For example, "App_*" will apply the rule to all App resources only.
- **Implicit type naming using wildcard (*)**
  Use wildcard to define the resource or resources.
  For example, "App*" will apply the rule to all resources beginning with "App". This means that this rule will apply to apps, sheets, stories, data and objects.

Specifying a single resource

To define a single resource type simply select the resource type from the **Resource** drop-down list in the Basic view of the Security rules Edit page. The **Resources** and **Conditions** fields in the Advanced view will automatically be filled in.

Examples and results:

Example	Result
Select **App** from the **Resource** drop-down list.	The following texts appear in the Advanced view: **Resource*** `App*` **Conditions*** `resource.resourcetype="App" and ( )`
`Stream_88ee46c6-5e9a-41a7-a66a-f5d8995454ec`	The rule applies to the stream with the specified GUID.

Defining multiple resource types

Type the names of the resource types you want to apply the rule to in the Resource filter field. You can write explicit resource names that include the resource GUID or use wildcards to imply all resources of a specific type.

*If you define a rule without specifying at least one **Resource** or **User** condition, your rule will apply to all resources and/or users as indicated by **(ALL)** next to the condition heading.*

Examples and results:

Example	Result
`App*, Streams*`	The rule will apply to apps, sheets, stories, data, objects and streams.
`App_*, Streams*`	The rule will apply to apps and streams.
`Stream_\w{8}-\w{4}-\w{4}-\w{4}-\w{12}`	The rule will apply to all existing streams using their resource ID.

Available resource filters

The following table lists the resource objects and the resource filters that can be used to target them.

Resource filter	Filter will target	Used in Security rule
*	All resources	Owner QMC, RootAdmin, ServiceAccount
App*	All resources with the resource type beginning with "App"	ContentAdmin, DeploymentAdmin, SecurityAdmin, Stream

Resource filter	Filter will target	Used in Security rule
App_*	All App resources	CreateApp, DeploymentAdminAppAccess, ExportAppData
App.DataSegment_*	All App.Data resources	ReadAppDataSegments, UpdateAppDataSegments
App.Object_*	All App.Object resources	OwnerCanEditPrivateObjectsInPublished Apps
CompositeEvent_*	All CompositeEvent resources	ContentAdmin
ContentLibrary_*	All ContentLibrary resources	ContentAdmin
CustomProperty*	All CustomProperty resources	ContentAdmin, DeploymentAdmin, SecurityAdmin
DataConnection_*	All DataConnection resources	ContentAdmin, DataConnection, SecurityAdmin, FolderDataConnection
Engine*	All resources with names beginning with "Engine"	DeploymentAdmin
Extension_*	All Extension resources	Extension
FileReference_*	The FileReference resource	ReadFileReference
License_*	All License resources	AuditAdminQmcSections, ContentAdminQmcSections, DeploymentAdmin, DeploymentAdminQmcSections, SecurityAdminQmcSections
License*	All License resources	DeploymentAdmin
LoadbalancingSelectList	The LoadbalancingSelectList resource	DeploymentAdminQmcSections
Proxy*	All resources with names beginning with "Proxy"	DeploymentAdmin, SecurityAdmin
QmcSection_App	The QmcSectionApp resource	ContentAdminQmcSections, DeploymentAdminQmcSections, SecurityAdminQmcSections
QmcSection_ App.Object	The QmcSectionApp.Object resource	SecurityAdminQmcSections, ContentAdminQmcSections
QmcSection_Audit	The QmcSectionAudit resource	AuditAdminQmcSections, ContentAdminQmcSections, SecurityAdminQmcSections

Resource filter	Filter will target	Used in Security rule
QmcSection_ Certificates	The QmcSectionCertificate resource	DeploymentAdminQmcSections, SecurityAdminQmcSections
QmcSection_ CompositeEvent	The QmcSectionCompositeEvent resource	ContentAdminQmcSections
QmcSection_ ContentLibrary		SecurityAdminQmcSections, ContentAdminQmcSections
QmcSection_ CustomPropertyDefinition	The QmcSectionCustomPropertyDefinition resource	ContentAdminQmcSections, DeploymentAdminQmcSections, SecurityAdminQmcSections
QmcSection_ DataConnection	The QmcSectionDataConnection resource	ContentAdminQmcSections, SecurityAdminQmcSections
QmcSection_ EngineService	The QmcSectionEngineService resource	DeploymentAdminQmcSections
QmcSection_Event	The QmcSectionEvent resource	ContentAdminQmcSections
QmcSection_Extension	The QmcSection_Extension resource	ContentAdminQmcSections
QmcSection_License*	The QmcSectionLicense resource	DeploymentAdminQmcSections
QmcSection_ ProxyService	The QmcSectionProxyService resource	DeploymentAdminQmcSections, SecurityAdminQmcSections
QmcSection_ ReloadTask	The QmcSectionReloadTask resource	ContentAdminQmcSections
QmcSection_ RepositoryService	The QmcSectionRepositoryService resource	DeploymentAdminQmcSections
QmcSection_ SchedulerService	The QmcSectionSchedulerService resource	DeploymentAdminQmcSections
QmcSection_ SchemaEvent	The QmcSectionSchemaEvent resource	ContentAdminQmcSections
QmcSection_ ServerNodeConfiguration	The QmcSectionServerNodeConfiguration resource	DeploymentAdminQmcSections
QmcSection_Stream	The QmcSectionStream resource	ContentAdminQmcSections, SecurityAdminQmcSections
QmcSection_SyncRule	The QmcSectionSyncRule resource	DeploymentAdminQmcSections

Resource filter	Filter will target	Used in Security rule
QmcSection_ SystemRule	The QmcSectionSystemRule resource	SecurityAdminQmcSections
QmcSection_Tag	The QmcSectionTag resource	AuditAdminQmcSections, ContentAdminQmcSections, SecurityAdminQmcSections
QmcSection_Task	The QmcSectionTask resource	ContentAdminQmcSections, DeploymentAdminQmcSections
QmcSection_ Templates	The QmcSectionTemplates resource	DeploymentAdminQmcSections, SecurityAdminQmcSections
QmcSection_Token	The QmcSectionToken resource	DeploymentAdminQmcSections
QmcSection_User	The QmcSectionUser resource	ContentAdminQmcSections, DeploymentAdminQmcSections, SecurityAdminQmcSections
QmcSection_ UserDirectory	The QmcSectionUserDirectory resource	DeploymentAdminQmcSections
QmcSection_ UserSyncTask	The QmcSectionUserSyncTask resource	ContentAdminQmcSections
QmcSection_ VirtualProxyConfig	The QmcSectionVirtualProxyConfig resource	DeploymentAdminQmcSections, SecurityAdminQmcSections
ReloadTask_*	All ReloadTask resources	ContentAdmin, DeploymentAdmin
Repository*	All resources with names beginning with "Repository"	DeploymentAdmin
ServiceStatus_*	All ServiceStatus resources	DeploymentAdminQmcSections
Scheduler*	All resources with names beginning with "Scheduler"	DeploymentAdmin
SchemaEvent_*	All SchemaEvent resources	ContentAdmin, DeploymentAdmin
ServiceStatus_*	All ServiceStatus resources	DeploymentAdmin
ServerNodeConfiguration_*	All ServerNodeConfiguration resources	DeploymentAdmin
StaticContentReference_*	All StaticContentReference resources	Content library content, Content library manage content, Extension static content, Installed static content
Stream_*	All stream resources	ContentAdmin, SecurityAdmin

Resource filter	Filter will target	Used in Security rule
Stream_de5e4a31-c08d-48ed-8aec-85a9ea190850	The Everyone stream that has the GUID de5e4a31-c08d-48ed-8aec-85a9ea190850	StreamEveryone, StreamEveryoneAnonymous
SystemRule_*	All ServiceStatus resources	ContentAdminRulesAccess, DeploymentAdminRulesAccess, SecurityAdmin
TempContent_*	All TempContent resources	Temporary content
Tag_*	All Tag resources	AuditAdmin, ContentAdmin, DeploymentAdmin, SecurityAdmin
User*	All resources with names beginning with "User"	ContentAdmin, DeploymentAdmin, SecurityAdmin
UserAccessType_*	All UserAccessType resources	DeploymentAdmin
UserAccessUsage_*	All UserAccessUsage resources	DeploymentAdmin
UserSyncTask_*	All UserSyncTask resources	ContentAdmin, DeploymentAdmin
VirtualProxy*	All resources with names beginning with "VirtualProxy"	DeploymentAdmin, SecurityAdmin

Properties

In Qlik Sense attributes are referred to as properties. Properties are used to identify the user who is requesting access, the resource that is impacted by the request and the environment from which the request is made. In Qlik Sense you can use default property types that are supplied out-of-the-box, properties supplied by the directory services through user directory connections or you can define your own customized properties. See *Custom properties (page 68)*.

Default properties

Qlik Sense provides default properties that you can use to describe the subject (user), environment and resources. In the example *One property-value pair in conditions: (page 48)* the user group membership (AD group) was used as a property to identify the user. We could also have added an environment property, such as IP or request type, to limit the access to one or more IP addresses or HTTPS request types respectively.

Directory services properties

As you connect Qlik Sense to directory services, using user data connections in the QMC, the user properties from the directory services will be made available to you. You can see the properties in the user condition drop-down list when you create rules.

Custom properties

Custom properties enable you to define properties of your own and assign possible values. This enables you to complement default environment properties with properties of your own. Custom properties also enable you to work with user roles or types.

For example you may have Qlik Sense developers, contributors and consumers in your organization. Let's assume that these user types are not defined as groups in your directory service. With custom properties you have the option of defining a **UserType** property. You can now assign the possible values **Developer**, **Contributor** or **Consumer** to your users and then applying rules per user type instead of applying them to individuals or to user group memberships.

You can see the custom properties in the user condition drop-down list when you create rules. Custom properties have the "**@**" suffix in the list.

Examples:

- *Security rules example: Applying Qlik Sense access rights for user types (page 87)*
- *Creating sync rules with custom properties (page 45)*

Creating security rules

You can create security rules.

*If you define a rule without specifying at least one **Resource** or **User** condition, your rule will apply to all resources and/or users as indicated by **(ALL)** next to the condition heading.*

Do the following:

1. Select **Security rules** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
   This opens the **Security rule edit** page.
3. In the **Identification** view, select the type of resource you want to create a rule for from the **Create from template** drop-down list.

   *Changing the **Create from template** selection automatically clears all **Actions**, and changes the **Advanced > Conditions** text box accordingly.*

Property	Security rule will be applied to
Unspecified resource rule	Access rules
App access rule	Apps
App object access rule	Objects The Objects' objectTypes, for example: sheet, story, bookmark, measure or dimension.

Property	Security rule will be applied to
Content library access rule	Content libraries
Data connection access rule	Data connections
Extension access rule	Extensions
Reload task access rule	Reload tasks
Node access rule	The configuration of Qlik Sense nodes
Stream access rule	Streams
User access rule	Users
Security rule access rule	Security rules
User directory connector access rule	User directories
User sync task access rule	User synchronization tasks

For example, if you create an **App access rule** and set the resource condition **Name** to *MyApp*, it means that the rule applies to the app named *MyApp*. However, setting **Name** to *MyApp** will apply the rule to all apps with names beginning with *MyApp*.

4. In the **Basic** section, click ⊕ to add more conditions (optional).

   When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.

Property name	Available in	Description
@<customproperty>	App, App.Object, DataConnection, ReloadTask, ServerNodeConfiguration, Stream, Task	The custom property associated with the resource.
resource.@<customproperty>	App.Object, ReloadTask	The custom property associated with the resource.

Property name	Available in	Description
app.name	App.Object, ReloadTask	The name of the associated app.
app.owner.@<customproperty>	ReloadTask	The custom property associated to the stream of an app. See the corresponding owner property for a description.
app.owner.email	ReloadTask	Owner property associated with the app. See the corresponding owner property for a description.
app.owner.environment.browser	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.context	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.device	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.ip	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.os	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.secureRequest	ReloadTask	Owner property associated with the app. See corresponding owner property for description.

Property name	Available in	Description
app.owner.group	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.name	ReloadTask	The user name of the owner of the resource.
app.owner.userDirectory	ReloadTask	The user directory of the owner of the resource
app.owner.userId	ReloadTask	The user id of the owner of the resource
app.stream.@<customproperty>	App.Object, ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.stream.name	App.Object, ReloadTask	The name of the associated stream.
category	SystemRule	The system rule category: License, Security or Sync.
description	User	The description of the owner retrieved from the user directory.
email	User	The email addresses that are available from the connected user directories.

Property name	Available in	Description
environment.browser	User	Security rule will be applied to the type of browser. Supported browsers: Chrome, Firefox, Safari, MSIE or Unknown. **Example 1:** Define browser and version: Firefox 22.0 Chrome 33.0.1750.154 *If the browser information contains a slash (/), replace it with a space.* **Example 2:** Use the wildcard (*) to include all versions of the browser: environment.browser = Chrome*
environment.context	User	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
environment.device	User	Security rule will be applied to the type of device. Available preset values: iPhone, iPad or Default.
environment.ip	User	Security rule will be applied to an IP number.

Property name	Available in	Description
environment.os	User	Security rule will be applied to the type of operating system. Available preset values: Windows, Linux, Mac OS X or Unknown.
environment.secureRequest	User	Security rule will be applied to the type of request. Available preset values: SSL True or False.
group	User	The group memberships of the owner retrieved from the user directory.
roles	User	A role that is associated with the user.
name	App, App.Object, DataConnection, Extension, License.LoginAccessType, ReloadTask, ServerNodeConfiguration, Stream, User, UserDirectory, UserSyncTask, SystemRule,	The name of the resource or user.
objectType	App.Object	The type of app object. Available preset values: story, masterobject, properties, sheet, dimension.
owner.@<customproperty>	App, App.Object, DataConnection, Extension, Stream	The custom property associated with the owner of the resource.
owner.description	App, DataConnection, Extension, Stream	The description of the owner retrieved from the user directory.

Property name	Available in	Description
owner.email	App, App.Object, DataConnection, Extension, Stream	The email of the owner retrieved from the user directory.
owner.environment.browser	App, App.Object, DataConnection, Extension, Stream	The browser environment of the owner of the resource.
owner.environment.context	App, App.Object, DataConnection, Extension, Stream	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
owner.environment.device	App, App.Object, DataConnection, Extension, Stream	The device environment of the owner of the resource.
owner.environment.ip	App, App.Object, DataConnection, Extension, Stream	The IP environment of the owner of the resource.
owner.environment.os	App, App.Object, DataConnection, Extension, Stream	The OS environment of the owner of the resource.
owner.environment.secureRequest	App, App.Object, DataConnection, Extension, Stream	Indicates if the sent request is encrypted or not, that is using SSL or not (True or False).
owner.group	App, App.Object, DataConnection, Extension, Stream	The group memberships of the owner retrieved from the user directory.
owner.name	App, App.Object, DataConnection, Extension, Stream	The user name of the owner of the resource.
owner.userDirectory	App, App.Object, DataConnection, Extension, Stream	The user directory of the owner of the resource

Property name	Available in	Description
owner.userId	App, App.Object, DataConnection, Extension, Stream	The user id of the owner of the resource.
published	App.Object	The status of the app object.
resourceFilter	SystemRule	The existing resource definitions (from the Resource column in the security rules overview).
ruleContext	SystemRule	Specifies whether the rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**.
stream.@<customproperty>	App	The custom property associated with the stream.
stream.name	App	The name of the associated stream.
type	SystemRule, DataConnection	The type of security rule or data connection.
userid	User	A user's ID.
userdirectory	User	The name of a user directory.
userDirectory.name	UserSyncTask	The name of the user directory connection that the user sync task applies to.
userDirectory.userDirectoryName	UserSyncTask	The name of the user directory that the user directory connector is connected to.
userDirectoryName	UserDirectory	The name of the user directory connection in the QMC.

*For some resources (for example, environment.browser), you need to select the checkbox **Extended security environment** in the proxy settings.*

5. Select the applicable **Actions** checkboxes to assign access rights to the user for the resource.

Property name	Description
create	Create resource
read	Read resource
update	Update resource
delete	Delete resource
export	Be able to export a resource to a new format, for example Excel
publish	Be able to publish a resource to a stream
changeOwner	Be able to change the owner of a resource
changeRole	Be able to change user role
exportData	Be able to export data from an object

6. Select a user condition that specifies which users the rule will apply to.

Environment data received from external calls, for example type of OS or browser, is not secured by the Qlik Sense system.

Any user properties contained in connected user directories will be shown in the drop-down list. This could, for example, be an email address or department name.

Property	Description
@<customproperty>	A custom property associated with the user.
name	A user's full name.
userdirectory	The name of a user directory.
userid	A user's ID.
description	The description of the owner retrieved from the user directory.
email	The email addresses that are available from the connected user directories.
group	The group memberships of the owner retrieved from the user directory.

Property	Description
environment.browser	Security rule will be applied to the type of browser. Supported browsers: Chrome, Firefox, Safari, MSIE or Unknown. **Example 3:** Define browser and version: Firefox 22.0 Chrome 33.0.1750.154 *If the browser information contains a slash (/), replace it with a space.* **Example 4:** Use the wildcard (*) to include all versions of the browser: environment.browser = Chrome*
environment.context	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
environment.device	Security rule will be applied to the type of device. Available preset values: iPhone, iPad or Default.
environment.ip	Security rule will be applied to an IP number.
environment.os	Security rule will be applied to the type of operating system. Available preset values: Windows, Linux, Mac OS X or Unknown.
environment.secureRequest	Security rule will be applied to the type of request. Available preset values: SSL True or False.

7. In the **Identification** property, give the security rule a name in the **Name** text box.

Property	Description
Name	The name of the rule.

8. Click **Disabled** if you do not want to enable the rule at this time.
9. In the **Advanced** view, select where the rule should be applied from the **Context** drop-down list.

Property	Description
Context	Specifies whether the rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**.

10. Click the **Preview** tab to view the access rights that your rule will create and the users they apply to. See *Previewing how security rules affect user privileges (page 79)*

    *You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.*

11. Click **Apply** in the action bar to create and save the rule or click **Cancel** to discard changes. **Successfully added** is displayed at the bottom of the page.

You have now created a new security rule.

See also:

- *Writing security rules (page 54)*
- *Security rules examples (page 82)*
- *Operands and functions for conditions (page 57)*
- *Security rules properties (page 93)*
- *Creating streams (page 159)*
- *Allocating user access (page 186)*
- *Security rule conventions (page 55)*
- *Overlapping rules (page 53)*

Previewing how security rules affect user privileges

The **Preview** tab in the **Security rules** page is similar to the search results page in the **Audit** page. The **Preview** tab shows the users access rights to resources as defined by the security rule that you are defining on the security rules edit page.

Inactive users will not be shown.

Do the following:

1. Define a rule on the **Security rule edit** page and click **Preview** in the **Associated items** property group.
   The results are displayed in **Grid** mode by default, but you can toggle between the **List** and **Grid** views at any time.

   *By default, the first round of query results are presented for 10 resources and 20 users. To see more click **See more items** at the bottom of the page.*

   Could not determine a distinct resource for preview, please use the audit tool instead is displayed if the system cannot return a result.

2. Select a property to filter the results on from one or more of the drop-down lists above the search results.
   The list or grid is automatically filtered according to your selections.
   The default selection for all properties, with the exception of **Display**, is **All**. Next to **All** you see the number of available property items, if any.
3. Select further properties to filter on as required.

   *You can see the number of resources that the query returned in the drop-down filter that has the resource's name. To reset the filtering, set all the properties to **All**.*

4. In **Grid** display mode the types of access that apply to each resource and user are shown using a set of icons. See *Audit grid icons (page 120)*.
5. In **Grid** display mode, clicking on an item in the matrix opens the **Applicable rules** window.
   The **Applicable rules** window includes a series of tabs each containing more details on the rules, resources, and users associated with the user and resource you selected. The rules are color coded.

Color	Description
Green	Successful validation of the rule.
Yellow	Successful validation of the rule. But the rule is disabled.
Red	Invalid rule due to invalid conditions in the system rule setup.

   Click **Edit** to go to the Edit view of the selected resource or **OK** to close the window.

   Items that can be clicked on are highlighted in green when you move the cursor over them.

6. In **Grid** display mode, selecting an **Action** to filter on shows you the number of rules that exist per

resource and user.
Click on a number to open the **Applicable rules** window for more details on those rules.

7. In **List** display mode, clicking on an item opens a separate window with more details on the selected item.
Click **Edit** to go to the edit view of the selected resource or **OK** to close the window.

8. Click **Edit rule** to edit the rule you are previewing.

You have now filtered a security rule preview.

See also:

- *Action (page 119)*
- *Display (page 119)*
- *Audit grid icons (page 120)*
- *Resources (page 119)*
- *Rule filter (page 118)*
- *Status (page 119)*
- *User (page 118)*
- *Audit (page 114)*

Editing security rules

You can edit a security rule that you have update rights to. If you edit a default rule, that is a rule that is supplied with Qlik Sense, the rule type definition changes from **Default** to **Custom**. Please keep in mind that changing a default rule, or adding a new rule that affects default rules, may cause unexpected behaviour in Qlik Sense. Use the rule preview feature to check rule behavior before implementing changes to default rules. Also keep in mind that only read only and default rules are automatically updated when you upgrade to a new Qlik Sense version.

*Rules that are specific to streams and data connections can be created and changed from the **Streams** and **Data connections** pages.*

Do the following:

1. Select **Security rules** on the **QMC start** page or from the **Start** drop-down menu to display the overview.

You can apply a filter to a column by clicking .

2. Select the rule you want to edit.
3. Click **Edit** in the action bar.
4. Edit the applicable fields for the rule.

*When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.*

5. Click the **Preview** tab to view the access rights that your rule will create and the users they apply to, see *Previewing how security rules affect user privileges (page 79)*

*You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.*

6. Click **Apply** in the action bar to save the edited rule or click **Cancel** to discard changes. **Successfully updated** is displayed at the bottom of the page.

You have now edited a security rule.

See also:

- *Creating security rules (page 69)*
- *Creating streams (page 159)*
- *Security rules examples (page 82)*

3.4 Security rules examples

The following examples describe using and writing security rules for a number of scenarios. For more examples of properties and functions, please see the syntax descriptions in *Security rule conventions (page 55)*.

Security rules example: Creating QMC content admin roles

In this example, you organize the administration of access rights for streams and their contents by:

- Creating an administrator for each stream
- Providing each administrator with full access rights to the stream and apps, sheets, and stories in the stream

You can do this by creating security rules for each individual user, but it is easier to apply security rules based on an admin role. Since there is no default administrator role for streams, you have to create one. This is done by defining a rule and then applying it to a user role.

In the example, you create an administrator for the Stream 1 stream, but the steps below can be applied to any stream.

Procedure

Do the following:

1. Select **Security rules** and click **Create new**.
2. Type a name for the security rule in the **Name** field.
3. The resource filter for the rule should be set to filter on streams and their apps, sheets, stories, and tasks.
   In the **Advanced** section, fill in the **Resource filter** field with text as per Security rule code.
4. You now need to set the conditions to specify the resources that the rule applies to, and the user role that the rule defines.
   In the **Advanced** section, fill in the **Conditions** field with text as per Security rule code.
5. Set the actions that the rule should provide for the specified resources.
   In the Basic section, fill in the **Actions** checkboxes as per Security rule code.
6. Click **Apply**.
7. You need to assign the role to the user who will be the stream administrator.
   Go to QMC > **Users**.
8. Select the user and click **Edit**.
9. Click under **Admin roles** and select *Stream1Admin*.
10. Click **Apply**.

You have now created an administrator role for the stream named **Stream1Admin**.

Security rule code

The following is the security rule code for this example, with explanatory comments:

Field	Code	Comments
Resource filter	`Stream_*, App_*, App.Object_*, ReloadTask_*`	Specifically filters on resource types Stream, App, AppObjects and ReloadTasks *Alternatively you could write `App*` instead of `App_*, App.Object_*` as using the wildcard (*) without the underscore (_). This implies all resource types beginning with App will be targeted.*

Field	Code	Comments

Conditions	`user.roles = "Stream1Admin" and ((resource.resourcetype="Stream" and resource.name="Stream 1") or (resource.resourcetype="App" and resource.stream.name="Stream 1") or (resource.resourcetype="App.Object" and resource.objectType="sheet" and resource.app.stream.name="Stream 1") or (resource.resourcetype="ReloadTask" and resource.app.stream.name="Stream 1"))`	`user.roles = "Stream1Admin" and`
		The conditions that follow define the user role **Stream1Admin** which will be available in Users > Roles.
		`((resource.resourcetype="Stream" and resource.name="Stream 1") or`
		The rule will apply to streams with the name Stream1 only. The double parenthesis at the beginning is due to the preceding AND statement.
		`(resource.resourcetype="App" and resource.stream.name="Stream 1") or`
		The rule applies to all apps in Stream 1.
		Not specifying resource.stream.name means that you give access to all apps.
		`(resource.resourcetype="App.Object" and resource.objectType="sheet" and resource.app.stream.name="Stream 1") or`
		The rule applies to all sheets in Stream 1.
		`(resource.resourcetype="ReloadTask" and resource.app.stream.name="Stream 1"))`
		The rule applies to all reload tasks in Stream 1. The double parenthesis at the end is due to the AND statement in conjunction with the `user.roles` condition.

Actions	`create, read, update, delete, export, publish, changeOwner, changeRole, exportData`	The actions will be granted provided that the conditions are met.

Security rules example: Creating QMC organizational admin roles

In this example, you organize the administration of access rights for your departments by:

- Creating an administrator for each department
- Providing each administrator with full access rights to content created by users belonging to that department

To create the organizational admin roles you need to create new security rules and you will use custom properties to connect the roles to the apps.

Security rule	The result of the rule
DepartmentAdminQmcSections	Controls which sections in the QMC that should be visible for the administrator.
DepartmentAdminApp	Controls which resources the administrator should be able to manage.

Procedure

Do the following:

1. Create a new custom property:
    a. Give it the following name **Name**: *Department*.
    b. Apply the custom property to the **Resource types** by selecting the checkboxes for **Apps** and **Users** and **Reload tasks**.
    c. **Create new** value: *Finance* and click **OK**.
    d. **Create new** value: *Sales* and click **OK**.
    e. Click **Apply**.
2. Create the new security rules (*DepartmentAdminQmcSections* and *DepartmentAdminApp*):
    a. Select **Security rules** and click **Create new**.
    b. In the **Advanced** and **Basic** sections, fill in the fields **Resource filter**, **Conditions**, **Actions** and **Context** per Security rule code.
3. Apply the role to the admin users for the departments (repeat this step for all the administrators you wish to add):
    a. Select **Users**, select a user and click **Edit**.
    b. Click under **Admin roles** and select *DepartmentAdmin*.
    c. At **Custom properties** you select value (*Sales*or *Finance*) for your custom property *Department*.
    d. Click **Apply**.
4. Select the apps that the organizational admin user should be able to administer:
    a. Select **Apps**, *Ctrl*+click to select more than one app and click **Edit**.
    b. Select value (*Sales* or *Finance*) for your custom property *Department*.
    c. Click **Apply**.

You have now created and assigned the organizational admin role.

Security rule code

The following is the security rule code for this example, with explanatory comments:

Security rule code for "DepartmentAdminQmcSections"

Field	Code	Comments
Resource filter	`QmcSection_Stream,QmcSection_App,QmcSection_App.Sheet, QmcSection_App.Story,QmcSection_Tag, QmcSection_Task, QmcSection_ReloadTask, QmcSection_Event, QmcSection_ SchemaEvent, QmcSection_CompositeEvent`	Specifically filters on streams, apps, sheets, stories, tags, tasks, and triggers.
Conditions	`user.roles = "DepartmentAdmin"`	The rule will apply to all users that have the user role set to `DepartmentAdmin`.
Actions	`read`	Read action will be granted provided that the conditions are met.
Context	**Only in QMC**	The rule is only valid when you use the QMC.

Security rule code for "DepartmentAdminApp"

Field	Code	Comments
Resource filter	`App*,ReloadTask_*,SchemaEvent_*,Tag_*,CompositeEvent_*`	Specifically filters on apps, sheets, stories, tasks, tags and triggers.
Conditions	`user.roles="DepartmentAdmin" and resource.@Department=user.@Department and (resource.resourcetype="App" or (resource.resourcetype="ReloadTask" or resource.resourcetype="App.Object") or resource.resourcetype="SchemaEvent" or resource.resourcetype="CompositeEvent" or resource.resourcetype="Tag")`	The rule will apply to all users that have the user role set to `DepartmentAdmin`.
Actions	`create, read, update, delete, publish`	The actions will be granted provided that the conditions are met.
Context	**Only in QMC**	The rule is only valid when you use the QMC.

Security rules example: Applying Qlik Sense access rights for user types

In this example, you set access rights according to user types. Your development department comprises the following user types:

- **Developer**: is allowed to create apps, sheets, stories, objects and can use and create data connections.
- **Contributor**: is allowed to create stories and sheet towards published apps but is not allowed to create new apps.
- **Consumer**: can only consume and is not allowed to create content.

The following activities with corresponding access rights have been identified:

Activity	Developer	Contributor	Consumer
Create app	Allowed	Not allowed	Not allowed
Create app object	Allowed	Allowed	Not allowed
Create data connection	Allowed	Not allowed	Not allowed

*The following assumes that you have the out-of-the-box rule **Stream** in place that gives users read access to apps on a stream that they have read access to. This will enable Consumers to read apps. Also, when setting up the access rights according to this example the following out-of-the-box security rules must be disabled; CreateApp, CreateAppObjectsPublishedApp, CreateAppObjectsUnPublishedApp, DataConnection.*

You set access rights according to user types by using security rules in the following main steps:

1. Define each type of user in such a way that makes it possible to apply rules to each type of user instead of individual users.
2. Apply the custom property to the relevant users.

   Alternatively, if you have a user directory with a corresponding group you can use that instead of custom properties.

3. Create one rule per type of activity.

Procedure

Do the following:

1. Define the user types as values to a custom property.
   a. Create a custom property called **UserType**.
   b. Apply the custom property to the resource type **Users**.

c. Define the custom property values as **Developer**, **Contributor** and **Consumer**.
d. Click **Apply**.

2. Apply the **UserType** custom property to the appropriate users in the **Users** page.
3. Create the four new security rules (CreateApp , CreateAppObjectsPublishedApp, CreateAppObjectsUnPublishedApp, and DataConnection):
   a. Select **Security rules** and click **Create new**.
   b. In the **Advanced** and **Basic** sections, fill in the fields **Resource filter**, **Conditions**, **Actions** and **Context** per Security rule code.
   c. Set the **Name** to correspond to the activity.
   d. Click **Apply**.
4. Make sure the following out-of-the-box security rules are disabled or deleted:
   a. **CreateApp**
   b. **CreateAppObjectsPublishedApp**
   c. **CreateAppObjectsUnPublishedApp**
   d. **DataConnection**

You have now created rules to give access rights according to user types.

Security rule code

The following is the security rule code for this example, with explanatory comments:

Security rule code for "Create app"

Field	Code	Comments
Resource filter	`App_*,FileReference_*`	Specifically filters on resource types apps.

