# Reporting Suite

# Reporting

## System Administrator Guide

**Version 5.6.0**

**1/20/2026**

Enghouse Interactive

# Contents

# About this Guide

This Guide is intended for the System Administrators of Reporting multi-tenant instances. System Administrators must possess intermediate to advanced computer skills and an understanding of system administration procedures, multitenancy environments and tenant management in order to be able to use this document.

# New in this release

- Added a new System - Schedules Report, which allows users to easily monitor schedules with granular control over visibility and filtering. For more information, see the Schedules system report.
- Global settings now include a new setting - Maximum allowed number of subscriptions executed simultaneously. For more information, see the Global settings page.

# Reference materials

Use this document with the following Guides:

- *Reporting Viewer Guide*
- *Reporting CCaaS Management Guide* on Confluence
- *Reporting Administrator Guide*
- *Reporting SSO with Keycloak and OIDC Configuration Guide*
- *Reporting Standard Reports Guide*

# Guide conventions

This Guide uses the following text formats and notation conventions:

## Text format

**Bold text** indicates a button, field, link, option name, or similar function requiring an action.

*Italicized text* indicates new terms, directory paths, or references to external documents.

`Text in this font` indicates code.

## Notes and cautions

Icons used throughout this Guide identify additional details or special conditions.

> **Note**
> Provides additional information or describes special circumstances.

> **Caution**
> Warns of user actions that may cause system failure or irreversible conditions.

> **Stop**
> Describes actions that you should only perform under the supervision of Enghouse Interactive Customer Support.

# Legal disclaimer

This document is governed by the terms of the software license agreement and applicable contract (including addendums) entered into with Enghouse.

# Contact information

To submit comments or questions about the content in this Guide, please open a case in Support.

# Basic concepts and terminology

**Reporting** is a web-based framework for report designing. It includes a set of configurable standard reports that should cover most of any Contact Center product's needs, and which are built on top of the Standard Data Warehouse. A number of such assets are already available, and more are continually being developed.

The software provides its users with the following features and advantages:

- Complete overview of the system behavior
- Customizable display of detailed information about every relevant KPI and data point in your system
- Printable, paginated, shareable reports, exportable in several formats
- Customers or Enghouse professionals can create custom assets based on the Enghouse adopted framework

**Dashboarding** is an extension of Reporting with which users can create and work with dashboards, powerful data visualization boards that use charts, widgets, tables and text to help you understand your data.

> **Note**
> BI Dashboarding is not included in Reporting by default. Therefore, if it is not enabled in your system, any references to it in this and other documents do not apply to your use case.

# User roles

The following user roles are available in Reporting and Dashboarding:

- **System Administrators**: In charge of tenants and ensuring that standard assets (such as standard reports) are available as necessary. Little to no other interaction with the system, such as working with reports, is expected from this user role. Aside from the Admin tab, they can only interact with the rest of the application the way Viewers do.
- **Administrators**: Manage users, groups, and certain data source, report, dashboard, and system settings for their tenant. In addition to some extra access, they also have the same access rights as Viewers (below).
- **Data Designers**: Create, manage and work on data sources, in addition to the same access rights as Report Designers and Viewers (below).
- **Designers**: Create, manage and work on reports and dashboards. They also have the same access rights as Viewers (below).
- **Power Viewers**: Work with views and styles based on assets shared with them. They cannot edit other assets in any way. They also have the same access rights as Viewers (below).
- **Viewers**: View reports and work with reports' and dashboards' filters and settings, and have access to subscriptions and downloads.

For more information on this topic, see *User Roles on page 10*.

# Assets

Assets in Reporting and Dashboarding are the basic building blocks of the software and the primary components that users work with. They are **data models**, **reports**, **dashboards**, **report views** and **styles**. In the following section, you can read more about each type of asset in Reporting and Dashboarding.

## Data models and sources

**Data models** are used to define connections and queries that Reporting uses to access data for reports and dashboards from the relevant databases and files. In Reporting, data models are organized in a Dictionary, which information about connections to databases, data sources and their relations, variables and other objects.

A data model is used as the basis for every report and dashboard. Each data model can have one or multiple data sources. A **data source** is like a program "layer" which provides data from a database or file and handles its conversion and to the report generator. In other words, the data source is a description of the methods, parameters, and data access methods.

In BI Reporting, the following data sources can be used for your reports and dashboards:

- Files:
  - CSV file
  - Excel file
  - JSON file
  - XML file
- Database connections:
  - MySQL
  - MS SQL
  - Oracle
  - PostgreSQL

Data models and their related sources are shown in the **Data** tab of Reporting and are only available to Data Designer users, who can view, edit and generally work with them, as well as Administrators, who can only interact with them to share with other users, typically Data Designers.

The **Standard Data Warehouse** (DWH) is a standardized database developed by the Enghouse BI Team, the goal of which is to provide a standardized and equal-for-all way of organizing data. This is done by using ETL (extract-transform-load) procedures to transfer data from, for example, a customer's database and to adapt it to the structure of the standard DWH without altering any of the data. This method is currently in the process of being implemented for a number of CC and CCaaS products in Enghouse.

Although Reporting and Dashboarding can be used without the DWH, instead utilizing one's own data or database directly, using the Standard DWH enables the use of **Standard Reports**, which are out-of-the-box reports that can be customized to a degree through Views, and can be utilized right away, without having to wait for the creation of individual reports. More information on both standard reports and report views can be found below.

Data models are primarily the focus of Data Designers, so refer to the *Reporting Designer Guide* for detailed information on this topic.

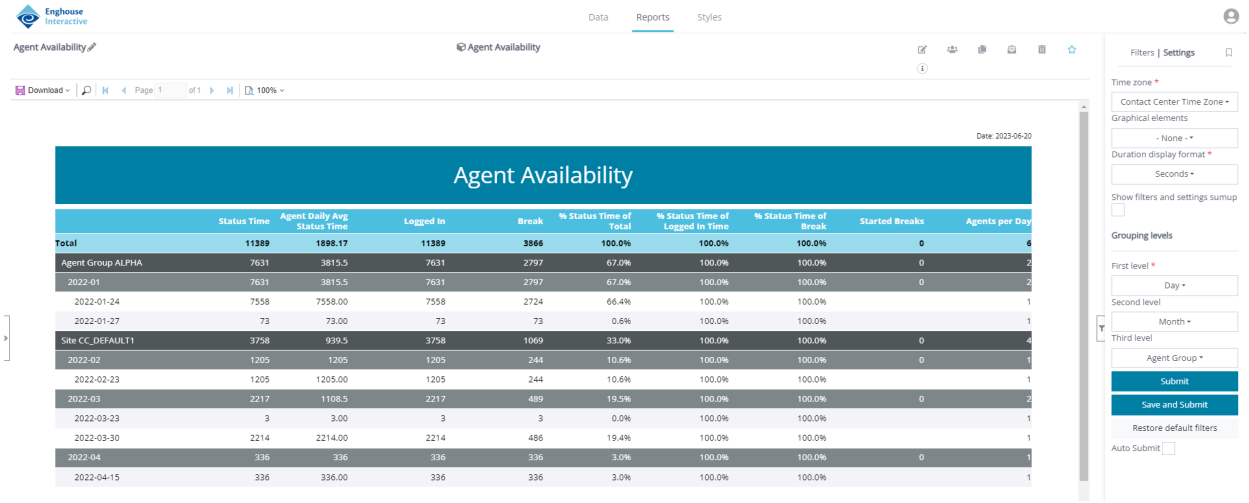
# Reports

Reports are assets connected to your data models to show you the data in meaningful ways, in pixel-perfect and typically (but not only) tabular form. This gives you a simple, yet effective overview of all the data you may need. Their design can vary and be customized, depending on your needs. All the reports you can interact with, whether they were created by you or shared with you, are shown in the tiles of the **Reports** tab. Viewers and other users can interact with reports to filter the data they want to see, adjust some of the settings of the report, focus on the data they need, and perform other actions, all depending on the design of the report.

Additionally, Viewers and other users can also download the report in a number of formats, including printable ones, and they can subscribe to periodic updates via email or other channels.

Another interesting feature that is part of Reporting is the **Standard Reports**. Standard reports are a set of out-of-the-box reports which take advantage of the standard DWH to provide users with reports that are ready to use as soon as they enter the web application. In order to be able to use them, the original database must be integrated with the standard DWH. Standard reports are made to suit the needs of many different CC and CCaaS environments and use cases, and can be modified in terms of which data will or will not be shown through the use of report **Views**. You can read more about them in the upcoming sections.

Here is an example of a report from the perspective of a Designer:




| | Status Time | Agent Daily Avg Status Time | Logged in | Break | % Status Time of Total | % Status Time of Logged in Time | % Status Time of Break | Started Breaks | Agents per Day |
|---|---|---|---|---|---|---|---|---|---|
| Total | 11389 | 1898.17 | 11389 | 3866 | 100.0% | 100.0% | 100.0% | 0 | 6 |
| Agent Group ALPHA | 7631 | 3815.5 | 7631 | 2797 | 67.0% | 100.0% | 100.0% | 0 | 2 |
| 2022-01 | 7631 | 3815.5 | 7631 | 2797 | 67.0% | 100.0% | 100.0% | 0 | 2 |
| 2022-01-24 | 7558 | 7558.00 | 7558 | 2724 | 66.4% | 100.0% | 100.0% | | 1 |
| 2022-01-27 | 73 | 73.00 | 73 | 73 | 0.6% | 100.0% | 100.0% | | 1 |
| Site CC_DEFAULT1 | 3758 | 939.5 | 3758 | 1069 | 33.0% | 100.0% | 100.0% | 0 | 4 |
| 2022-02 | 1205 | 1205 | 1205 | 244 | 10.6% | 100.0% | 100.0% | 0 | 1 |
| 2022-02-23 | 1205 | 1205.00 | 1205 | 244 | 10.6% | 100.0% | 100.0% | | 1 |
| 2022-03 | 2217 | 1108.5 | 2217 | 489 | 19.5% | 100.0% | 100.0% | 0 | 2 |
| 2022-03-23 | 3 | 3.00 | 3 | 3 | 0.0% | 100.0% | 100.0% | | 1 |
| 2022-03-30 | 2214 | 2214.00 | 2214 | 486 | 19.4% | 100.0% | 100.0% | | 1 |
| 2022-04 | 336 | 336 | 336 | 336 | 3.0% | 100.0% | 100.0% | 0 | 1 |
| 2022-04-15 | 336 | 336.00 | 336 | 336 | 3.0% | 100.0% | 100.0% | | 1 |

Reports are the basic asset of Reporting and are available to all users, although they may interact with reports in different ways. For basic use and interaction with reports, see the *Reporting Viewer Guide*. For more advanced topics, particularly on the creation and management of reports, see the *Designer Guide*.

To find out more about the topic of standard reports and which ones are available to you, make sure to read the *Standard Reports Guide*.

# Dashboards

Similarly to reports, dashboards are also assets connected to your data models to show data in meaningful ways – but while reports primarily rely on tabular form, dashboards utilize various custom or premade elements to display your data. Their design can also vary and be customized depending on your needs. Viewers and other users can interact with dashboards in that they can modify the filters to show only the needed data, adjust the settings to suit their preferences, and work with some of the individual elements to, e.g., increase the size of the viewing field for that element or to download it.

All the dashboards available to a user are shown in the **Dashboards** tab.

Just like with reports, users can download the dashboard in a number of formats or subscribe to it to receive periodic updates through one of the chosen channels.

In the same way Standard Reports are available, users can utilize **Standard Dashboards** as well, if their system is integrated with the Standard DWH. Some Standard Dashboards are already available and more are currently in the process of being developed.

Below is an example of a dashboard from the perspective of a Viewer.

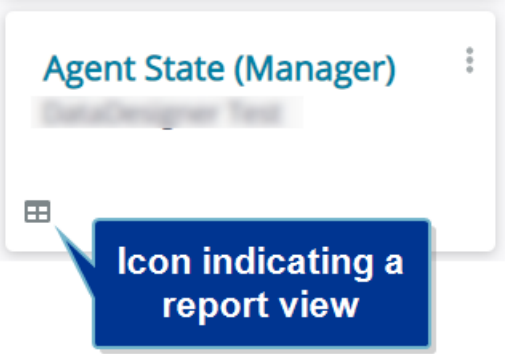
Dashboards are also a basic asset of Reporting and are available to all users, even though they can interact with them differently. For basic use and interaction with dashboards, see the *Dashboarding Viewer Guide*. For more advanced topics, particularly on the creation and management of dashboards, see the *Dashboarding Designer Guide*.

# Views

Reports may be comprehensive and contain a large number of options, KPIs and other metrics that may not always all be needed at the same time. For example, if your report has 10 columns, but you only want to show call center managers 7 of them, you would typically have to create a copy of the original report and then remove the 3 extra columns. However, creating separate reports to accommodate each (small) change in the content of a report may quickly become difficult to maintain.

This is why, for reports that contain a lot of data and are not intended to be used in their full form with all users, reports can instead be modified to show only the metrics needed for a certain user profile, while still preserving all the data and metrics within the report in the background. This is done with the **Report Views asset**, which is a powerful tool used to facilitate the way users interact with reports, allowing them to focus only on the most relevant information at a time, as opposed to everything the report contains. With this feature, you can also control the way a report is displayed, what the report page size is, how the fields are resized etc.

A report view (as opposed to a full report) is indicated with the view icon, as can be seen below:




Users that can create and work with views are Designer users and Power Viewers. From a Viewer perspective, in the Reports tab of Reporting, individual views function the same way reports normally do.

Refer to the *Reporting Designer Guide* and *Power Viewer Guide* for more information on how to work with Views. Since Views function the same way as reports do for Viewers, Administrators, and users that only have viewing permissions, see the *Viewer Guide* for more information.