Conditions	`!user.IsAnonymous() and (user.@usertype="Developer")`	`!user.IsAnonymous()`
		This condition uses the security rules function `IsAnonymous` that can be used to evaluate if the user is logged in as anonymous. In this case, if the user is logged in as Anonymous the rule will NOT apply.
		`(user.@usertype="Developer")`
		The rule will apply to all users that have the custom property `@usertype` set to `Developer`.
		  *Alternatively, if you have a user directory with a corresponding group you can use that instead of custom properties. In this case the condition could look like this:* `user.group="Developer"`.

Action	`create`	The specified actions will be provided to the conditions are met.

Security rule code for "Create app object" (sheets, stories, app objects)

Field	Code	Comments
Resource filter	`App.Object_*`	Specifically filters on resource types App.Object.
Conditions	`resource.App.HasPrivilege ("read") and !user.IsAnonymous () and (user.@usertype="Developer" or user.@usertype="Contributor")`	`resource.App.HasPrivilege("read") and` This condition uses a security rules function HasPrivelege that can be used to evaluate access rights for resourcetypes. In this instance the function evaluates if the resourcetype user is allowed to perform the action update on the resource sheet. This means that Contributors will be allowed to create objects for sheets that he or she owns.
Actions	`create`	The specified actions will be granted provided the conditions are met.

Security rule code for "Data connections"

Field	Code	Comments
Resource filter	`DataConnection_*`	Specifically filters on data connections.

Conditions	`resource.resourcetype = "DataConnection" and (user.@usertype="Developer")`	`resource.resourcetype = "DataConnection" and`
		The rule will apply to resources of the type DataConnection.
		
		`user.@usertype="Developer"`
		The rule will apply to users with the custom property `@usertype` set to "Developer".

Actions	`create`	Create action will be granted provided that the conditions are met.

Security rules example: Recreating document admin by creating QMC app admin

In this example, you recreate a Qlik Sense document administrator in Qlik Sense. You can do this by:

- Creating a new role (app admin)
- Creating a custom property to connect this role to the apps

Security rules for the app admin role:

Security rule	The result of the rule
AppAdminQmcSections	Controls the sections in the QMC that should be visible for the administrator.
AppAdminRead	Controls which resources the administrator should be able to read.
AppAdminModify	Controls which resources the administrator should be able to modify.

We have split the rules that grant modify and read access. By doing this we allow for the app admin to get access to read/see (but not modify) information that can be important to understand when working with apps, in this example the stream information.

Procedure

Do the following:

1. Create the three new security rules (AppAdminQmcSections, AppAdminRead and AppAdminModify):
    a. Select **Security rules** and click **Create new**.
    b. In the **Advanced** and **Basic** sections, fill in the fields **Resource filter**, **Conditions**, **Actions** and **Context** per Security rule code.
    c. Set the **Name** to correspond to the activity.
    d. Click **Apply**.
2. Apply the role to the user to become app admin:
    a. Select **Users**, select a user and click **Edit**.
    b. Click under **Admin roles** and select *AppAdmin*.
    c. Click **Apply**.
3. Create a new custom property and add the user as a value:
    a. Select **Custom properties** and click **Create new**.
    b. Type *AppAdmin* in the **Name** field.
    c. At **Resource types** check the checkbox for **Apps**.
    d. At **Values** click **Create new** , add the **User ID** as a value and click **OK**.
    e. Click **Apply**.
4. Select the apps that this user should be able to administrate:
    a. Select **Apps**, Ctrl+click to select more than one app and click **Edit**.
    b. Select the **User ID** for the custom property **AppAdmin**.
    c. Click **Apply**.

You have now created and assigned the app admin role. When the user with this role logs in to the QMC the following can be accessed: apps, tasks, sheets and streams.

Security rule code

The following is the security rule code for this example, with explanatory comments:

Security rule code for "AppAdminQmcSections"

Field	Code	Comments
Resource filter	`QmcSection_Stream, QmcSection_App, QmcSection_App.Sheet,QmcSection_App.Story, QmcSection_Tag,QmcSection_Task, QmcSection_ReloadTask, QmcSection_Event, QmcSection_SchemaEvent, QmcSection_CompositeEvent`	Specifically filters on streams, apps, sheets, stories, tags, tasks, and triggers.
Conditions	`user.roles = "AppAdmin"`	The rule will apply to all users that have the user role set to `AppAdmin`.
Actions	`read`	Read action will be granted provided the conditions are met.
Context	**Only in QMC**	The rule is only valid when you use the QMC.

Security rule code for "AppAdminRead"

Field	Code	Comments
Resource filter	Stream_*,App*,ReloadTask_*,SchemaEvent_*,Tag_*,CompositeEvent_*	Specifically filters on resource types; streams, apps, sheets, stories, tags, tasks, and triggers.
Conditions	`user.roles = "AppAdmin" and ((resource.resourcetype="App" and resource.@AppAdmin=user.userId and user.userDirectory="QVNCycles") or ((resource.resourcetype="ReloadTask" or resource.resourcetype="App.Object") and resource.app.@AppAdmin=user.userId and user.userDirectory="QVNCycles") or resource.resourcetype="SchemaEvent" or resource.resourcetype="CompositeEvent" or resource.resourcetype="Tag" or resource.resourcetype="Stream")`	The rule will apply to all users with the same `userId` as the custom property `AppAdmin` connected to apps.

Field	Code	Comments
Actions	`read`	Read action will be granted provided the conditions are met.
Context	**Only in QMC**	The rule is only valid when you use the QMC.

Security rule code for "AppAdminModify"

This rule determines what the app admin can modify in the QMC. This is the same rule as for read except for that streams cannot be modified.

Field	Code	Comments
Resource filter	`App*,ReloadTask_*,SchemaEvent_*,Tag_*,CompositeEvent_*`	Specifically filters on resource types; streams, apps, sheets, stories, tags, tasks, and triggers.
Conditions	`user.roles = "AppAdmin" and ((resource.resourcetype="App" and resource.@AppAdmin=user.userId and user.userDirectory="QVNCycles") or ((resource.resourcetype="ReloadTask" or resource.resourcetype="App.Object") and resource.app.@AppAdmin=user.userId and user.userDirectory="QVNCycles") or resource.resourcetype="SchemaEvent" or resource.resourcetype="CompositeEvent" or resource.resourcetype="Tag")`	The rule will apply to all users with the same `userId` as the custom property `AppAdmin` connected to apps.
Actions	`create, update, delete, changeowner`	The specified actions will be granted provided the conditions are met.
Context	**Only in QMC**	The rule is only valid when you use the QMC.

Security rules example: Access to stream by user attributes

In this example, you create access rights to a specific stream by using the user attributes that are retrieved from ticket authentication.

To enable using the user attributes you must first add the ticket via the proxy API.

Procedure

Do the following:

1. Select **Security rules** and click **Create new**.
2. The resource filter for the rule should be set to filter on a specific stream.
   In the **Advanced** section, fill in the **Resource filter** field with text as per Security rule code.
3. You now need to set the conditions to specify the users that the rule applies to.
   In the **Advanced** section, fill in the **Conditions** field with text as per Security rule code.
4. Set the actions that the rule should provide.
   In the **Basic** section, fill in the **Actions** field with text as per Security rule code.
5. Type a name for the security rule in the **Name** field.
6. Click **Apply**.

You have now created access to a specific stream based on ticket authentication user attributes.

Security rule code

The following is the security rule code for this example, with explanatory comments:

Field	Code	Comments
Resource filter	`Stream_<GUID>`	Specifically filters on the stream with a specific GUID.

Conditions	`resource.resourcetype="Stream" and (user.environment.<Attribute1>="<Value1a>")`	`resource.resourcetype="Stream"`
		The rule applies to streams.
		`(user.environment.<Attribute1>="<Value1a>")`
		The rule applies to the users where the attribute equals the value.

Actions	`read`	Read actions will be granted provided that the conditions are met.

3.5 Security rules properties

The following property groups are available for security rules.

Identification

The following **Identification** property groups are available:

Create from template

Property	Security rule will be applied to
Unspecified resource rule	Access rules
App access rule	Apps
App object access rule	Objects The Objects' objectTypes, for example: sheet, story, bookmark, measure or dimension.
Content library access rule	Content libraries
Data connection access rule	Data connections
Extension access rule	Extensions
Reload task access rule	Reload tasks
Node access rule	The configuration of Qlik Sense nodes
Stream access rule	Streams
User access rule	Users
Security rule access rule	Security rules
User directory connector access rule	User directories
User sync task access rule	User synchronization tasks

Name

Property	Description
Name	The name of the rule.

Disabled

Property	Description
Disabled	Select this checkbox if you want to disable a rule.

Description

Property	Description
Description	Text describing what the rule does.

Name

Property	Description
Name	The name of the rule.

Disabled

Property	Description
Disabled	Select this checkbox if you want to disable a rule.

Description

Property	Description
Description	Text describing what the rule does.

Advanced

The following **Advanced** property groups are available:

Resource filter (Advanced view)

A mandatory definition of the type or types of resources that the security rule applies to.

Syntax:

```
resourcetype1[*][_*][, resourcetype2[*][_*], ...]
```

If you select a resource from the **Resource** drop-down list in the Basic view, the **Resource** field in the Advanced view is automatically filled in with the selected resource. The optional asterisk ('*****') is added by default. The **Conditions** field is also automatically filled in with the corresponding code for the selected resource type.

*If you define a rule without specifying at least one **Resource** or **User** condition, your rule will apply to all resources and/or users as indicated by **(ALL)** next to the condition heading.*

Arguments:

Argument	Description
resourcetype1	Required. You must enter at least one resource type name.

Argument	Description
*	Optional wildcard. If included the rule will apply to all resource types beginning with the specified text. For example, **App*** will apply the rule to all resource types beginning with **"App"**, that is to say, all resources of type **App** and **App.Object**. If omitted the security rule will apply to resource types with the exact name specified in the Resource field. You must supply the GUID or template for GUIDs for the rule to work. Cannot be used in conjunction with '**_***' option.
_*	Optional wildcard. If included the rule will apply to all resources of the type specified. For example, **App_*** will apply the rule to all apps. Similarly, **App.Object_*** will apply the rule to all app objects. If omitted the security rule will apply to resource types with the exact name specified in the Resource field. You must supply the GUID or template for GUIDs for the rule to work. Cannot be used in conjunction with '*****' option.

Properties:

Property	Security rule will be applied to
App	Apps
App.Object	Objects The Objects' objectTypes, for example: sheet, story, bookmark, measure or dimension.
ContentLibrary	Content libraries
DataConnection	Data connections
Extension	Extensions
ReloadTask	Reload tasks
ServerNodeConfiguration	The configuration of Qlik Sense nodes
Stream	Streams
SystemRule	System rules
UserDirectory	User directories
UserSyncTask	User synchronization tasks

Examples and results:

Example	Result
App*	The rule will apply to apps and app objects.

Example	Result
`App_*`	The rule will apply to apps only.
`App*, Streams*, App.Object* resource.resourcetype="App.Object" and (((resource.objectType="sheet")))`	The rule will apply to apps, streams and sheets. *You can leave out App.Object* ... in this example as App* will apply the rule to both apps and sheets.*
`Stream_88ee46c6-5e9a-41a7-a66a-f5d8995454ec`	The rule will apply to the stream with the specified GUID.
`Stream_\w{8}-\w{4}-\w{4}-\w{4}-\w{12}`	The rule will apply to all existing streams.
Select **App** from the **Resource** drop-down list.	The following texts appear in the Advanced view: **Resource***`App*` **Conditions***`resource.resourcetype="App" and ( )` *If you don't enter a resource or a user condition inside the brackets, the security rule will by default apply to all apps and all users.*

Conditions (Advanced view)

Define the resource and/or user conditions that the rule should apply to.

Syntax:

```
[resource.resourcetype = "resourcetypevalue"] [OPERAND]
[((<resource.property = propertyvalue) [OPERAND (resource.property =
propertyvalue)))]
```

If you select a resource and a resource condition from the drop-down list in the **Basic** view, the **Conditions** field in the **Advanced** view is automatically filled in with corresponding code for the selected resource type.

Conditions are defined using property-value pairs. You are not required to specify resource or user conditions. In fact, you can leave the **Conditions** field empty.

*If you define a rule without specifying at least one **Resource** or **User** condition, your rule will apply to all resources and/or users as indicated by **(ALL)** next to the condition heading.*

The order that you define conditions does not matter. This means that you can define the resources first and then the user and/or resource conditions or the other way round. However, it is recommended that you are consistent in the order in which you define resources and conditions as this simplifies troubleshooting.

When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND. To enable synchronization between the **Basic** and **Advanced** sections (so called backtracking), extra parenthesis are added to conditions created using the **Basic** section. Similarly, a user definition with an empty condition is automatically included in the **Conditions** text field if you add a resource using the **Basic** section. However, if you create your rule using the **Advanced** section only, and do not need backtracking, you do not need to follow these conventions.

Arguments:

Argument	Description
resource	Implies that the conditions will be applied to a resource.
resourcetype	Implies that the conditions will be applied to a resource of the type defined by the **resourcetypevalue**. You can also use predefined functions for conditions to return property values.
resourcetypevalue	You must provide at least one resource type value.
property	The property name for the resource condition. See *Properties: (page 98)* for available names.
propertyvalue	The value of the selected property name.
user	Implies that the conditions will be applied to a user.

Properties:

Property name	Available in	Description
@<customproperty>	App, App.Object, DataConnection, ReloadTask, ServerNodeConfiguration, Stream, Task	The custom property associated with the resource.
resource.@<customproperty>	App.Object, ReloadTask	The custom property associated with the resource.
app.name	App.Object, ReloadTask	The name of the associated app.

Property name	Available in	Description
app.owner.@<customproperty>	ReloadTask	The custom property associated to the stream of an app. See the corresponding owner property for a description.
app.owner.email	ReloadTask	Owner property associated with the app. See the corresponding owner property for a description.
app.owner.environment.browser	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.context	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.device	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.ip	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.os	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.secureRequest	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.group	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.name	ReloadTask	The user name of the owner of the resource.

Property name	Available in	Description
app.owner.userDirectory	ReloadTask	The user directory of the owner of the resource
app.owner.userId	ReloadTask	The user id of the owner of the resource
app.stream.@<customproperty>	App.Object, ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.stream.name	App.Object, ReloadTask	The name of the associated stream.
category	SystemRule	The system rule category: License, Security or Sync.
description	User	The description of the owner retrieved from the user directory.
email	User	The email addresses that are available from the connected user directories.

Property name	Available in	Description
environment.browser	User	Security rule will be applied to the type of browser. Supported browsers: Chrome, Firefox, Safari, MSIE or Unknown. **Example 1:** Define browser and version: Firefox 22.0 Chrome 33.0.1750.154 *If the browser information contains a slash (/), replace it with a space.* **Example 2:** Use the wildcard (*) to include all versions of the browser: environment.browser = Chrome*
environment.context	User	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
environment.device	User	Security rule will be applied to the type of device. Available preset values: iPhone, iPad or Default.

Property name	Available in	Description
environment.ip	User	Security rule will be applied to an IP number.
environment.os	User	Security rule will be applied to the type of operating system. Available preset values: Windows, Linux, Mac OS X or Unknown.
environment.secureRequest	User	Security rule will be applied to the type of request. Available preset values: SSL True or False.
group	User	The group memberships of the owner retrieved from the user directory.
roles	User	A role that is associated with the user.
name	App, App.Object, DataConnection, Extension, License.LoginAccessType, ReloadTask, ServerNodeConfiguration, Stream, User, UserDirectory, UserSyncTask, SystemRule,	The name of the resource or user.
objectType	App.Object	The type of app object. Available preset values: story, masterobject, properties, sheet, dimension.
owner.@<customproperty>	App, App.Object, DataConnection, Extension, Stream	The custom property associated with the owner of the resource.
owner.description	App, DataConnection, Extension, Stream	The description of the owner retrieved from the user directory.

Property name	Available in	Description
owner.email	App, App.Object, DataConnection, Extension, Stream	The email of the owner retrieved from the user directory.
owner.environment.browser	App, App.Object, DataConnection, Extension, Stream	The browser environment of the owner of the resource.
owner.environment.context	App, App.Object, DataConnection, Extension, Stream	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
owner.environment.device	App, App.Object, DataConnection, Extension, Stream	The device environment of the owner of the resource.
owner.environment.ip	App, App.Object, DataConnection, Extension, Stream	The IP environment of the owner of the resource.
owner.environment.os	App, App.Object, DataConnection, Extension, Stream	The OS environment of the owner of the resource.
owner.environment.secureRequest	App, App.Object, DataConnection, Extension, Stream	Indicates if the sent request is encrypted or not, that is using SSL or not (True or False).
owner.group	App, App.Object, DataConnection, Extension, Stream	The group memberships of the owner retrieved from the user directory.
owner.name	App, App.Object, DataConnection, Extension, Stream	The user name of the owner of the resource.
owner.userDirectory	App, App.Object, DataConnection, Extension, Stream	The user directory of the owner of the resource
owner.userId	App, App.Object, DataConnection, Extension, Stream	The user id of the owner of the resource.

Property name	Available in	Description
published	App.Object	The status of the app object.
resourceFilter	SystemRule	The existing resource definitions (from the Resource column in the security rules overview).
ruleContext	SystemRule	Specifies whether the rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**.
stream.@<customproperty>	App	The custom property associated with the stream.
stream.name	App	The name of the associated stream.
type	SystemRule, DataConnection	The type of security rule or data connection.
userid	User	A user's ID.
userdirectory	User	The name of a user directory.
userDirectory.name	UserSyncTask	The name of the user directory connection that the user sync task applies to.
userDirectory.userDirectoryName	UserSyncTask	The name of the user directory that the user directory connector is connected to.
userDirectoryName	UserDirectory	The name of the user directory connection in the QMC.

Environment data received from external calls, for example type of OS or browser, is not secured by the Qlik Sense system.

Examples and results:

Example	Result
Resource filter: App* **Conditions:**`resource.resourcetype="App" and (resource.name like "*")`	The rule will apply to all apps. *The same rule can be defined by simply setting the **Resource** field to App* and leaving the **Conditions** field empty.*
Resource filter: App* or App.Object* or Stream* **Conditions:**`resource.resourcetype="App" or resource.resourcetype="Stream" or (resource.resourcetype="App.Object" and resource.objectType="sheet") and resource.name like "My*"`	The rule will apply to all apps, streams and sheets that have names beginning with "My".
`resource.resourcetype="ServerNodeConfiguration" and (resource.@Geographies="Canada")`	The rule will apply to all nodes with the custom property Geographies set to Canada.
`resource.resourcetype="ServerNodeConfiguration" and !(resource.@Geographies="Canada")`	The rule will apply to all nodes except the nodes with custom property Geographies set to Canada.
With **Resource filter** **=** `resource.resourcetype="App.Object" and (((resource.objectType="sheet" or resource.objectType="story")) and ((user.name="Myname")))`	The rule will apply to all apps, sheets, stories and the user with the name MyName.
With **Resource filter=**`Stream_*` `user.@Geographies="Canada" and !user.IsAnonymous()`	The rule will apply to all streams and users with the custom property Geographies set to Canada given that the user is not logged in as anonymous.
With **Resource filter=**`*` and Conditions field empty	This rule will apply to all resources and all users.
user.name="MyUserName"	The rule will apply to the user with the user name MyUserName. *Try as much as possible not to create rules that apply to individuals. Use group memberships, user roles or custom properties to apply rules to groups of users.*
user.group="DL-MyDepartment"	The rule will apply to all members of the distribution group MyDepartment.

Example	Result
user.@Department="Sales"	The rule will apply to all users with the custom property @Department set to Sales.
user.roles="Developer"	The access rights defined in the Resource, Conditions and Actions field will be applied to the user role Developer. This role will now be available from the Roles drop-down list in the User edit page.
resource.resourcetype="App" and resource.name="My*" and user.role="QlikSenseAdmin"	The user.role can also be used together with an operand to specify that the rule applies if the user has the specified user role.
user.environment.os="Windows"	The rule will be applied to all external environments with operating system = Windows.

Context

Property	Description
Context	Specifies whether the rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**.

Basic

The following **Basic** property groups are available:

Action (Basic view)

The action that the user is allowed to perform on the resource. At least one action must be specified.

Property name	Description
create	Create resource
read	Read resource
update	Update resource
delete	Delete resource
export	Be able to export a resource to a new format, for example Excel
publish	Be able to publish a resource to a stream
changeOwner	Be able to change the owner of a resource
changeRole	Be able to change user role
exportData	Be able to export data from an object

Conditions (Basic view)

*Any user properties contained in connected user directories will be shown in the **User access conditions** drop-down list. This could, for example, be an email address or department name.*

Property name	Available in	Description
@<customproperty>	App, App.Object, DataConnection, ReloadTask, ServerNodeConfiguration, Stream, Task	The custom property associated with the resource.
resource.@<customproperty>	App.Object, ReloadTask	The custom property associated with the resource.
app.name	App.Object, ReloadTask	The name of the associated app.
app.owner.@<customproperty>	ReloadTask	The custom property associated to the stream of an app. See the corresponding owner property for a description.
app.owner.email	ReloadTask	Owner property associated with the app. See the corresponding owner property for a description.
app.owner.environment.browser	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.context	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.device	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.ip	ReloadTask	Owner property associated with the app. See corresponding owner property for description.

Property name	Available in	Description
app.owner.environment.os	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.environment.secureRequest	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.group	ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.owner.name	ReloadTask	The user name of the owner of the resource.
app.owner.userDirectory	ReloadTask	The user directory of the owner of the resource
app.owner.userId	ReloadTask	The user id of the owner of the resource
app.stream.@<customproperty>	App.Object, ReloadTask	Owner property associated with the app. See corresponding owner property for description.
app.stream.name	App.Object, ReloadTask	The name of the associated stream.
category	SystemRule	The system rule category: License, Security or Sync.
description	User	The description of the owner retrieved from the user directory.
email	User	The email addresses that are available from the connected user directories.

Property name	Available in	Description
environment.browser	User	Security rule will be applied to the type of browser. Supported browsers: Chrome, Firefox, Safari, MSIE or Unknown. **Example 1:** Define browser and version: Firefox 22.0 Chrome 33.0.1750.154 *If the browser information contains a slash (/), replace it with a space.* **Example 2:** Use the wildcard (*) to include all versions of the browser: environment.browser = Chrome*
environment.context	User	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
environment.device	User	Security rule will be applied to the type of device. Available preset values: iPhone, iPad or Default.

Property name	Available in	Description
environment.ip	User	Security rule will be applied to an IP number.
environment.os	User	Security rule will be applied to the type of operating system. Available preset values: Windows, Linux, Mac OS X or Unknown.
environment.secureRequest	User	Security rule will be applied to the type of request. Available preset values: SSL True or False.
group	User	The group memberships of the owner retrieved from the user directory.
roles	User	A role that is associated with the user.
name	App, App.Object, DataConnection, Extension, License.LoginAccessType, ReloadTask, ServerNodeConfiguration, Stream, User, UserDirectory, UserSyncTask, SystemRule,	The name of the resource or user.
objectType	App.Object	The type of app object. Available preset values: story, masterobject, properties, sheet, dimension.
owner.@<customproperty>	App, App.Object, DataConnection, Extension, Stream	The custom property associated with the owner of the resource.
owner.description	App, DataConnection, Extension, Stream	The description of the owner retrieved from the user directory.

Property name	Available in	Description
owner.email	App, App.Object, DataConnection, Extension, Stream	The email of the owner retrieved from the user directory.
owner.environment.browser	App, App.Object, DataConnection, Extension, Stream	The browser environment of the owner of the resource.
owner.environment.context	App, App.Object, DataConnection, Extension, Stream	Security rule will be applied only to the Qlik Sense environment that the call originates from. Available preset values: ManagementAccess or AppAccess.
owner.environment.device	App, App.Object, DataConnection, Extension, Stream	The device environment of the owner of the resource.
owner.environment.ip	App, App.Object, DataConnection, Extension, Stream	The IP environment of the owner of the resource.
owner.environment.os	App, App.Object, DataConnection, Extension, Stream	The OS environment of the owner of the resource.
owner.environment.secureRequest	App, App.Object, DataConnection, Extension, Stream	Indicates if the sent request is encrypted or not, that is using SSL or not (True or False).
owner.group	App, App.Object, DataConnection, Extension, Stream	The group memberships of the owner retrieved from the user directory.
owner.name	App, App.Object, DataConnection, Extension, Stream	The user name of the owner of the resource.
owner.userDirectory	App, App.Object, DataConnection, Extension, Stream	The user directory of the owner of the resource
owner.userId	App, App.Object, DataConnection, Extension, Stream	The user id of the owner of the resource.

Property name	Available in	Description
published	App.Object	The status of the app object.
resourceFilter	SystemRule	The existing resource definitions (from the Resource column in the security rules overview).
ruleContext	SystemRule	Specifies whether the rule should apply: **Both in hub and QMC**, **Only in hub** or **Only in QMC**.
stream.@<customproperty>	App	The custom property associated with the stream.
stream.name	App	The name of the associated stream.
type	SystemRule, DataConnection	The type of security rule or data connection.
userid	User	A user's ID.
userdirectory	User	The name of a user directory.
userDirectory.name	UserSyncTask	The name of the user directory connection that the user sync task applies to.
userDirectory.userDirectoryName	UserSyncTask	The name of the user directory that the user directory connector is connected to.
userDirectoryName	UserDirectory	The name of the user directory connection in the QMC.

Environment data received from external calls, for example type of OS or browser, is not secured by the Qlik Sense system.

Tags

Property	Description
Tags	The available QMC tags are listed to the right. Connected QMC tags are listed to the left.

4 Auditing access control

The QMC includes the following audit tools that enable you to review and preview access rights and the security rules that provide them:

- **Audit page**: Verify that access rights comply with your company's security policies.
- **Preview page**: See the effects that a new or edited rule will have without disrupting your system.

The auditing tools enable you to view the rules that apply to a resource. This means that you can verify access rights, identify overlapping security rules and ultimately streamline your security rule architecture.

The audit tools only show rules as they are applied to existing resources. For example, if you create a rule for apps with names that begin with "MyApp" the audit page and preview page only show results if there is actually an app with that name in the Qlik Sense system.

Example:

Your company is organized in the following departments: Finance, Sales, Marketing and Development. You have created a custom property called Departments with values that match the name of the departments and applied them to streams. Finally you have created security rules using the Streams page in the QMC to provide users in Finance with publishing and read rights to the Quarterly reports stream. All other departments have read access rights. You now want to check that your rules have been applied correctly.

Do the following:

1. Click **Audit** on the Start page.
2. In the Audit page **Query view**, select **Stream** from the **Resource** drop-down list and then set `name = Quarterly reports`.
3. Click **Audit**.
   The **Results view** should now change to show a grid. The rows of the grid show user ids while the columns the streams (in this case only the stream Quarterly reports).
   For each user the grid shows symbols that correspond to the access rights that the user has to the stream.
   Finance users should have Read and Other access rights while all other users should have Read access (provided they have the custom property Department).
   Only users with access rights to the stream are shown in the grid. This means that a user missing from the list has no access to the resource.

   The list will always include the RootAdmin user since that user has full access. Depending on the selected resource the other Admin roles will also show in the grid.
4. Click on a cell in the grid (do not click on an admin user) corresponding to a user belonging to the **Finance department**.

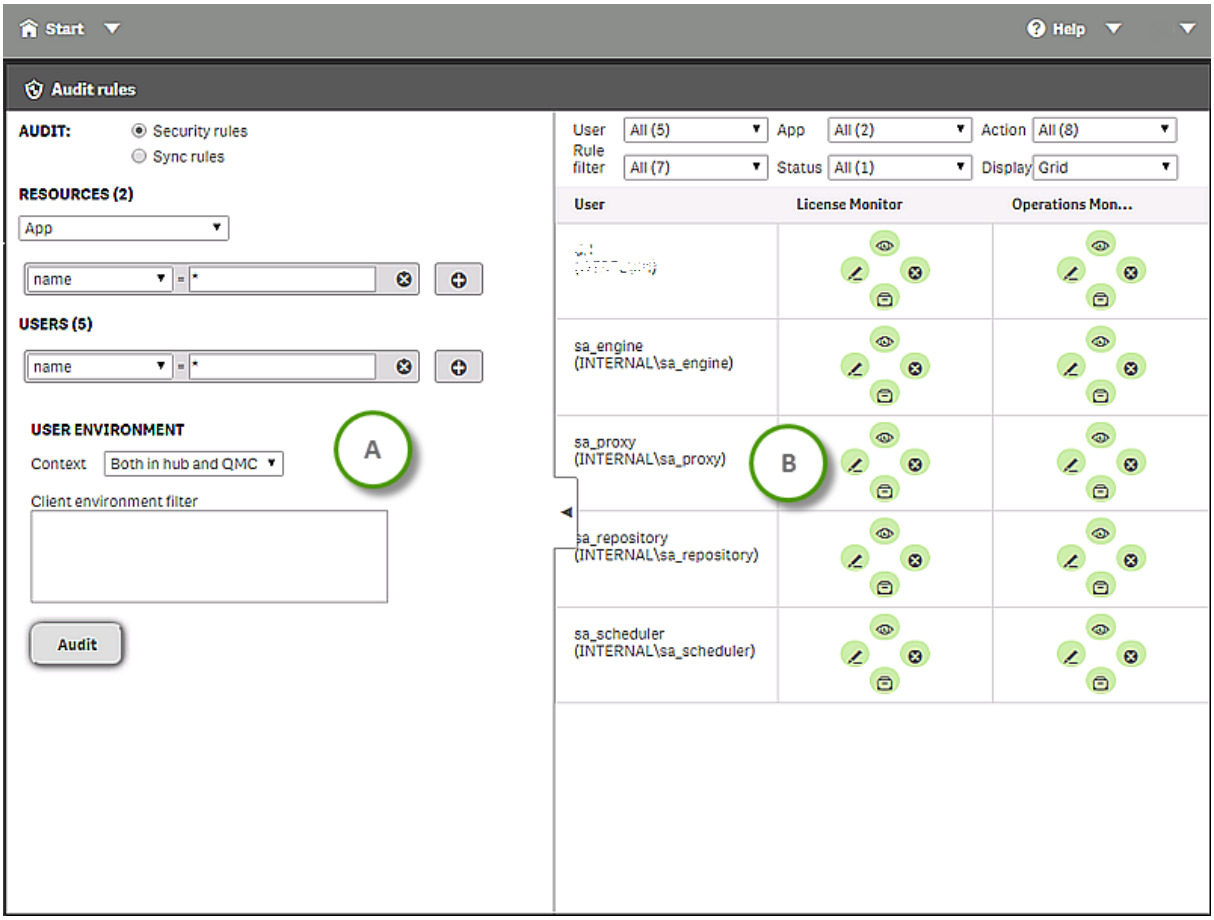
The **Applicable rules** dialog window opens.
You should now see the security rules that apply to the selected user with regard to the Quarterly reports stream. The list should include the following rules:

- Stream_read_Quarterly reports
- Stream_publish_Quarterly reports

5. Click on a cell in the grid (do not click on an admin user) corresponding to a user belonging to the **Sales department**.
The **Applicable rules** dialog window opens.
You should now see the security rules that apply to the selected user with regard to the Quarterly reports stream. The list should include the following rules:
   - Stream_read_Quarterly reports

4.1 Audit

The QMC audit page enables you to query for, and audit, the security or sync rules that have been defined in the Qlik Sense system. The **Audit** page is split into two views: query and results.



Audit page with the query view and the results view

A. Query view
B. Results view

You can only view security rules that you have access rights to read.