Some Standard Reports also contain readily available standard views, which are another useful component of the out-of-the-box features available with Reporting. To find out more about this topic, make sure to read the *Standard Reports Guide*.

## Styles

Styles are a feature that allows you to define a visual style or look an feel that you want to use across multiple assets. This feature is accessible to all Designer users and to Power Viewers, and they can utilize the styles and collections they make to modify what the reports, dashboards and views they work with will look like.

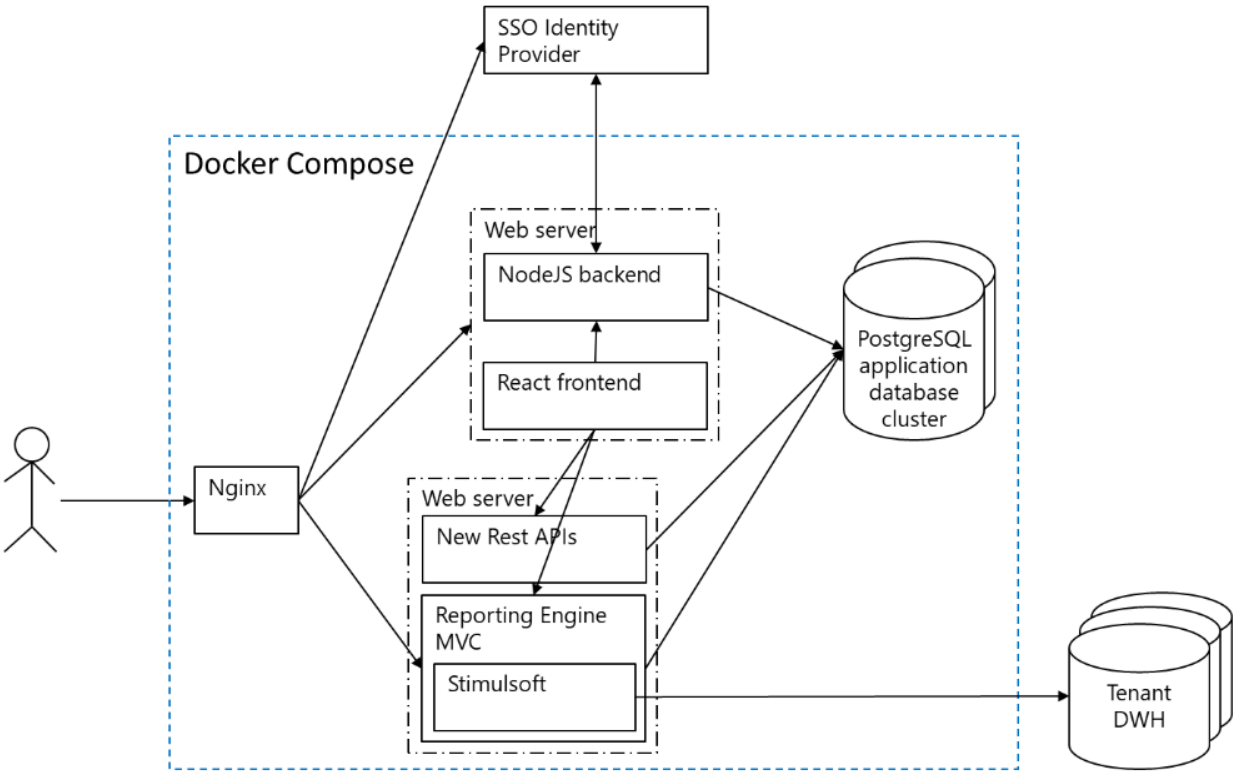
This allows users to create specific styles for different needs, which you can then quickly apply to assets without having to modify all the individual elements by hand.

The styles can be created, modified, deleted, and imported and exported. When a style is changed within the **Styles** tabs, these changes are also automatically shown in all the assets that the style was applied to, which means that you do not need to make the changes in the various places manually.

You can learn more about this topic in the *Designer Guide* and the *Power Viewer Guide*.

# Architecture

The initial deployment of Reporting is done by installing Linux VMs using a template provided by the BI team. The deployment is based on Docker Compose and can be single-node or multi-node, the specific configuration and size depending the system's needs.




Reporting is deployed through Docker Compose and the individual system modules are organized in Docker containers. The Reporting Engine MVC module implements the designer and visualization features using the .NET version of Stimulsoft libraries.

When a user accesses Reporting, they first go through NginX, which is the proxy app that allows the user to enter just one entry point. Based on the full URL the user entered to access BI Reporting, NginX forwards the request to the right app. Additionally, a custom SSO configuration option has been added to the Reporting architecture in order to enable enhanced use, particularly in cloud environments. If SSO is enabled for a tenant, the unauthenticated user is redirected to the third-party identity provider for that tenant. The identity provider is not part of Reporting and should be managed in the cloud environment, outside the Reporting environment.

Within the Docker-compose configuration of Reporting, the application database is hosted on a PostgreSQL database, deployed through Docker Compose as well, which consists of 2 instances of PostgreSQL in a master-slave configuration.

The individual tenant data warehouses, however, are not part of the Reporting assets and are managed by the Enghouse Interactive DevOps team, and not Reporting or the BI team.

# Multitenancy

With Reporting Version 4.0 and newer, this is a cloud-based product with the multitenancy feature. This means that the same instance of Reporting can support multiple tenants that are separated from each other, with their own data, users and settings. This enables, for example, multiple customers to use the same

instance/installation of Reporting without having access to each other’s data and users in any form, thereby eliminating the need for individual installations for each customer.

Multitenancy-related features are managed by System Administrators. For more information, see *the Dashboarding System Administrator Guide*.

# User Roles

Reporting provides the following user profiles:

- **System Administrator**: Users handling the tenants of a multi-tenant (cloud-deployed) system. They have the same access rights to the Admin tab that Administrators do, but typically don't interact with assets (reports, views, and data sources) in any way. They can only interact with these assets the way Viewers do, and they do not have access to e.g. the Data tab. They are in charge of creating and managing tenants in a Reporting instance. When initializing your Reporting instance, the System Administrator is the first user to be created, and whose role is to set up the rest of the system (tenants and administrators).

  > **Note**
  > System Administrators are special and unique users created and configured on system initialization. They cannot be added, modified or deleted by Administrators, which manage all other users in a Reporting instance.

- **Administrator**: The role with the highest level of access in a tenant. Administrators can perform all actions in charge of general Reporting configuration, user and group management. The **Administrator**-level user can also view all the reports, views, and data models. They can manipulate ownership and subscriptions of these assets. However, Administrators cannot edit any content, such as reports or data models. Otherwise, Administrators can use and interact with assets in the same way a Viewer can.
- **Data Designer**: User role in charge of creating, modifying and sharing data sources needed for the creation of reports. Data Designers have full data access and distribute limited data access to **Designer**-level users, through data model design. In the context of system-wide access to data and users, this role has a lower access level than **Administrators**, but higher than **Designers** and **Viewers**.
- **Designer**: Designers are in charge of creating, modifying and publishing reports. The data available for components is limited by the data models that are shared with a **Designer**. This role has a lower access level than **Administrators** and **Data Designers**, but higher than **Viewers**.
- **Power Viewer**: Power Viewers can work with existing reports in order to create new views. However, they cannot create their own components or edit existing ones, only use them as a basis for views. In order to be able to do so, both the original component and its data source must be shared with the Power Viewer. Compared to a Designer, a Power Viewer has fewer options available to them even when they have all the permissions needed for asset editing. Other than that, they have the same access level and can use and interact with reports same as a Viewer can.
- **Viewer**: Users with this role can access shared reports, report views, modify the way data is displayed in them by using filters and settings (depending on the design of the asset), view, print and export reports, views . This is the lowest access level.

# Logging in

To log into Reporting, do the following:

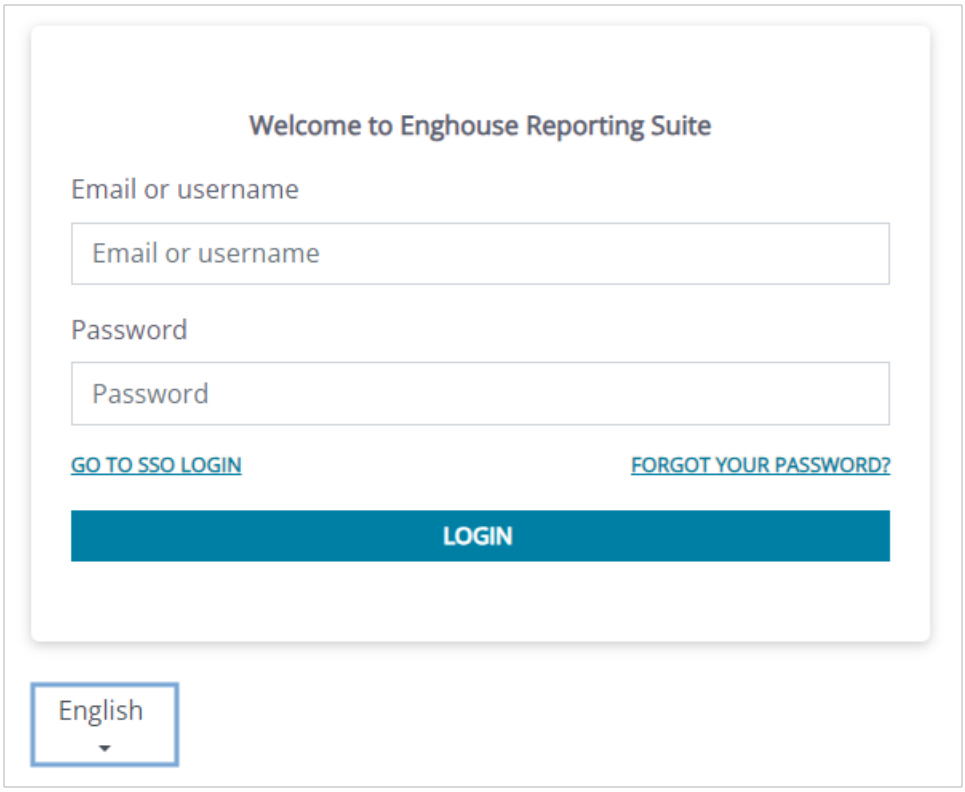
1. Start up the application and enter the necessary data:
    - **Email or username**: Email or username used to register the user to the system.
    - **Password**: The password used for the selected account upon registration.

      A robust password policy requires a minimum length of eight characters and must include at least one digit, one lowercase letter, one uppercase letter, and one special character from the set [!@#$%^&*()-_=+{};:,<.>]. The system does not currently allow customization of these rules, nor does it enforce password expiration or retain a history of previously used passwords. System administrators can configure lockout behavior by setting the maximum number of failed login attempts and the lockout duration (in seconds). Because the platform primarily relies on Single Sign-On (SSO), the recommended approach is to delegate password management to the integrated identity provider (EIS), which offers finer-grained control over password complexity, rotation, and history across all Enghouse products.

**Note**

- An Administrator can provide an initial password for a user. In this case, the password must be communicated to the end user through some other channel.
- If an SSO option is set up in your instance of the software, you will typically be redirected to the SSO login page automatically. However, in case you use a different URL than the standard to log in, you may have the **Go to SSO Login** option available in the login page, allowing you to manually access the SSO login page.
- If you have forgotten your password, click the **Forgot your password?** link. The system will prompt you to enter your account's email address for the recovery process. Enter the address and click **Send**, then follow the instructions received via email.

2. Select the preferred language of the Reporting interface from the list of available languages in the dropdown menu (**English** is the default setting).




3. Click **Login** to enter the system.

# User options menu

After a successful login, the **Data** page is displayed for Data Designers, and the **Reports** page for all other users.

Regardless of the user role you have, in the top right corner, the **User** icon  provides access to the user options menu.

The user's registered email address is displayed at the top of the menu. This is the address used for all Reporting related information, as well as automatic scheduling feature. Several user-related options are available from the menu:

- The currently selected interface language (**English** by default) is displayed under the email. Several other languages are available. To select another language, click English, and then click the desired language from the dropdown menu.
- **Change password**: Lets users change their own password at any time.
- **Logout**: Logs the current user out of the system. It is recommended that users log out before closing the web application window.

The last line of the menu displays the currently installed and used software version number. This number should be quoted when requesting assistance or used for selecting relevant user documentation.

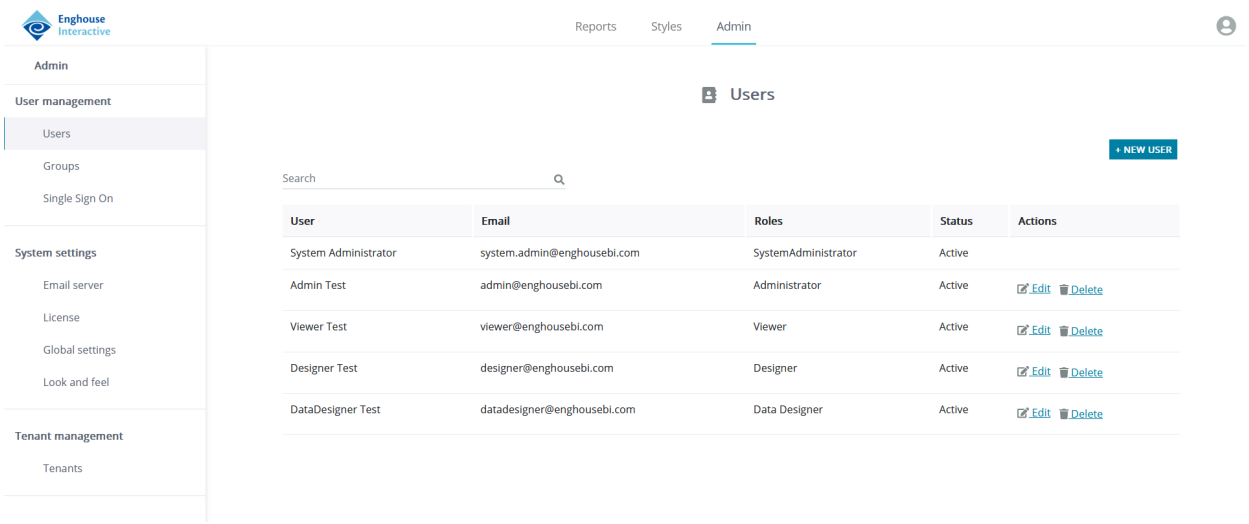
# Admin tab

> **Note**
>
> **System Administrators** typically have access **primarily to the Admin tab**. Their role is mainly to **manage tenants** in their Reporting instance. The actions related to tenant management are described in *Tenant management on page 38*, and are the main focus of the System Administrator role. While System Administrators can edit the same settings in the Admin tab that Administrator users can, usually this is not necessary, as they are also defined for each tenant individually by the related Administrator users. The changes applied by System Administrators only refer to the System tenant, and not the other tenants. **System Administrators are not intended to work with reports or data models in any way other than Viewers**. They cannot access the Data tab of Reporting, while they can only interact with all other assets (such as reports) the way Viewers do.

Clicking the **Admin** tab at the top of your Reporting window opens the Administrator screen.

In the left-hand side of the screen is the **Admin** pane. It shows various available settings and refers to user and system management. The options are divided into these groups:

- **User management**
  - Settings related to individual users
  - Settings related to user groups
  - Single Sing On settings
- **System settings**
  - Email server configuration
  - License-related options
  - Application global parameters
  - Look and feel
- **Tenant Management**
  - Tenants




The upcoming sections of this Guide explain these options in more detail.

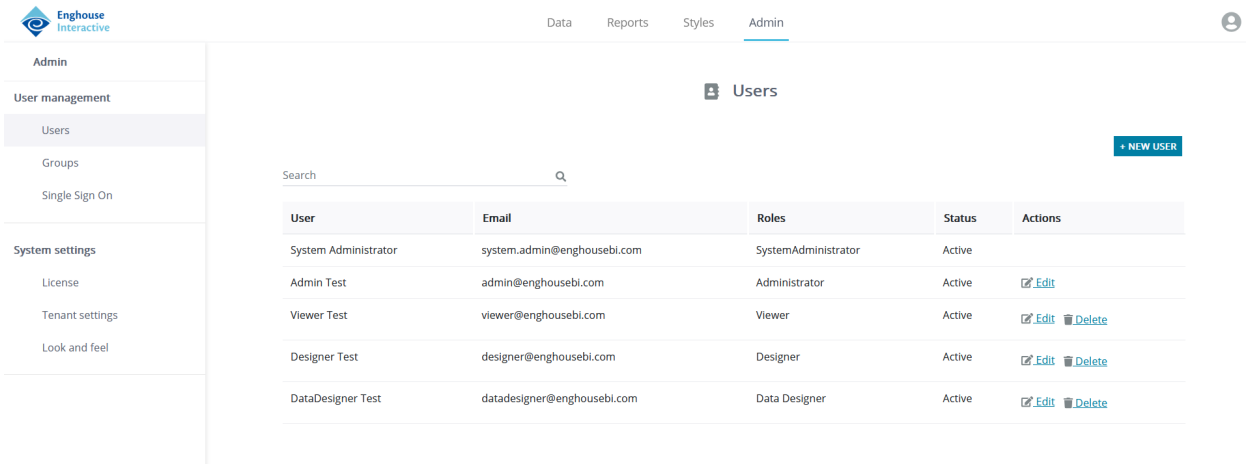
# User Management

Administrators can manage all users who have access to this instance of Reporting. They can also add new users to the system. Administrators designate the roles of users as well. Other options include editing a user's data, such as passwords, or deleting the user altogether.

To access the menu for User management, click the **Admin** tab in the top part of the screen, and then click **Users** in the **User management** group of the pane on the left side of the window.

Basic information about the registered users is displayed here, including user names, email addresses, roles, statuses and actions available to you.

New users can be added here, or existing ones can be searched with the search box. In the image below, *demo* was entered into the search box and the users were filtered to those who have *demo* in their name or email.



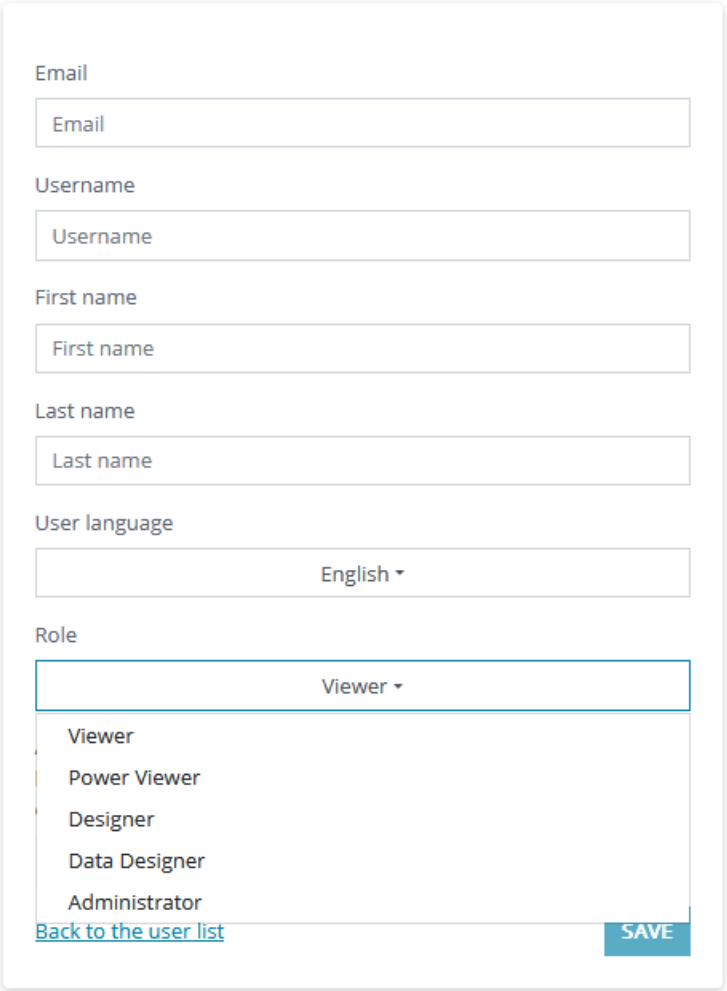
# Adding a new user

To add a new user to your instance of Reporting, do the following:

1. Click **New User** + NEW USER in the upper right corner of the screen. This opens a dialogue window, **User details**, asking you to enter details about the new user to be registered.
2. Enter the relevant information into their corresponding fields.

> **Note**
> The **Email** must be a valid email address as a validation link will be sent to the user upon user creation. This email address is also used for other purposes within Reporting, such as report subscription.

3. From the **User language** dropdown menu, select the default language for the user. The user can later change this setting at any point.
4. Select the user's role from the **Role** dropdown menu. For an explanation of all the roles available in Reporting, see *User Roles on page 10*.
5. Click **Save** to finish creating a new user.



After new user creation, an email from Reporting is sent to the new user with a link to activate their account and set a password.

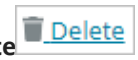
You can also manually set a password for the new user. To do this, click **Set the initial user password** at the bottom of the new user creation window, and enter a password before saving. In this case, the user receives an invitation email, but does not set a new password.

> **Note**
>
> - You must personally (or through other secure channels) notify the user of the password you set for them so they can log in for the first time. If an initial password is given, it is recommended that the new user change their password after the first login.
> - **System Administrators** are special users created and set up when initializing the system. While an Administrator can see the System Administrator user in the list of users, they cannot add, edit or delete this user.

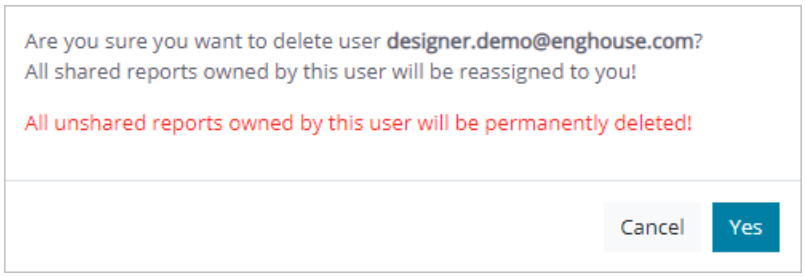
# Additional actions

You can perform some additional actions in the **Users** menu:

- **Search**: Helps you filter through all the users currently in the system. As you enter a query in the search box, the results are displayed instantly. The search query applies to both the User (username or first and last name) and the email address.
- **Edit existing users**: Click **Edit** 

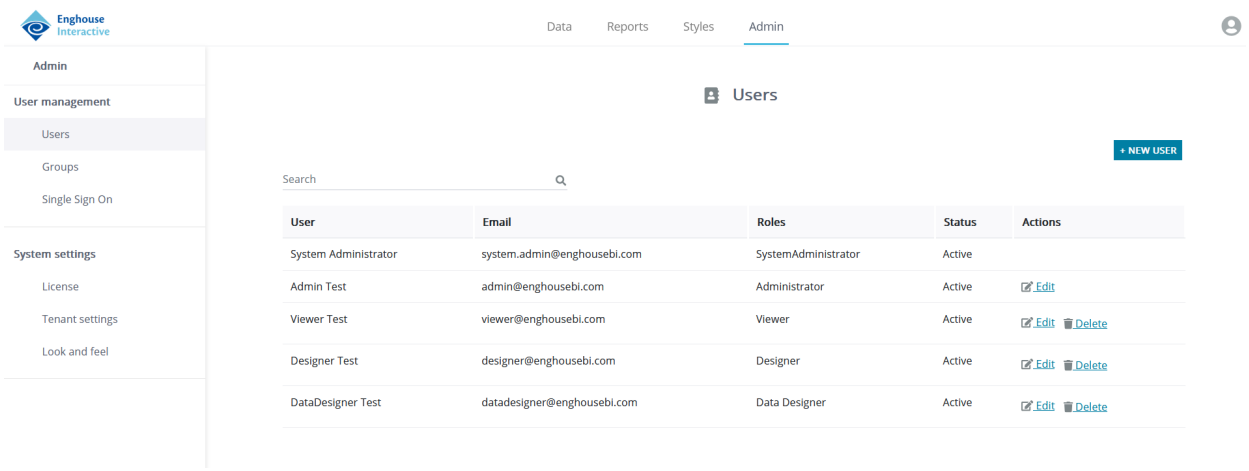
in the **Actions** column for one of the existing users to open the same dialogue box as when creating a new user. You can edit the user's data here, such as their role or password.
- **Delete a user**: Click **Delete** 

in the **Actions** column to delete an existing user. Clicking this opens a warning message about any shared reports and dashboards that the user may own (in cases where the user role allows owning dashboards, reports or data sources).




> **Note**
>
> To prevent accidental loss of important reports and dashboards, any **shared** reports and data models owned by the deleted user are automatically transferred to the admin who performs the delete action.

> **Caution**
>
> **Unshared** reports and dashboards will be **permanently** deleted. This action cannot be undone.




# Group management

This topic describes how to add and use user groups in Reporting.

**Groups** are a method of organizing users withing Reporting. This option allows you, for instance, to share a report with a specified group of users, as opposed to a number of users individually. It is particularly useful when sharing data with repeatedly the same larger number of users.

> **Note**
>
> - User groups can only contain users. A group cannot be nested within another group.
> - For more details on data model and report sharing, see *Group management*.

## Group access level

Users of various access levels, i.e. roles, can be placed within the same group. However, not all users within a group will have the same access level to a resource that is shared with the whole group if their user roles are not the same. In other words, the access level is not only based on the access level, but also on the user's role and its limitations. Here are two examples:

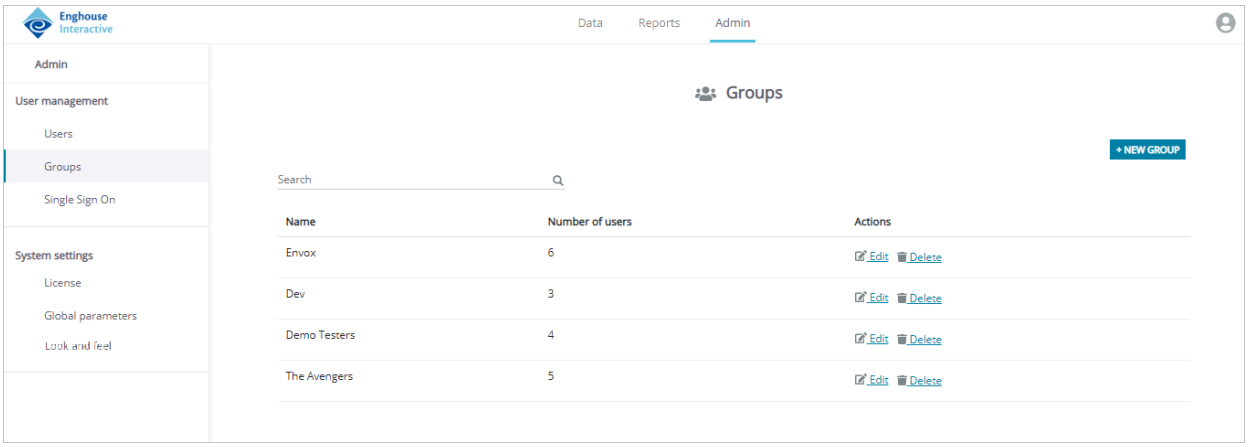
- Consider a group containing Designers and Viewers. A report is shared with this group, and the user sharing the report designated that the group **Can edit**. Viewers will still adhere to their role limitations and will not be able to modify the report in any way, only view it. Designers, however, will be able to edit the report.
- Similarly, if an Administrator is placed in a group with Data Designers and a data model is shared with the group with the **Can edit** setting, the Administrator will not be able change the content of the data model, as that is a limitation of the role. However, they will still be able to, for example, change its sharing options, as this is one of the primary functions of the Administrator role.