You can narrow your query further by defining one or more resource and/or user and/or environment conditions in the query view. The results of the search are presented in the results view. You can filter results using a number of different parameters.

The overview shows a set number of items by default. To show more items, scroll to the end of the list and click **Show more items**. Sorting and filtering of items is always done on the full database list of items, not only the items that are on display.

See also:

- *Auditing access control (page 113)*
- *Defining an audit query (page 115)*
- *Viewing and filtering audit query results (page 116)*
- *Previewing rules (page 120)*

Defining an audit query

You can query for security or sync rules.

Do the following:

1. Select the type of audit that you want to perform by clicking either the **Security rules** or **Sync rules** radio button.
2. Select the type of resource you want to audit from the **Resources** drop-down list.
   By default the **name** property with a wild card search criteria appear in both the **Resources** and the **Users** drop-down lists. This means that the query returns all resources of the selected type.

   You must select a type of resource and at least one Resource and User condition in your query; otherwise your query cannot return any results.

   The number of items that match your criteria are shown in parenthesis next to the property heading. The matching items for each type of condition are independent of each other.
3. Change the query conditions as required or click ⊕ to add further resource and/or user conditions to your query.
4. Use the context drop-down list to specify whether the security rule is used **Both in hub and QMC**, **Only in hub** or **Only in QMC**.

5. You can enter environment conditions for your query in the **Client environment filter** text field. For example: *OS=Windows; IP=10.88.3.35*.
6. Click **Audit** to perform the query.
   The results view is automatically updated with the results, if any, of your query.

You have now defined an audit query.

Viewing and filtering audit query results

You can filter the query results using the drop-down property lists.

You can only view security rules that you have access rights to read.

Do the following:

1. Define a query and click **Audit** as appropriate.
   The query results are shown in the right hand side of the **Audit** page.
   The results are displayed in **Grid** mode by default, but you can toggle between the **List** and **Grid** views at any time.

   Inactive users will not be shown.

2. Select a property to filter the results on from one or more of the drop-down lists above the search results.
   The list or grid is automatically filtered according to your selections.
   The default selection for all properties, with the exception of **Display**, is **All**. Next to **All** you see the number of available property items, if any.
3. Select further properties to filter on as required.

   *You can see the number of resources that the query returned in the drop-down filter that has the resource's name. To reset the filtering, set all the properties to **All**.*

4. In **Grid** display mode the types of access that apply to each resource and user are shown using a set of icons. See *Audit grid icons (page 120)*.
5. In **Grid** display mode, clicking on an item in the matrix opens the **Applicable rules** window.
   The **Applicable rules** window includes a series of tabs each containing more details on the rules, resources, and users associated with the user and resource you selected. The rules are color coded.

Color	Description
Green	Successful validation of the rule.
Yellow	Successful validation of the rule. But the rule is disabled.
Red	Invalid rule due to invalid conditions in the system rule setup.

Click **Edit** to go to the Edit view of the selected resource or **OK** to close the window.

Items that can be clicked on are highlighted in green when you move the cursor over them.

6. In **Grid** display mode, selecting an **Action** to filter on shows you the number of rules that exist per resource and user.
   Click on a number to open the **Applicable rules** window for more details on those rules.
7. In **List** display mode, clicking on an item opens a separate window with more details on the selected item.
   Click **Edit** to go to the edit view of the selected resource or **OK** to close the window.

You have now filtered a list and viewed the details of one or more items.

Audit properties

The following property groups are available for audit:

User

The **User** attributes list contains a list of the users that were identified by the search conditions.

Rule filter

The **Rule filter** attribute list contains the security rules that apply to the resources that matched your search conditions.

Resources

The **Resources** attribute list contains a list of the resources that matched your search conditions. For example, if you searched for app the Resource drop-down list will be titled **App** and contain a list of available apps.

Status

The **Status** attributes list contains the possible status markers associated with the security rules that matched your search criteria.

You can only view security rules that you have access rights to read.

Attribute name	Explanation
OK	The rule is enabled and you have the access rights to be allowed to see it.
Broken	A rule is broken when it was not possible to verify it.
Disabled	The rule has been disabled. Rules are enabled or disabled from the Security rules edit view.

Action

Property name	Description
create	Create resource
read	Read resource
update	Update resource
delete	Delete resource
export	Be able to export a resource to a new format, for example Excel
publish	Be able to publish a resource to a stream
changeOwner	Be able to change the owner of a resource
changeRole	Be able to change user role
exportData	Be able to export data from an object

Display

The **Display** list enables you to switch between the Audit viewing modes.

Attribute name	Explanation
List	The default view showing the search results in a standard list
Grid	An overview of users' access rights to the resources that were returned by the search

Audit grid icons

The **Grid** icons show the types of access that matched your search conditions as per the following:

Icon	Description
	Read
	Update and/or Write and / or Edit
	Delete
	Sync
	Other, for example Create, ChangeOwner and/or Export

User

The **User** attributes list contains a list of the users that were identified by the search conditions.

Rule filter

The **Rule filter** attribute list contains the security rules that apply to the resources that matched your search conditions.

Resources

The **Resources** attribute list contains a list of the resources that matched your search conditions. For example, if you searched for app the Resource drop-down list will be titled **App** and contain a list of available apps.

Status

The **Status** attributes list contains the possible status markers associated with the security rules that matched your search criteria.

You can only view security rules that you have access rights to read.

Attributes

Attribute name	Explanation
OK	The rule is enabled and you have the access rights to be allowed to see it.
Broken	A rule is broken when it was not possible to verify it.
Disabled	The rule has been disabled. Rules are enabled or disabled from the Security rules edit view.

Action

Property name	Description
create	Create resource
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Display

The **Display** list enables you to switch between the Audit viewing modes.

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Audit grid icons

The **Grid** icons show the types of access that matched your search conditions as per the following:

Icon	Description
	Read
	Update and/or Write and / or Edit
	Delete
	Sync
	Other, for example Create, ChangeOwner and/or Export

4.2 Previewing rules

The **Preview** page enables you to view the effects that your access or sync rules will have when you apply and enable them in your Qlik Sense system.

The preview page is similar to the audit page except that there is no search view. Instead the **Results** view is preloaded with filter settings that correspond to the security rule you are creating or editing.

To preview a rule, create or edit the rule as per normal and then click **Preview** in the **Associated items** tab.

See also:

- *Previewing how security rules affect user privileges (page 79)*
- *Previewing how sync rules affect node privileges (page 44)*

5 Managing QMC resources

The administration of a Qlik Sense environment includes managing and handling:

- License and tokens
- Apps; publishing, duplicating, reloading , importing, deleting
- Streams
- Data connections and extensions
- Users; synchronizing, access types, ownership, admin roles, inactivating, deleting
- Tasks and triggers
- Nodes and services
- Custom properties and tags

5.1 Managing license and tokens

License and tokens

The License Enabling File (LEF) determines the number of tokens available for a Qlik Sense site. You must activate the Qlik Sense site license to get the tokens. Allocate the tokens to the different access types to give the users access to the hub and apps.

When you allocate tokens, the number of available tokens is reduced. Each access type costs a certain number of tokens and if the token balance is zero or insufficient you cannot allocate to the access types. You can free up tokens and choose to use the tokens differently. The number of tokens for the Qlik Sense site can be increased or decreased by activating a new license.

User access

You allocate user access to an identified user to allow the user to access the streams and the apps within a Qlik Sense site. There is a direct relationship between the access type (user access) and the user. If you deallocate user access from a user, the access type is put in quarantine if it has been used within the last seven days. If it has not been used within the last seven days, the user access is removed and the tokens are released immediately. You can reinstate quarantined user access, to the same user, within seven days. Then the user is given access again without using more tokens.

Login access

One token equals a predefined amount of login access passes. The login access allows a user to access streams and apps for a predefined amount of time. This means that a single user may use several login access passes within a day. You create security rules specifying which users the login access is available for.

When you delete a login access (group), tokens are released immediately if the login access contains enough unused login access passes. The number of tokens that are released is dependent on the number of used login access passes. Used login access passes are not released until 28 days after last use. For example: If you allocated tokens giving 1000 login access passes to a group, they cannot use more than 1000 login

access passes over 28 days. Also, if 100 login access passes are consumed on day 1, the 100 are available again on day 29. If no access passes are in use then all tokens assigned to the login access instance will be released when it is deleted.

See also:

- *Allocating user access (page 186)*
- *Deallocating user access (page 187)*
- *Reinstating user access (page 188)*
- *Creating login access (page 188)*
- *Deleting login access (page 192)*

Activating license

The first time you start the Qlik Management Console (QMC), the **Site license properties** page is displayed. All fields are empty and you must enter the license information from the License Enabling File (LEF). This makes you the root administrator (RootAdmin) for the Qlik Sense site.

Do the following:

1. Fill out all mandatory fields.
   The property group **Site license** contains properties related to the license for the Qlik Sense system. All fields are mandatory and must not be empty.

Property name	Description
Owner name	The user name of the Qlik Sense product owner.
Owner organization	The name of the organization that the Qlik Sense product owner is a member of.
Serial number	The serial number assigned to the Qlik Sense software.
Control number	The control number assigned to the Qlik Sense software.
LEF access	The License Enabler File (LEF) assigned to the Qlik Sense software.

2. Expand **LEF access** and click **Get LEF and preview the license** to download a LEF file from the Qlik Sense LEF server. Alternatively, copy the LEF information from a LEF file and paste it in the text field.
   LEF was successfully retrieved is displayed.

   ***Failed to get LEF from server** is displayed if the serial number or control number is incorrect.*

3. Click **Apply** in the action bar to apply and save your changes.

Successfully licensed is displayed.

> ***Failed to apply changes*** *is displayed if any value is incorrect.*

4. Click **OK** to close the dialog.

You have now activated the license and made the tokens available. Next you need to allocate user access to yourself (the preferred access type).

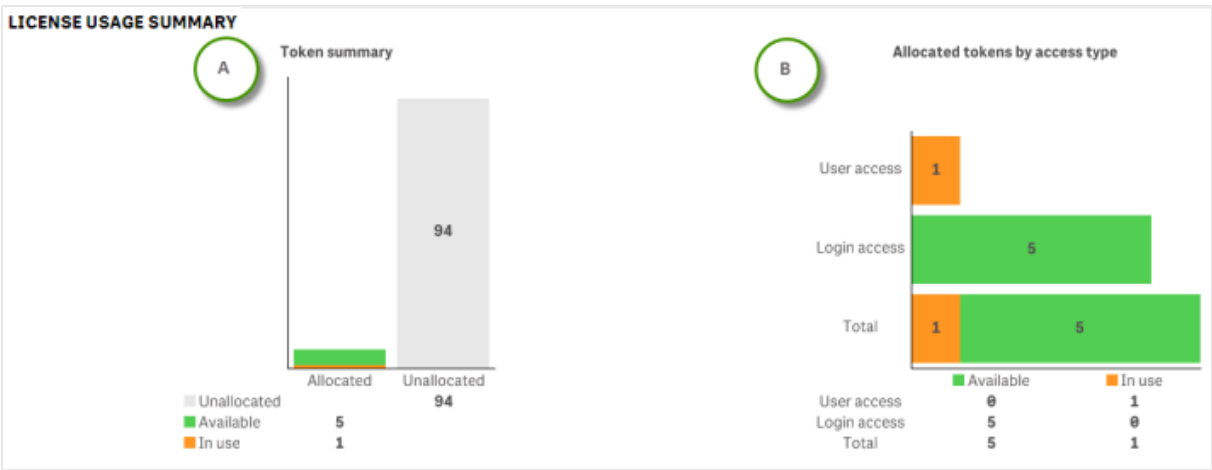
> *You give users access to Qlik Sense by managing the access types; user access or login access, according to which consumption model you prefer for accessing Qlik Sense.*

See also:

- *Allocating user access (page 186)*
- *Creating login access (page 188)*

Getting to know the license usage summary page

The **License usage summary** overview displays the token availability and how the tokens are distributed to the different access types. You cannot adjust the token usage from this page. The number of tokens is determined by the license for the Qlik Sense site.



Tokens overview page with token summary and token allocation

Bar chart (A) gives an overview of the **Token summary**:

- The **Allocated** bar displays the number of tokens that has been allocated to an access type:
  - **Available** means that the token is allocated but not in use.
  - **In use** displays the number of allocated tokens that are currently in use.

> *One token is used when a user with allocated user access makes the first login to the hub. One token is used when the first login access pass in a batch of login access passes is used. For example, if you have allocated 3 tokens to login access, providing for 30 login access passes and 11 login access passes are in use,* ***In use*** *displays 2 (tokens). Tokens allocated to user access in quarantine are in use until the quarantine period (seven days) is over. A used login access pass is released 28 days after last use.*

- The **Unallocated** bar displays the number of tokens that are available for allocation.

Bar chart (B) gives an overview of the **Allocated tokens by access type**:

- **User access** displays the number of tokens that has been allocated to identified users.
- **Login access** displays the number of tokens that has been allocated to login access groups.
- **Total** displays the sum of the two above.

Information about **Available** and **In use** is also displayed for every bar in this chart. See the descriptions above, as for bar chart (A).

Filter user access by status

In the **User access rules** overview you can use the filter functionality to find user access with a certain status. Use filters on multiple columns simultaneously to narrow your search.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **User access rules** in the panel to the right.
   The overview is displayed.
3. Click ☞ next to the **Status** column heading.
   The filter dialog for the column is displayed.
4. Click to make a selection in the filter dialog: **Allocated** or **Quarantined**.
   All rows that match your filter criteria are displayed.
   ✓ indicates a selection for your filter.
   Click again to remove a selection.
5. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   indicates that a filter is applied to the column.

You have now applied a status filter.

Filter user access by last used

In the **User access rules** overview you can use the filter functionality to find out when users last used the user access. Use filters on multiple columns simultaneously to narrow your search.

Column	Filter options
Last used	**No filter** **Last 60 minutes** **Today** **Last seven days** **Range: from** YYYY-MM-DD **to** YYYY-MM-DD **Never used (no value)** (that is available)

Do the following:

1. Click ⍈ next to the column heading.
   The filter dialog for the column is displayed.
2. Make a selection in the filter dialog. You remove a filter by clicking **No filter**.
3. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   indicates that a filter is applied to the column.

You have now applied a last used filter.

Changing license

The license properties can be changed after they have been set for the first time. Updating the LEF changes the number of tokens for the Qlik Sense site. You use the tokens on access types to give the users access to the hub.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **Site license** in the panel to the right.
3. Edit the fields.

   The property group **Site license** contains properties related to the license for the Qlik Sense system. All fields are mandatory and must not be empty.

Property name	Description
Owner name	The user name of the Qlik Sense product owner.
Owner organization	The name of the organization that the Qlik Sense product owner is a member of.
Serial number	The serial number assigned to the Qlik Sense software.

Property name	Description
Control number	The control number assigned to the Qlik Sense software.
LEF access	The License Enabler File (LEF) assigned to the Qlik Sense software.

Expand **LEF access** and click **Get LEF and preview the license** to download a LEF file from the Qlik Sense LEF server. Alternatively, copy the LEF information from a LEF file and paste it in the text field.

LEF was successfully retrieved is displayed.

> ***Failed to get LEF from server*** *is displayed if the serial number or control number is incorrect.*

4. Click **Apply** in the action bar to apply and save your changes.
   Changes have been applied is displayed.

> ***Failed to apply changes*** *is displayed if any value is incorrect.*

5.2 Managing apps

The user can create an app from the Qlik Sensehub (if the user has the appropriate access rights). Apps are published to streams from the QMC (used in server deployments of Qlik Sense). If you want to publish an app that is created in a Qlik Sense Desktop installation it must first be imported, using the QMC. The security rules applied to the app, stream or user determine who can access the content and what the user is allowed to do. The app is locked when published. Content can be added to a published app via the Qlik Sensehub in a server deployment, but content that was published with the original app cannot be edited.

You can only publish apps that are unpublished:

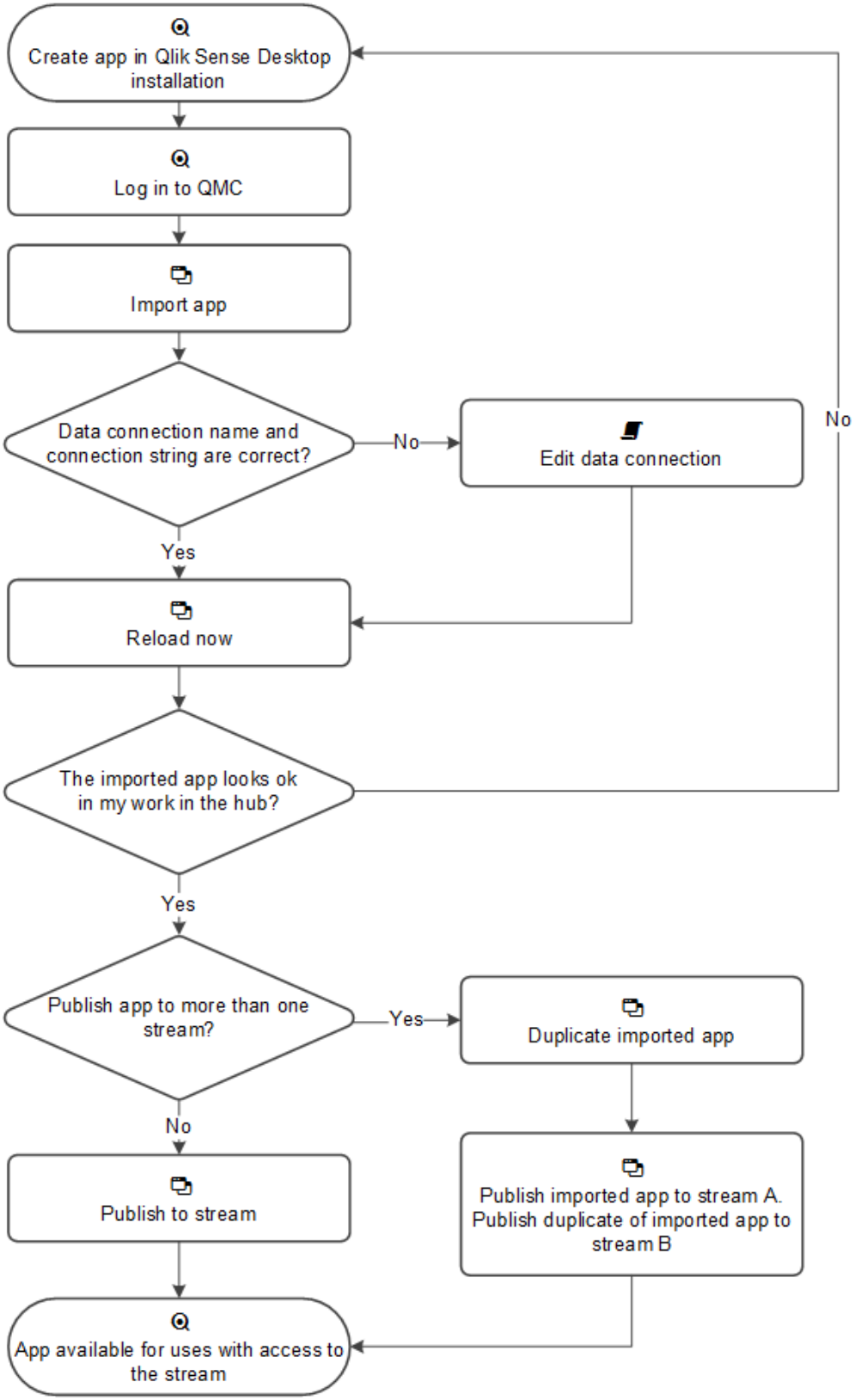
- If you want to publish an app to more than one stream you must first create a duplicate of the app.
- If you want to republish an app, create a duplicate of the published app, edit the duplicate and publish it.Use the option **Replace existing** if you want to replace a published app.

When importing an app that is created in a local installation of Qlik Sense, the data connection storage can differ between the environment where the app is created and the server environment. If so, the data connection properties **Name** and **Connection string** must be updated to match the server environment. Before publishing the app, check the app in My work in the hub.

> *If the name of a data connection in the imported app is the same as the name of an existing data connection, the data connection will not be imported. This means that the imported app will use the existing data connection with an identical name, not the data connection in the imported app.*

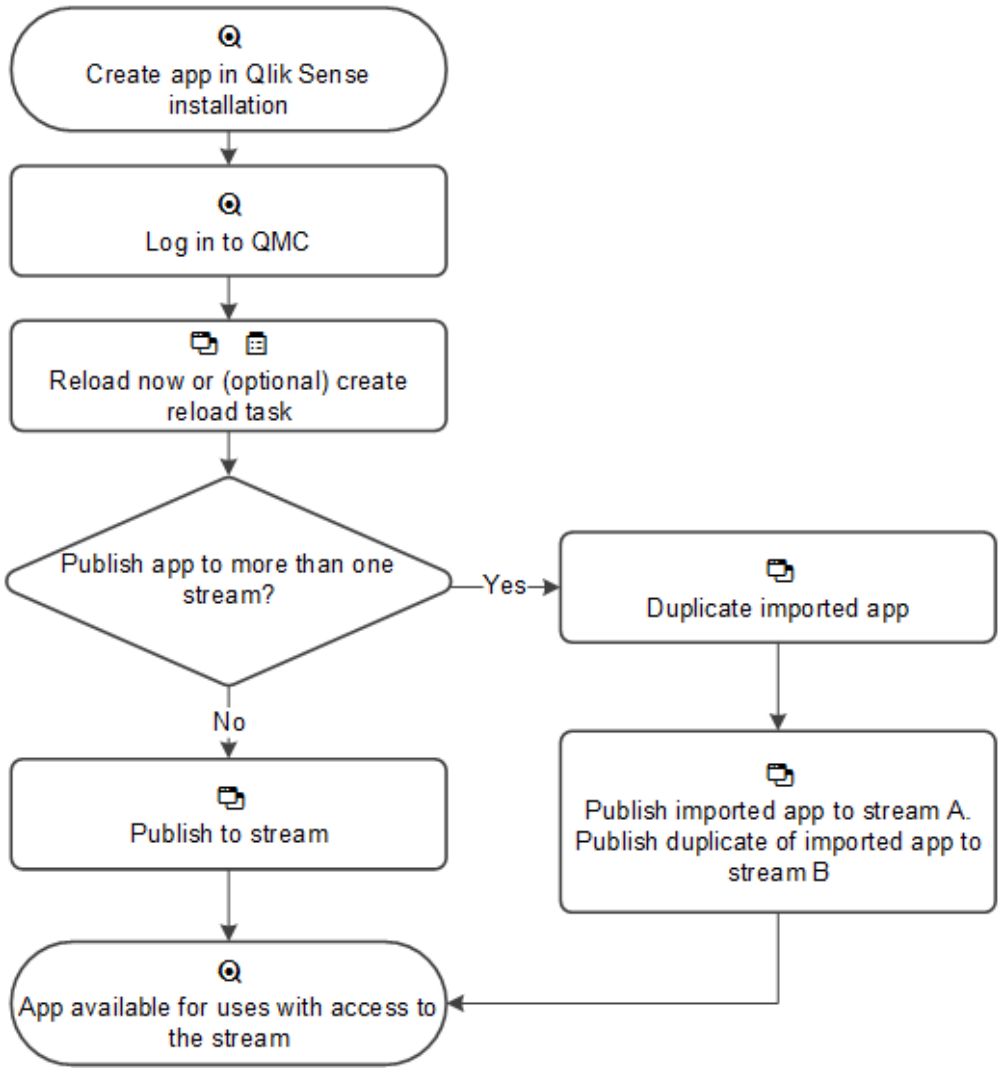
Workflow: Apps developed on Qlik Sense Desktop installation

This workflow illustrates importing an app created from the hub in a Qlik Sense Desktop installation and publishing the app using the QMC in a Qlik Sense installation:


Create app in Qlik Sense Desktop installation
Log in to QMC
Import app
Data connection name and connection string are correct?
No
Edit data connection
No
Yes
Reload now
The imported app looks ok in my work in the hub?
Yes
Publish app to more than one stream?
Yes
Duplicate imported app
No
Publish to stream
Publish imported app to stream A. Publish duplicate of imported app to stream B
App available for uses with access to the stream

Workflow: Apps developed on Qlik Sense in a server deployment

This workflow illustrates publishing an app in a Qlik Sense installation:



See also:

- *Editing streams (page 160)*
- *Editing data connections (page 163)*
- *Reloading apps manually (page 147)*
- *Publishing apps (page 132)*
- *Duplicating apps (page 136)*
- *Republishing apps (page 134)*

Importing apps

You can import an app if your browser supports HTML5 upload.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Import** in the action bar.
   The **Import app** dialog opens.
3. Select a file to import.
4. Browse to the app (*qvf file*) you want to import and click **Open**.

   > *There is a maximum limit for simultaneous transports, and if the maximum is reached an error message is displayed.*

   The browse dialog closes and the name of the qvf file is displayed in the **App name** field in the **Import app** dialog.
   If you want to change the name of the app, edit the **App name** field. If the **App name** is not unique, a message is displayed with information on how many apps already have this name.

   > *If the name of a data connection in the imported app is the same as the name of an existing data connection, the data connection will not be imported. This means that the imported app will use the existing data connection with an identical name, not the data connection in the imported app.*

5. Click **Import** in the dialog.
   The **Ongoing transports** dialog opens. Any other transports you have initiated are also displayed in the dialog.
   - A spinner is displayed during the file import. **Duration** shows you how long the import has been ongoing.
   - Click ⊗ if you want to cancel the import.
     ⚠ and **Aborted** is displayed and the import stops.
   - Click **OK** if you wish to remove a failed item ⚠.
     The item is removed from the **Ongoing transports** dialog.

   When the app is imported, ✓ is displayed and the app is added to the **Apps** overview. When all your transports have finished successfully the **Ongoing transports** dialog closes.If there are any failed transports the dialog is displayed until the overview page is refreshed.

You now have imported an app.

Moving apps with ODBC data connections

If you move an app between Qlik Sense sites/Qlik Sense Desktop installations, data connections are included. If the app contains ODBC data connections, you need to make sure that the related ODBC data sources exist on the new deployment as well. The ODBC data sources need to be named and configured

identically, and point to the same databases or files.

Editing apps

You can edit apps that you have update rights to.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the app or apps that you want to edit.
   You can also select apps from stream associations.
3. Click **Edit** in the action bar. The number next to **Edit** indicates the number of items in your selection that you are allowed to edit.
   The **App edit** page opens.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the identification information for the for the selected apps.

Property	Description
Name	The name of the app.
Owner	The owner of the app.
Created	The date and time the app was created.
Last modified	The date and time the app was last modified.
File size (MB)	The file size of the app.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀ .

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar.
   Successfully updated is displayed at the bottom of the page.

You have now edited an app or apps.

See also:

- *Resource edit page (page 23)*

Deleting apps

You can delete apps that you have delete rights to. Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the app or apps that you want to delete.
   The number next to **Delete** indicates the number of items in your selection that you are allowed to delete.
3. Select **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Select **OK** in the dialog to confirm that you want to delete the app or apps.
   Deleted the selected apps is displayed at the bottom of the page.

You have now deleted one or more apps.

Publishing apps

The user can create an app from the Qlik Sensehub (if the user has the appropriate access rights). Apps are published to streams from the QMC (used in server deployments of Qlik Sense). If you want to publish an app that is created in a Qlik Sense Desktop installation it must first be imported, using the QMC. The security rules applied to the app, stream or user determine who can access the content and what the user is allowed to do. The app is locked when published. Content can be added to a published app via the Qlik Sensehub in a server deployment, but content that was published with the original app cannot be edited.

You can only publish apps that are unpublished:

- If you want to publish an app to more than one stream you must first create a duplicate of the app.
- If you want to republish an app, create a duplicate of the published app, edit the duplicate and publish it.Use the option **Replace existing** if you want to replace a published app.

Do the following:

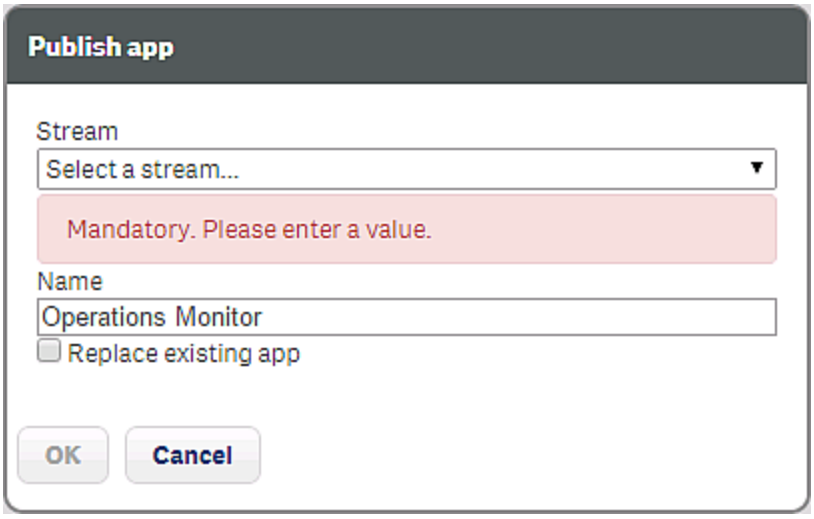
1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

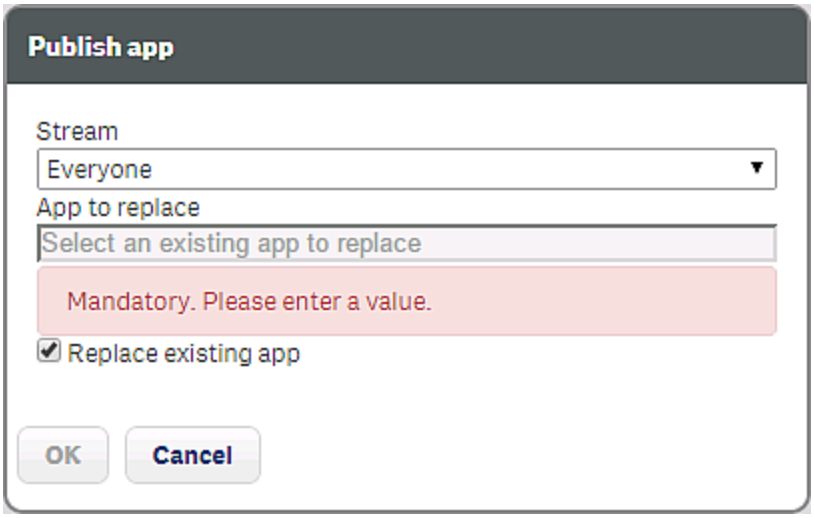
2. Select the app or apps that you want to publish.
   The number next to **Publish** indicates the number of apps in your selection that you are allowed to publish.
3. Click **Publish** in the action bar.

   *The **Publish** button is not displayed if you do not have access to any streams.*

   A dialog window opens.
4. In the **Publish app** dialog:
   a. Use the **Select a stream...** drop down menu to select the stream that you want to publish to.
   b. In the **Name** text field you can change the name of the app that you are about to publish. If **Multiple values** is displayed, you are publishing more than one app and you cannot change their names.
5. **Optional**: You can replace an already published app. This is only possible if you have selected a single app.
   a. Select **Replace existing app**.



   b. Click the **App to replace** box.