Any combination of different user roles can be placed in the same group. However, this does not change the access level of the individual users and they retain their role as it is.

# Managing user groups

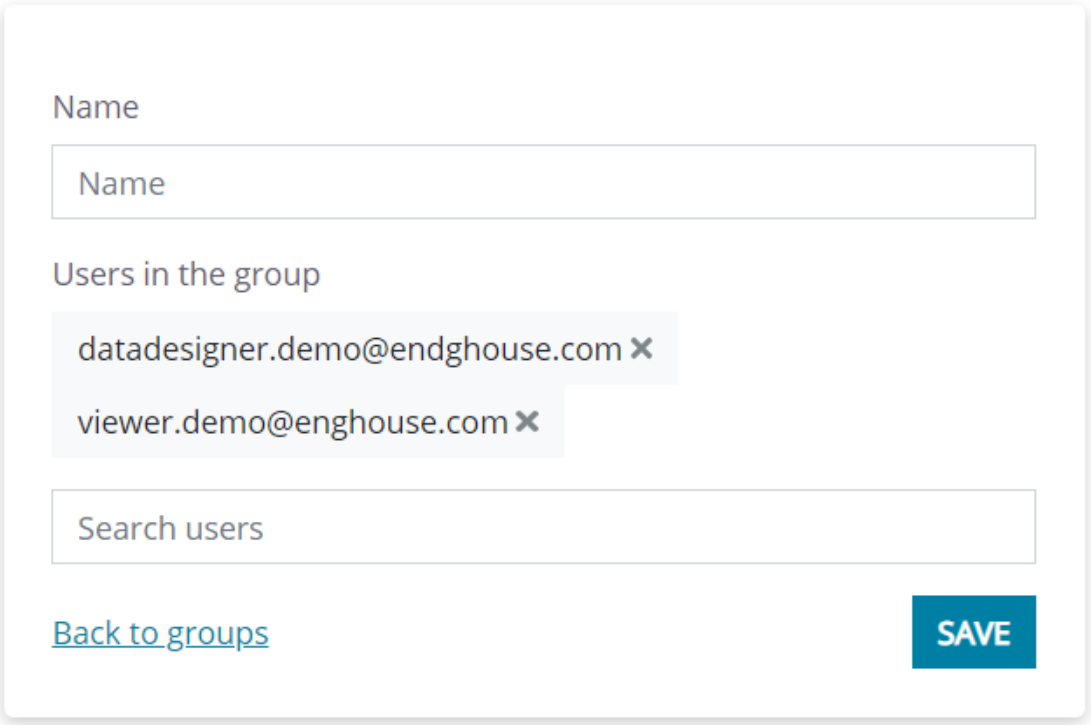
To manage user groups, click the **Admin** tab in the top part of the screen, then navigate to the left-hand Admin pane and click **Groups**.

Here you can see information about existing groups, such as their name or number of users in the group. You can also add, edit and delete user groups, as well as assign users to them, or remove users from them.




To add a new group, you must do the following:

1. Click **+New group**  at the top right corner of the **Groups** list. This opens a new window.
2. Enter the title of the group in **Name**.
3. Add users by searching for them via the **Search users** search box. This user search is done by email.
4. Click the users you want to add to the group. If you want to remove any of the added users, click the **x** appearing next to their email in the **Users in the group section**.
5. Once all the users have been added, click **Save**. Alternatively, to cancel creating the group, click **Back to groups**.

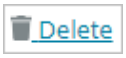



To modify an existing group, do the following:

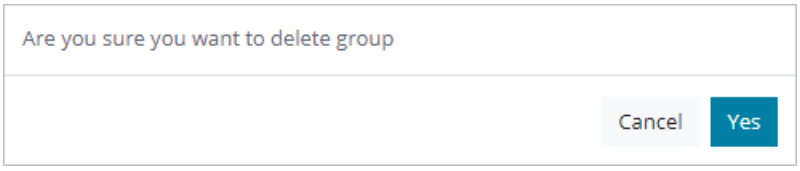
1. In the Groups window, click **Edit**  in the Actions column for the group you want to edit.
2. Choose the group parameters you want to edit:

- To modify the group title, enter the new title in **Name**.
- To remove existing users from the group, click the **x** next to their email address.
- To add new users, search for them by their email in the **Search users** search box. Click on the email of the user you want to add.
- Click **Save** to finish.

## Deleting a user group

If you want to delete an existing user group, click **Delete**  in the Actions column for the desired group.

This brings up a warning dialogue which requires confirmation of the action. Click **Yes** to finish deleting the user group.



> **Note**
>
> Deleting a group does not delete the users of the group. They remain active in Reporting.

> **Caution**
>
> Deleting a user group cannot be reverted. In order do restore a deleted group, you have to manually add the users again and adjust other settings.

# Single Sign On

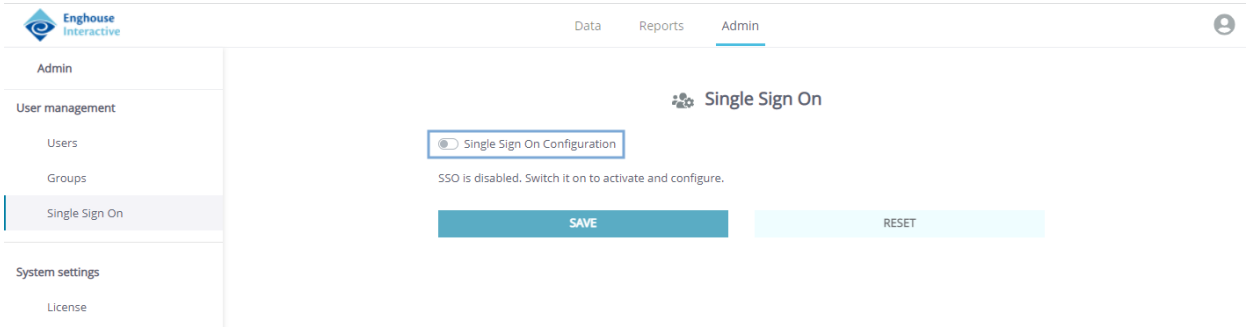
Single Sign On (SSO) is a mechanism that allows systems outside of Reporting to authenticate users and subsequently tell Reporting that the user is valid and has been successfully authenticated. This mechanism allows other systems to register and authenticate users in and for Reporting. SSO in Reporting can be done via the JWT and OpenID Connect protocols.

> **Note**
>
> This section only briefly focuses on Single Sign On within Reporting. For a full setup guide with detailed information, refer to the *ReportingSingle Sign On Configuration Guide*.

In order to enable SSO, click the **Admin** tab and then click **Single Sign On** in the Admin pane on the right side of the window. By default, SSO is disabled. Enable it by clicking the **Single Sign On Configuration** toggle to switch it on.

Once SSO is activated, you can choose to use either the JWT or the OpenID Connect protocol. For more detailed instructions about the configuration of SSO via these protocols, see the following sections of this document:

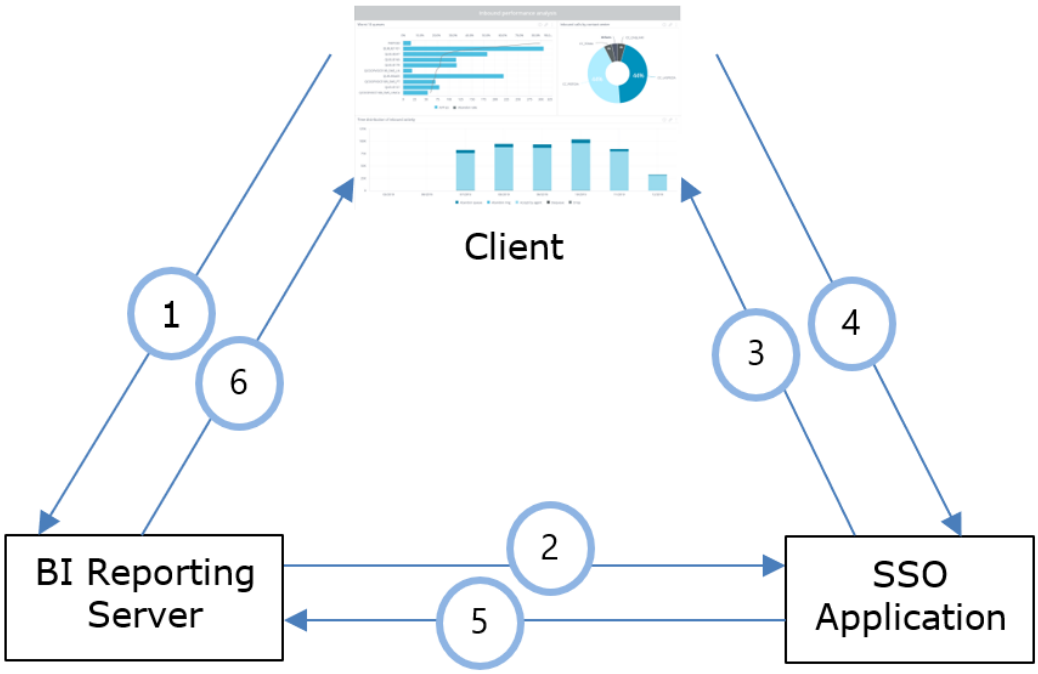
- *SSO via JWT below*
- *SSO via OIDC on page 25*




## SSO via JWT

JSON Web Token (JWT) is a token that represents the users credentials wrapped in a single query string. Reporting uses additional parameters for security reason and user settings.

The JWT authentication flow in Reporting is as follows:




1. A user requests a resource from Reporting.
2. Reporting recognizes that no authenticated cookie is present. If SSO is enabled, the user is then redirected to the SSO endpoint defined by the Administrator or System Administrator in the Reporting web application.
3. The user is challenged to authenticate their account through the provided SSO endpoint.
4. The application at the SSO Endpoint authenticates the user and generates a JWT.
5. The application at the SSO Endpoint redirects the user back to Reporting with the encoded JWT in a query string. Reporting then sets a cookie that authenticates the user until the end of its session.
6. Reporting provides the user with the resource requested in the first step.

To enable SSO via JWT in Reporting, you need to enter the following information:

- **Remote Login URL**:The URL through which users need to sign in and authenticate their account. Users are redirected to this URL when accessing Reporting.
- **Remote Logout URL**: The URL to which the user will be redirected on logout or end of session.
- **Shared Secret**: When SSO authentication is enabled on a Reporting Server, a shared secret is generated and displayed on the SSO configuration page. The shared secret is a key used to sign the JWT payload. You must sign the JWT with the shared secret so that later it can be verified in Reporting. You can copy it by clicking **Copy** on the right-hand end of the Shares Secret field.

## JWT payload description

JSON Web Tokens consist of three parts separated by dots (.), which are:

- Header: Used to specify token type and signature algorithm.
- Payload: The real content of the JWT, where the user is described.
- Signature: A checksum of the JWT that is used to verify it.

Therefore, a JWT typically looks like the following:

```
xxxxx.yyyyy.zzzzz
```

The following sections describe in detail each part of the JWT.

## Header

The header consists of two parts: the type of the token, which is JWT, and the signing algorithm being used.

For example:

```
{
"alg": "HS256",
"typ": "JWT"
}
```

This JSON is Base64Url encoded to form the first part of the JWT.

The following table sums up the fields included in the header:

| Attribute | Description | Type | Value |
|---|---|---|---|
| typ | Type of token | string | JWT |
| alg | Algorithm of JWT signature | string | HS256 |

## Payload

The second part of the token is the payload, which contains the claims. Claims are statements about a user and additional data.

An example payload could be:

```
{
"sub": "user@example.com",
"firstName": "John Doe",
}
```

The payload is Base64Url encoded to form the second part of the JSON Web Token.

The following table describes each field of the JWT payload:

| Attribute | Description | Type | Value | Mandatory | Default value |
|---|---|---|---|---|---|
| iat | Time the token | integer | Number of seconds since UNIX epoch. | Yes | |

| Attribute | Description | Type | Value | Mandatory | Default value |
|---|---|---|---|---|---|
| | was generated. Used to ensure that given token gets used shortly after it was generated. | | | | |
| sub | Email of the user being signed in. Used to uniquely identify the user in Reporting. | string | e.g. 'Jon.Doe@example.com' | Yes | |
| jti | Unique string that is used to prevent a replay attack, by making sure token is used only once. | string | e.g. generate a UUID | Yes | |
| userName | User name of the user being signed in. Used to uniquely identify the user in Reporting. | string | e.g. 'Jon.Doe' | No | Default value is set to the same as sub attribute |
| firstName | First name of the user, later used in the registration process if the user is accessing Reporting for the first time. | string | e.g. 'Jon' | No | Default value is set to the same as sub attribute |
| lastName | Last name of the user, later used in the registration process if the user is accessing Reporting for the first time. | string | e.g. 'Doe' | No | None |
| role | Role that the user is going to have in Reporting. | string | Allowed values are:<br>• Admin<br>• Designer | No | 'Viewer' |

| Attribute | Description | Type | Value | Mandatory | Default value |
|---|---|---|---|---|---|
| | | | • Viewer | | |
| lang | Language to be used for the Reporting user interface. | string | The language to set for the user interface, e.g., en-US. If not specified, the default Reporting language is used at first login. If the user then changes the language, the user-selected language is kept as default. | No | 'en' |

### Signature

To create the signature part, the following elements are used to create a sign:

- Encoded header,
- encoded payload,
- a secret,
- the algorithm specified in the header.

For example, using the HMAC SHA256 algorithm, the signature will be created in the following way:

```
HMACSHA256(
base64UrlEncode(header) + "." +
base64UrlEncode(payload),
secret)
```

The signature is used to verify the message was not changed along the way.

## SSO via OIDC

To configure SSO via OpenID Connect, the following properties are required:

- **Issuer**: The entity that is responsible for issuing the relevant claims. Enter the URL of the issuer, in the following format: <issuer_base_URL>/auth/realms/<RealmName>. For example, if the issuer is Keycloak, the URL needs to be set to `<keycloak_base_url>/auth/realms/<RealmName>`
- **Client ID**: The client ID of this application with your issuer.
- **Client Secret**: The client secret generated by your issuer.
- **Scope**: Not required, by default set to "openid", which means full scope. If advanced scoping settings are needed, this can be set to a different value.
- **Challenge Methods**: Not required, by default set to 'S256'. If needed, this can be set to a different value.

After these settings are saved, and the user logs out, if all settings are correct, users will be redirected to the login page of your OpenID Connect issuer:

If the password was set as temporary, the user will immediately be asked to change the password.

After successful login, and password change, the user will be redirected back to the Reporting application with the corresponding role rights assigned.

Find more information on how to use SSO via OIDC in Reporting, on the example of Keycloak, in the *Reporting SSO with Keycloak and OIDC Configuration Guide.*

### SSO via EIS

SSO can also be done via the Enghouse Identity Server (EIS), an OpenID Connect based identity and access manager, used to support SSO between different Enghouse systems and off-the-shelf components.

EIS and its settings are defined by the in-house EIS team; refer to their documentation on Confluence or contact the EIS team for more information on EIS as a whole.

In order to enable using EIS with Reporting, you have to use the following settings:

- **Issuer**: The entity that is responsible for issuing the relevant claims. Enter the URL of the issuer, in the following format: <issuer_base_URL>/auth/realms/<RealmName>.
- **Client ID**: The client ID of this application with your issuer. For **EIS**, this needs to be "`ei_enghousebi_ers`".
- **Client Secret**: The client secret generated by your issuer. For example, using EIS, when you create a new client with the Tenant Provisioning Tool, the CLI shows you the client secret that you need to use in this field.
- **Scope**: Not required, by default set to "`openid`", which means full scope. If advanced scoping settings are needed, this can be set to a different value. For **EIS**, this value needs to include "`all-roles`" to properly handle the roles set through EIS. For example: `openid all-roles`
- **Challenge Methods**: Not required, by default set to "`S256`". If needed, this can be set to a different value.

# Email server configuration

Reporting has a dedicated email server used, for example, for automated report delivery. For more on that topic, see *Email server configuration*.

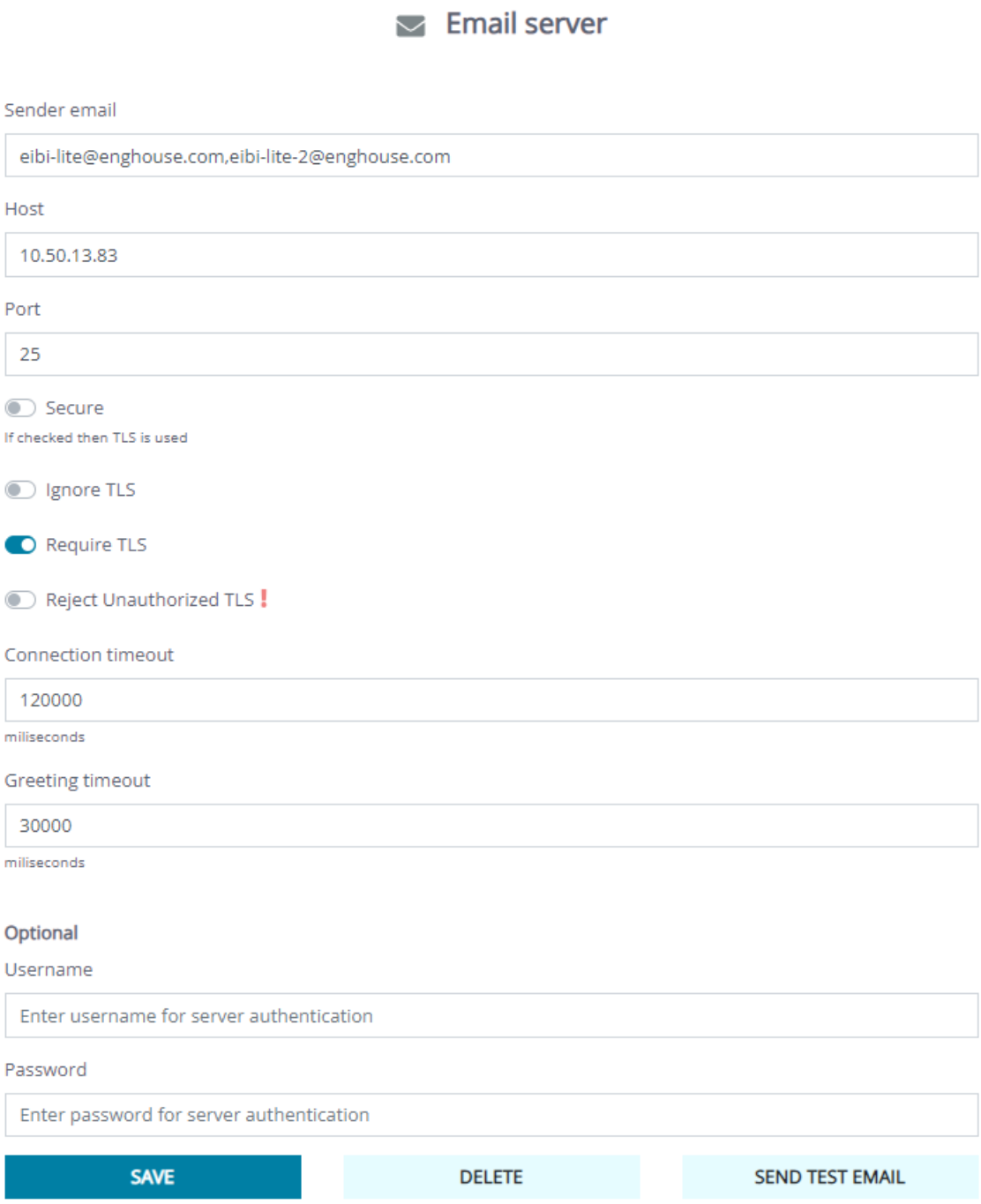
In order to configure your email server, do the following:

1. Click the **Admin** tab.
2. In the **System settings** group of the Admin pane on the left side of the screen, click **Email server**.
3. Fill out all the necessary fields for your email server:

- **Sender email**:This field may contain multiple email addresses separated by a semicolon. These are email addresses which users will later be able to choose from when they set up a report subscription for a report.
- **Host**: Enter a functioning host address.
- **Port**: Designate the port number here.
- **Security settings**: Adjust your security settings as needed. Note that toggling the **Reject Unauthorized TLS** setting off is not recommended as it may pose a security risk.
- **Connection timeout**: Define the time, in milliseconds, for the connection timeout.
- **Greeting timeout**: Define the time, in milliseconds, for the greeting timeout.
- **Optional**: Enter the username and password for server authentication, if needed.

11. Click **Save** to finish, or

12. Click **Delete** to clear the currently set up settings, or
13. Click **Send test email** and enter the necessary information in the pop-up window to see if all the settings are entered correctly and emails can be sent normally.



# Licensing information

Reporting is a cloud-based product with a single- and multi-tenancy feature. This means that the same instance of Reporting can support one tenant or multiple tenants that are separated from each other, with their own data, users and settings.

## Single tenant licenses

To access relevant single tenant license information for your Reporting, click **License** under **System settings** in the left-hand pane of your Admin tab.

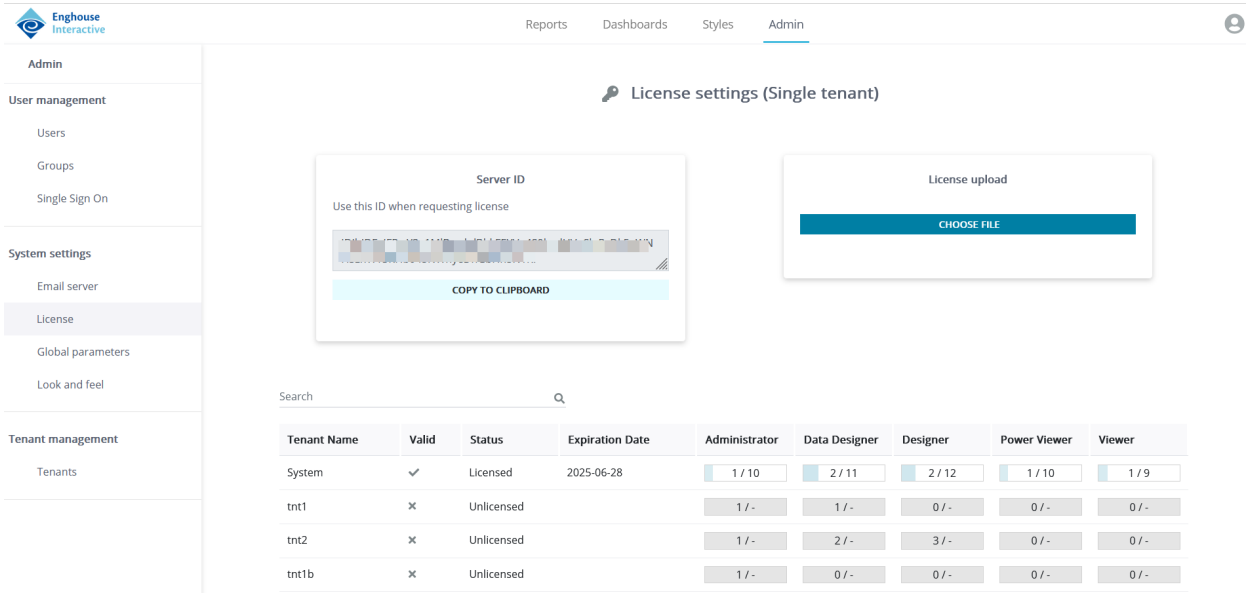
This section can be used to check the license status and upload a new license.

The following options are available:

1. **Server ID**: This is the unique identification of your server machine, used to generate a license needed to authorize your Reporting.

   > **Note**
   >
   > Server ID is generated every time you request it. All of your previous server IDs are valid, not just the latest.

2. **License upload**: The location to which you upload the license sent to you by your Reporting representative.




The existing tenants in your instance of Reporting are listed in a table format. The following columns are shown:

- **Tenant Name**: The assigned name of the tenant.
- **Valid**: Flag indicating whether a tenant is licensed and whether the license is still valid. The license is still valid if the expiration date has not passed.

> **Note**
>
> Users cannot use tenants without a valid license. Administrators must license a tenant for the users to start using it.

- **Status**: Licensed, unlicensed, or expired. Describes whether there is a license for a tenant.
- **Expiration Date**: The date a license expires. A license is valid until the end of the day according to the local time.

> **Note**
>
> If your license is about to expire, a message notifying you about the exact date will pop up when logging into Reporting Suite.

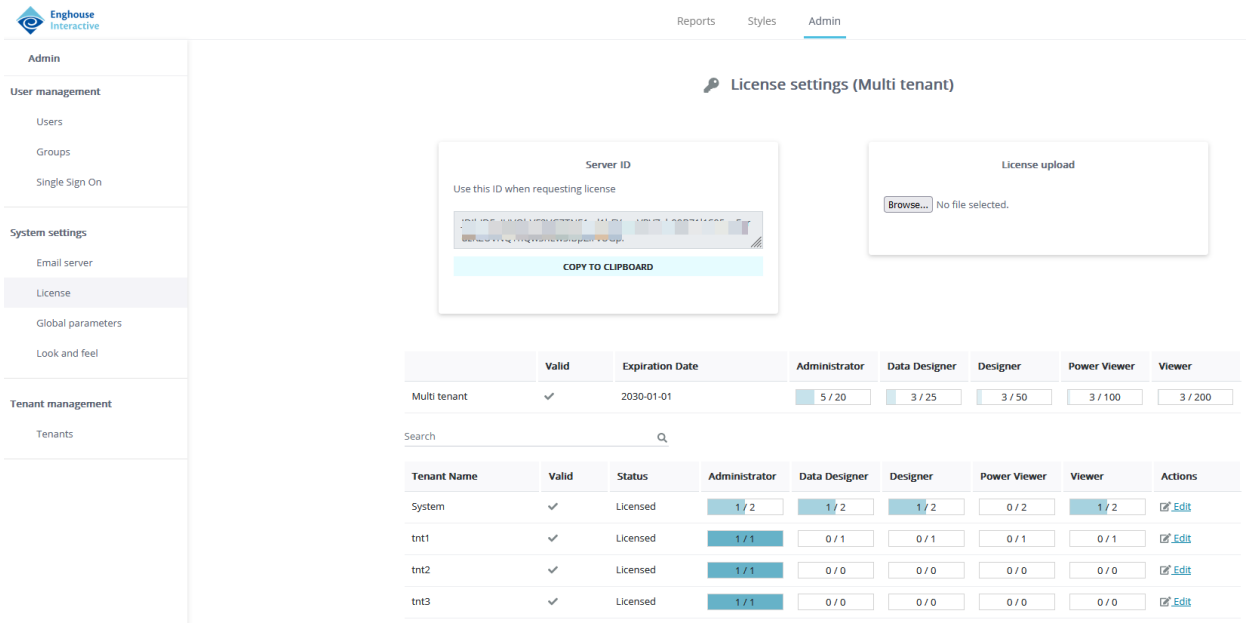
- **Administrator**: Number of users and licenses for the Administrator role.
- **Data Designer**: Number of users and licenses for the Data Designer role.
- **Designer**: Number of users and licenses for the Designer role.
- **Power Viewer**: Number of users and licenses for the Power Viewer role.
- **Viewer**: Number of users and licenses for the Viewer role.