A dialog opens.

c. Double-click the published app you want to replace.
The app is added to the **App to replace** field.

6. Click **OK** to publish. If you are replacing an already published app, click **Publish and replace** in the confirmation dialog that opens.
The dialog closes and **Successfully published selected app(s): x** is displayed, where x represents the number of apps that you just published. Also, the **Stream** column in the apps overview is updated to show the stream that the apps were published to and the published date is shown in the **Published** column.

You have now published an app (or several apps) to a stream.

See also:

- *Importing apps (page 130)*
- *Duplicating apps (page 136)*
- *Managing apps (page 126)*
- *Republishing apps (page 134)*

Republishing apps

If you want to republish an app, create a duplicate of the published app, edit the duplicate and publish it.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the published app you wish to republish and click **Duplicate** in the action bar.
   A duplicate of the app is added to the overview.

The duplicated app can now be edited and published. Use the option **Replace existing** if you want to replace a published app.

See also:

- *Publishing apps (page 132)*

Replacing apps

You can choose to replace a published app when you publish an app. To do this you use the option **Replace existing** when you publish the app.

See also:

- *Publishing apps (page 132)*

Exporting apps

You can export apps. For example, you might want to use the app in a local version of Qlik Sense or export the app to another Qlik Sense site. Only published and approved content will be included in the export. The exported app is saved in the default download folder of your web browser.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select the app that you want to export.
3. Click **More actions** in the far right of the action bar.
   A pop-up menu opens.
4. Click **Export** in the pop-up menu.
   The **Ongoing transports** dialog opens. Any other transports initiated by you are also displayed in the dialog.
   There is a maximum limit for simultaneous transports, and if the maximum is reached an error message is displayed.
   - A spinner is displayed during the file export. **Duration** shows you how long the export has been ongoing. When the file export is complete, ✓ is displayed and the browser automatically starts to download the app to the default download folder of your web browser.

> *Do not close or logout from the QMC before the export and the download has finished; if you do the export cannot be completed and the app (qvf file) is lost.*

- Click ⊗ if you want to cancel the export.
  ⚠ and **Aborted** is displayed and the export stops.
- Click **OK** if you wish to remove a failed item ⚠.
  The item is removed from the **Ongoing transports** dialog.

When the export and file download has finished, ✓ is displayed. When all your transports have finished successfully the **Ongoing transports** dialog closes.If there are any failed transports the dialog is displayed until the overview page is refreshed.

You now have exported an app *qvf file* to the default download folder of your web browser.

Moving apps with ODBC data connections

If you move an app between Qlik Sense sites/Qlik Sense Desktop installations, data connections are included. If the app contains ODBC data connections, you need to make sure that the related ODBC data sources exist on the new deployment as well. The ODBC data sources need to be named and configured identically, and point to the same databases or files.

See also:

- *Managing apps (page 126)*
- *Importing apps (page 130)*

Duplicating apps

You can duplicate apps. The duplicate includes all the content that you have reading rights to. Only published and approved content will be included in the duplicate.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   > *You can apply a filter to a column by clicking* ⊡▾.

2. Select the app that you want to duplicate, click **More actions** in the far right of the action bar and select **Duplicate** in the pop-up menu.
   Successfully duplicated app is displayed and a duplicate of the app is added in the **Apps** overview table.

> *When you make duplicates of an app a counter is added to the name; <name of original app>(1), <name of original app>(2), <name of original app>(3). If a duplicated app is duplicated once more another counter is added, for example <name of original app>(1)(1), <name of original app>(1)(2), <name of original app>(1)(3).*

You have now duplicated an app.

Creating reload tasks

You can create a reload task to an app from the apps overview page.

The creation of a new reload task can be initiated in more than one way; from the app overview page, from the **Associated items** tab on the **App edit** page or from the task overview page.
Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   > *You can apply a filter to a column by clicking* .

2. Select the app that you want to create a task for, click **More actions** in the far right of the action bar and select **Create new reload task** in the pop-up menu.
   Alternatively:
   Select the app that you want to create a reload task for and click **Edit** in the action bar, then select **Tasks** on the **Associated items** tab and click **Create new** in the action bar on the tasks page.
   Either way the **Reload task edit** page is displayed.
3. Edit the fields on the **Properties** tab.

   > *You can display or hide property groups using the panel to the far right.*

   a. If you wish you can change the task name in the **Name** field. By default the name is *Reloadtask of <App name >*.
   b. **App name** displays the app you selected from the overview. You can change which app you are creating the task for by clicking the **App name** field. In the dialog that opens, double-click which app you want this task to reload. Then the dialog closes and the app you selected is displayed in the **App name** field.
   c. If you wish you can change the **Execution** properties. See descriptions below. The task is **Enabled** ✓ by default. Uncheck if you wish to disable the task for now.
   d. A task must have at least one trigger to be executed automatically. Manage the triggers by clicking **Actions** ▼ in the **Triggers** table heading and select one of the following:
      - **Create new once-only trigger**, **Create new hourly trigger**, **Create new daily trigger**, **Create new weekly trigger** or **Create new monthly trigger**. These are trigger shortcuts and the trigger of selected type is added to the table instantly. The

start value for the trigger is set to 5 minutes from when it was created and the trigger is enabled.

- **Create new scheduled trigger** or **Create new task event trigger** to create a new trigger of selected type (see the property descriptions below). A dialog opens; edit the trigger and click **OK** to close the dialog and add the trigger to the table.
- **Delete** if you wish to delete the trigger that is selected in the table.
- **Edit** if you wish to open the edit dialog for the trigger that is selected in the table. Edit the trigger and click **OK** to close the dialog and save your changes.

Clicking undo ↩ in the **Triggers** heading applies to all triggers you are currently editing.

e. Apply QMC tags if desired.

f. Apply custom properties if desired.

The **Identification** property group contains the basic reload task properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The name of the task.	Reloadtask of <App name>
App name	The name of the app that the task is created for. Click in the field to open a dialog where you can select (by double-click) which app the task reloads.	<App name>

The **Execution** property group contains the reload task execution properties in the Qlik Sense system.

Property	Description	Default value
Enabled	The task is enabled if the checkbox is checked.	✔
Task session timeout (minutes)	The maximum period of time before a task is aborted. When a task is started a session is started by the master scheduler and the task is performed by one of the nodes. If the session times out, the master scheduler forces the node to abort the task and remove the session.	1440
Max retries	The maximum number of times the scheduler tries to rerun a failed task.	0

Triggers - Scheduled trigger

The following properties are available for a scheduled trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Start	Select when the trigger takes effect by typing the values for: • **Time to start (hh:mm)** and • **Start date (YYYY-MM-DD)**

Repeat	Use the radio buttons to select one of the following options that determines how the trigger is repeated:
	• Select **Once** to only execute the trigger one time.
	• Select **Hourly** to set the time period between the executions of the trigger. Edit **Repeat after each** by typing the values for:
	  • **hour(s)** (default is 1) and
	  • **minute(s)** (default is 0)
	• Select **Daily** to set the time between the executions of the trigger by typing a value for **Every day(s)** (default is 1). For example, type 2 to repeat the trigger every second day.
	• Select **Weekly** to set the time between the executions of the trigger:
	  • Type a value for **Every week(s)** (default is 1) and
	  • Select one or more checkboxes for **On these weekdays** to determine which days the trigger is repeated (on the weeks you have specified). For example, type 3 and select the checkbox **Mon** to repeat the trigger on Mondays every third week.
	• Select **Monthly** and select one or more checkboxes for **At these days** to define the days when the trigger is repeated every month.

End	Type the values for: • **Time to end (hh:mm)** and • **End date (YYYY-MM-DD)** Or check the **Infinite** checkbox to create a never ending trigger.

Triggers - Task event trigger

The following properties are available for a task event trigger:

Property	Description
Name	The name of the trigger. Mandatory.

Property	Description
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Time constraint	Defines the time period (in minutes) that the other tasks in the task chain must be completed within. There is no effect if the trigger consists of only one task.
⊕ Add task **Task successful** or **Task failed**	Do the following: a. Click **⊕ Add task** to add a tasks that will function as a trigger condition. A drop-down list and an empty field is added. b. Click the empty field to add a task. The dialog **Select task by double-click** is opened and displays a list of tasks with the following columns; **App name**, **Tags** connected to the task and **Name** which is the task name Click a column heading to sort that column ascending ▼ or descending ▲. *You can apply a filter to a column by clicking ⧩.* c. Double-click the task that will function as a trigger condition. The task is added to the trigger and the dialog is closed. d. Use the drop-down list to select whether the trigger condition is fulfilled upon **Task successful** or **Task failed**. Click **⊗ Delete** to remove a task from the trigger. Repeat the steps above for all the tasks that you wish to include in the trigger. A task can only be added once and is not displayed in the **Select task by double-click** dialog if it has already been added to the trigger.

*The tasks do not need to be executed in any specific order and the **Time constraint** is not static. What happens if all tasks but one have completed when the time period is reached? The task that was first completed is no longer considered executed and the end of the time period is recalculated. The trigger then waits for all tasks to be completed within the recalculated time period.*

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to apply and save your changes.
   Successfully added is displayed at the bottom of the page.

You have now created a new reload task to an app.

Editing reload tasks

You can edit reload tasks that you have update rights to from the app's association page.

You can also select to edit reload tasks from the tasks overview page.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the app or apps that you want to edit tasks for and click **Edit** in the action bar.
3. Select **Tasks** on the **Associated items** tab, select the task you want to edit and click **Edit** in the action bar.
   The **Reload task edit** page is displayed.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

a. If you wish you can change the task name in the **Name** field.
b. **App name** displays the app you selected from the overview. You can change which app you are creating the task for by clicking the **App name** field. In the dialog that opens, double-click which app you want this task to reload. Then the dialog closes and the app you selected is displayed in the **App name** field.
c. If you wish you can change the **Execution** properties. See descriptions below. For example, enable or disable the task.
d. A task must have at least one trigger to be executed automatically. Manage the triggers by clicking **Actions** ▼ in the **Triggers** table heading and select one of the following:
   - **Create new once-only trigger**, **Create new hourly trigger**, **Create new daily trigger**, **Create new weekly trigger** or **Create new monthly trigger**. These are trigger shortcuts and the trigger of selected type is added to the table instantly. The start value for the trigger is set to 5 minutes from when it was created and the trigger is enabled.
   - **Create new scheduled trigger** or **Create new task event trigger** to create a new trigger of selected type (see the property descriptions below). A dialog opens; edit the trigger and click **OK** to close the dialog and add the trigger to the table.
   - **Delete** if you wish to delete the trigger that is selected in the table.
   - **Edit** if you wish to open the edit dialog for the trigger that is selected in the table. Edit the trigger and click **OK** to close the dialog and save your changes.
e. Apply QMC tags if desired.
f. Apply custom properties if desired.

The **Identification** property group contains the basic reload task properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The name of the task.	Reloadtask of <App name>
App name	The name of the app that the task is created for. Click in the field to open a dialog where you can select (by double-click) which app the task reloads.	<App name>

The **Execution** property group contains the reload task execution properties in the Qlik Sense system.

Property	Description	Default value
Enabled	The task is enabled if the checkbox is checked.	✔

Property	Description	Default value
Task session timeout (minutes)	The maximum period of time before a task is aborted. When a task is started a session is started by the master scheduler and the task is performed by one of the nodes. If the session times out, the master scheduler forces the node to abort the task and remove the session.	1440
Max retries	The maximum number of times the scheduler tries to rerun a failed task.	0

Triggers - Scheduled trigger

The following properties are available for a scheduled trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Start	Select when the trigger takes effect by typing the values for: • **Time to start (hh:mm)** and • **Start date (YYYY-MM-DD)**

Property	Description

Repeat	Use the radio buttons to select one of the following options that determines how the trigger is repeated:
	• Select **Once** to only execute the trigger one time.
	• Select **Hourly** to set the time period between the executions of the trigger. Edit **Repeat after each** by typing the values for:
	  • **hour(s)** (default is 1) and
	  • **minute(s)** (default is 0)
	• Select **Daily** to set the time between the executions of the trigger by typing a value for **Every day(s)** (default is 1). For example, type 2 to repeat the trigger every second day.
	• Select **Weekly** to set the time between the executions of the trigger:
	  • Type a value for **Every week(s)** (default is 1) and
	  • Select one or more checkboxes for **On these weekdays** to determine which days the trigger is repeated (on the weeks you have specified). For example, type 3 and select the checkbox **Mon** to repeat the trigger on Mondays every third week.
	• Select **Monthly** and select one or more checkboxes for **At these days** to define the days when the trigger is repeated every month.

End	Type the values for: • **Time to end (hh:mm)** and • **End date (YYYY-MM-DD)** Or check the **Infinite** checkbox to create a never ending trigger.

Triggers - Task event trigger

The following properties are available for a task event trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Time constraint	Defines the time period (in minutes) that the other tasks in the task chain must be completed within. There is no effect if the trigger consists of only one task.

Property	Description
Add task **Task successful** or **Task failed**	Do the following: a. Click **Add task** to add a tasks that will function as a trigger condition. A drop-down list and an empty field is added. b. Click the empty field to add a task. The dialog **Select task by double-click** is opened and displays a list of tasks with the following columns; **App name**, **Tags** connected to the task and **Name** which is the task name Click a column heading to sort that column ascending ▼ or descending ▲. *You can apply a filter to a column by clicking .* c. Double-click the task that will function as a trigger condition. The task is added to the trigger and the dialog is closed. d. Use the drop-down list to select whether the trigger condition is fulfilled upon **Task successful** or **Task failed**. Click **Delete** to remove a task from the trigger. Repeat the steps above for all the tasks that you wish to include in the trigger. A task can only be added once and is not displayed in the **Select task by double-click** dialog if it has already been added to the trigger.

*The tasks do not need to be executed in any specific order and the **Time constraint** is not static. What happens if all tasks but one have completed when the time period is reached? The task that was first completed is no longer considered executed and the end of the time period is recalculated. The trigger then waits for all tasks to be completed within the recalculated time period.*

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar to apply and save your changes.
   Successfully updated is displayed at the bottom of the page.

You have now edited a task or tasks for an app or apps.

See also:

- *Resource edit page (page 23)*

Deleting reload tasks

You can delete tasks that you have delete rights to from the app's association page.

You can also delete reload tasks from the task overview page.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧉.

2. Select the app or apps that you want to delete tasks from and click **Edit** in the action bar.
   The panel to the far left lists your selections.
3. Select **Tasks** on the **Associated items** tab.
   The **App associations** page with the **Tasks** overview is displayed.
4. Select the task or tasks to delete and click **Delete** in the action bar.
   A confirmation dialog is displayed.
5. Click **OK** in the dialog to confirm that you want to delete the task or tasks.

Starting reload tasks

You can manually start reload tasks from the app's association page.

You can also start reload tasks from the task overview page.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the app or apps that you want to start tasks for and click **Edit** in the action bar.
   The panel to the far left lists your selections.
3. Select **Tasks** on the **Associated items** tab.
   The **App associations** page with the **Tasks** overview is displayed.
4. Select the tasks you want to start and click **Start** in the action bar.
   A dialog is displayed to confirm that your task or tasks are started.

You have now started a task or tasks for an app or apps.

Tasks can also be started by triggers.

Stopping reload tasks

You can manually stop reload tasks from the app's association page.

You can also stop reload tasks from the task overview page.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the app or apps that you want to stop tasks for and click **Edit** in the action bar.
3. Select **Tasks** on the **Associated items** tab.
   The **App associations** page with the **Tasks** overview is displayed.
   The panel to the far left lists your selections.
4. Select the tasks you want to stop and click **Stop** in the action bar.
   A dialog is displayed to confirm that your task or tasks are stopped.

You have now stopped reload tasks for an app or apps.

See also:

- *Stopping tasks (page 226)*

Reloading apps manually

You can reload apps manually to fully reload the data in an app from the source. Any old data is discarded.

Do the following:

1. Select **Apps** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select the app that you want to reload, click **More actions** in the far right of the action bar and select **Reload now** in the pop-up menu.
   The task to reload the app was successfully started. The status can be viewed in the Task overview if you have access to that section is displayed and a reload task is started. If the task fails you receive the message **Failed to create/start the reload app task. Please try again.**
3. Go to the **Tasks** overview page to find out the progress of the task. The **Name** column displays *Manually triggered reload of [app name]*. When the task has finished the **Status** column displays ✓ **Success**.

   
   You can apply a filter to a column by clicking ⧩.
4. Optional: The manually started reload app task is executed once only. Therefore you probably want to delete this task from the task overview.
   a. Select the task and click **Delete**.
      A dialog is displayed.
   b. Click **OK** to confirm the deletion.
      The task is deleted from the overview.

You have now reloaded an app manually to fully reload the data in an app from the source.

Filtering apps

From the app objects overview page you can use the filter functionality to help you identify specific apps. Use filters on multiple columns simultaneously to narrow your search.

The following columns have default filter options:

Column	Filter options
Published	**No filter** **Last 60 minutes** **Today** **Last seven days** **Range: from** YYYY-MM-DD **to** YYYY-MM-DD **Not published**
Stream	**Not published**

Do the following:

1. Click ⍈ in the column heading.
   The filter dialog for the column is displayed.
2. Type or make a selection in the filter dialog.
3. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   ⍈ indicates that a filter is applied to the column.

You have now applied a filter to one or more columns in the apps overview.

Filtering app objects

From the app objects overview page you can use the filter functionality to help you identify specific app objects. Use filters on multiple columns simultaneously to narrow your search.

The following columns have default filter options:

Column	Filter options
Approved	**Not approved** **Approved**
Published	**Not published** **Published**
Last modified	**No filter** **Last 60 minutes** **Today** **Last seven days** **Range: from** YYYY-MM-DD **to** YYYY-MM-DD **No value**
Stream	**Not published** **Published**

Do the following:

1. Click ⍈ in the column heading.
   The filter dialog for the column is displayed.
2. Type or make a selection in the filter dialog.
3. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   ⍈ indicates that a filter is applied to the column.

You have now applied a filter to one or more columns in the app objects overview.

Creating content libraries

A content library is a storage that enables the Qlik Sense users to add shared contents to their apps.

The user who creates the content library automatically becomes the owner of that library. The library and the library objects can be shared with others through security rules defined in the QMC.

You can create content libraries. Do the following:

1. Select **Content libraries** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
3. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the identification information for the for the selected content libraries.

Property	Description
Name	The name of the content library. Mandatory.
Owner	The owner of the content library. This property does not exist until the content library is created.

   The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

   The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
4. Click **Apply** in the action bar to create and save the content library.

The **Create security rule** dialog opens.

5. Edit the security rule for administrative access of the content library:
   a. Edit the **Identification** properties:

Name	Enter the name of the content library. Mandatory.
Disabled	Select to disable the rule. The rule is enabled by default.
Description	Enter a description for the rule.

   b. Create the conditions for the rule in the **Basic** section:
      - Select which actions the rule should apply for by selecting the applicable checkboxes.
      - Use the drop downs to create a condition that specifies which users the rule will apply to.
      - Click ⊕ to add a condition. When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.

Operands	Descriptions and examples
=	This operand is **not** case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = "a*"` The user named exactly a* is targeted by the rule.
like	This operand is **not** case sensitive and returns True if the compared expressions are equal. **Example:** `user.name = "a*"` All user with names beginning with an a is targeted by the rule.
!=	This operand is **not** case sensitive and returns True if the attribute values in the compared expressions are equal. **Example:** `user.name=resource.name` All resources with the same name as the user are targeted by the rule.

Successfully added is displayed at the bottom of the page.

You have now created a new content library.

See also:

- *Creating access rights for content libraries (page 155)*

Editing content libraries

A content library is a storage that enables the Qlik Sense users to add shared contents to their apps.

The user who creates the content library automatically becomes the owner of that library. The library and the library objects can be shared with others through security rules defined in the QMC.

You can edit the content libraries that you have update rights to.

Do the following:

1. Select **Content libraries** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select the library you want to edit.
3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.

You can display or hide property groups using the panel to the far right.

The **Identification** property group contains the identification information for the for the selected content libraries.

Property	Description
Name	The name of the content library. Mandatory.
Owner	The owner of the content library. This property does not exist until the content library is created.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◄ .

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar.
   Successfully updated is displayed at the bottom of the page.

You have now edited a content library.

See also:

- *Creating access rights for content libraries (page 155)*

Deleting content libraries

You can delete content libraries that you have update rights to. When deleting a content library, all library objects is also deleted. Do the following:

1. Select **Content libraries** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking ⍇.

2. Select the content library or libraries that you want to delete.
   The number next to **Delete** indicates the number of items in your selection that you are allowed to delete.
3. Select **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Select **OK** in the dialog to confirm that you want to delete the library or libraries.

You have now deleted one or more content libraries and all their library objects.

Uploading objects to content libraries

You can upload objects to the content libraries that you have update rights to. Qlik Sense only uses image files, but you can upload any file type. The maximum file size is half of the free disk space.

You can choose to upload objects from the content libraries overview page or from the content library **Associated items** tab.
Do the following:

1. Select **Content libraries** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the content library that you want to upload objects to and click **Upload**.
   Alternatively:
   Select the content library and click **Edit** in the action bar, then select **Contents** on the **Associated items** tab and click **Upload** in the action bar on the **Contents** page.
   Either way the **Upload static content** dialog opens.
3. Click **Browse**.
   A browse window opens.
4. Browse to the file or files you want to import and click **Open**.
   The browse window closes and the file or files are added to **Selected files** in the **Upload static content** dialog.
5. Click **Upload**.
   The **Ongoing transports** dialog opens. Any other transports you have initiated are also displayed in the dialog.
   - A spinner is displayed during the file import. **Duration** shows you how long the import has been ongoing.
   - Click if you want to cancel the upload.
     and **Aborted** is displayed and the upload stops.
   - is displayed when a upload is queued. The upload starts when less than 4 upload processes are running.
   - Click **Remove** if you wish to remove a failed item .
     The item is removed.
   - **Conflict error with existing file** is displayed if an identical file already exists in the content library:
     - Click **Overwrite** if you want to replace the existing file with the new file.
       The upload continues.
     - Click **Cancel** to stop the upload.
       The item is removed from the dialog and the existing item is kept in the library.

   When the file is uploaded, is displayed for 15 seconds and the file is added to the selected **Content library**. When all your transports have finished successfully the **Ongoing transports** dialog closes.If there are any failed transports the dialog is displayed until the overview page is refreshed.

*Click the **URL path** from the **Contents** overview if you want to view an uploaded file. The file is displayed in a new tab.*

You have now uploaded objects to a content library.

Deleting objects from content libraries

You can delete objects from the content libraries that you have delete rights to.

If you want to delete all objects in a content library you can do this by deleting the content library.

Do the following:

1. Select **Content libraries** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the content library that you want to delete objects from and click **Edit**.
   The content library edit page opens.
3. Select **Contents** on the **Associated items** tab.
   The contents overview is displayed.
4. Select the file or files you want to delete from the content library and click **Delete**.
   The files are deleted from the repository and removed from the contents overview.

You have now deleted one or more objects from the selected content library.

See also:

- *Deleting content libraries (page 153)*

Creating access rights for content libraries

A content library is a storage that enables the Qlik Sense users to add shared contents to their apps.

The user who creates the content library automatically becomes the owner of that library. The library and the library objects can be shared with others through security rules defined in the QMC.

You create security rules to give access rights for the content libraries. Do the following:

1. Select **Content libraries** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the content library that you want to create rules for and click **Edit**.
   The content library edit page opens.
3. Select **Security rules** on the **Associated items** tab.
   The security rules overview is displayed.
4. Click **Create associated rule** in the action bar.
   The **Create security rule** dialog opens.
5. Edit the security rule for administrative access of the content library:

a. Edit the **Identification** properties:

Name	Enter the name of the content library. Mandatory.
Disabled	Select to disable the rule. The rule is enabled by default.
Description	Enter a description for the rule.

b. Create the conditions for the rule in the **Basic** section:

- Select which actions the rule should apply for by selecting the applicable checkboxes.
- Use the drop downs to create a condition that specifies which users the rule will apply to.
- Click ⊕ to add a condition. When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.

Operands	Descriptions and examples
=	This operand is not case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = "a*"` The user named exactly a* is targeted by the rule.
like	This operand is not case sensitive and returns True if the compared expressions are equal. **Example:** `user.name = "a*"` All user with names beginning with an a is targeted by the rule.
!=	This operand is not case sensitive and returns True if the attribute values in the compared expressions are equal. **Example:** `user.name=resource.name` All resources with the same name as the user are targeted by the rule.

6. Click **Apply**.
   The dialog closes and the rule is added to the security rules overview.

*The security rule results in a corresponding security rule in the **Security rule** overview page.*

You have now created the access rights for the selected content library.

See also:

- *Editing security rules (page 81)*

Editing app objects

You can edit the app objects that you have update rights to. For example, change the owner of sheets and stories.

Do the following:

1. Select **App objects** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview. By default the **Approved** column filters on **Not approved** and the **App status** column filters on **Published**.
2. Select the app objects you want to edit.
3. Click **Edit** in the action bar.
   The number next to **Edit** indicates the number of items in your selection that you are allowed to edit.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic app object properties.

Property	Description
Name	The name of the app object. Mandatory.
Owner	The owner of the app object.

   The property group **Tags** contains the QMC tags that are connected to the app object.

Property	Description
Tags	The available QMC tags are listed to the right. Connected QMC tags are listed to the left.

   The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar.
   Successfully updated is displayed at the bottom of the page.

You have now edited one or more app objects.

Deleting app objects

You can delete app objects that you have delete rights to. For example, sheets and stories.

Deleting apps objects through the QMC will only remove them from being visible in the QMC. It will not delete them from the qvf file.

Do the following:

1. Select **App objects** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview. By default the **Approved** column filters on **Not approved** and the **App status** column filters on **Published**.

   You can apply a filter to a column by clicking ⊡▾.

2. Select the app object or objects you want to delete.
   The number next to **Delete** indicates the number of items in your selection that you are allowed to delete.
3. Select **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Select **OK** in the dialog to confirm that you want to delete the selected item or items.

You have now deleted one or more app objects.

5.3 Managing streams

A stream enables the user to read and/or publish apps, sheets and stories. The users who have publish access to a stream create the content for that specific stream. The stream access pattern in a Qlik Sense site is determined by the security rules for every stream. By default, Qlik Sense includes a stream called Everyone. An app can be published to only one stream. To published to another stream, the app must be duplicated and thereafter published to the other stream.

*All authenticated users have read and publish rights to the **Everyone** stream and all anonymous users read-only rights.*

Creating streams

You can create streams. Do the following:

1. Select **Streams** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Click **Create new** in the action bar.
3. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the identification information for the for the selected streams.

Property	Description
Name	The name of the stream.
Owner	The owner of the stream. This property does not exist until the stream is created.

   The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

   The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to create and save the stream.
   The **Create security rule** dialog opens.
5. Create security rules for the stream and click **Apply**, or click **Cancel**.

You have now created a new stream.

Editing streams

You can edit streams that you have update rights to.

Do the following:

1. Select **Streams** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking .

2. Select the stream or streams that you want to edit.
3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.

   
   You can display or hide property groups using the panel to the far right.

   If you selected an individual stream you can edit the existing security rules for that stream or add new ones by clicking the ⊕ button.

   
   If you select several streams, you cannot view, edit or add security rules.

   The **Identification** property group contains the identification information for the for the selected streams.

Property	Description
Name	The name of the stream.
Owner	The owner of the stream. This property does not exist until the stream is created.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar to apply and save changes.
   Successfully updated is displayed at the bottom of the page.

You have now edited the stream or streams.

Deleting streams

You can delete streams that you have delete rights to. Do the following:

1. Select **Streams** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⊡▾.

2. Select the stream or streams that you want to delete.
3. Click **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to delete the stream or streams.
   The stream is removed from the overview.

You have now deleted a stream or streams.

Creating access rights for streams

You create security rules to give access rights to the streams. Do the following:

1. Select **Streams** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⊡▾.

2. Select the stream you want to create rules for and click **Edit**.
   The stream edit page opens.
3. Select **Security rules** on the **Associated items** tab.
   The system rules overview is displayed.
4. Click ⊕ **Create associated rule** in the action bar.
   The **Create security rule** dialog opens.
5. Edit the security rule for administrative access of the stream:
   a. Edit the **Identification** properties:

Name	Enter the name of the stream. Mandatory.
Disabled	Select to disable the rule. The rule is enabled by default.
Description	Enter a description for the rule.

   b. Edit the **Basic** properties:

Operands	Descriptions and examples
=	This operand is not case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = "a*"` The user named exactly a* is targeted by the rule.
like	This operand is not case sensitive and returns True if the compared expressions are equal. **Example:** `user.name like "a*"` All user with names beginning with an a is targeted by the rule.
!=	This operand is not case sensitive and returns True if the values in the compared expressions are not equal. **Example:** `user.name != resource.name` All resources that do not have the same name as the user are targeted by the rule.

4. Optionally, edit the **Advanced** properties and create the **Conditions** for the rule:
    - Add a condition.
    - Use the drop-down to specify the context to which the rule will apply.

6. Click **Apply**.
   The dialog closes and the rule is added to the security rules overview.

*The security rule results in a corresponding security rule in the **Security rule** overview page.*

You have now created the access rights for the selected stream.

See also:

- *Editing security rules (page 81)*

5.4 Managing data connections and extensions

Data connections

Data connections enable you to select and load data from a data source. All data connections are managed centrally from the QMC. Data connections are created in the Qlik Sense data load editor. The user who creates a data connection automatically becomes the owner of that connection and is by default the only user who can access the data connection. The data connection can be shared with others through security rules defined in the QMC.

When you import an app, existing data connections are imported to the QMC.

If the name of a data connection in the imported app is the same as the name of an existing data connection, the data connection will not be imported. This means that the imported app will use the existing data connection with an identical name, not the data connection in the imported app.

Extensions

Extensions can be used to, amongst other things, add visualizations to data. For example using a graphic to represent a unit of data or adding a clickable map that users can use to select geographies.

Editing data connections

Data connections are created in the Qlik Sense data load editor. The user who created a data connection automatically becomes the owner of that connection and is by default the only user who can access the data connection.

You can edit data connections that you have update rights to. Do the following:

1. Select **Data connections** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking ⧩.

2. Select the data connections that you want to edit.

   
   If you select several data connections, you cannot view, edit or add security rules.

3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.
   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the identification information for the for the selected data connections.

Property	Description
Name	The name of the data connection.
Owner	The user name of the owner of the data connection.
Connection string	The connection string for the data connection. Typically includes the name of the data source, drivers and path.
Type	The type of data connection. Standard data connections include ODBC, OLEDB and Folder.
User ID	The user id that is used in the connection string.
Password	The password associated with the user id used in the connection string.  *The password is saved encrypted.*

   The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◄.

   The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a

custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar.
   Successfully updated data connection properties is displayed at the bottom of the page.

You have now edited the data connection or connections.

See also:

- *Resource edit page (page 23)*

Deleting data connections

You can delete data connections that you have delete rights to. Do the following:

1. Select **Data connections** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking .

2. Select the data connections to delete.
3. Click **Delete**.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to delete the data connections.

You have now deleted one or more data connections.

Creating access rights for data connections

You create security rules to give access rights to the data connections. Do the following:

1. Select **Data connections** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking .

2. Select the data connection that you want to create rules for and click **Edit**.
   The data connection edit page opens.