> **Note**
>
> The table does not show the disabled tenants.

## Multi-tenant licenses

To access relevant multi-tenant license information for your Reporting, you would do the same as with your single tenant licenses. However, there are a key differences. Click **License** under **System settings** in the left-hand pane of your Admin tab.

This section can be used to check the license status and upload a new license. The System Administrator can also change the license allocations.



In multi-tenant mode, System Administrators can see two tables. The first table provides information about the multi-tenant license (combining the information for all its tenants). The following columns are shown:

- **Valid**: Flag indicating whether a license is still valid. The license is still valid if the expiration date has not passed.
- **Expiration Date**: The date a license expires. A license is valid until the end of the day according to the local time. Note that this column only appears in the first table.

  > **Note**
  > If your license is about to expire, a message notifying you about the exact date will pop up when logging into Reporting Suite.

- **Administrator**: Total number of users and licenses of all tenants for the Administrator role. The first number represents the sum number of allocated licenses from the table bellow, while the second number represents the total number of available licenses.
- **Data Designer**: Total number of users and licenses of all tenants for the Data Designer role. The first number represents the sum number of allocated licenses from the table bellow, while the second number represents the total number of available licenses.
- **Designer**: Total number of users and licenses of all tenants for the Designer role. The first number represents the sum number of allocated licenses from the table bellow, while the second number represents the total number of available licenses.
- **Power Viewer**: Total number of users and licenses of all tenants for the Power Viewer role. The first number represents the sum number of allocated licenses from the table bellow, while the second number represents the total number of available licenses.
- **Viewer**: Total number of users and licenses of all tenants for the Viewer role. The first number represents the sum number of allocated licenses from the table bellow, while the second number represents the total number of available licenses.

The second table contains the following additional information:

- **Actions**: This option only appears for multi-tenant licenses. Click **Edit** to allocate licenses to a tenant. See more in *Editing tenant license allocations on page 32*.

## Licenses - Backward compatibility

Prior to Version 5.2.0 of Reporting, licenses did not have an expiration date. Additionally, the licenses had a limited combined number of users for the Designer and Data Designer user roles and an unlimited number of users for other roles. The "new" licenses (from Version 5.2.0 onwards) limit the number of users for each role.

# Changing the license of your Reporting

To acquire a valid Reporting license, do the following:

1. Copy the server ID to clipboard.
2. Paste the copied server ID key to a license request email along with the details of the license you need: specify the expiration date, define users per role, and state whether you need a single- or multi-tenant

license. Send the email to your Enghouse Interactive representatives. They will provide you with a unique license file required for the licensing of Reporting on your server.

> **Note**
> This step refers to both the specific license for a system tenant and the multi-tenant license for the whole system.

3. Click **Close File** under the **License upload** option.
4. A window detailing the license information pops up. Check to see if the information is correct.
5. Click **Upload** to upload the license file.

Follow instructions in the Reporting installation documentation to apply the provided license.

# Multi-tenant licensing

Multi-tenant licensing enables multiple customers to use the same instance/installation of Reporting without having access to each other's data and users in any form, thereby eliminating the need for individual installations for each customer. Multi-tenant licensing affects all tenants. Only the System Administrator can manage multi-tenant licenses for each tenant.

## Uploading a multi-tenant license

The System Administrator can upload a new multi-tenant license instead of a previous single-tenant license or an older multi-tenant license.

When the System Administrator uploads a multi-tenant license instead of a previous single tenant license, a warning appears, indicating that the system will switch from single-tenant mode to multi-tenant mode. If they confirm, all existing tenants in EnghouseReporting Suite are affected, and their current licenses are deleted. The System Administrator must then allocate licenses from the multi-tenant license to each tenant. Normal administrators cannot perform this task.

> **Note**
> When uploading a multi-tenant license instead of a previous multi-tenant license, the System Administrator must take into account the number of users each tenant uses or will create in the future. The number of users per role in each tenant must correspond to the total number of licenses available in the multi-tenant license.

If the System Administrator wants to upload a new multi-tenant license in place of a previous multi-tenant license, the new license must have an equal or greater number of licenses per role than the number of allocations of the existing multi-tenant license. If the number of licenses is lower, the System Admin can request a larger multi-tenant license or reduce a tenant's license allocations. License allocations can be reduced to the number of users per role that each tenant has.

> **Note**
>
> - The System Administrator can only delete and edit the user roles for the System tenant.
> - Disabling a tenant with multi-tenant license allocations results in removing those allocations.

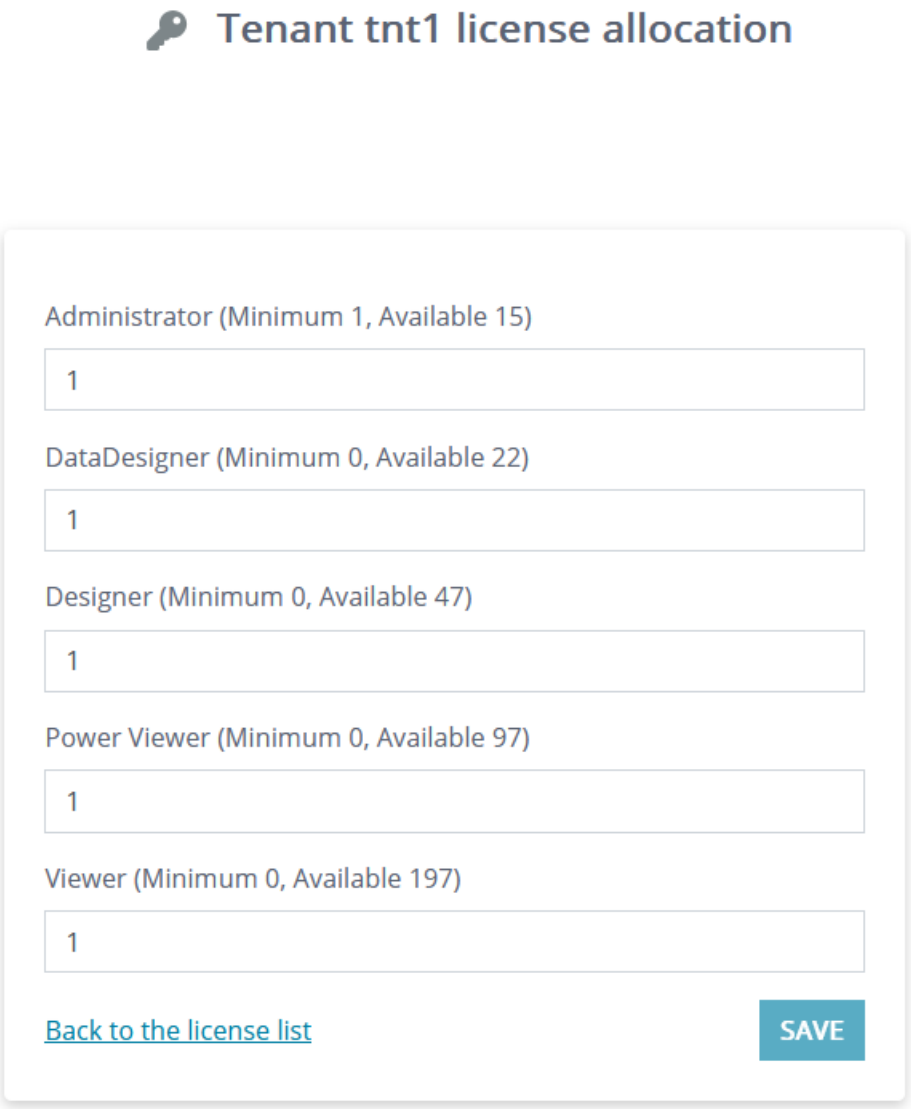
> **Caution**
>
> If the System Administrator tries to upload a single-tenant license while in multi-tenant mode, they will see a warning. If they proceed, the multi-tenant license is replaced by the single-tenant license in the System tenant. Administrators of other tenants must then upload new single-tenant licenses for their respective tenants.

## Editing tenant license allocations

To edit a tenant's license allocations, do the following:

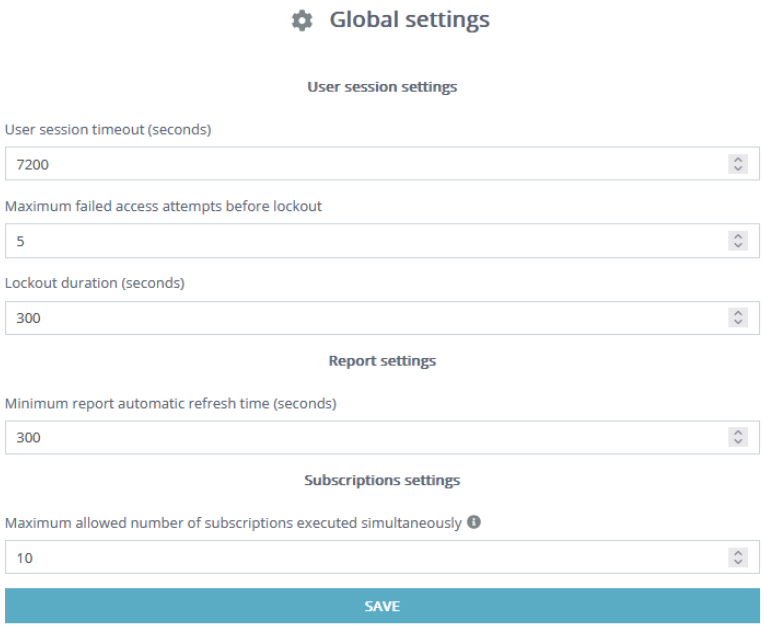
1. Click **Edit** in the **Actions** column of that tenant. The options there refer to the number of licenses allocated to each of the user roles.
2. Write the number of licenses you would like to assign to each of the roles (Administrator, Data Designer, Designer, Power Viewer, and Viewer). You can see the number of remaining available licenses in the parenthesis next to the role.
3. Click **Save**.

> **Note**
>
> The number of licenses assigned per role must be sufficient to cover all of the tenant's existing users.




# Global settings

This section is dedicated to defining global Reporting settings. The **Global settings** are located in the Admin tab, in the **System settings** group of the admin pane on the left side of the window.

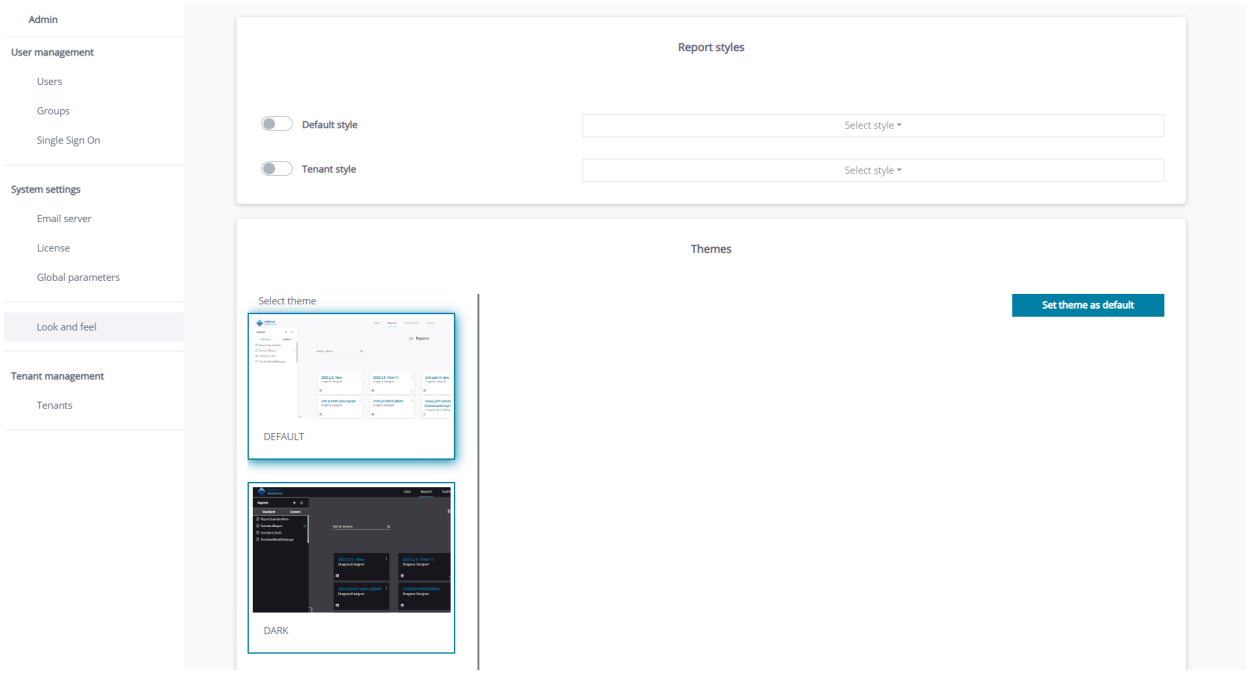



The following Global settings are available:

- **User session timeout**: The period of user inactivity after which the user is logged off automatically and has to log in to use the system again. This is a security feature. The timeout period is expressed in seconds.
- **Maximum failed access attempts before lockout**: Enter how many attempts a user may fail before they are locked out.
- **Lockout duration (seconds)**: Enter the amount of time, in seconds, that a user is locked out for after exceeding the amount of failed login attempts.
- **Minimum report automatic refresh time**: The minimum time after which a report is automatically refreshed to show the newest data. This parameter is expressed in seconds.
- **Maximum allowed number of subscriptions executed simultaneously**: Enter the number of subscriptions that may run at the same time (must be > 0). If the queue contains more subscriptions than this limit, the excess will wait until the current batch finishes. Avoid setting the value too high, as it can degrade overall processing speed. Changing this number while subscription queue is processing takes effect after the current batch is completed.

# Look and feel

This topic describes what you can do with the **Look and feel** section of the **Admin** tab in Reporting.




In **Look and feel**, you can define what the UI theme of your tenant or your system will look like, as well as which default style will be assigned to the assets in your tenant or your system . With this feature, you can choose to use any of the predefined themes, such as the light and dark ones, or you can define one for your needs. This includes changing the colors of certain elements in the UI, as well as changing the logo displayed in the upper left corner of the Reporting window. Similarly, you can also define a tenant or system default style for Reporting assets, such as report views.

Administrators define the default style and theme for all users and assets in the individual tenant they are assigned to, while System Administrators define the default style and theme for all users in the whole system and all its tenants. Read more about the relationship of these levels in *Style and theme hierarchy on page 38*.

## Working with styles

In the **Report styles** section, you can choose whether to define a default or tenant style, and which style should be used for it.

- If you toggle **Default style** ON, in the dropdown list, you can choose which style will be used as the default one for all assets (such as report views) in all tenants of your system, including the system tenant.
    - For the system tenant only, this can be overridden by defining the Tenant style, explained below, for the system tenant only. This can be done by Administrators of the system tenant, as well.
- If you toggle the **Tenant style** ON, in the dropdown list, you can choose which style will be used for all the assets (such as report views) in your tenant.
- If you keep the toggle OFF, no specific style will be applied to assets by default. See more about the style setting hierarchy in *Style and theme hierarchy on page 38*.

> **Note**
>
> In order to be able to select any files as a tenant or default style, they first need to be created. The style element naming rules need to be followed in order for styles to work properly in assets. Read more in *Styles on page 43*.

# Working with themes

To use this feature, do the following:

1. In the left pane of the **Admin** tab, click **Look and Feel**. Here the available themes are shown.
2. To change a theme to one of the available themes, click the desired theme.
3. Optionally, to first preview the theme for yourself, click **Preview theme**. This will apply it only to your user and not to anyone else.
4. Optionally, if you want to create your own theme, you can do so by clicking **Custom** in the list of available themes. You can read more about this in *Custom theme below*.
5. Once you have decided which theme to use, click **Set theme as default** to change the UI to this theme for the whole tenant or system and all its users. You will be prompted to confirm your choice.
6. To change back to the previously used theme, click **Revert theme**.

## Custom theme

You can create a custom theme in Reporting. This action requires a basic to intermediate understanding of CSS in the context of web design.

To create a custom theme, follow these steps:

1. From the list of available themes, click **Custom**.
2. If you want to add a theme logo to replace the Enghouse logo in the upper left corner of the window, click **Choose file** in the **Theme Logo Image** section.
3. Locate the desired file on your local machine and upload it. The recommended image size and format is **240x80 px** and .png, respectively. A preview of it is shown if it is of an appropriate image format.
4. In the **Theme CSS Editor**, you enter the CSS values you want to change. To do so, click **Load template CSS** and chose which already available theme you want to load the CSS data from so that you can edit it.

   > **Caution**
   >
   > It is **strongly recommended** that you only use the template CSS and only modify the values of the provided CSS, not the properties, as any other way of changing the theme CSS may not work properly.

5. Once you have modified all the values as needed, click **Save theme** to save all your changes. Now the **Custom** theme is saved to these settings.
6. Now you can do any of the following:

- To see what your Custom theme looks like, click **Preview theme**. This will set the theme just for your user and will allow you to preview the changes.
- To apply the custom theme to the whole tenant or system, click **Set theme as default**.
- To delete the modified content of the custom theme, click **Clear theme**.

> **Note**
>
> System Administrators can define a custom theme that can be shown to all tenants as one of the available theme options for use.

## Custom theme modification example

As an example, we will change the logo of the theme and just one CSS property value.

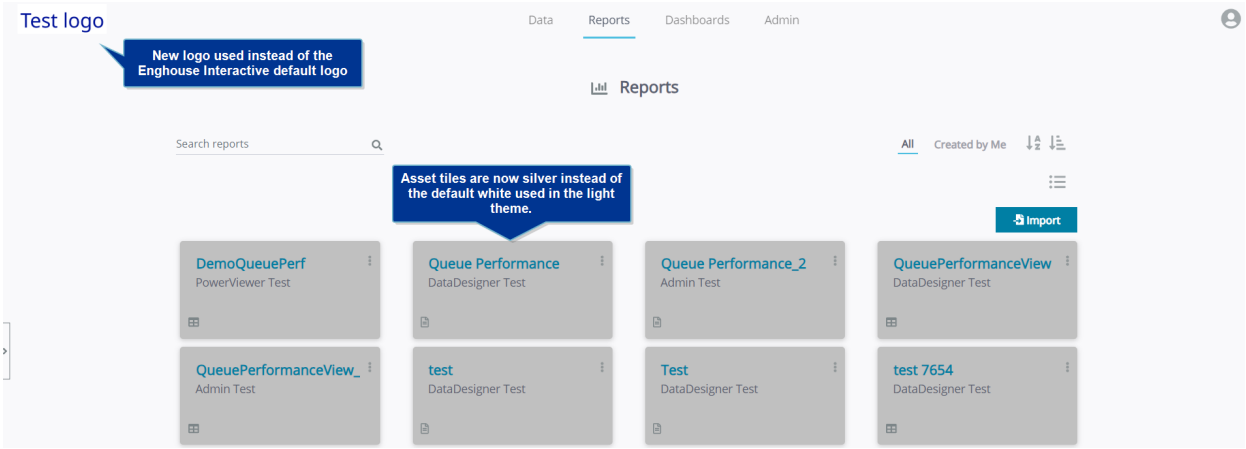
We will change the logo to a simple placeholder:


Additionally, we will change the color of the report tiles (`.report-card`) and their actions menu buttons (`.report-card .actions-menu`) to `silver`, leaving all the other properties as they are by default.

```
.report-card {
    background: silver;
    -webkit-box-shadow: 0 2px 6px 0 rgba(0,0,0,.2);
    box-shadow: 0 2px 6px 0 rgba(0,0,0,.2);
    height: 120px;
    width: 100%;
    border-radius: 4px;
}

.report-card .actions-menu {
    height: 50%;
    position: absolute;
    right: 5px;
    background-color: silver;
}
```

Once the theme is saved and set as default, this will result in a change of the logo on all pages for all users, as well as the report cards (and all other assets, including, e.g., data models) now being silver, as opposed to white (or any other color in your previous theme):




## Style and theme hierarchy

Both styles and themes can be defined on multiple levels. The following hierarchy is followed if multiple levels of Look and feel settings are applied:

### Styles

1. If a style is defined for an individual view or other asset, such as in the View designer, this style is applied regardless of any other style settings on the tenant or system.
2. If no individual view style is defined, the tenant style is used.
3. If no tenant style is defined, the style applied by the System Administrator is used.
4. If no system style is defined by the System Administrator, no style is applied to assets by default.

### Themes

Themes can be applied on a system and on a tenant level. They are defined by the System Administrator (for the system level) or Administrator (for the tenant) for all users on that level.

1. If a tenant theme, either custom or one of the predefined ones, is defined, the tenant theme is used for all users on that tenant.
2. If no tenant theme is defined, the system theme defined by the System Administrator is applied for all users on all tenants in that system.
3. If no system theme is defined, the application default theme is used for all users in the system.

# Tenant management

With cloud deployments of Reporting and multitenancy, the option of having multiple different and separate tenants within the same system becomes available. Individual users are registered for a specific tenant, and they have access only to that tenant, as well as only the data that is part of the tenant that is shared with them.

# Multitenancy in Reporting

The multitenancy option in Reporting allows you to have multiple independent instances, or tenants, of Reporting operating in a shared environment. A tenant is a group of users who share a common access to other users and data, while also having a defined set of privileges and rules that apply to all users in that tenant.

Tenants are isolated from one another, which means that you can have multiple large groups of users (such as for departments, company branches, or even multiple companies; depending on your use case) functioning within the same instance of Reporting without having any direct contact between users or data from different tenants. A user of one tenant can only see users and data connected to their tenant, without contact with any other users or data in your Reporting instance.

An example of how this is applied is when a Report Designer wants to share a report with other users - they can only see the users that are part of their tenant, and they can only share the report with them, not other users in the system.

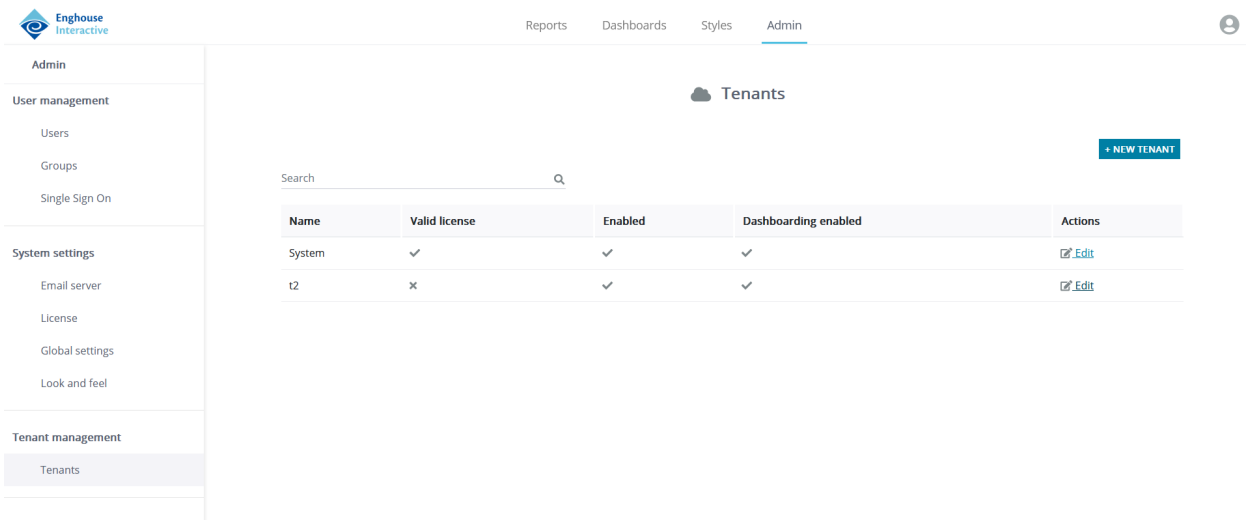
In practical terms, this means that you as a System Administrator can control all the tenants within the same system. You can set the basic shared parameters for all tenants, but Administrators can modify them on the level of an individual tenant. From a user perspective, this means all users within a single tenant can interact with each other, the data or reports the same way they would if the system were used in single-tenant mode. However, they cannot share data or dashboards, or interact with users from other tenants.

# Tenants

To access the menu for Tenant Management, click the **Admin** tab in the top part of the screen, and then click **Tenants** in the **Tenant management** group of the Administrator pane on the left side of the window.

> **Note**
>
> While the rest of the functionalities in the Admin tab is the same as with Administrator users, System Administrators have additional access to the Tenant Management section of the Admin tab, where they can create and manage tenants.

An overview of the basic information related to available tenants is provided here. System Administrators can see existing tenants, edit them, search through them, or create new ones.




The existing tenants in your instance of Reporting are listed in a table format. The following columns are shown:

- **Name**: The assigned name of the tenant.
- **Valid license**: Flag indicating whether a license is still valid. The license is still valid if the expiration date has not passed.

> **Note**
> Tenants without a license cannot be used by Viewers and other users. Administrators need to license a tenant to start using it. With mulit-tenant licenses, the System Administrator must allocate licenses to the tenant.

- **Enabled**: Flag indicating whether a tenant is enabled or not. A disabled tenant cannot be used by any users until enabled again by the System Administrator.
- **Dashboarding enabled**: Flag indicating whether or not the dashboarding feature is enabled for the tenant.
- **Actions**: Click Edit to modify a tenant's settings. See more in *Editing a tenant on the next page*.

## Creating a new tenant

To create a new tenant in your Reporting instance, follow these steps:

1. Select **New Tenant** in the upper right corner of the window. This opens a dialogue window, **Tenant details**.
2. Enter the following information:

- **Tenant Name**: The name you want to assign to the new tenant.
- **Dashboarding enabled**: Select the checkbox to enable Dashboarding.
- **Number of days to warn the user before license expires**: Select how many days prior to your license expiring you would like to be reminded that your license is about to expire.

> **Note**
> If you choose **0**, you will not be reminded of your license expiring.

- **First day of the week**: Starting day of the week for calendar-related reports and visualizations. In the dropdown menu, you can choose between Sunday and Monday.
- **Hosts**: Enter one or more of the tenant's host addresses.
- **Database connections**: Start filling out the **Connection string** box to make additional options appear.
  - **Name**: The name you want to assign to the database connection.

    > **Note**
    > If you want to use Standard Reports, you need to create a database connection called **DWH** (using capital letters).

  - **Database type**: From the dropdown list, choose the type of the tenant's database. The currently available options are Oracle, Microsoft SQL Server, PostgreSQL, and MySQL.
  - **Connection string**: The connection string to the standard DWH that contains call center data for the new tenant. It is the connection string that will be assigned to standard reports when the tenant users use them. The connecting string format is typically like the following: `Server=<serverIpOrName>; User Id=<dbUser>; Database=<databaseName>; Password=<userPassword>`.

    > **Note**
    > To add a database connection, click the **Add connection** button. If you wish to add more than one connection, repeat the above-mentioned process. The connection string is checked when set for a tenant; if the connection is invalid, an error is shown to indicate what the issue is.

- **Tenant administrator information**: Enter the information that will be used to create the first Administrator user for the new tenant, which is then in charge of further actions related to the tenant, such as licensing it, creating other users, sharing reports and data sources, etc.

  > **Note**
  > You must personally (or through other secure channels) notify the new Administrator user of the username and password you set for them so they can log in for the first time. It is recommended that the new user change their password after the first login.