3. Select **System rules** on the **Associated items** tab.
   The system rules overview is displayed.
4. Click **Create new** in the action bar.
   The **Create security rule** dialog opens.
5. Edit the security rule for administrative access of the data connection:
   a. Edit the **Identification** properties:

Name	Enter the name of the data connection. Mandatory.
Disabled	Select to disable the rule. The rule is enabled by default.
Description	Enter a description for the rule.

   b. In the **Advanced** section, use the drop-down to specify the context to which the rule will apply.
   c. In the **Basic** section, select the conditions for the rule using the following operands:

Operands	Descriptions and examples
=	This operand is not case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = ”a*”` The user named exactly a* is targeted by the rule.
like	This operand is not case sensitive and returns True if the compared expressions are equal. **Example:** `user.name like ”a*”` All user with names beginning with an a is targeted by the rule.
!=	This operand is not case sensitive and returns True if the values in the compared expressions are not equal. **Example:** `user.name != resource.name` All resources that do not have the same name as the user are targeted by the rule.

6. Click **Apply**.
   The dialog closes and the rule is added to the security rules overview.

> *The security rule results in a corresponding security rule in the **Security rule** overview page.*

You have now created the access rights for the selected data connection.

See also:

- *Editing security rules (page 81)*

Importing extensions

By default only the RootAdmin user has the access rights to import extensions. To enable others to import extensions, you need to define security rules for this. Also, by default all Qlik Sense users have access to all extensions that you add. To change this you need to revise the security rule named **Extension**.
You can add extensions.

Do the following:

1. Select **Extensions** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click **Import** in the action bar.
3. The **Import extension file** dialog opens. Select a zip file to import.
   Remember to enter the password for the zip file if it is password protected.
4. Click **Open** in the file explorer window.
5. Click **Import**.

If the name of an extension already exists (or occurs more than once in the zip file), the zip file is not uploaded. An extension within an extension in the zip file will be accessible in the extensions overview (and stored twice on disk).

Extensions are saved to %ProgramData%\Qlik\Repository\Extensions. The maximum file size is half of the free disk space.

You have now uploaded one or more new extensions.

See also:

- *Resource edit page (page 23)*

Editing extensions

You can edit extensions that you have update rights to. Do the following:

1. Select **Extensions** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the extension or extensions that you want to edit.
3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.

You can display or hide property groups using the panel to the far right.

Property	Description
Name	The name of the extension is obtained from the file name of the extension definition file (*.qext*) in the uploaded zip file and cannot be modified.
Owner	The user name of the owner of the extension.  *This property is only visible when editing an extension.*

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀ .

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. You can also edit the fields on the **Associated items** tab.

Property	Description
Users	Displays the users and their permitted actions.
System rules	Displays the system rules for the extension.

6. Click **Apply** in the action bar.
   Successfully updated is displayed at the bottom of the page.

You have now edited an extension or extensions.

The web browser caches the extensions for up to 6 hours. The user can manually clear the cache to access a new version of an extension.

See also:

- *Resource edit page (page 23)*

Deleting extensions

You can delete extensions that you have delete rights to. Do the following:

1. Select **Extensions** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Click the extension or extensions that you want to delete.
3. Click **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to delete the extension or extensions.

You have now deleted an extension or extensions.

5.5 Managing users

All user data is stored in the Qlik Sense Repository Service (QRS) database. You create user directory connectors in the QMC to be able to synchronize and retrieve the user data from a configured directory service. When a user logs in to Qlik Sense or the QMC the user data is automatically retrieved.

Managing users in Qlik Sense involves:

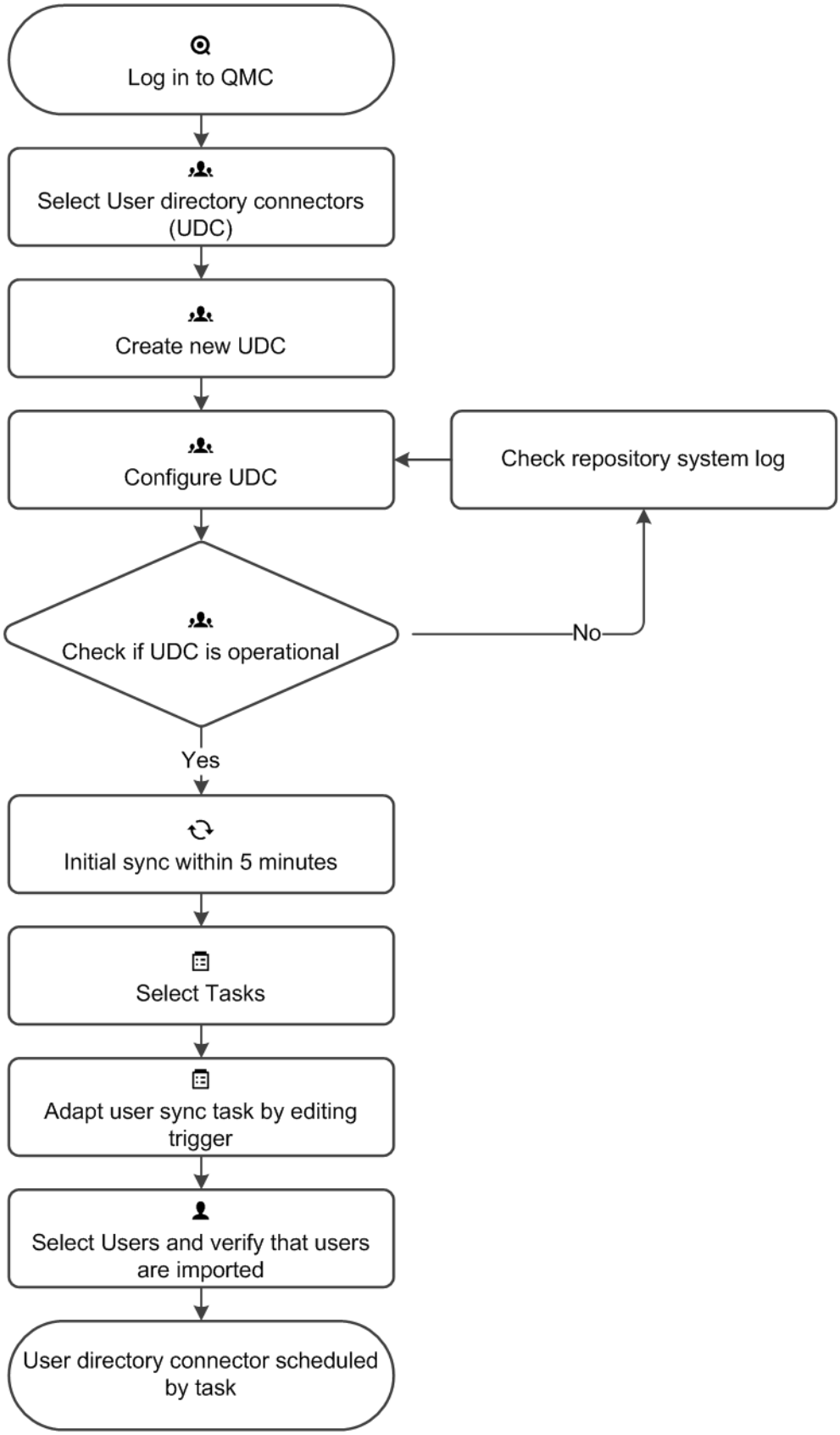
- Creating new user directory connectors
- Synchronizing with user directories
- Managing access types
- Changing ownership of resources
- Removing resources owned by users
- Connecting administrative roles to a user
- Inactivating users
- Deleting users

Setting up a user directory connector and schedule by task

When you create a new instance of a User Directory Connector (UDC) a scheduled user synchronization task is created by default and initial synchronization is performed within 5 minutes. The user directory connector must be configured and operational to function.

If desired you can change the default trigger for the user synchronization task and/or add more triggers.You can synchronize the user data manually from the user directory connectors overview.

This workflow illustrates setting up a new user directory connector:


Log in to QMC
Select User directory connectors (UDC)
Create new UDC
Configure UDC
Check repository system log
Check if UDC is operational
No
Yes
Initial sync within 5 minutes
Select Tasks
Adapt user sync task by editing trigger
Select Users and verify that users are imported
User directory connector scheduled by task

See also:

- *Creating user directory connector (page 174)*
- *Creating trigger for user sync task - scheduled (page 199)*
- *Synchronizing with user directories (page 185)*
- *ODBC example (page 171)*

ODBC example

Each data source has a different configuration and below is one example of adding an ODBC user directory connector.

Do the following:

1. Verify that the Microsoft Access Text Driver is installed.
2. Set up an ODBC source on the server. You need to store the data in two separate csv files, for example in this location: *%ProgramData%\Qlik\Sense\temp*.

   The temp folder is not included in the default installation. You need to create the temp folder, if not already done by another QMC administrator.

   Table1.csv contains the users and *Table2.csv* the attributes of the users. The values in the csv files are comma separated. The tables can for example look like this:

   Table1

1	userid,name
2	JoD,John Doe

   Table2

1	userid,type,value
2	JoD,email,jod@gmail.com

3. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview. Add a new user directory connector, default properties (ODBC) and edit the properties:

   The **Identification** property group contains the basic user directory connector properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description
Name	The name of the user directory connector configuration defined from the QMC.
Type	The user directory connector type.

The **User sync settings** property group contains the user sync properties for the user directory connector.

Property	Description	Default value
Fetch user data on first access, then keep in sync	• If the checkbox is selected, only the existing users are synchronized. An existing user is a user who has logged in to Qlik Sense and/or been previously synchronized from the configured directory service. • If the checkbox is deselected, all the users, defined by the properties for the user directory connector, are synchronized from the configured directory service. You can create a filter to **Active Directory** or **Generic LDAP** if you only want to synchronize a selection of users.	✔ checked

The **Connection** property group contains the ODBC connection properties in the Qlik Sense system.

Property	Description	Default value
User directory name	The name of the user directory. Must be unique, otherwise the connector will not be configured.	-
Users table name	The name of the table containing the users.	-
Attributes table name	The name of the table containing the attributes of the users.	-
Visible connection string	The visible part of the connection string that is used to connect to the data source.  *The two connection strings are concatenated into a single connection string when making the connection to the database.*	-

Property	Description	Default value
Encrypted connection string	The encrypted part of the connection string that is used to connect to the data source. Typically contains user name and password. *The two connection strings are concatenated into a single connection string when making the connection to the database.*	-
Synchronization timeout (seconds)	The timeout for reading data from the data source.	240

Example:

User table name: *Table1.csv*
Attributes table name: *Table2.csv*
Visible connections string: *Driver={Microsoft Access Text Driver (*.txt, *.csv)};Extensions=asc,csv,tab,txt;Dbq=%ProgramData%\Qlik\Sense\temp*

4. Click **Apply** to apply your changes.
5. Go to the **User directory connectors** overview and check if the user directory is displayed as **Configured** and **Operational**.

If the User directory name is not unique the connector will not be configured. If not operational; check the repository system log in: %ProgramData%\Qlik\Sense\Log\Repository

You now have added an ODBC data source and initial synchronization will be performed within 5 minutes (by default).

See also:

- *Creating user directory connector (page 174)*
- *Synchronizing with user directories (page 185)*

Using Additional LDAP filter to retrieve specific users

You can create a user directory connector that will retrieve only specific users when synchronizing with user directories. To achieve this you use the property **Additional LDAP filter** when creating a new GenericLDAP or Active Directory user directory connector.

Example:

Enter a query in the **Additional LDAP filter** text field found in the **Advanced** property group. For example, you might want to import:

- all users named John: *&(objectClass=user)(name=John*)*
- a specific user: *&(objectClass=user)(sAMAccountName=userid)*
- more than one specific users: *(&(objectCategory=person)(objectClass=user)(|(sAMAccountName=userid)(sAMAccountName=userid)))*

See also:

- *Creating user directory connector (page 174)*
- *Synchronizing with user directories (page 185)*

Creating user directory connector

You can create a new User Directory Connector (UDC). Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
   The dialog with available user directory connector types is displayed.
3. Select the type for the new user directory connector and also the source. The following types are available:
   - Generic LDAP
   - Active Directory
   - Apache directory search
   - Local network
   - ODBC
   - Access (via ODBC)
   - Excel (via ODBC)
   - SQL (via ODBC)
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic user directory connector properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description
Name	The name of the user directory connector configuration defined from the QMC.
Type	The user directory connector type.

The **User sync settings** property group contains the user sync properties for the user directory connector.

Property	Description	Default value
Fetch user data on first access, then keep in sync	• If the checkbox is selected, only the existing users are synchronized. An existing user is a user who has logged in to Qlik Sense and/or been previously synchronized from the configured directory service. • If the checkbox is deselected, all the users, defined by the properties for the user directory connector, are synchronized from the configured directory service. You can create a filter to **Active Directory** or **Generic LDAP** if you only want to synchronize a selection of users.	✔ checked

*Decide how the synchronization is performed by selecting or deselecting the checkbox **Fetch user data on first access, then keep in sync**, in the property group **User sync settings**.*

Connection (Generic LDAP and Active Directory)

The **Connection** property group contains the LDAP connection properties in the Qlik Sense system.

Property	Description	Default value
User directory name  *Not entered manually for Active Directory.*	Must be unique, otherwise the connector will not be configured. The name of the UDC instance (to be compared to the domain name of an Active Directory). Together with the user's account name, this name makes a user unique.	

Property	Description	Default value
Path	The URI used to connect to the AD domain. To support SSL, specify the protocol as LDAPS instead.	ldap://company.domain.com
User name	The optional user ID used to connect to the AD server. If this is empty, the user running the Qlik Sense repository is used to log on to the AD server.	-
Password	The optional password for the user above.	-

When a user creates an Active Directory connector that uses LDAPS, the connector will only work when that user (the creator of the UDC) is logged on to the machine and running the Qlik Sense services.

Connection (Local network)

The **Connection** property group contains the Local users connection properties in the Qlik Sense system.

Property	Description	Default value
Sync all domain users	• If the checkbox is empty only the users on your local computer will be synchronized. • If the checkbox is checked then all users in the domain that your computer belongs to will be synchronized.	Empty checkbox

Connection (ODBC)

The **Connection** property group contains the ODBC connection properties in the Qlik Sense system.

Property	Description	Default value
User directory name	The name of the user directory. Must be unique, otherwise the connector will not be configured.	-
Users table name	The name of the table containing the users.	-
Attributes table name	The name of the table containing the attributes of the users.	-

Property	Description	Default value
Visible connection string	The visible part of the connection string that is used to connect to the data source.  *The two connection strings are concatenated into a single connection string when making the connection to the database.*	-
Encrypted connection string	The encrypted part of the connection string that is used to connect to the data source. Typically contains user name and password.  *The two connection strings are concatenated into a single connection string when making the connection to the database.*	-
Synchronization timeout (seconds)	The timeout for reading data from the data source.	240

Advanced (Generic LDAP and Active Directory)

The **Advanced** property group contains the advanced LDAP connector properties in the Qlik Sense system.

Property	Description	Default value
Additional LDAP filter	Used as the LDAP query to retrieve the users in the AD.	-
Synchronization timeout (seconds)	The timeout for reading data from the data source.	240
Page size of search	Determines the number of posts retrieved when reading data from the data source.  *If the user synchronization is unsuccessful, try setting the value to no value.*	2000

*Use the **Additional LDAP filter** in the property group **Advanced**, to apply a filter that retrieves only a selection of the users.*

Directory entry attributes (Generic LDAP)

The **Directory entry attributes** property group contains the directory entry attributes for the LDAP connector.

Property	Description	Default value
Type	The name of the attributes that identifies the type of directory entry (only users and groups are used by the LDAP UDC).	objectClass
User identification	The attribute value of the directory entry that identifies a user.	inetOrgPerson
Group identification	The attribute value of the directory entry that identifies a group.	group
Account name	The unique user name (within the UDC) that the user uses to log in.	sAMAccountName
Email	The name of the attributes that holds the emails of a directory entry (user).	mail
Display name	The full name of either a user or a group directory entry.	name
Group membership	The name of the attributes that indicates direct groups that a directory entry is a member of. Indirect group membership is resolved during the user synchronization. This setting or the one below, **Members of directory entry**, is allowed to be empty, which means that the group membership is resolved using only one of the two settings.	memberof
Members of directory entry	The name of the attributes that holds a reference to the direct members of this directory entry. See also the **Group membership** setting above.	member

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar to create and save the user directory connector.
   Successfully added is displayed at the bottom of the page.

You have now created a new user directory connector and a new *User synchronization task* is created by default for the new user directory connector.

The User Directory Connector (UDC) is not operational is displayed if the configuration of the connector properties do not enable communication with the user directory. Check the *UserManagement_Repository* log in this location: *%ProgramData%\Qlik\Sense\Log\Repository*.**The User Directory Connector (UDC) is not configured** is displayed if the **User directory name** is already used or if the field is empty.

- *ODBC example (page 171)*
- *Using Additional LDAP filter to retrieve specific users (page 173)*

Editing user directory connector

You can edit a user directory connector. You cannot edit more than one user directory connector at a time. Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the user directory connector that you want to edit and click **Edit** in the action bar.
   The edit page opens.
3. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic user directory connector properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description
Name	The name of the user directory connector configuration defined from the QMC.
Type	The user directory connector type.

The **User sync settings** property group contains the user sync properties for the user directory connector.

Property	Description	Default value
Fetch user data on first access, then keep in sync	• If the checkbox is selected, only the existing users are synchronized. An existing user is a user who has logged in to Qlik Sense and/or been previously synchronized from the configured directory service. • If the checkbox is deselected, all the users, defined by the properties for the user directory connector, are synchronized from the configured directory service. You can create a filter to **Active Directory** or **Generic LDAP** if you only want to synchronize a selection of users.	✔ checked

*Decide how the synchronization is performed by selecting or deselecting the checkbox **Fetch user data on first access, then keep in sync**, in the property group **User sync settings**.*

Connection (Generic LDAP and Active Directory)

The **Connection** property group contains the LDAP connection properties in the Qlik Sense system.

Property	Description	Default value
User directory name  *Not entered manually for Active Directory.*	Must be unique, otherwise the connector will not be configured. The name of the UDC instance (to be compared to the domain name of an Active Directory). Together with the user's account name, this name makes a user unique.	
Path	The URI used to connect to the AD domain. To support SSL, specify the protocol as LDAPS instead.	ldap://company.domain.com

Property	Description	Default value
User name	The optional user ID used to connect to the AD server. If this is empty, the user running the Qlik Sense repository is used to log on to the AD server.	-
Password	The optional password for the user above.	-

When a user creates an Active Directory connector that uses LDAPS, the connector will only work when that user (the creator of the UDC) is logged on to the machine and running the Qlik Sense services.

Connection (Local network)

The **Connection** property group contains the Local users connection properties in the Qlik Sense system.

Property	Description	Default value
Sync all domain users	• If the checkbox is empty only the users on your local computer will be synchronized. • If the checkbox is checked then all users in the domain that your computer belongs to will be synchronized.	Empty checkbox

Connection (ODBC)

The **Connection** property group contains the ODBC connection properties in the Qlik Sense system.

Property	Description	Default value
User directory name	The name of the user directory. Must be unique, otherwise the connector will not be configured.	-
Users table name	The name of the table containing the users.	-
Attributes table name	The name of the table containing the attributes of the users.	-

Property	Description	Default value
Visible connection string	The visible part of the connection string that is used to connect to the data source.  *The two connection strings are concatenated into a single connection string when making the connection to the database.*	-
Encrypted connection string	The encrypted part of the connection string that is used to connect to the data source. Typically contains user name and password.  *The two connection strings are concatenated into a single connection string when making the connection to the database.*	-
Synchronization timeout (seconds)	The timeout for reading data from the data source.	240

Advanced (Generic LDAP and Active Directory)

The **Advanced** property group contains the advanced LDAP connector properties in the Qlik Sense system.

Property	Description	Default value
Additional LDAP filter	Used as the LDAP query to retrieve the users in the AD.	-
Synchronization timeout (seconds)	The timeout for reading data from the data source.	240
Page size of search	Determines the number of posts retrieved when reading data from the data source.  *If the user synchronization is unsuccessful, try setting the value to no value.*	2000

Use the **Additional LDAP filter** in the property group **Advanced** to apply a filter that retrieves only a selection of the users (only applicable for LDAP and Active Directory).

Directory entry attributes (Generic LDAP)

The **Directory entry attributes** property group contains the directory entry attributes for the LDAP connector.

Property	Description	Default value
Type	The name of the attributes that identifies the type of directory entry (only users and groups are used by the LDAP UDC).	objectClass
User identification	The attribute value of the directory entry that identifies a user.	inetOrgPerson
Group identification	The attribute value of the directory entry that identifies a group.	group
Account name	The unique user name (within the UDC) that the user uses to log in.	sAMAccountName
Email	The name of the attributes that holds the emails of a directory entry (user).	mail
Display name	The full name of either a user or a group directory entry.	name
Group membership	The name of the attributes that indicates direct groups that a directory entry is a member of. Indirect group membership is resolved during the user synchronization. This setting or the one below, **Members of directory entry**, is allowed to be empty, which means that the group membership is resolved using only one of the two settings.	memberof
Members of directory entry	The name of the attributes that holds a reference to the direct members of this directory entry. See also the **Group membership** setting above.	member

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to create and save the user directory connector.
   Successfully added is displayed at the bottom of the page.

You have now edited a user directory connector.

The User Directory Connector (UDC) is not operational is displayed if the configuration of the connector properties do not enable communication with the user directory. Check the *UserManagement_Repository* log in this location: *%ProgramData%\Qlik\Sense\Log\Repository*.**The User Directory Connector (UDC) is not configured** is displayed if the **User directory name** is already used or if the field is empty.

See also:

- *Resource edit page (page 23)*
- *ODBC example (page 171)*
- *Using Additional LDAP filter to retrieve specific users (page 173)*

Updating user directory types

You can change the user directory types that are available. To do this you need to update the source files before you create a new user directory connector.

If you remove the source file that a user directory connector is based on, it will not be operational.

Do the following:

1. Add or remove the user directory type source file located in: *%ProgramFiles%\Qlik\Sense\Repository\UserDirectoryConnectors*.
2. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
3. Click **Update user directory types** in the action bar at the bottom of the page.
   Successfully updated user directory types from source is displayed at the bottom of the page.

You have now made the user directory types available for the user directory connectors.

See also:

- *Creating user directory connector (page 174)*

Deleting user directory connector and users (optional)

You can delete a user directory connector that you have delete rights to and when doing this you choose if you want to delete:

- only the user directory connector
- the user directory connector and also all the users that are imported from the user directory

Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

   You cannot delete more than one user directory connector at a time.

2. Select the user directory connector that you want to delete and click **Delete** in the action bar.
   A confirmation dialog is displayed.
3. If you also wish to delete all the users that are imported via the user directory (optional), check the checkbox **Delete all users imported from this user directory**.

   Deletion of the users cannot be undone.

   Deleting the users moves the ownership of the owned resources to a service account (the sa_ repository user).
4. Click **OK** in the dialog to confirm that you want to delete the user directory connector and the users (optional).

You have now either deleted just the user directory connector or you have deleted both the user directory connector and the users from its user directory.

Synchronizing with user directories

You can synchronize the user data from the user directories.

Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Verify that the user directory connector is **Configured** and **Operational**.

> *If the user directory connector is not **Configured** or **Operational**, synchronization cannot be performed. The value of the **User directory** must be unique; otherwise the connector cannot be configured. Check the UserManagement_Repository log in this location: %ProgramData%\Qlik\Sense\Log\Repository.*

3. Before you start the synchronization you might want to check if all or only the existing users will be synchronized. Select the user directory connector, click **Edit** and look at the checkbox **Fetch user data on first access, then keep in sync** under **User sync settings**:
   - If the checkbox is selected, only the existing users are synchronized. An existing user is a user who has logged in to Qlik Sense and/or been previously synchronized from the configured directory service.
   - If the checkbox is deselected, all the users, defined by the properties for the user directory connector, are synchronized from the configured directory service. You can create a filter to **Active Directory** or **Generic LDAP** if you only want to synchronize a selection of users.
4. Go back to the overview by clicking on **User directory connectors** in the top left corner.
5. Select the user directory that you want to synchronize.
6. Click **Sync** in the in the action bar. **Starting synchronization of the selected user directories** is displayed at the bottom of the page. During the synchronization the **Status** column displays:
   a. ⦿ **External fetch**
   b. ⦿ **Database store**
   c. ✓ **Idle**

> *You can click ⟳ in the top right corner to update the page.*

7. When ✓ **Idle** is displayed, verify that **Last successfully finished sync** date and time is updated.

> *If the status is displayed as ✓ **Idle** and **Last started sync** is more recent than **Last successfully finished sync** the synchronization has failed.*

> *If the user synchronization is unsuccessful, set the property **Page size of search** to no value (empty). This can solve the problem.*

You have now synchronized the user data from the selected user directories. Select **Users** from the start page to display the updated user table.

Allocating user access

You allocate user access to an identified user to allow the user to access streams and apps within a Qlik Sense site.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **User access rules** in the panel to the right.
3. Click **Allocate** in the action bar.
   The **Users** dialog opens.

   
   You can apply a filter to a column by clicking .

   
   Click a column heading to sort that column ascending ▼ or descending ▲.

   If you click **Cancel** the dialog is closed and you return to the **User access** overview.
4. Select one or more users in the list and click **Allocate**.

   
   ***Allocate** is disabled if the number of tokens available for allocation is not enough for the number of selected users.*

   The dialog is closed and the users are added in the **User access rules** overview table. Also, the information on the **Tokens** page is updated.

You have now allocated user access and the users can access streams and apps.

Deallocating user access

You can deallocate user access from a user to free up tokens.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **User access rules** in the panel to the right.

   
   You can apply a filter to a column by clicking .

   
   Click a column heading to sort that column ascending ▼ or descending ▲.
3. Select the user or users that you want to deallocate and click **Deallocate** in the action bar at the bottom of the page.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to deallocate user access from the users.
   - The **Status** is changed to **Quarantined** if the user has logged in within the last 7 days.
   - If the user has not logged in within the last 7 days, the user is removed from the overview and

the tokens are released.

Also, the information on the **Tokens** page is updated.

You have now deallocated user access and the users cannot access streams and apps.

Reinstating user access

You can reinstate user access to a user whose token is in quarantine if you do so within 7 days. Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **User access rules** in the panel to the right.

   You can apply a filter to a column by clicking .

   Click a column heading to sort that column ascending ▼ or descending ▲.

3. Select one or more users with the **Status Quarantined** and click **Reinstate** in the action bar at the bottom of the page.
   The **Status** is changed to **Allocated**. Also, the information on the **Tokens** page is updated.

You have now reinstated user access and the users can access streams and apps.

Creating login access

A login access pass allows an identified or anonymous user to access the hub for a maximum of 60 continuous minutes per 28-day period. If the user exceeds the 60 minute time limitation, the user connection does not time out. Instead, another login access pass is used. If no more login access passes are available, the session is discontinued.

When you create new login access you set the following:

- The number of tokens you want to allocate, providing for a number of login access passes.
- The license rule specifying which users the login access is available for.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **Login access rules** in the panel to the right.
3. Click **Create new** in the action bar.
4. Edit the fields on the **Properties** tab:

   You can display or hide property groups using the panel to the far right.

Identification
The property group **Identification** contains a login access property.

Property name	Description
Name	The name of the login access (group).

Allocated tokens
The property group **Allocated tokens** contains a login access property.

Property name	Description
Number of tokens	The number of allocated tokens the login access group can use.

When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.
You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply**.
   The **Create license rule** dialog opens.
6. Edit the license rule for the login access:
   a. You can edit the **Identification** properties:

Name	The name of the login access. Mandatory.
Disabled	Select to disable the rule. The rule is enabled by default.
Description	Enter a description for the rule.

   b. Edit the **Basic** properties.

*The option **Allow access** is automatically selected.*

Operands	Descriptions and examples
=	This operand is not case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = ”a*”` The user named exactly a* is targeted by the rule.

like	This operand is not case sensitive and returns True if the compared expressions are equal. **Example:** `user.name like "a*"` All user with names beginning with an a is targeted by the rule.
!=	This operand is not case sensitive and returns True if the values in the compared expressions are not equal. **Example:** `user.name != resource.name` All resources that not have the same name as the user are targeted by the rule.

7. Optionally, edit the **Advanced** properties and create the **Conditions** for the rule:
   - Add a condition.
   - Use the drop-down to specify for which context the rule will apply to.
8. Click **Apply** in to create and save the login access.
   The license rule was successfully added to the associated items is displayed at the bottom of the page.

If the number of available tokens is not enough, an error dialog is displayed. Reduce the **Number of tokens** and click **Apply** again.

You have now created a new login access and the rules for the login. The users that the rule specifies can access streams and apps as long as there are remaining login access passes.

Editing login access

You can edit login access, that you have update rights to, and make changes to:

- The number of allocated tokens, providing for a number of login access passes.
- The license rule specifying which users the login access is available for.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select **Login access rules** in the panel to the right.
3. Select the login access you want to edit and click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab:

You can display or hide property groups using the panel to the far right.

Identification

The property group **Identification** contains a login access property.

Property name	Description
Name	The name of the login access (group).

You can change the name for the login access:

Allocated tokens

The property group **Allocated tokens** contains a login access property.

Property name	Description
Number of tokens	The number of allocated tokens the login access group can use.

You can change the number of tokens you want to allocate. The dialog below the field displays the number of login access passes that the number of tokens provide after you have clicked **Apply**. You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. You can also edit the fields on the **Associated items** tab:

Users

The property group **Users** contains a the users associated with the login access.

Property name	Description
Name	The name of the user.
Permitted action	**UseAccessType** is the only permitted value. It means that the user has login access rights.

System rules

The property group **System rules** contains the system rules for the login access.

Property name	Description
Name	The name of the rule.
Comment	A comment for the rule.
Resource filter	Shows the resource filter for the rule.
Actions	Shows the actions for the rule.
Status	Shows if the rule is **Enabled** or **Disabled**.

Edit the system rule by selecting a rule and clicking **Edit**. You can also create a new rule by clicking **Create new**. Create the user conditions for the security rule. Click ⊕ to add a condition. If you add more than one condition you select **AND** or **OR** in the drop-down list. Click ⊗ to remove a condition.

6. Click **Apply**.
7. If the number of available tokens is not enough, an error dialog is displayed. Reduce the **Number of tokens** and click **Apply** again.

You have now edited login access and the rules for the login. The users that the rule specifies can access streams and apps as long as there are remaining login access passes.

See also:

- *Resource edit page (page 23)*

Deleting login access

You can delete login access, that you have delete rights to, to free up tokens. By doing this access to streams and apps are removed for the users in the login access group. Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **Login access rules** in the panel to the right to display the overview.

   You can apply a filter to a column by clicking ⊡▾.
3. Select one or more login access you want to delete.
4. Click **Delete**.
   A confirmation dialog is displayed.
5. Click **OK** in the dialog to confirm that you want to delete the login access.
   - Tokens are released immediately if the login access contains enough numbers of unused login access passes.
   - Used login access passes will not be released until 28 days after last use.

   For example: You have allocated 3 tokens, providing for 30 login access passes. 11 login access passes have been used. If you delete the login access, 1 token is released immediately and 2 tokens will not be released until 28 days after last use. This means that the second token is released 28 days after last use of the 10th login access pass and the third token is released 28 days after last use of the 11th login access pass.

   Also, the information on the **Tokens** page is updated.

You have now deleted login access and the users in the login access group cannot access streams and apps.

Creating user access rule

A user access rule defines which users have access to the available tokens.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **User access rules** in the panel to the right.
3. Click ⊕ **Create associated rule** in the action bar.
4. Edit the fields on the **Properties** tab:

You can display or hide property groups using the panel to the far right.

Property name	Description
Name	The name of the user access rule.
Disabled	Select to disable the rule. The rule is enabled by default.
Description	Here you can enter a description for the rule.

Property name	Description
Resource filter	A definition of the type or types of resources that the rule will be evaluated for.
Conditions	A definition of the resource and/or users that should be met for the rule to apply.
Context	You can specify whether the rule should apply for: **Only in hub**, **Only in QMC**, or **Both in hub and QMC**.

Operands	Descriptions and examples
=	This operand is not case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = "a*"` The user named exactly a* is targeted by the rule.

like	This operand is not case sensitive and returns True if the compared expressions are equal. **Example:** `user.name like "a*"` All user with names beginning with an a is targeted by the rule.
!=	This operand is not case sensitive and returns True if the values in the compared expressions are not equal. **Example:** `user.name != resource.name` All resources that not have the same name as the user are targeted by the rule.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.
You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in to create and save the user access rule.
Successfully added is displayed at the bottom of the page.

If a user access rule is deleted, and there are currently users with tokens allocated due to this rule, these tokens will not automatically be unallocated. They have to be unallocated manually.

You have now created a new user access rule. The users that the rule specifies can have access as long as there are remaining access tokens available.

Editing user access rule

A user access rule defines which users have access to the available tokens. You can edit existing rules.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Select **User access rules** in the panel to the right.
3. Select the rule you want to edit.
4. Click **Edit** in the action bar.
5. Edit the applicable fields in the **Properties** and **Associated items** tabs:

You can display or hide property groups using the panel to the far right.

Property name	Description
Name	The name of the user access rule.
Disabled	Select to disable the rule.The rule is enabled by default.
Description	Here you can enter a description for the rule.

Property name	Description
Resource filter	A definition of the type or types of resources that the rule will be evaluated for.
Conditions	A definition of the resource and/or users that should be met for the rule to apply.
Context	You can specify whether the rule should apply for: **Only in hub**, **Only in QMC**, or **Both in hub and QMC**.

Operands	Descriptions and examples
=	This operand is not case sensitive and returns True if the compared expressions are exactly equal. **Example:** `user.name = ”a*”` The user named exactly a* is targeted by the rule.
like	This operand is not case sensitive and returns True if the compared expressions are equal. **Example:** `user.name like ”a*”` All user with names beginning with an a is targeted by the rule.

!=	This operand is not case sensitive and returns True if the values in the compared expressions are not equal. **Example:** `user.name != resource.name` All resources that not have the same name as the user are targeted by the rule.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

Property name	Description
Name	The name of the user.
Permitted action	The action that the user is allowed to perform.

When using multiple conditions you can group two conditions by clicking **Group**. After condtions have been grouped you can ungroup them by clicking **Ungroup**. The default operand between conditions is OR. You can change this in the operand drop-down. Multiple conditions are grouped so that OR is superior to AND.
You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

6. Click **Apply** in to save the updates.
Successfully added is displayed at the bottom of the page.

If a user access rule is deleted, and there are currently users with tokens allocated due to this rule, these tokens will not automatically be unallocated. They have to be unallocated manually.

You have now edited a user access rule. The users that the rule specifies can have access as long as there are remaining access tokens available.

Deleting user access rule

You can delete user access rules that you have delete rights to.

Do the following:

1. Select **License and tokens** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

2. Select **User access rules** in the panel to the right.
3. Select the rule or rules you want to delete.
4. Click **Delete** in the action bar.
   A confirmation dialog is displayed.
5. Click **OK** in the dialog to confirm that you want to delete the rule or rules.

If a user access rule is deleted, and there are currently users with tokens allocated due to this rule, these tokens will not automatically be unallocated. They have to be unallocated manually.

You have now deleted a user access rule.

Starting user sync task

You can manually start user synchronization tasks from the user directory connector's association page.

You can also start user synchronization tasks from the task overview page or by a scheduled trigger.

Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the user directory connector that you want to start tasks for and click **Edit** in the action bar.

   The panel to the far left lists your selections.

3. Select **Tasks** on the **Associated items** tab.
   The **User synchronization task** overview is displayed.
4. Select the tasks you want to start and click **Start** in the action bar.
   x out of x items were successfully instructed to start is displayed at the bottom of the page.

You have now started one or more user synchronization tasks.

See also:

- *Creating trigger for user sync task - scheduled (page 199)*

Editing user sync task

You can edit user synchronization tasks from the user directory connector's association page.

You can also select to edit user synchronization tasks from the tasks overview page.

Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the user directory connector that you want to edit tasks for and click **Edit** in the action bar.
3. Select **Tasks** on the **Associated items** tab, select the tasks you want to edit and click **Edit** in the action bar.
   The **User synchronization task edit** page is displayed.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic user sync task properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The name of the task.	Auto generated from the user directory connector name when creating a new user directory connector.
Enabled	The task is enabled if the checkbox is checked. ✓	Enabled

   Select or deselect the **Enabled** checkbox to enable or disable the task.

   The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
5. Click **Apply** in the action bar to apply and save your changes.
   Successfully updated is displayed at the bottom of the page.

You have now edited a task or tasks for a user directory connector.

*Triggers for a tasks are displayed on the **Associated items** tab from where you also can choose to create new triggers.*

See also:

- *Resource edit page (page 23)*
- *Creating trigger for user sync task - scheduled (page 199)*

Creating trigger for user sync task - scheduled

You can create one or more scheduled triggers for a task. The trigger executes the task once, or repeats the task within a time period defined by start and end, or repeats the task infinitely.

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the task you want to add a trigger on and click **Edit** in the action bar at the bottom of the page.
3. Select **Triggers** on the **Associated items** tab.
   The **Triggers** overview is displayed.
4. Click **Create new** in the action bar and select **Scheduled** in the drop-down list.
   A dialog is displayed.
5. **Triggers - Scheduled trigger**
   The following properties are available for a scheduled trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Start	Select when the trigger takes effect by typing the values for: • **Time to start (hh:mm)** and • **Start date (YYYY-MM-DD)**

Property	Description

Repeat	Use the radio buttons to select one of the following options that determines how the trigger is repeated:
	• Select **Once** to only execute the trigger one time.
	• Select **Hourly** to set the time period between the executions of the trigger. Edit **Repeat after each** by typing the values for:
	  • **hour(s)** (default is 1) and
	  • **minute(s)** (default is 0)
	• Select **Daily** to set the time between the executions of the trigger by typing a value for **Every day(s)** (default is 1). For example, type 2 to repeat the trigger every second day.
	• Select **Weekly** to set the time between the executions of the trigger:
	  • Type a value for **Every week(s)** (default is 1) and
	  • Select one or more checkboxes for **On these weekdays** to determine which days the trigger is repeated (on the weeks you have specified). For example, type 3 and select the checkbox **Mon** to repeat the trigger on Mondays every third week.
	• Select **Monthly** and select one or more checkboxes for **At these days** to define the days when the trigger is repeated every month.

End	Type the values for: • **Time to end (hh:mm)** and • **End date (YYYY-MM-DD)** Or check the **Infinite** checkbox to create a never ending trigger.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

6. Click **Apply** to create and save the trigger.
   The dialog is closed, **Successfully added** is displayed and the new trigger is listed in the overview on the **Associated items** tab.

You have now created a new scheduled trigger for a task.

Editing triggers for user sync tasks

You can edit a trigger for a user synchronization task.

Do the following:

1. Select **Tasks**: on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

You can apply a filter to a column by clicking ⍗.

2. Select the task you want to edit a trigger on and click **Edit** in the action bar at the bottom of the page.
3. Select **Triggers** at **Associated items**.
   The **Triggers** overview is displayed.
4. Select the trigger you want to edit and click **Edit** in the action bar at the bottom of the page.
   The dialog **Trigger - Start on schedule** is displayed.
5. Edit the fields in the dialog to change the trigger conditions.
   Triggers - Scheduled trigger
   The following properties are available for a scheduled trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✔
Start	Select when the trigger takes effect by typing the values for: • **Time to start (hh:mm)** and • **Start date (YYYY-MM-DD)**

Repeat	Use the radio buttons to select one of the following options that determines how the trigger is repeated:
	• Select **Once** to only execute the trigger one time.
	• Select **Hourly** to set the time period between the executions of the trigger. Edit **Repeat after each** by typing the values for:
	  • **hour(s)** (default is 1) and
	  • **minute(s)** (default is 0)
	• Select **Daily** to set the time between the executions of the trigger by typing a value for **Every day(s)** (default is 1). For example, type 2 to repeat the trigger every second day.
	• Select **Weekly** to set the time between the executions of the trigger:
	  • Type a value for **Every week(s)** (default is 1) and
	  • Select one or more checkboxes for **On these weekdays** to determine which days the trigger is repeated (on the weeks you have specified). For example, type 3 and select the checkbox **Mon** to repeat the trigger on Mondays every third week.
	• Select **Monthly** and select one or more checkboxes for **At these days** to define the days when the trigger is repeated every month.

End	Type the values for: • **Time to end (hh:mm)** and • **End date (YYYY-MM-DD)** Or check the **Infinite** checkbox to create a never ending trigger.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

6. Click **Apply** in the action bar at the bottom of the page to save the changes.
   The dialog is closed and **Successfully updated** is displayed.

You have now edited a trigger for a task.

Stopping user sync task

You can stop a user synchronization tasks from the user directory connector's association page.

You can also stop user synchronization tasks from the task overview page.

Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the user directory connector that you want to start a task for and click **Edit** in the action bar.

   The panel to the far left lists your selections.

3. Select **Tasks** on the **Associated items** tab.
   The **User synchronization task** overview is displayed.
4. Select the tasks you want to stop and click **Stop** in the action bar.
   x out of x items were successfully instructed to stop is displayed at the bottom of the page.

You have now stopped one or more user synchronization tasks.

See also:

- *Stopping tasks (page 226)*

Deleting user sync task

You can delete user synchronization tasks that you have delete rights to from the user directory connector's association page.

You can also delete user synchronization tasks from the task overview page.

Do the following:

1. Select **User directory connectors** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the User directory connector that you want to delete tasks from and click **Edit** in the action bar.

   The panel to the far left lists your selections.

3. Select **Tasks** on the **Associated items** tab.
   The **User synchronization task** overview is displayed.
4. Select the tasks you want to delete and click **Delete** in the action bar.
   A confirmation dialog is displayed.
5. Click **OK** in the dialog to confirm that you want to delete the task or tasks.

Filtering user sync state

The filter functionality helps you finding user directory connectors in a certain sync state. Use filters on multiple columns simultaneously to narrow your search.

The following columns in the user directory connectors overview page can be filtered:

Column	Filter options
Last started sync	**No filter** **Last 60 minutes** **Today** **Last seven days** **Range: from** YYYY-MM-DD **to** YYYY-MM-DD **Never started or failed (no value)**
Last successfully finished sync	**No filter** **Last 60 minutes** **Today** **Last seven days** **Range: from** YYYY-MM-DD **to** YYYY-MM-DD **Never started or failed (no value)**

Do the following:

1. Click ⊡ next to the column heading.
   The filter dialog for the column is displayed.
2. Click to make one ore more selections in the filter dialog.
   All rows that match your filter criteria are displayed:

   ✓ indicates a selection for your filter. Remove a filter by clicking **No filter**.
3. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   ⊡ indicates that a filter is applied to the column.

You have now applied a user sync state filter.

See also:

- *Filtering by tags (page 277)*

Inactivating users

You can choose to actively block (inactivate) users. If you do this, they are marked as **Blocked** in the **Users** overview page. Users can also become inactivated automatically by Qlik Sense if they have been removed from the directory that Qlik Sense is connected to. If this happens, they are marked as **Removed externally** in the **Users** overview page.

Inactive users remain owners of objects that they have created or been assigned ownership of. They will also retain any custom properties assigned to them.

If an inactivated user attempts to log in to Qlik Sense, the user will be notified to contact the system administrator.

If a user is deleted, on the other hand, the ownership of objects owned by that user are moved to the sa_repository user. All other information, such as custom properties, regarding the user are deleted along with the user.

Do the following:

1. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⊡.
2. Click on the user or users that you want to inactivate.
3. Click **Edit** in the action bar.
   The **User edit** properties page opens.
4. Select the **Blocked** checkbox.
   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
5. Click **Apply** in the action bar to apply and save your changes.

You have now inactivated a user or users.

See also:

- *Deleting users (page 205)*

Deleting users

You can delete users, that you have delete rights to, from the Qlik Sense system. Deleting a user means that the:

- User will not be part of the Qlik Sense system
- User will not be granted access from the security evaluation
- Ownership of objects owned by that user will be moved to the *sa_repository* user. All other information, such as custom properties, regarding the user will be deleted along with the user.

Users that are deleted from the directory service that Qlik Sense connects to will automatically be inactivated in the QMC.

When you delete a user directory connector you can choose to delete all the users that are imported from the user directory.

Do the following:

1. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .
2. Select the user or users that you want to delete.
3. Click **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to delete the user or users.

You have now deleted a user or users.

See also:

- *Inactivating users (page 204)*
- *Deleting user directory connector and users (optional) (page 184)*

Creating a root administrator user

The first user that is accessing the Qlik Management Console (QMC) and adding the server license obtains the role root administrator (RootAdmin) for the Qlik Sense system. This user has full access rights for all resources in the site: security rules, streams, nodes and so on. Additional users can be assigned as RootAdmin if needed or assigned to other admin roles with other administrative rights.

*The root administrator cannot change or delete the security rules that are delivered with the Qlik Sense system. These security rules are listed in the **Security rules** overview page with **Type** set to **Default**.*

See also:

- *Starting the QMC (page 16)*

Managing admin roles for a user

Qlik Sense users properties are retrieved from the user directories and cannot be edited in the QMC. However you can assign, remove or change admin roles for a user.

The QMC looks for changes in the user roles definitions every 20 seconds.

*You can edit users that have access rights to a stream from the **Streams** overview. Simply select the stream from the Streams overview, click **Users** from the property groups, select the user or users and then click **Edit**.*

Do the following:

1. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Click on the user or users that you want to disconnect or change admin roles for.
3. Click **Edit** in the action bar.
   The **User edit** properties tab opens.
4. Select the **Identification** property group from the panel to the far right.
5. Click ⊕ in the **Admin roles** attribute and type the name of the admin role that you want to connect to in the text box that appears or click ⊗ in the text box of the role that you want to disconnect.
   The **Admin roles** text field is case sensitive but the QMC will suggest roles as you type. Click on a suggestion to select it.

> *As in Qlik Sense, if a user does not have access to a resource in the QMC the user cannot access it in the QMC interface. For example, if you change a user's role from RootAdmin to DeploymentAdmin, the user can no longer access the apps, sheets, streams or data connection pages in the QMC (amongst others).*

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

6. Click **Apply** in the action bar to apply and save your changes.

You have now assigned, removed or changed one or more admin roles for a user or users.

See also:

- *Default administration roles (page 33)*

Changing ownership of resources

By default the owner is the creator of the resource. The ownership can be changed. The **Owner** property is available on the **Properties** tab when you choose to edit a resource.

Do the following:

1. From a resource overview, select the resource that you wish to change owner of and click **Edit**.
2. Type in the **Owner** field.
   Users that match your criteria are displayed.
3. Select the user who you want to assign as the new owner. You cannot assign the ownership to a user who does not exist in the Qlik Sense system.
4. Click **Apply** to change owner.
   Successfully updated is displayed.

You now have changed the owner of the resource.

Managing resources owned by users

You can manage the resources owned by users from the **Owned resources** tab that is located in the **Associated items** tab of the **Users** overview.

Viewing owned resources

You can view resources owned by a user or users.

Do the following:

1. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

> *You can apply a filter to a column by clicking* .

2. Select the user or users whose resources you want to view.
3. Click **Edit** in the action bar.
   The **User edit** properties tab opens.
4. Click the **Owned resources** tab.
   The Owned resources overview opens.

You can now viewed all the resources owned by the user or users.

Editing resources owned by users

You can edit resources owned by a user or users.

Do the following:

1. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking ⧉.

2. Select the user or users whose resources you want to edit.
3. Click **Edit** in the action bar.
   The **User edit** properties tab opens.
4. Click the **Owned resources** tab.
   The Owned resources overview opens.
5. Select the resource or resources that you want to edit.
6. Click **Edit** in the action bar.
   The **Properties** tab for the selected type of resource opens.
7. Edit the fields in the Properties tab as required.
   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
8. Click **Apply** in the action bar to create and save the edited resource.
9. **Successfully updated** is displayed at the bottom of the page.

You have now edited a resource or resources owned by the user or users.

Removing resources owned by users

You can delete resources owned by a specific user.

Do the following:

1. Select **Users** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking ⧉.

2. Select the user whose resources you want to view.
3. Click **Edit** in the action bar.
   The **User edit** properties tab opens.

4. Click the **Owned resources** tab.
   The Owned objects overview opens.
5. Select the resource or resources that you want to delete.
6. Click **Delete** in the action bar.
   A confirmation dialog is displayed.
7. Click **OK** in the dialog to confirm that you want to delete the resource or resources.
   If a resource is deleted, all sync and security rules associated with that resource are deleted automatically.

You have now deleted one or more resources.

Defining customized roles in the QMC

Best practice in Qlik Sense is to define security rules for groups of users. One method of doing this is to use the built-in QMC functionality for defining administrative roles and then assign these roles to users. Another method is to group users into types of users using properties, either properties supplied from directory services or custom properties. Both methods are describe in the following.

Providing administrators with access using roles

Qlik Sense is delivered with predefined sets of (default) rules for administrators. These predefined sets of rules are referred to as admin roles.

The QMC is delivered with a set of predefined administration roles. Each role is associated with security rules tailored for specific purposes as described in the following table:

Property	Description
RootAdmin	Created on installation. This role is automatically assigned to the user who provided the first valid license key to the QMC. The RootAdmin has full access rights to all Qlik Sense resources.
AuditAdmin	Has read access to all resources to enable auditing of access rights. Has read and publish rights on Administration stream.
ContentAdmin	Has create, read, update and delete rights for all resources except nodes, engines, repositories, schedulers, proxies, virtual proxies, and syncs. Has read and publish rights on Administration stream.
DeploymentAdmin	Has create, read, update and delete rights for apps, tasks, users, licenses, nodes, repositories, schedulers, proxies, virtual proxies, and engines. Has read and publish rights on Administration stream.
SecurityAdmin	Same as ContentAdmin but with create, read, update and delete rights for proxies and virtual proxies, and no access rights on tasks. Has read rights on server node configuration. Has read and publish rights on Administration stream.

Administration roles are defined using security rules. You can edit existing administration (admin) roles or define and add new roles using the security rules editor.

Example:

- *Security rules example: Creating QMC content admin roles (page 82)*

See also:

- *Managing admin roles for a user (page 206)*
- *Providing users with access using user types (page 210)*

Providing users with access using user types

Whereas the administration roles are used to define access to the QMC, user types can be defined for the users of Qlik Sense. User types are defined using the security rules editor together with property-value conditions for:

- User properties and/or
- Custom properties

If you have an existing Active Directory (AD) group that corresponds precisely to the type of users that you want to create a role for, you can define conditions for that group and give the security rule an appropriate name. For example, if you have an AD group called *Developers* you can create a security rule called *Developers* that provides the appropriate security rules. Otherwise, you can create a custom property called *User roles* and give it values such as *Developers*, *Testers*, *Contributors* and *Consumers*. You can then apply the custom properties to the users and then apply the appropriate security rules to the custom property values.

Example:

Security rules example: Applying Qlik Sense access rights for user types (page 87)

See also:

- *Providing administrators with access using roles (page 209)*

5.6 Managing tasks and triggers

Tasks

Tasks are used to perform a wide variety of operations and can be chained together in just any pattern. The tasks are handled by the Qlik Sense Scheduler Service (QSS). There are two types of tasks:

- Reload
- User synchronization

The reload task fully reloads the data in an app from the source. Any old data is discarded. You can create new reload tasks.

A user synchronization task imports the users and the users' information from a user directory. When you create a new instance of a user directory connector (UDC) a synchronization task with a scheduled trigger is created by the system.

Triggers

Execution of a task is initiated by a trigger or manually from the tasks overview page. You can create additional triggers to execute the task and there are two types of triggers:

- Scheduled
- Task event

Scheduled triggers can be applied to both reload tasks and user synchronization tasks. Task event triggers can only be applied to reload tasks.

The triggers for a reload task are available directly on the **Task edit** page.

The triggers for a user synchronization task are accessed from the **Associated items** tab on the **Task edit** page, where the **Triggers** overview lists all the available triggers for the selected task.

See also:

- *Creating reload tasks (page 137)*
- *Creating trigger for user sync task - scheduled (page 199)*

Creating reload tasks from tasks

You can create a reload task to an app from the tasks overview page.

The creation of a new reload task can be initiated in more than one way; from the app overview page, from the **Associated items** tab on the **App edit** page or from the task overview page.

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
   The **Reload task edit** page is displayed.
3. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   a. Type the name of the reload task in the **Name** field.
   b. Click **Select app** in the **App name** field.
      A dialog opens. In the dialog, double-click the app you want to reload by this task.
      The dialog closes and the app you selected is displayed in the **App name** field.
   c. If you wish you can change the **Execution** properties. See descriptions below. The task is **Enabled** ✓ by default. Uncheck if you wish to disable the task for now.

d. A task must have at least one trigger to be executed automatically. Manage the triggers by clicking **Actions** ▼ in the **Triggers** table heading and select one of the following:
   - **Create new once-only trigger**, **Create new hourly trigger**, **Create new daily trigger**, **Create new weekly trigger** or **Create new monthly trigger**. These are trigger shortcuts and the trigger of selected type is added to the table instantly. The start value for the trigger is set to 5 minutes from when it was created and the trigger is enabled.
   - **Create new scheduled trigger** or **Create new task event trigger** to create a new trigger of selected type (see the property descriptions below). A dialog opens; edit the trigger and click **OK** to close the dialog and add the trigger to the table.
   - **Delete** if you wish to delete the trigger that is selected in the table.
   - **Edit** if you wish to open the edit dialog for the trigger that is selected in the table. Edit the trigger and click **OK** to close the dialog and save your changes.

e. Apply QMC tags if desired.

f. Apply custom properties if desired.

The **Identification** property group contains the basic reload task properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The name of the task.	Reloadtask of <App name>
App name	The name of the app that the task is created for. Click in the field to open a dialog where you can select (by double-click) which app the task reloads.	<App name>

The **Execution** property group contains the reload task execution properties in the Qlik Sense system.

Property	Description	Default value
Enabled	The task is enabled if the checkbox is checked.	✔
Task session timeout (minutes)	The maximum period of time before a task is aborted. When a task is started a session is started by the master scheduler and the task is performed by one of the nodes. If the session times out, the master scheduler forces the node to abort the task and remove the session.	1440
Max retries	The maximum number of times the scheduler tries to rerun a failed task.	0

Triggers - Scheduled trigger

The following properties are available for a scheduled trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✔
Start	Select when the trigger takes effect by typing the values for: • **Time to start (hh:mm)** and • **Start date (YYYY-MM-DD)**

Repeat	Use the radio buttons to select one of the following options that determines how the trigger is repeated:
	• Select **Once** to only execute the trigger one time.
	• Select **Hourly** to set the time period between the executions of the trigger. Edit **Repeat after each** by typing the values for:
	  • **hour(s)** (default is 1) and
	  • **minute(s)** (default is 0)
	• Select **Daily** to set the time between the executions of the trigger by typing a value for **Every day(s)** (default is 1). For example, type 2 to repeat the trigger every second day.
	• Select **Weekly** to set the time between the executions of the trigger:
	  • Type a value for **Every week(s)** (default is 1) and
	  • Select one or more checkboxes for **On these weekdays** to determine which days the trigger is repeated (on the weeks you have specified). For example, type 3 and select the checkbox **Mon** to repeat the trigger on Mondays every third week.
	• Select **Monthly** and select one or more checkboxes for **At these days** to define the days when the trigger is repeated every month.

End	Type the values for: • **Time to end (hh:mm)** and • **End date (YYYY-MM-DD)** Or check the **Infinite** checkbox to create a never ending trigger.

Triggers - Task event trigger

The following properties are available for a task event trigger:

Property	Description
Name	The name of the trigger. Mandatory.

Property	Description
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Time constraint	Defines the time period (in minutes) that the other tasks in the task chain must be completed within. There is no effect if the trigger consists of only one task.
⊕ Add task **Task successful** or **Task failed**	Do the following: a. Click **⊕ Add task** to add a tasks that will function as a trigger condition. A drop-down list and an empty field is added. b. Click the empty field to add a task. The dialog **Select task by double-click** is opened and displays a list of tasks with the following columns; **App name**, **Tags** connected to the task and **Name** which is the task name Click a column heading to sort that column ascending ▼ or descending ▲. *You can apply a filter to a column by clicking ⧩.* c. Double-click the task that will function as a trigger condition. The task is added to the trigger and the dialog is closed. d. Use the drop-down list to select whether the trigger condition is fulfilled upon **Task successful** or **Task failed**. Click **⊗ Delete** to remove a task from the trigger. Repeat the steps above for all the tasks that you wish to include in the trigger. A task can only be added once and is not displayed in the **Select task by double-click** dialog if it has already been added to the trigger.

*The tasks do not need to be executed in any specific order and the **Time constraint** is not static. What happens if all tasks but one have completed when the time period is reached? The task that was first completed is no longer considered executed and the end of the time period is recalculated. The trigger then waits for all tasks to be completed within the recalculated time period.*

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to apply and save your changes.
   Successfully added is displayed at the bottom of the page.

You have now created a new reload task to an app.

Creating a task chain

You can chain your tasks in just any pattern. This example describes how to create a task chain that reloads the data in 3 different apps:

- Task 1 reloads app A, every hour.
- Task 2 reloads app B, daily.
- Task 3 reloads app C, if Task 1 and Task 2 is executed within 120 minutes.

Do the following:

1. Create a new reload task for app A:
   a. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
   b. Click ⊕ **Create new** in the action bar.
      The **Reload task edit** page is displayed.
   c. Type *Task 1* in the **Name** field.
   d. Click **Select app** in the **App name** field. In the dialog that opens double-click app A.
      The dialog closes and the **App name** field displays app A.
   e. Leave the **Execution** properties as is.
   f. Click **Actions** ▼ in the **Triggers** table heading and select **Create new hourly trigger**.

The trigger is added to the **Triggers** table and the start value for the trigger is set to 5 minutes from when it was created.

g. Click **Apply**.

Successfully added is displayed.

2. The next step is to create the reload task for app B:

   a. Click **Tasks** in the selections panel to the left.
   The **Tasks** overview is displayed.

   b. Click **Create new** in the action bar.
   The **Reload task edit** page is displayed.

   c. Type *Task 2* in the **Name** field.

   d. Click **Select app** in the **App name** field. In the dialog that opens double-click app B.
   The dialog closes and the **App name** field displays app B.

   e. Leave the **Execution** properties as is.

   f. Click **Actions** in the **Triggers** table heading and select **Create new daily trigger**.
   The trigger is added to the **Triggers** table.

   g. Double-click the trigger, set **Time to start** to *12:00* and click **OK**.
   The dialog closes.

   h. Click **Apply**.

   Successfully added is displayed.

3. The next step is to create the reload task for app C:

   a. Click **Tasks** in the selections panel to the left.
   The **Tasks** overview is displayed.

   b. Click **Create new** in the action bar.
   The **Reload task edit** page is displayed.

   c. Type *Task 3* in the **Name** field.

   d. Click **Select app** in the **App name** field. In the dialog that opens double-click app C.
   The dialog closes and the **App name** field displays app C.

   e. Leave the **Execution** properties as is.

   f. Click **Actions** in the **Triggers** table heading and select **Create new task event trigger**.
   The dialog **Trigger - Start on other task** opens.

   g. In the **Trigger name** field type, for example, *My trigger*.

   h. The trigger is **Enabled** by default. Leave the checkbox checked.

   i. Set the **Time constraint** to *120* minutes.

   j. Click **Add task**; click the empty field that appears and then double-click Task 1 in the dialog that opens and keep **Task successful** in the drop-down.

   k. Click **Add task**; click the empty field that appears and then double-click Task 2 in the dialog that opens and keep **Task successful** in the drop-down.

   l. Click **OK**.
   The trigger dialog is closed.

   m. Click **Apply**.

Successfully added is displayed.

You now have created a task chain and the task is added to the task overview where you can click to view the task chain.

See also:

- *Creating reload tasks (page 137)*
- *Creating reload tasks from tasks (page 211)*
- *Viewing task chains (page 218)*

Creating a circular task chain

You can create a reload task that triggers itself (a circular task chain). This example describes how to create a simple circular task chain. You can chain your tasks in just any pattern.

Do the following:

1. If the app you want to create a circular task chain for has no task applied, start by creating a new reload task for the app:
    a. Select **Create new** from **Tasks** overview. Alternatively, select **Create new** from **Apps** overview > **Edit** > **Associated items** > **Tasks**.
    b. Create the task.
    c. Click **Apply**.

    Successfully added is displayed.
2. Continue editing the task to create the circular task chain:
    a. Select **Triggers** > **Actions**> **Create new task event trigger**.
    b. Type a **Trigger name**.
    c. Click **Add task event**.
    The **Trigger** dialog opens.
    d. Click the empty field to the right of **Task successful** and double-click the same task that you are currently editing in the dialog that opens.
    The task is added to the **Trigger** dialog.
    e. Use the drop-down list to select whether the trigger condition is fulfilled upon **Task successful** or **Task failed**.
    f. Click **OK**.
    The dialog closes.
    g. Click **Apply**.

    Successfully updated is displayed.

You now have created a circular task chain and the task is added to the task overview. From the overview you can click to view the task chain.

See also:

- *Creating reload tasks (page 137)*
- *Creating reload tasks from tasks (page 211)*
- *Viewing task chains (page 218)*

Viewing task chains

You can create task chains in various patterns by creating reload tasks and triggers for apps. From the task overview page you can access the task chain dialog to get information about tasks that will trigger a reload of the selected task.

A task can trigger itself in a circular task chain.

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Click 🔗 on a selected task.
   The **Task chain** dialog opens. The selected task is highlighted and the arrow on the left side of the dialog points to the selected task in the tasks overview page. The dialog displays information about the task chaining and you can manage the tasks by performing a number of actions, as described in the following:
   - **Preceding tasks** displays the tasks that initiates the selected task when completed. This can be a single task or a number of tasks that must all be completed within a set time period. Click ▶ to expand the list and collapse by clicking ▼.
   - **Following tasks** displays the tasks that will be initiated when the selected task is completed. The selected task can trigger another task on its own or together with other tasks. Click ▶ to expand the list and collapse by clicking ▼.

     Two levels of following tasks are displayed.

   - Click 🔄 in the dialog heading if you want to update the task status, that is displayed to the left of each task:
     - ··· Never started
     - 🔄 Triggered
     - 🔄 Started
     - ⧗ Queued
     - 🔄 Abort initiated
     - 🔄 Aborting
     - ⊠ Aborted

✓ Success
‰ Failed
··· Skipped
↻ Retrying
‰ Error
··· Reset

- Click **Start** next to the task to manually start a task.
- Click **Stop** next to the task to manually stop a task.
- Click outside the dialog if you want to close the dialog.
- Double-click a task in the dialog.
  The tasks overview page is displayed and the task you double-clicked is selected. You can click 🔗 to display the task chain applied to that task.

You now have viewed the task chaining summary for a task.

Editing task

You can edit tasks that you have update rights to. The following describes how to edit tasks from the task overview page.

*You can edit tasks that are associated with an app or a user directory from the **Apps** and **User directory connectors** respectively. Simply select the app or user directory connector from the appropriate overview, click the **Tasks** tab, select the task and then click **Edit**.*

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the task that you want to edit.
3. Click **Edit** in the action bar at the bottom of the page.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   Select or deselect the **Enabled** checkbox to enable or disable the task.

   *You can enable or disable several tasks at the same time from the **Tasks** overview page.*

Reload task properties

The **Identification** property group contains the basic reload task properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The name of the task.	Reloadtask of <App name>
App name	The name of the app that the task is created for. Click in the field to open a dialog where you can select (by double-click) which app the task reloads.	<App name>

The **Execution** property group contains the reload task execution properties in the Qlik Sense system.

Property	Description	Default value
Enabled	The task is enabled if the checkbox is checked.	✓
Task session timeout (minutes)	The maximum period of time before a task is aborted. When a task is started a session is started by the master scheduler and the task is performed by one of the nodes. If the session times out, the master scheduler forces the node to abort the task and remove the session.	1440
Max retries	The maximum number of times the scheduler tries to rerun a failed task.	0

Triggers - Scheduled trigger

The following properties are available for a scheduled trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Start	Select when the trigger takes effect by typing the values for: • **Time to start (hh:mm)** and • **Start date (YYYY-MM-DD)**

Property	Description

Repeat	Use the radio buttons to select one of the following options that determines how the trigger is repeated:
	• Select **Once** to only execute the trigger one time.
	• Select **Hourly** to set the time period between the executions of the trigger. Edit **Repeat after each** by typing the values for:
	  • **hour(s)** (default is 1) and
	  • **minute(s)** (default is 0)
	• Select **Daily** to set the time between the executions of the trigger by typing a value for **Every day(s)** (default is 1). For example, type 2 to repeat the trigger every second day.
	• Select **Weekly** to set the time between the executions of the trigger:
	  • Type a value for **Every week(s)** (default is 1) and
	  • Select one or more checkboxes for **On these weekdays** to determine which days the trigger is repeated (on the weeks you have specified). For example, type 3 and select the checkbox **Mon** to repeat the trigger on Mondays every third week.
	• Select **Monthly** and select one or more checkboxes for **At these days** to define the days when the trigger is repeated every month.

End	Type the values for: • **Time to end (hh:mm)** and • **End date (YYYY-MM-DD)** Or check the **Infinite** checkbox to create a never ending trigger.

Triggers - Task event trigger

The following properties are available for a task event trigger:

Property	Description
Name	The name of the trigger. Mandatory.
Type	The trigger type.
Enabled	The trigger is enabled if the checkbox is selected. ✓
Time constraint	Defines the time period (in minutes) that the other tasks in the task chain must be completed within. There is no effect if the trigger consists of only one task.

Property	Description
Add task **Task successful** or **Task failed**	Do the following: a. Click **Add task** to add a tasks that will function as a trigger condition. A drop-down list and an empty field is added. b. Click the empty field to add a task. The dialog **Select task by double-click** is opened and displays a list of tasks with the following columns; **App name**, **Tags** connected to the task and **Name** which is the task name Click a column heading to sort that column ascending ▼ or descending ▲. *You can apply a filter to a column by clicking .* c. Double-click the task that will function as a trigger condition. The task is added to the trigger and the dialog is closed. d. Use the drop-down list to select whether the trigger condition is fulfilled upon **Task successful** or **Task failed**. Click **Delete** to remove a task from the trigger. Repeat the steps above for all the tasks that you wish to include in the trigger. A task can only be added once and is not displayed in the **Select task by double-click** dialog if it has already been added to the trigger.

*The tasks do not need to be executed in any specific order and the **Time constraint** is not static. What happens if all tasks but one have completed when the time period is reached? The task that was first completed is no longer considered executed and the end of the time period is recalculated. The trigger then waits for all tasks to be completed within the recalculated time period.*

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

User synchronization task properties

The **Identification** property group contains the basic user sync task properties in the Qlik Sense system.
All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The name of the task.	Auto generated from the user directory connector name when creating a new user directory connector.
Enabled	The task is enabled if the checkbox is checked. ✓	Enabled

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar to apply and save your changes.
   Successfully updated is displayed at the bottom of the page.

You have now edited a task.

See also:

- *Resource edit page (page 23)*

Deleting task

You can delete tasks that you have delete rights to. The following describes how to delete tasks from the task overview page.

*You can delete tasks that are associated with an app or a user directory from the **Apps** and **User directory connectors** respectively. Simply select the app or user directory connector from the appropriate overview, click the **Tasks** tab, select the task and then click **Delete**.*

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.
2. Select the task or task you want to delete. The number displayed next to **Delete**, in the action bar at the bottom of the page, indicates the number of items in your selection that you are allowed to delete.
3. Click **Delete**.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to delete the task or tasks.

You have now deleted one or more tasks.

You can also delete a task from the association page when you edit an app or a user directory connector.

Enabling tasks

You can enable tasks from the task edit page or from the task overview page. The following describes how to enable tasks from the task overview page.

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.
2. Select the task or tasks you want to enable.
3. Click **More actions** in the far right of the action bar.
   A pop-up menu opens. The number displayed next to **Enable** indicates the number of items in your selection that you are allowed to enable.
4. Click **Enable**.
   The **Enabled** column in the tasks overview displays ✓.

You have now enabled one or more tasks.

You can also enable a task from the properties tab when you edit the task.

See also:

- *Editing task (page 219)*

Disabling tasks

You can disable tasks from the task edit page or from the task overview page. The following describes how to disable tasks from the task overview page.

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the task or tasks you want to enable.
3. Click **More actions** in the far right of the action bar.
   A pop-up menu opens. The number displayed next to **Disable** indicates the number of items in your selection that you are allowed to disable.
4. Click **Disable**.
   The **Enabled** column in the tasks overview is empty.

You have now disabled one or more task.

You can also disable the task from the properties tab when you edit the task.

See also:

- *Editing task (page 219)*

Starting tasks

You can manually start tasks. The following describes how to start tasks from the task overview page.

*You can start tasks that are associated with an app or a user directory from the **Apps** and **User directory connectors** respectively. Simply select the app or user directory connector from the appropriate overview, click the **Tasks** tab, select the task and then click **Start**.*

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the task or task you want to start. The number displayed next to **Start**, in the action bar at the bottom of the page, indicates the number of items in your selection that you are allowed to start.
3. Click **Start**.
   X items were successfully instructed to start is displayed at the bottom of the page.

You have now started one or more task.

Tasks can also be started by triggers.

See also:

- *Managing tasks and triggers (page 210)*
- *Viewing task chains (page 218)*

Stopping tasks

You can manually stop tasks. The following describes how to start tasks from the task overview page.

*You can stop tasks that are associated with an app or a user directory from the **Apps** and **User directory connectors** respectively. Simply select the app or user directory connector from the appropriate overview, click the **Tasks** tab, select the task and then click **Stop**.*

Do the following:

1. Select **Tasks** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the task or task you want to stop. The number displayed next to **Stop**, in the action bar at the bottom of the page, indicates the number of items in your selection that you are allowed to start.
3. Click **Stop** in the action bar at the bottom of the page.
   X items were successfully instructed to stop is displayed at the bottom of the page.

You have now stopped one or more task.

Filtering tasks

The filter functionality helps you finding tasks in a certain state. Use filters on multiple columns simultaneously to narrow your search.

The following columns in the task overview page can be filtered:

Column	Filter options
Type	**Reload** (for app) **User sync** (for user directory connector)
Enabled	**Disabled** **Enabled**
Status	··· Never started Triggered Started Queued Abort initiated Aborting Aborted Success ‰ Failed ··· Skipped Retrying ‰ Error ··· Reset
Last execution	**No filter** **Last 60 minutes** **Today** **Last seven days** **Range: from** YYYY-MM-DD **to** YYYY-MM-DD **Never started**

Do the following:

1. Click ☞ next to the column heading.
   The filter dialog for the column is displayed.

2. Click to make one ore more selections in the filter dialog.
   All rows that match your filter criteria are displayed.

   ✓ indicates a selection for your filter. Click again to remove a selection. In the **Last execution** column you remove a filter by clicking **No filter**.
3. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   indicates that a filter is applied to the column.

You have now applied a task state filter.

See also:

Filtering by tags (page 277)

5.7 Managing nodes and services

Even if you have a multi-node, geographically distributed Qlik Sense installation, the QMC enables you to manage the nodes and services from one location.

See also:

Creating virtual proxy (page 247)

Checking the status of Qlik Sense services

You can check the status of the Engine, Repository, Proxy and Scheduler services on the nodes in your Qlik Sense system.

The QMC looks for status changes every 20 seconds.

If one or more services have stopped, the number of stopped services is displayed on the start page.

Do the following:

1. Select **Nodes** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
   The **Status** column in the overview displays the status of the services on each node.

   You can also click the type of node you want to check service status on, for example Engines, to display the overview.
2. Click ⓘ on a service to get detailed information on the status, for example the time stamp.
   The **Service status** window opens.

3. Click **Manage node** in the Service status window to edit the node that the service is running on or click **Cancel** to return to the overview.

You have now checked the status of a service.

See also:

- *Editing nodes (page 236)*

Status

The **Status** attributes list shows the status of the service.

Attributes

Attribute name	Explanation
Running	The service is running as per normal.
Stopped	The service has stopped.
Disabled	The service has been disabled. Go to **Start** > **Nodes** > [node name] > **Edit** to enable the service.
(x) of (y) services are running	Shows the number of services (x) that are running compared to the number of enabled services (y).
(x) of (y) services are stopped	Shows the number of services (x) that are stopped compared to the number of enabled services (y).
(z) has stopped	The name of the service (z) that has stopped (if only one service has stopped).

Editing repository

You can edit the repositories that you have update rights to. Do the following:

1. Select **Repositories** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the repository or repositories you want to edit.
3. Click **Edit** in the action bar.
   If several schedulers are selected and they have different values for a specific field, **Multiple values** is displayed in the field name.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

The **Identification** property group contains the basic repository properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The repository name.	Inherits the node name.

The **Logging** property group contains the logging properties for the Qlik Sense Repository Services (QRS's) in the Qlik Sense system.

Property	Description	Default value
Application log level	All the application messages for the repository service are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Audit log level	More detailed, user based, messages are saved to this logger. For example, security rules information. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
License log level	All the license messages are saved to this logger. For example, token usage and user access allocation. Use the drop-down to set the verbosity of the logger: • **Info**: fatal, error, warning and information entries • **Debug**: same as info, but including also debug entries	Info
Qlik Management Console (QMC) log level	All the QMC messages are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Performance log level	All the performance messages for the repository service are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
Security log level	All certificates messages are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Synchronization log level	All the synchronization information in a multi-node environment are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
System log level	All the standard repository messages are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
User management log level	All user sync messages are saved to this logger. For example: Error: User import failure or why a user directory connector setting is incorrect. Warning: Potential error in data source, for example a circular dependence in Active Directory groups. Info: Engine start and progress or user import start and user import results, for example number of users and user groups. Debug: User request string to Active Director/LDAP server or SQL user query to ODBC source. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	*If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** to save your changes.
   Successfully updated is displayed at the bottom of the page.

You now have edited a scheduler or schedulers.

See also:

- *Resource edit page (page 23)*

Creating node

You can create a node.

When you create a node its associated services are also created and they inherit the node name; repository, engine, proxy and scheduler.

Do the following:

1. Select **Nodes** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
3. Fill out the fields on the **Properties** tab:

You can display or hide property groups using the panel to the far right.

The **Identification** property group contains the basic node properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description
Name	The node name.
Host name	The host name.

The **Node purpose** property group contains the basic node properties in the Qlik Sense system.

Property	Description
Node purpose	Use the drop-down to select which environment the node is intended for: **Production**, **Development** or **Both**.

Use the checkboxes to select which services to include. If a service is not installed when trying to activate, the properties will be applied when the installation is complete.

Property	Description
Repository	The Qlik Sense Repository Service (QRS) is always included.
Engine	The Qlik Sense Engine Service (QES).
Proxy	The Qlik Sense Proxy Service (QPS).
Scheduler	The Qlik Sense Scheduler Service (QSS).

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to create and save the node.

Successfully added is displayed at the bottom of the page and a dialog with **your authorization password** appears.
If you typed the **Host name** incorrectly the message **Node registration failed** appears. If so, click **OK** and retype.

5. Copy the authorization password and follow the instruction in the dialog to authorize the certificate on the host name machine.
   If successful, the **Certificate setup** dialog displays **The service was successfully unlocked**.
6. Restart the services you installed on the new node.

You have now created a new node and authorized the certificate to make the node operational.

See also:

- *Resource edit page (page 23)*

Editing nodes

You can edit nodes. Do the following:

1. Select **Nodes** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the node or nodes that you want to edit.
3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic node properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description
Name	The node name.
Host name	The host name.

   The **Node purpose** property group contains the basic node properties in the Qlik Sense system.

Property	Description
Node purpose	Use the drop-down to select which environment the node is intended for: **Production**, **Development** or **Both**.

Use the checkboxes to select which services to include. If a service is not installed when trying to activate, the properties will be applied when the installation is complete.

Property	Description
Repository	The Qlik Sense Repository Service (QRS) is always included.
Engine	The Qlik Sense Engine Service (QES).
Proxy	The Qlik Sense Proxy Service (QPS).
Scheduler	The Qlik Sense Scheduler Service (QSS).

Use the checkboxes at **Services activation** to select the services to include. The repository service is always included. If a service is not installed when when you are trying to activate, the properties will be applied when the installation is complete.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

5. If you edit the **Host name** you must authorize the certificate on the host name machine.
   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
6. Click **Apply** in the action bar.
   Successfully updated is displayed at the bottom of the page.
   If you edited the **Host name** and typed incorrectly the message **Node registration failed** appears. If so, click **OK** and retype.
7. If you changed the **Host name**; copy the authorization password and follow the instruction in the dialog to authorize the certificate on the host name machine.

You have now edited a node or nodes.

See also:

- *Resource edit page (page 23)*

Redistributing certificate

A node that has not received the certificate correctly must be re-registered.

Do the following:

1. Select **Nodes** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the node you want to redistribute, displayed with **Certificate not installed** in the **Status** column.
   The **Redistribute** button in the action bar goes active.
3. Click **Redistribute**.
   A dialog with **your authorization password** appears when finished.
4. Copy the authorization password and follow the instruction in the dialog to authorize the certificate on the host name machine.
   If successful, the **Certificate setup** dialog displays **The service was successfully unlocked**.

You have now redistributed and authorized the certificate to make the node operational.

Deleting nodes

You can delete nodes that you have delete rights to.

If you want to add a deleted node to a cluster, you must first remove the certificates from the node and reinstall Qlik Sense before it is possible to add the node to the cluster.

When you delete a node, its belonging services are also deleted: proxy, engine and scheduler. If you try to delete a central node, ***Not allowed to delete {nodename}*** *is displayed.*

Do the following:

1. Select **Nodes** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⍇.

2. Select the node or nodes that you want to delete.
3. Click **Delete** in the action bar.

A confirmation dialog is displayed.

4. Click **OK** in the dialog to confirm that you want to delete the node or nodes.

You have now deleted a node or nodes and the belonging resources.

Editing proxies

You can edit a proxy that you have update rights to.

1. Select **Proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

You can apply a filter to a column by clicking .

2. Select the proxy or proxies you want to edit.
3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.

You can display or hide property groups using the panel to the far right.

The **Identification** property group contains the basic proxy properties in the Qlik Sense system. All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The proxy name.	Inherits the node name.

The **Ports** property group contains the proxy ports properties in the Qlik Sense system.

Property	Description	Default value
Service listen port HTTPS (default)	The secure listen port for the proxy, which by default manages all Qlik Sense communication.  *Make sure that port 443 is available for the Qlik Sense Proxy Service (QPS) to use because the port is sometimes used by other software (for example, web servers).*	443
Authentication listen port HTTPS (default)	The secure listen port for the default (internal) authentication module.	4244
Kerberos authentication	Select this checkbox to enable the use of Kerberos authentication.	Blank
REST API listen port	The listen port for the proxy API.	4243

Property	Description	Default value
Allow HTTP	Unencrypted communication is allowed if the proxy property **Allow HTTP** is checked; this means that both https (secure communication) and (http) unencrypted communication is allowed. Then the QMC address is *https://<QPS server name>:Service listen port HTTP/qmc* (where *https* can be replaced by *http*). By default the QMC address is *https://<QPS server name>/qmc*. *If you change the property **Allow HTTP**, please know that all web browser bookmarks (that Qlik Sense users or QMC admin users have created) will not be valid anymore.* *The **Service listen port HTTP** and **Authentication listen port HTTP** need to be set when **Allow HTTP** is checked.*	False (not allowed)
Service listen port HTTP	The unencrypted listen port, used when HTTP connection is allowed.	80
Authentication listen port HTTP	The unencrypted authentication listen port, used when HTTP connection is allowed.	4248

The **Advanced** property group contains the advanced proxy properties in the Qlik Sense system.

Property	Description	Default value
Max header lines	The maximum number of lines in the header.	100
Max header size (bytes)	The maximum total header size.	16384 bytes
Keep alive timeout (seconds)	The maximum timeout period for a single HTTP request before closing the connection. Protection against denial-of-service attacks. That is, if an ongoing request exceeds this period, Qlik Sense proxy will close the connection. Increase this value if your users work over slow connections and experience closed connections.	10 seconds

The **Logging** property group contains the proxy logging properties in the Qlik Sense system.

Property	Description	Default value
Performance log interval (minutes)	The interval of performance logging.	5 minutes
Audit log level	More detailed, user based, messages are saved to this logger. For example, proxy calls. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
Performance log level	All the performance messages are saved to this logger. For example, performance counters and number of connections, streams, sessions, tickets, web sockets and load balancing information. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Security log level	All certificates messages are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
System log level	All the standard proxy messages are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

The **Security** property group contains the proxy security properties in the Qlik Sense system.

Property	Description
SSL browser certificate thumbprint	The thumbprint of the Secure Sockets Layer (SSL) certificate that handles the encryption of traffic from the browser to the proxy.

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Edit the fields on the **Associated items** tab.

   The **Virtual proxies** property group contains a list of associated virtual proxies.

Property	Description
Description	The description of the virtual proxy.
Prefix	The path name in the proxy's URI that defines each additional path.
Session cookie header name	The name of the HTTP header used for the session cookie.
Default	This field displays if the virtual proxy is a default proxy. The value can be **true** or **false**.

6. Click **Apply** in the action bar to save your changes.

   When you apply the changes the proxy must be restarted. Sessions handled by this proxy are ended and the users are logged out.

   Successfully updated is displayed at the bottom of the page.

You now have edited a proxy or proxies.

See also:

- *Resource edit page (page 23)*

Adding load balancing

When you install multiple engines and virtual proxies, all virtual proxies will by default load balance users at random across all engines. This can be modified so that a virtual proxy only talks to its local engine or specific engines by adding load balancing to selected nodes.

Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⊡▾.

2. Select the virtual proxy you want to add load balancing to.
3. Click **Edit**.
   The virtual proxy properties are shown.
4. In the **Load balancing** property, click ⊕ **Add new server node** to select which server nodes to

add load balancing to.
A dialog opens.

You can apply a filter to a column by clicking .

Click a column heading to sort that column ascending ▼ or descending ▲ .

5. Select one or more nodes from the list.
6. Click **Add**.
   The dialog closes and the node or nodes are added in the list of **Load balancing nodes** on the virtual proxy edit page.
   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
7. Click **Apply** in the action bar.
   A confirmation dialog is displayed telling you that the proxy must be restarted, sessions will be ended and users logged out.
8. Click **OK** to continue.
   Successfully updated is displayed at the bottom of the page.

You have now added load balancing.

See also:

- *Creating virtual proxy (page 247)*
- *Editing virtual proxy (page 253)*

Deleting load balancing

You can delete load balancing.

Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the virtual proxy you want to edit.
3. Click **Edit**.
   The virtual proxy properties are shown.
4. In the **Load balancing** property, click on the ⊗ next to the node you wish to remove load balancing from.

> *You can apply a filter to a column by clicking .*

> *Click a column heading to sort that column ascending ▼ or descending ▲ .*

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar to save your changes.
   A confirmation dialog is displayed telling you that the proxy must be restarted, sessions will be ended and users logged out.
6. Click **OK** to continue.
   Successfully updated is displayed at the bottom of the page.

You have now removed the load balancing.

See also:

- *Resource edit page (page 23)*

Creating virtual proxy

An additional path configuration allows different modules based on the URI to be used to access Qlik Sense or the Qlik Management Console (QMC). You can create a virtual proxy.

Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   > *You can apply a filter to a column by clicking .*

2. Click **Create new**. You cannot add a virtual proxy to more than one proxy at the same time.
3. Edit the properties in the **Virtual proxy edit** window.

   > *You can display or hide property groups using the panel to the far right.*

   The **Identification** property group contains the basic virtual proxy properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description	Default value
Description	The description of the virtual proxy.	Blank
Prefix	The path name in the proxy's URI that defines each additional path. Example: `https://[node]/prefix/`	Blank
Session inactivity timeout (minutes)	The maximum period of time with inactivity before timeout. After this, the session is invalid and the user is logged out from the system.	30 minutes
Session cookie header name	The name of the HTTP header used for the session cookie. This value is blank by default and you must enter a value.  *It can be useful to include the value of the **Prefix** property above as a suffix in the cookie name.*	Blank

Property	Description	Default value
Header authentication mode	Authentication method: • **Not allowed**: header authentication is not allowed. • **Static user directory**: allows static header authentication, where the user directory is set in the QMC. • **Dynamic user directory**: allows dynamic header authentication, where the user directory is fetched from the header.	Not allowed

Property	Description	Default value
Header authentication header name	The name of the HTTP header that identifies users, when header authentication is allowed. Mandatory if you allow header authentication (by selecting either **Static user directory** or **Dynamic user directory** for the **Header authentication mode** property).  *Header authentication only supports US-ASCII (UTF-8 is not supported).*	Blank
Header authentication static user directory	The name of the user directory where additional information can be fetched for header authenticated users. Mandatory if you allow static header authentication (by selecting **Static user directory** for the **Header authentication mode** property).	Blank
Header authentication dynamic user directory	Mandatory if you allow dynamic header authentication (by selecting **Dynamic user directory** for the **Header authentication mode** property). The pattern you supply must contain '$ud', '$id' and a way to separate them. **Example setting and matching header:** `$ud\\$id` – matches USERDIRECTORY\userid (backslashes must be escaped with an additional \) `$id@$ud` – matches userid@USERDIRECTORY ($id and $ud can be in any order) `$ud:::$id` – matches USERDIRECTORY:::userid	Blank

Property	Description	Default value
Anonymous access mode	How to handle anonymous access: • **No anonymous user** • **Allow anonymous user** • **Always anonymous user**	No anonymous user
Windows authentication pattern	The chosen authentication pattern for logging in.	Windows

The **Load balancing** property group contains the load balancing properties for the virtual proxies in the Qlik Sense system.

Property	Description	Default value
Load balancing nodes	Click **Add new server node** to add load balancing to that node.	Blank

Property	Description	Default value
Extended security environment	Enabling this setting will send the following information about the client environment in the security header: OS, device, browser and IP. If the checkbox is left blank, the user can run the same engine session simultaneously on multiple devices.	Blank
Session cookie domain	By default the session cookie is valid only for the machine the proxy is installed on. This (optional) property allow you to increase its validity to a larger domain. Example: `company.com`	Blank (default machine)

Additional response headers	Headers added to all HTTP responses back to the client.
	Example:
	`Header1: value1`
	`Header2: value2`
		Blank

Property	Description	Default value
Websocket origin white list	All values added here are validated starting from the bottom level. If, for example, *domain.com* is added, this means that all values ending with *domain.com* will be approved. If *subdomain.domain.com* is added, this means that all values ending with *subdomain.domain.com* will be approved.	Blank

Property	Description	Default value
Session module base URI	The address to an external session module, if any.	Blank (default module, that is in memory)
Authentication module redirect URI	When using an external authentication module, the clients are redirected to this URI for authentication.	Blank (default module, that is Windows authentication Kerberos/NTLM)
Load balancing module base URI	The address to an external load balancing module that selects which Qlik Sense engine to use for the user's session, if any.	Blank (default module, that is round robin)

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀ .

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

4. You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
5. Edit the fields on the **Associated items** tab.

   The **Proxies** overview lists all the available proxies. You can manage your proxies by performing a number of actions, as described in the following:

Name	The name of the proxy.
Status	The **Status** column displays the status of the service. One of the following texts is displayed: • **Running** The service is running as per normal. • **Stopped** The service has stopped. • **Disabled** The service has been disabled. *Click ⓘ in the **Status** column for more detailed information on the status. See Checking the status of Qlik Sense services (page 228).*
Tags	The QMC tags that are connected to the proxy.
↻	Refreshing page: Click to manually refresh the page.
▼ ▲	Sorting columns: Click to sort the list alphabetically, ascending or descending according to the nature of the column.
⧩	Filtering columns: Click to open a dialog and filter the list based on that column and your filter criteria as you type. Click ⊗ to remove the filter. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog. The filter icon is inverted when a filter is applied to a column ⧩. You can apply filters to multiple columns to narrow your search.
Edit	Editing proxy: Click **Edit** in the action bar and edit the selected proxy.
Show more items	Show more items: The overview shows a set number of items by default. To show more items, scroll to the end of the list and click **Show more items**. Sorting and filtering of items is always done on the full database list of items, not only the items that are on display.

6. Click **Apply** in the action bar to save your changes.
   Successfully updated is displayed at the bottom of the page.

You now have created a new virtual proxy.

Virtual proxy example

When using a virtual proxy you are able to connect a configuration to a prefix and then you can use one proxy service to support multiple configurations.

For example, the virtual proxy can be used to support multiple identity providers in the same proxy:

- Configuring an authentication module supporting LDAP with the prefix *ldap* would give you the possibility to log in to *ldap* using the following URI: *https:///[node]/ldap/hub*.
- The default behavior of login using WindowsActive Directory will be kept, using the following URI: *https:///[node]/hub*.

Editing virtual proxy

An additional path configuration allows different modules based on the URI to be used to access Qlik Sense or the Qlik Management Console (QMC). You can edit a virtual proxy.

Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the virtual proxy you want to edit and click **Edit** in the action bar. You cannot edit virtual proxies for more than one proxy at the same time.
3. Edit the properties in the **Virtual proxy edit** window:

   The **Identification** property group contains the basic virtual proxy properties in the Qlik Sense system.
   All fields are mandatory and must not be empty.

Property	Description	Default value
Description	The description of the virtual proxy.	Blank
Prefix	The path name in the proxy's URI that defines each additional path. Example: `https://[node]/prefix/`	Blank
Session inactivity timeout (minutes)	The maximum period of time with inactivity before timeout. After this, the session is invalid and the user is logged out from the system.	30 minutes

Property	Description	Default value
Session cookie header name	The name of the HTTP header used for the session cookie. This value is blank by default and you must enter a value.  *It can be useful to include the value of the **Prefix** property above as a suffix in the cookie name.*	Blank

Property	Description	Default value
Header authentication mode	Authentication method: • **Not allowed**: header authentication is not allowed. • **Static user directory**: allows static header authentication, where the user directory is set in the QMC. • **Dynamic user directory**: allows dynamic header authentication, where the user directory is fetched from the header.	Not allowed

Property	Description	Default value
Header authentication header name	The name of the HTTP header that identifies users, when header authentication is allowed. Mandatory if you allow header authentication (by selecting either **Static user directory** or **Dynamic user directory** for the **Header authentication mode** property).  *Header authentication only supports US-ASCII (UTF-8 is not supported).*	Blank
Header authentication static user directory	The name of the user directory where additional information can be fetched for header authenticated users. Mandatory if you allow static header authentication (by selecting **Static user directory** for the **Header authentication mode** property).	Blank
Header authentication dynamic user directory	Mandatory if you allow dynamic header authentication (by selecting **Dynamic user directory** for the **Header authentication mode** property). The pattern you supply must contain '$ud', '$id' and a way to separate them. **Example setting and matching header:** `$ud\\$id` – matches USERDIRECTORY\userid (backslashes must be escaped with an additional \) `$id@$ud` – matches userid@USERDIRECTORY ($id and $ud can be in any order) `$ud:::$id` – matches USERDIRECTORY:::userid	Blank

Property	Description	Default value
Anonymous access mode	How to handle anonymous access: • **No anonymous user** • **Allow anonymous user** • **Always anonymous user**	No anonymous user
Windows authentication pattern	The chosen authentication pattern for logging in.	Windows

The **Load balancing** property group contains the load balancing properties for the virtual proxies in the Qlik Sense system.

Property	Description	Default value
Load balancing nodes	Click **Add new server node** to add load balancing to that node.	Blank

Property	Description	Default value
Extended security environment	Enabling this setting will send the following information about the client environment in the security header: OS, device, browser and IP. If the checkbox is left blank, the user can run the same engine session simultaneously on multiple devices.	Blank
Session cookie domain	By default the session cookie is valid only for the machine the proxy is installed on. This (optional) property allow you to increase its validity to a larger domain. Example: `company.com`	Blank (default machine)

Additional response headers	Headers added to all HTTP responses back to the client.
	Example:
	`Header1: value1`
	`Header2: value2`
		Blank

Property	Description	Default value
Websocket origin white list	All values added here are validated starting from the bottom level. If, for example, *domain.com* is added, this means that all values ending with *domain.com* will be approved. If *subdomain.domain.com* is added, this means that all values ending with *subdomain.domain.com* will be approved.	Blank

Property	Description	Default value
Session module base URI	The address to an external session module, if any.	Blank (default module, that is in memory)
Authentication module redirect URI	When using an external authentication module, the clients are redirected to this URI for authentication.	Blank (default module, that is Windows authentication Kerberos/NTLM)
Load balancing module base URI	The address to an external load balancing module that selects which Qlik Sense engine to use for the user's session, if any.	Blank (default module, that is round robin)

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀ .

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

4. You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
5. Edit the fields on the **Associated items** tab.

Proxies

The **Proxies** overview lists all the available proxies. You can manage your proxies by performing a number of actions, as described in the following:

Name	The name of the proxy.
Status	The **Status** column displays the status of the service. One of the following texts is displayed: • **Running** The service is running as per normal. • **Stopped** The service has stopped. • **Disabled** The service has been disabled. *Click ⓘ in the **Status** column for more detailed information on the status. See Checking the status of Qlik Sense services (page 228).*
Tags	The QMC tags that are connected to the proxy.
↻	Refreshing page: Click to manually refresh the page.
▼ ▲	Sorting columns: Click to sort the list alphabetically, ascending or descending according to the nature of the column.
⧩	Filtering columns: Click to open a dialog and filter the list based on that column and your filter criteria as you type. Click ⊗ to remove the filter. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog. The filter icon is inverted when a filter is applied to a column ⧩. You can apply filters to multiple columns to narrow your search.
Edit	Editing proxy: Click **Edit** in the action bar and edit the selected proxy.
Show more items	Show more items: The overview shows a set number of items by default. To show more items, scroll to the end of the list and click **Show more items**. Sorting and filtering of items is always done on the full database list of items, not only the items that are on display.

6. Click **Apply** in the action bar to save your changes.

Successfully updated is displayed at the bottom of the page.

You now have edited a virtual proxy.

See also:

- *Resource edit page (page 23)*

Deleting virtual proxy

You can delete a virtual proxy. Do the following:

1. Select **Virtual proxies** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the virtual proxy you want to delete and click **Delete**. You cannot delete virtual proxies for more than one proxy at the same time.
   A confirmation dialog is displayed asking if you want to delete the selected virtual proxy.
3. Click **OK** to confirm that you want to delete the selected virtual proxy.
   The virtual proxy is removed from the list **Virtual proxies**.
   Successfully updated proxy properties is displayed at the bottom of the page.

You have now deleted a virtual proxy.

Editing scheduler

You can edit schedulers that you have update rights to. Do the following:

1. Select **Schedulers** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the scheduler or schedulers you want to edit.
3. Click **Edit** in the action bar.
   If several schedulers are selected and they have different values for a specific field, **Multiple values** is displayed in the field name.
4. Edit the fields on the **Properties** tab.

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic scheduler properties in the Qlik Sense system.

All fields are mandatory and must not be empty.

Property	Description	Default value
Name	The scheduler name.	Inherits the node name.

The **Advanced** property group contains the advanced scheduler properties in the Qlik Sense system.

Property	Description	Default value
Type	If enabled by the property above, the QSS type is set to: • Master: sends the task to a slave QSS within the site. • Slave: receives the task from the master QSS and executes the task. • Master and slave: when the master QSS also acts a slave QSS, on a single node site.	Slave (except for on a central node; Master)
Max concurrent reloads	The maximum number of reloads that the scheduler can perform at the same time.	4
Engine timeout (minutes)	If the number for **Max concurrent reloads** is reached (see property above), the request to start a new engine process is queued, waiting for the number of running reload processes to go below **Max concurrent reloads**. If this does not happen within the given time period, the request to start a new engine process is removed from the queue.	30

The property group **Tags** contains the available QMC tags in the Qlik Sense system.

Property	Description
Tags	 *If no QMC tags are available, this property group is empty.* **Connected tags** lists the connected QMC tags. Any QMC tags that are not connected to this resource type are listed to the right of ◀.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** to save your changes.
   Successfully updated is displayed at the bottom of the page.

You now have edited a scheduler or schedulers.

See also:

- *Resource edit page (page 23)*

Editing engines

You can edit engines that you have update rights to. Do the following:

1. Select **Engines** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   
   You can apply a filter to a column by clicking ⍇.

2. Select the engine or engines you want to edit.
3. Click **Edit** in the action bar.
4. Edit the fields on the **Properties** tab.

   
   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the basic engine properties in the Qlik Sense system.

Property	Description	Default value
Name	The engine name.	Inherits the node name.

   The **Apps** property group contains engine properties in the Qlik Sense system.

Property	Description	Default value
App autosave interval (seconds)	The number of seconds between auto saving of the apps. Also, when a session ends autosave is always performed.	30
App timeout (seconds)	The number of seconds that a Qlik Sense app is allowed to linger in memory, after the last session that used the app has ended.	28800
Working folder	Scheduled reload will search for files in this directory when relative paths are used to define file location.	%ProgramData%\Qlik\Sense\Apps
Max number of undos	The maximum number of undos; min=0, max=999.	100

The **Advanced** property group contains the advanced engine properties in the Qlik Sense system.

Property	Description	Default value
Listen port	The listener port used by Qlik Sense Engine Service (QES) for communication with the Qlik Sense web clients. Click ⊕ to add more ports. Click ⊗ to remove a port.	4747
Allow data lineage	Save the data lineage (that is, the origin of the data) when executing a load script (that is, a script that loads data into Qlik Sense).	True (the checkbox is checked)
Min memory usage (%)	The minimum memory capacity used by Qlik Sense.	70
Max memory usage (%)	The maximum memory capacity used by Qlik Sense.	90

Property	Description	Default value
Memory usage mode	Use the drop-down to select one of the following methods: • **Hard max limit**: never use more memory than defined by the property above • **Ignore max limit**: use as much memory as necessary, regardless of the property above • **Soft max limit**: use more memory than defined by the property above, if necessary and available	Hard max limit
CPU throttle (%)	The amount of CPU capacity used by Qlik Sense. Range: 0 – 100 %	0 (that is, no throttling)
Standard mode	When selected, standard mode will be used. If this checkbox is deselected, legacy mode will be used. For security reasons, Qlik Sense in standard mode does not support absolute or relative paths in the data load script or functions and variables that expose the file system.  *Disabling standard mode can create a security risk by exposing the file system.*	True (the checkbox is checked)

The **Logging** property group contains the engine logging properties in the Qlik Sense system.

Property	Description	Default value
Logging enabled	Enables or disables logging.	True (the checkbox is checked)
Performance log interval (minutes)	The number of minutes in-between performance logging entries.	5

Property	Description	Default value
System log level	All the standard engine messages are saved to this logger. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Performance log level	All the performance messages are saved to this logger (updated default every 5 minutes). For example, the number of active users, the number of open sessions and the CPU load. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
QIX performance log level	All the QIX protocol performance messages are saved to this logger Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Audit log level	More detailed, user based, messages are saved to this logger. For example, when the user makes a selection in an app. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

Property	Description	Default value
Session log level	All the session messages are saved to this logger, when a client session is terminated. For example, user information, machine id, IP address and port number. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info
Traffic log level	All the traffic messages are saved to this logger. For example, all JSON-messages to and from the engine. Use the drop-down to set the verbosity of the logger: • **Off**: no entries • **Fatal**: only fatal entries • **Error**: same as fatal, but also including error entries • **Warning**: same as error, but also including warning entries • **Info**: same as warning, but also including information entries • **Debug**: same as info, but also including debug entries	Info

The property group **Tags** contains the available tags in the Qlik Sense system.

Property	Description
Tags	The available tags are listed to the right. Connected tags are listed to the left.

The **Custom properties** property group contains the custom properties in the Qlik Sense system. When a custom property has been activated for a resource, you can use the drop-down to select a custom property value.

Property	Description
Custom properties	If no custom properties are available, this property group is not displayed at all (or displayed but empty) and you must make a custom property available for this resource type before it will be displayed here. Use the drop-down to select a value for a custom property.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar.
   Successfully updated engine properties is displayed at the bottom of the page.

Changes to engine service settings requires a manual restart of the engine service in order to take effect.

You now have edited a engine or engines.

See also:

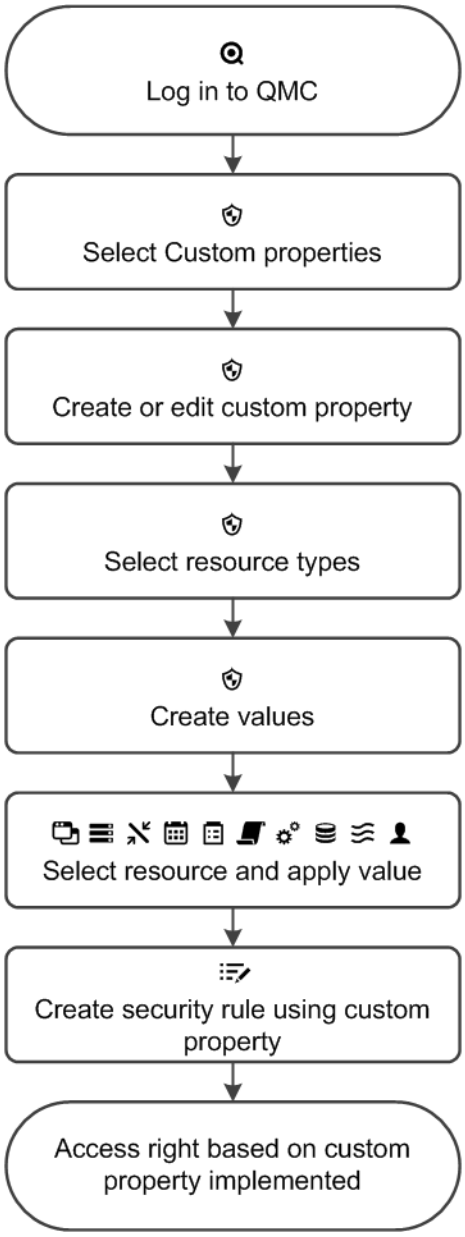
- *Resource edit page (page 23)*

5.8 Using custom properties

You create a custom property to allow using your own values in security rules. When you create a custom property you define one or more values for the custom property, which you can use in the security rule for a resource.

You might, for example, want to add a custom property named Country and assign two values (USA and UK) to be able to create different security rules for the two regions.

This flow describes using custom properties:



See also:

- *Creating sync rules with custom properties (page 45)*
- *Security rules example: Creating QMC organizational admin roles (page 84)*
- *Security rules example: Applying Qlik Sense access rights for user types (page 87)*
- *Creating new custom property (page 269)*
- *Applying custom property value (page 272)*

Creating new custom property

You can create a new custom property.

Do the following:

1. Select **Custom properties** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click **Create new** in the action bar.
3. Edit the fields on the **Properties** tab:

You can display or hide property groups using the panel to the far right.

The **Identification** property group contains the name of the custom property.

Property	Description
Name	The custom property name is mandatory and must not be empty. The value must only use latin characters and numbers (A-Z and 0-9) and must begin with a latin character (A-Z).

The **Resource types** property group contains the resources that the custom property can be used on.

Property	Description
Resource types	Use the checkboxes to select the resources that you want to make the custom property available for. Custom properties can be applied to the following resources: **Apps** **Nodes** **Content libraries** **Proxies** **Repositories** **Streams** **Users** **Data connections** **Engines** **Extensions** **Virtual proxies** **Schedulers** **Reload tasks**

The **Values** property group contains values that you create for the custom property.

Property	Description
Values	The values that you create can be used in security rules.

Click **Create new** in the **Values** heading; type the value and click **OK** to add the value.

The value must be applied to a resource before it can be used in security rules.

Click to delete a value from the **Values** list.
A confirmation dialog is displayed.
Click **OK** in the dialog to confirm that you want to delete the value.
You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to create and save the custom property.
   Successfully added is displayed at the bottom of the page.

You have now created a new custom property and can use its values on resources and in security rules.

See also:

- *Applying custom property value (page 272)*
- *Creating security rules (page 69)*

Editing custom property

You can edit a custom property that you have update rights to.

You cannot edit properties for several custom properties at the same time.

Do the following:

1. Select **Custom properties** on the **QMC start** page or from the **Start** drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select one custom property and click **Edit** in the action bar at the bottom of the page.
3. Edit the fields on the **Properties** tab:

   You can display or hide property groups using the panel to the far right.

   The **Identification** property group contains the name of the custom property.

Property	Description
Name	The custom property name is mandatory and must not be empty. The value must only use latin characters and numbers (A-Z and 0-9) and must begin with a latin character (A-Z).

The **Resource types** property group contains the resources that the custom property can be used on.

Property	Description
Resource types	Use the checkboxes to select the resources that you want to make the custom property available for. Custom properties can be applied to the following resources: **Apps** **Nodes** **Content libraries** **Proxies** **Repositories** **Streams** **Users** **Data connections** **Engines** **Extensions** **Virtual proxies** **Schedulers** **Reload tasks**

The **Values** property group contains values that you create for the custom property.

Property	Description
Values	The values that you create can be used in security rules.

Click **Create new** in the **Values** heading; type the value and click **OK** to add the value.

The value must be applied to a resource before it can be used in security rules.

Click to delete a value from the **Values** list.
A confirmation dialog is displayed.
Click **OK** in the dialog to confirm that you want to delete the value.
You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar.
   Successfully updated is displayed at the bottom of the page.

You have now edited a custom property and can use its values on resources and in security rules.

See also:

- *Resource edit page (page 23)*
- *Applying custom property value (page 272)*
- *Creating security rules (page 69)*

Deleting custom property

You can delete custom properties that you have delete rights to. Do the following:

Do the following:

1. Select **Custom properties** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select one or more custom properties and click **Delete** in the action bar at the bottom of the page. A confirmation dialog is displayed.
3. Click **OK** in the dialog to confirm that you want to delete.

You have now deleted one or more a custom properties.

Applying custom property value

To be able to use a custom property value in the security rules, you must first apply the custom property value to a resource.

Do the following:

1. Select a resource on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select one or more resources and click **Edit**.
3. Select **Custom properties** from the **Properties** tab and select the value you want to apply in the drop-down list next to the custom property.

   *If **Custom properties** is not available in the properties panel to the right, you must first make a custom property available for the resource. You do this when you create (or edit) a custom property.*

   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to apply the value.
   Successfully added is displayed at the bottom of the page.

You have now applied a custom property value, and you can use it when creating security rules for the resource.

See also:

- *Creating new custom property (page 269)*
- *Creating security rules (page 69)*

5.9 Using QMC tags

You create QMC tags and apply them to resources to be able to search and manage the environment efficiently from the resource overview pages in the QMC.

Creating new tags (page 273)

Connecting tags (page 274)

Disconnecting tags (page 275)

Filtering by tags (page 277)

Creating new tags

You can create a new tag. Do the following:

1. Select **Tags** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.
2. Click ⊕ **Create new** in the action bar.
3. Type the fields on the **Properties** tab:

   You can display or hide property groups using the panel to the far right.

   The property group **Identification** contains the basic tag properties in the Qlik Sense system.

Property	Description
Name	The name of the QMC tag. The name must be unique. You cannot use the same name for multiple tags.

   The property group **View tag associated items** displays which resources that are using the tag. The connections are made from the **Tags** property group when editing a resource.

Property	Description
Apps	The apps the tag is connected to.
App objects	The app objects the tag is connected to.
Security rules	The security rules the tag is connected to.
Extensions	The extensions the tag is connected to.
Content libraries	The content libraries the tag is connected to.
Data connections	The data connections the tag is connected to.
Nodes	The nodes the tag is connected to.
Engines	The engines the tag is connected to.
Proxies	The proxies the tag is connected to.
Virtual proxies	The virtual proxies the tag is connected to.
Repositories	The repositories the tag is connected to.
Schedulers	The schedulers the tag is connected to.
Streams	The streams the tag is connected to.
Users	The users the tag is connected to.
User directories	The user directories the tag is connected to.
Reload tasks	The reload tasks the tag is connected to.
User synchronization tasks	The user synchronization tasks the tag is connected to.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

4. Click **Apply** in the action bar to create and save the tag.
   Successfully added a new tag is displayed at the bottom of the page.

You have now created a new tag.

Connecting tags

You can connect QMC tags to resources. Do the following:

1. Select a resource type (for example apps) on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking ⧩.

2. Select the items that you want to connect tags to and click **Edit** in the action bar.

3. Edit the **Tags** properties on the **Properties** tab.

   If no QMC tags are available you must first create a new tag.

4. Select a QMC tag or tags and connect to them by clicking ◂.
   The QMC tag or tags are now visible in the list of **Connected tags**.
   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
5. Click **Apply** at the bottom of the page to save your changes.
   (x) is added to the label of the QMC tag, where x denotes the number of resources using the QMC tag.

You have now connected a QMC tag or tags.

See also:

Creating new tags (page 273)

Disconnecting tags

You can remove the connection between the tag and the resource. Do the following:

1. Select a resource type (for example apps) on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the items you want to remove tags from and click **Edit** in the action bar.
3. Edit the **Tags** properties on the **Properties** tab.
4. Click ⊗ to remove the tag from the list of **Connected tags**.
   You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.
5. Click **Apply** at the bottom of the page to save your changes.

You now have removed the connection between the tag and the resource items.

Editing tags

You can edit tags that you have update rights to. Do the following:

1. Select **Tags** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the tag or tags that you want to edit.
3. Click **Edit** in the action bar.

4. Edit the fields on the **Properties** tab.

You can display or hide property groups using the panel to the far right.

The property group **Identification** contains the basic tag properties in the Qlik Sense system.

Property	Description
Name	The name of the QMC tag. The name must be unique. You cannot use the same name for multiple tags.

The property group **View tag associated items** displays which resources that are using the tag. The connections are made from the **Tags** property group when editing a resource.

Property	Description
Apps	The apps the tag is connected to.
App objects	The app objects the tag is connected to.
Security rules	The security rules the tag is connected to.
Extensions	The extensions the tag is connected to.
Content libraries	The content libraries the tag is connected to.
Data connections	The data connections the tag is connected to.
Nodes	The nodes the tag is connected to.
Engines	The engines the tag is connected to.
Proxies	The proxies the tag is connected to.
Virtual proxies	The virtual proxies the tag is connected to.
Repositories	The repositories the tag is connected to.
Schedulers	The schedulers the tag is connected to.
Streams	The streams the tag is connected to.
Users	The users the tag is connected to.
User directories	The user directories the tag is connected to.
Reload tasks	The reload tasks the tag is connected to.
User synchronization tasks	The user synchronization tasks the tag is connected to.

You must click **Apply** to save your changes. **Apply** is disabled if a mandatory field is empty.

5. Click **Apply** in the action bar.
Successfully updated is displayed at the bottom of the page.

You have now edited a tag or tags.

See also:

- *Resource edit page (page 23)*

Deleting tags

You can delete tags that you have delete rights to. Do the following:

1. Select **Tags** on the **QMC start** page or from the **Start** ▼ drop-down menu to display the overview.

   You can apply a filter to a column by clicking .

2. Select the tag or tags that you want to delete.
3. Click **Delete** in the action bar.
   A confirmation dialog is displayed.
4. Click **OK** in the dialog to confirm that you want to delete the tag or tags.

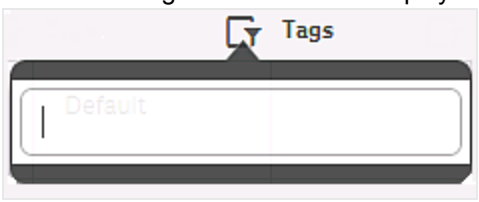
You have now deleted a tag or tags.

Filtering by tags

From the resource overview pages you use the filter functionality to find resources that you have applied QMC tags to. Use filters on multiple columns simultaneously to narrow your search.

Do the following:

1. Click next to the column heading.
   The filter dialog for the column is displayed:

2. Type your filter criteria in the filter dialog. You can only use one filter criteria at a time.
   All rows that match your filter criteria are displayed.
   Click in the filter dialog to remove your criteria.
3. Click outside of the filter dialog (or press the keyboard key "Esc") to close the dialog.
   indicates that a filter is applied to the column.

You have now applied a QMC tag filter to a column.

6 Troubleshooting Qlik Sense

This section describes problems that can occur in the Qlik Sense server environment. The possible causes are described and you are presented with actions to solve the problems.

6.1 Access problems

The possible causes are described and you are presented with actions to solve the problems.

One or more Qlik Sense services did not start after installation

Possible cause:

If the repository service is not running non of the other services can start and the repository service cannot start if there is no database.

The services are started automatically delayed. This means it can take a while for them all to start after the installation.

Action:

The services must be restarted or the installation needs to be modified.

Do the following:

1. Stop the service and start it again.
2. If the service is not started, repair the installation.
3. If the service is still not starting, modify the installation and change the service credentials user information.
4. If the actions above cannot remedy the problem you need to uninstall and reinstall Qlik Sense.

Check the log files in this location: %ProgramData%\Qlik\Sense\Log\<Service>

A Windows dialog is displayed when I try to browse to the hub or the QMC

Possible cause:

You are using Windows Server 2012.

Action:

Log in in the Windows dialog, then you can browse to the hub or the QMC.

Icons in the hub or in the QMC are not displayed correctly

Possible cause:

You are using Windows Internet Explorer.

Action:

Add the hub and QMC sites as trusted sites in Windows Internet Explorer.

Do the following:

1. Open the Windows Internet Explorer**Internet options**.
2. Select the **Security** tab.
3. Click on **Trusted sites**.
4. Click on **Sites**.
5. Enter the website address for the hub in the text field and click **Add**.
6. Enter the website address for the QMC in the text field and click **Add**.
7. Click **Close**.
8. Refresh the browser window.

400 Bad request is displayed

Possible cause:

The REST HTTP request to the proxy or the repository is incorrectly formatted.

Action:

Correct the formatting of the REST HTTP request.

404 Not found is displayed

Possible cause:

The URL refers to a non-existing resource.

Action:

Modify the URL.

405 Method not allowed is displayed

Possible cause:

The URL refers to a non-existing REST function.
Action:
Modify the URL.

I can access the hub, but I see no streams at all

Possible cause:

The user has no access type.

Action:

Allocate user access or include the user in a login access group. See *Allocating user access (page 186)* or *Creating login access (page 188)*.

I can access the hub, but I cannot see the streams I want to

Possible cause:

The user has no access to the stream.

Action:

Give the user access by the security rules. See *Writing security rules (page 54)*.

The start page displays a number next to Engine, Repository, Proxy or Scheduler

Possible cause:

The service is down.

Action:

Check the log file in this location: *%ProgramData%\Qlik\Sense\Log\<Service>*

The shortcuts do not load the QMC or the hub

When using Microsoft Windows Server 2008 R2 and Windows 8.1 the shortcuts do not load the QMC or the hub when using Internet Explorer 10 or Internet Explorer 11.

Possible cause:

The Internet Explorer security settings are blocking the shortcuts.

Action:

Add *https://<machinename>/* to the local intranet zone in Internet Explorer's settings: *Internet options/Security tab/Local intranet:Sites/Advanced*.

Changing user account

I want to change the default Windows user account, that is used to run Qlik Sense.

Action:

Modify the Qlik Sense installation:

1. Open the **Control Panel** and select **Uninstall a program**.
2. Select Qlik Sense from the list of programs and click **Change**.
3. Select **Modify** in the Qlik Sense setup dialog.

The Windows user account can also be changed manually. This is done by modifying the user account that is used to run the Qlik Sense services and the user account that is used to access the folder where the Qlik Sense logs are stored. The default path to the Qlik Sense log folder is *%ProgramData%\Qlik\Sense\Log\<Service>*.

Internal server error 500 is displayed

Possible cause:

An unidentified error has occurred.

Action:

Check the system log files in the following locations:

- *%ProgramData%\Qlik\Sense\Log\Proxy*
- *%ProgramData%\Qlik\Sense\Log\Repository*

If the error message is displayed repeatedly, please contact your Qlik Sense representative and provide the system log files.

Unable to get the custom properties definitions is displayed when starting the QMC

Possible cause:

Failed to retrieve the custom property data from the repository.

Action:

Restart the QMC.

6.2 Certificate problems

The possible causes are described and you are presented with actions to solve the problems.

The page is blank when I open the QMC

Possible cause:

There have been multiple DNS entries for your computer (you have been logged on to more than one network), so your host.config file may be pointing to the wrong host name.

Action:

Do the following:

1. Stop all running services.
2. Delete all certificates related to your installation of Qlik Sense.
3. Open the folder *%ProgramData%\Qlik\Sense*.
4. Delete the *host.config* file.
5. Do a repair.

The host config file is recreated with default settings.

Untrustworthy Proxy SSL-connection/-certificate

The browser displays **the Proxy SSL-connection/-certificate is untrustworthy!** and the browser asks **if you want to make an exception and trust the certificate authority**.

Possible cause:

The browser doesn't recognize the root certificate as trustworthy since it is not a known certificate authority like Thawte, VeriSign and so on.

Action:

Answer yes to the browser question "if you want to make an exception and trust the certificate authority".

Also, verify that you have installed a public SSL certificate since you need this to be able to use the default Qlik Sense certificate. See *Changing proxy certificate (page 38)*.

I cannot access the hub when using Safari 7 web browser

Loading the hub is displayed and I cannot access the hub when using the Safari 7 web browser.

Possible cause:

The browser doesn't recognize the root certificate as trustworthy since it is not a known certificate authority like Thawte, VeriSign and so on.

Action:

Do the following:

1. Close the Safari web browser process.
2. Access the hub again.
   The certificate dialog is displayed.
3. Select **Show certificate** and then **Always trust**.

I cannot access the hub when using iPad

Possible cause:

The browser doesn't recognize the root certificate as trustworthy since it is not a known certificate authority like Thawte, VeriSign and so on.

Action:

Verify that you have installed a public SSL certificate since you need this to be able to use the default Qlik Sense certificate. See *Changing proxy certificate (page 38)*.

I cannot open the QMC

The page is blank when I open the QMC or a warning shows that the certificates are used by another software.

Possible cause:

The required port is not available, since the port is used by another software. For example VMware, Skype or IIS.

Action:

Do the following:

1. Check the proxy system log file in this location: *%ProgramData%\Qlik\Sense\Log\Proxy*.
2. Verify that the proxy is running and that it is able to listen to the required port. By default the prox runs on port 443 and this port needs to be available.
3. Fully shut down any other programs using port 443 and restart the proxy service. Also change the port settings in these programs.

403 Forbidden is displayed

Possible cause:

There are too many root certificates on a machine (> ~300). Therefore the Qlik Sense services are not allowed to communicate.

Action:

Remove any unused root certificates. See also the following Microsoft help documentation:

- http://support.microsoft.com/kb/933430
- http://support.microsoft.com/kb/2801679

6.3 Security rules problems

The possible causes are described and you are presented with actions to solve the problems.

I cannot create a security rule for my user directory connector

Possible cause:

You are trying to use the user directory connector's value for **Name** in the security rule.

Action:

You must use the user directory connector's value for **User directory** in the security rule.

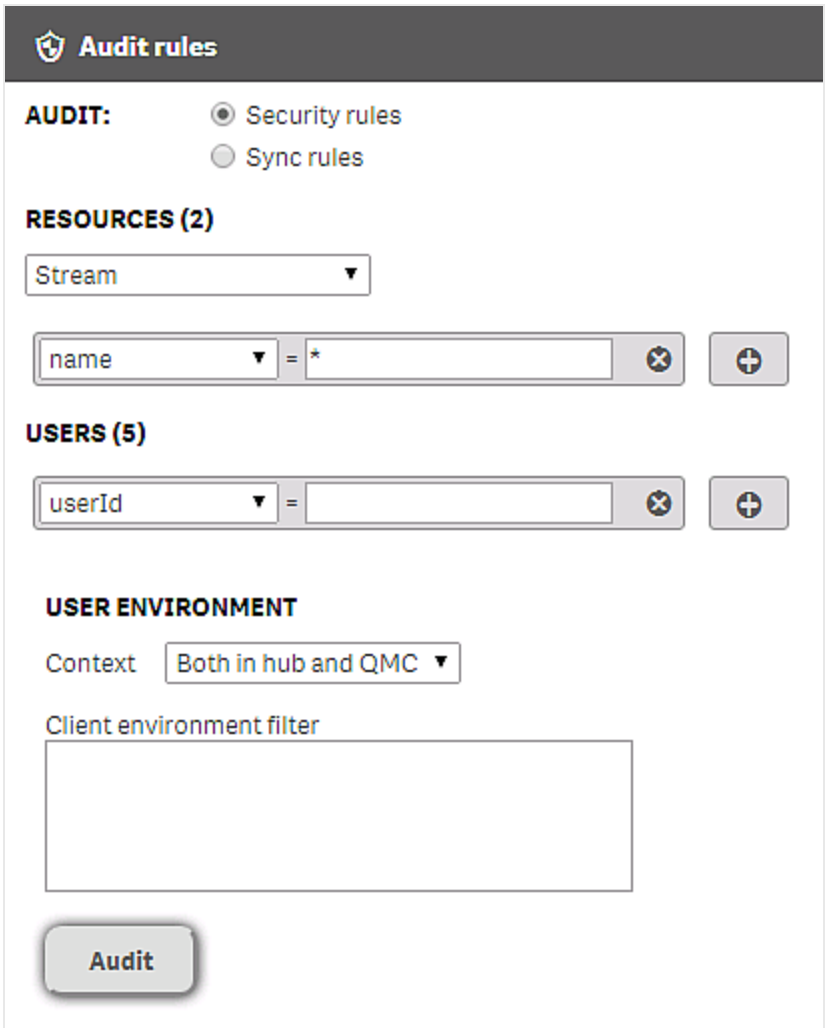
I suspect that a user can access a stream he or she shouldn't see

Possible cause:

One or more security rules includes access rights for the user who is requesting access.

Action:

Make the following audit query to find out which streams the user can access. Disable or edit the security rules if necessary.



See *Defining an audit query (page 115)* and *Editing security rules (page 81)*.

6.4 User management problems

The possible causes are described and you are presented with actions to solve the problems.

Why can't I change the properties of a user?

Possible cause:

User properties imported from Active Directory (AD) cannot be changed in the QMC.

Action:

Change the property in AD and sync again. See *Synchronizing with user directories (page 185)*.

The user sync is not working

- I cannot synchronize users when clicking **Sync all selected user directories** in the **User directory connectors** overview
- A scheduled user synchronization task is not successful

Possible cause:	Action:
The user directory connector is not **Configured**.	Make sure that the **User directory** name is unique and not blank.
The user directory connector is not **Operational**.	Check the *UserManagement_Repository* log in this location: *%ProgramData%\Qlik\Sense\Log\Repository*.If you remove the source file that a user directory connector is based on, it will not be operational.
The user directory connector property **Page size of search** could cause the problem.	Set the user directory connector property **Page size of search** to no value.

6.5 Apps and tasks problems

The possible causes are described and you are presented with actions to solve the problems.

Reload is not working

I clicked **Reload now** on an app but the reload is not working.

Possible cause:

The task status is not **Success**.

Action:

Check the log file in this location: *%ProgramData%\Qlik\Sense\Log\Script*

A task is not executed

Possible cause:

The task status is not **Success**.

Action:

Check the log file in this location: *%ProgramData%\Qlik\Sense\Log\Scheduler*

I want to use a QlikView document in Qlik Sense

Possible cause:

The QlikView document (qvw format) must be converted to an app (qvf format).
Action:
You create an app from a QlikView document by:

1. Converting the document to an app using Qlik Sense Desktop.
2. Import the app. See *Importing apps (page 130)*.

App is already open

I am using Internet Explorer and get the error **App is already open**, when I try to open an app.

Possible cause:

The file did not close properly after the import.

Action:

Close Internet Explorer and open Qlik Sense again.

I cannot use more than five web browser tabs

The page is not loading when I open more than five browser tabs from the hub, using Qlik Sense or Qlik Sense Desktop.

Possible cause:

Your web browser is Internet Explorer.

Action:

Close one of the other tabs and reload the page. Or use another web browser if you want to work with more than five tabs.

6.6 Multi-node problems

The possible causes are described and you are presented with actions to solve the problems.

Node is not getting online

I have recreated a node in the QMC (created, deleted and then created it again) but the node is not getting online. There is a warning message in the log: “Node disabled (most probable cause is having been unregistered from a cluster). Aborting startup…”.

Possible cause:

Deleted nodes are not allowed to be restarted and reused in a multi-node environment.

Action:

Do the following:

1. Delete the node in the QMC.
2. Uninstall the software from the node. See Uninstalling
3. Reinstall the software on the node.
4. Create the node again in the QMC.