3. Click **Save** to finish. Your new tenant is now created and can be seen in the **Tenants** section of the Admin tab, and is enabled by default.

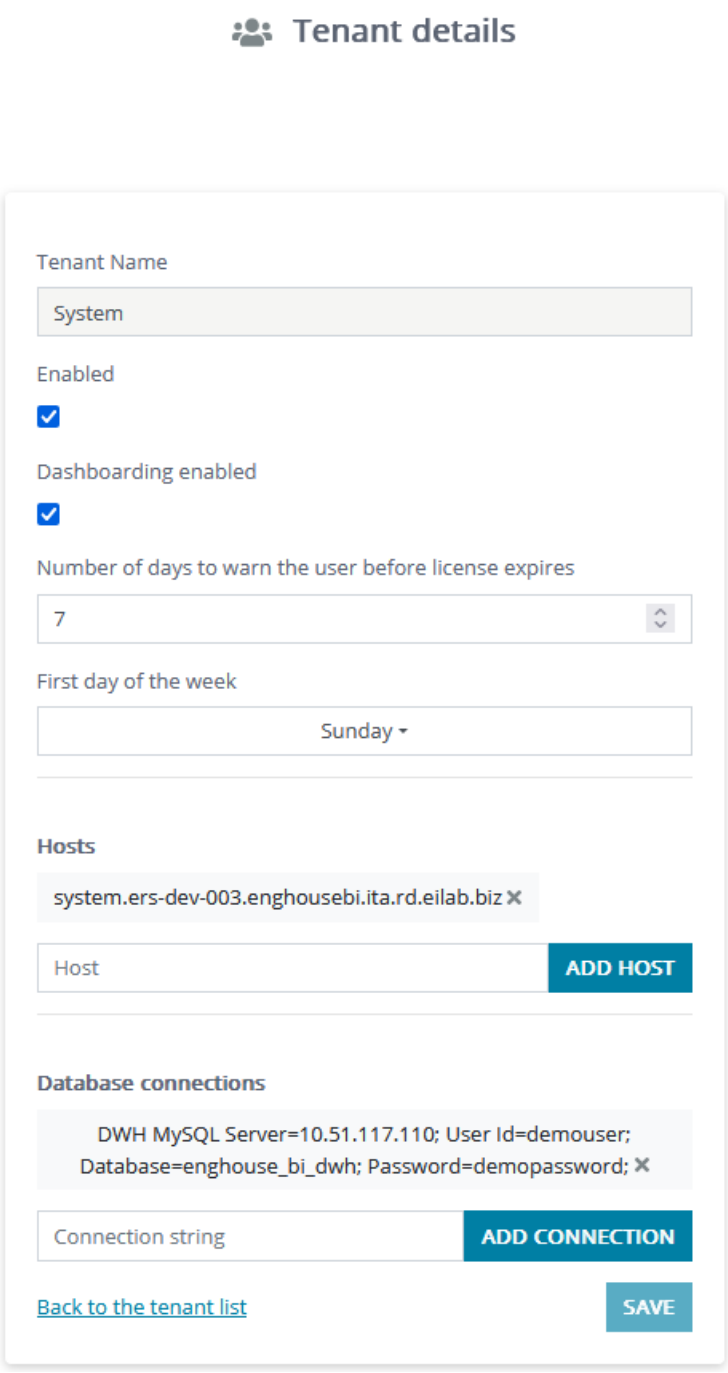
## Editing a tenant

To edit a tenant, click **Edit** in the Actions column of that tenant. The options available there reflect the information entered when adding a new tenant, as described in *Creating a new tenant on the previous page*, along with two more checkboxes:

- **Enabled**: You can clear this checkbox to disable the tenant, which stops all users from accessing it; correspondingly, you can select it to once again enable the tenant, allowing the tenant users to access it.

  > **Note**
  > When editing multi-tenant licenses, disabling a tenant removes all allocated licenses from that tenant. Enabling the tenant again does not restore the previously allocated licenses.

- **Dashboarding enabled**: Select this checkbox to enable the Dashboarding feature of BI Reporting. Conversely, clear this checkbox to prevent the users of this tenant to access the Dashboarding feature in any way.



# Styles

In the **Styles** tab of Reporting, you can define style sets and collections to use in your assets, such as report views.

Once a style is created, it can be applied to report views, or exported and used separately for reports. This allows you to create specific styles for different needs, which you can then quickly apply to assets without having to modify all the individual elements by hand.

The styles can be created, modified, deleted, and imported and exported. When a style is changed within the **Styles** tabs, these changes are also automatically shown in all the assets that the style was applied to, which means that you do not need to make the changes in the various assets manually.

> **Note**
>
> When styles and style sets are created in the Styles tab of Reporting, they are referred to view styles, as they are primarily intended to be used with report views. Similarly, if they are created within a report, in the Report Designer (which means they are not available for all users and for views), they are referred to as report styles.

Read more about the various functionalities of styles in Reporting, as well as how to use them, in the upcoming sections of this document.

## Styles tab

To work with view styles in Reporting, navigate to the tabs in the upper central section of the Reporting window and click **Styles**. This opens the Styles tab.

The following becomes available:

- A list of all available view styles, in form of a table:
  - Information about the name and owner of the style is shown.
  - Each row has additional options, allowing you to **Edit** or **Delete** existing styles.
- A search bar, facilitating the navigation through available styles. Searches are done by style title.
- The **+ Create new style** button.

## Creating a new style

To create a new view style in Reporting, do the following:

1. Click **Create new style** in the **Styles** tab. A new pop-up opens.
2. Enter the name in the style name field.
3. Click **Create style**. A new window opens where you can start creating the view style elements within your set. This window consists of the following:

- **Style title**: Located in the top-left part of the screen. Click **Edit** to modify the title of the style.
- **Top toolbar**: This section contains basic editing options, such as **Save**.
- **Properties pane**: A pane containing the properties of each individual element style that you add to the style set. Here you can set up, edit and see the properties for each style. The properties vary based on what kind of style you are working with (e.g., for a component, a chart, a map, etc.).
- **Style Designer**: In this section of the window, you create and organize the individual style elements for your style set.

4. To create a new view style element, in the Style Designer section, click **Add Style**. Alternatively, if you have not created any styles yet, click anywhere inside the Style Designer space and proceed to the next step.
5. In the dropdown menu, click the element you want to create a style for.
6. In the **Properties** pane, set up all the relevant properties to suit your needs. The individual properties vary based on the report element you are creating the style for. If the style you want to edit is not already selected (and its properties not opened), click it in the list in the Style Designer to see and modify its properties.
7. If needed, use any of the options available in the style designer toolbar. Find out more about this in *Style designer toolbar below*.
8. Repeat the previous three steps as many times as necessary to create all the needed style elements.
9. Once you have set everything up, click **Save** to save your changes. Your style set can now be used with report views, as described in *Select style*.

## Style designer toolbar

The style designer toolbar offers some additional features that can be used to further enhance your use of styles in Reporting.


The following options are available:

- **Add Style**: Add an individual new style, as described in *Creating a new style on the previous page*.
- **Actions**: The following actions apply to all the styles in the currently open style set:
  - **Open**: Load an .sts file from your machine to import a premade style set.
  - **Save As**: Save the current style set as an .sts file on your machine. This file can then be shared with Reporting users that have access to the Styles feature.
  - **Create Style Collection**: Create a new collection in your style set. This feature creates a predefined set of styles for certain report elements, such as charts or various level headings. This also creates a new folder for the collection. Multiple collections can be created within the same style set. In the **Create Style Collection** pop-up window, adjust the collection settings to your needs. Individual styles from the

collection can later on be modified as needed.

- **Delete**: Delete the currently selected individual style or collection folder.

  > **Caution**
  >
  > The action of deleting a style component or collection folder is permanent and cannot be undone.

- **Get Style from Selected Components**: Primarily used by Report Designers in the Report Designer tool when creating base reports and adding individual report elements; this feature is used to select a pre-styled component and to turn its properties into a style that can then be applied to other report elements.
- **Filter and Sort**: Filter through the various kinds of styles, or sort them in ascending or descending order.
- **Search**: Search the available styles for quicker use. The search is done by style name only.

> **Note**
>
> In order for styles to work properly, all elements of a report that you want to apply styles to need to be given a style in the Report Designer. Report elements without an assigned style will not have any style applied to them in report views.
>
> The name of the styles assigned to the individual elements in the Report Designer need to be the same as the names in any other style you may want to use e.g. for report views.
>
> In other words, you need to ensure that **all the styles intended for the same element** (e.g., Heading 1) **always have the same name** across all style sets to ensure full functionality and faster switching between styles.

# Introduction to system reports

Reporting is a powerful tool that allows you to effectively visualize and present your data with ease.

System Reports are designed to simplify system monitoring and management, as well as to detect possible issues in the infrastructure. There are a number of Enghouse System Reports which are readily-available for you to use as soon as you log into your Reporting system. These system reports help users understand the system's operations and health by providing structured data or insights.

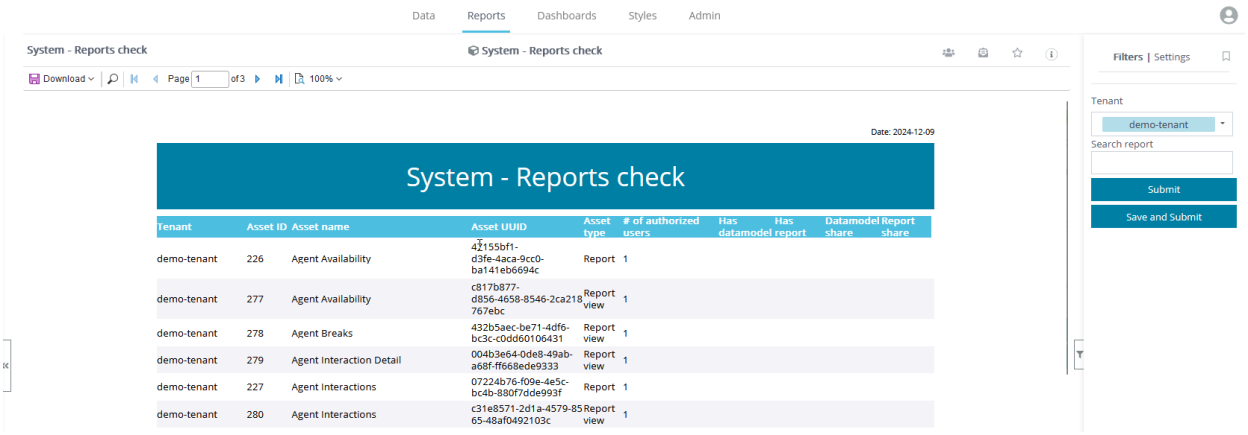
## System Reports

System Reports are typically tabular data reports that show you either summary or detailed overviews of the relevant data. Usually they can be adjusted to suit your needs using a variety of filters and settings, so that you can focus precisely on the data you need, while also having multiple options available.

This document provides a detailed description of the individual system reports, along with information how to effectively use them. You can read more about this in the upcoming sections.

# System - Reports Check

This system report allows System Administrators of Reporting to easily detect and fix issues in the reports shared with users.




# Report Objective

The System - Reports Check System Report was created to allow detecting inconsistent sharing of reports and their datamodels and missing parent assets.

Inconsistencies in sharing of reports is a frequent issue, where a report or view has been shared with a user that does not have access to the datamodel required by the shared element.

The missing parent asset is an issue that occurs when a report is imported, but its datamodel is not; a similar scenario occurs when a view is imported, but the base report of the view is not available in the system.

# Report Deployment

This system report should be manually imported by an administrator of the System tenant. The report allows users of the System tenant to monitor all the tenants configured on the Reporting Suite instance.

If necessary, the report can be imported to a specific tenant. In this case, the report allows users to view only the reports within the tenant. This is useful, for example, if a customer can create and share datamodels and reports.

To deploy the system report, do the following:

1. Access Reporting Suite with a Data designer of the System tenant.
2. Go to the **Data** page.
3. Manually import the datamodel file.
4. Edit the datamodel and properly set the connection string.

5. Go to the **Reports** page.
6. Manually import the report file.
7. Run the report to start checking your system configuration.

> **Caution**
>
> To get proper information, the report requires a connection to the application DB. Giving the tenant access to this report could compromise the security of your system. It is recommended that you never share the datamodel of this System report with customers.

To run the deployment procedure, use the `System - Reports check.ebimodels` data source file available inthe **systemReports/datamodels** folder and the `System - Reports check.ebireports` report file available in the **systemReports/reports** folder, distributed with the Reporting Suite package.

The connection string to be applied to the data source should be something like:

```
Server=db.service; Port=5432; Database=bireportingdb;
User Id=postgres; Password=<your password>;
```

> **Note**
>
> The connection string parameters depend on how you configured your Reporting Suite deployment (see your .env file for Docker-Compose or your values.yaml for the Kubernetes deployment).

# Report Parameters

## Filters

You can use multiple filters for this report. From a list of available filters, select one or more values for which you want to see the data. For non-datetime filters, you can select all available values, search for specific values, or clear all selected values from the dropdown list. Mandatory filters are marked with *, while non-mandatory filters can be left empty, i.e., unset, in which case this filter will not influence the report.

The following filters can be used for this report:

- **Tenant**: From the list of available tenants, choose tenants configured in the system whose data you want to include in the report. If empty, all the tenants are included in the report. The list of tenants (and the report content) is limited to the user tenant if the report is not used from the System tenant.
- **Search report**: This is a search field that allows the user to search only for reports whose name contains the specified text; the search is not case-sensitive. For example, if you want to focus your analysis on CCaaS-specific reports, simply search for *ccaas*. If empty, all the reports are included in the report.

## Settings

### Show issues only

When enabled, the report shows only those records where an issue has been identified.

# Report values definition

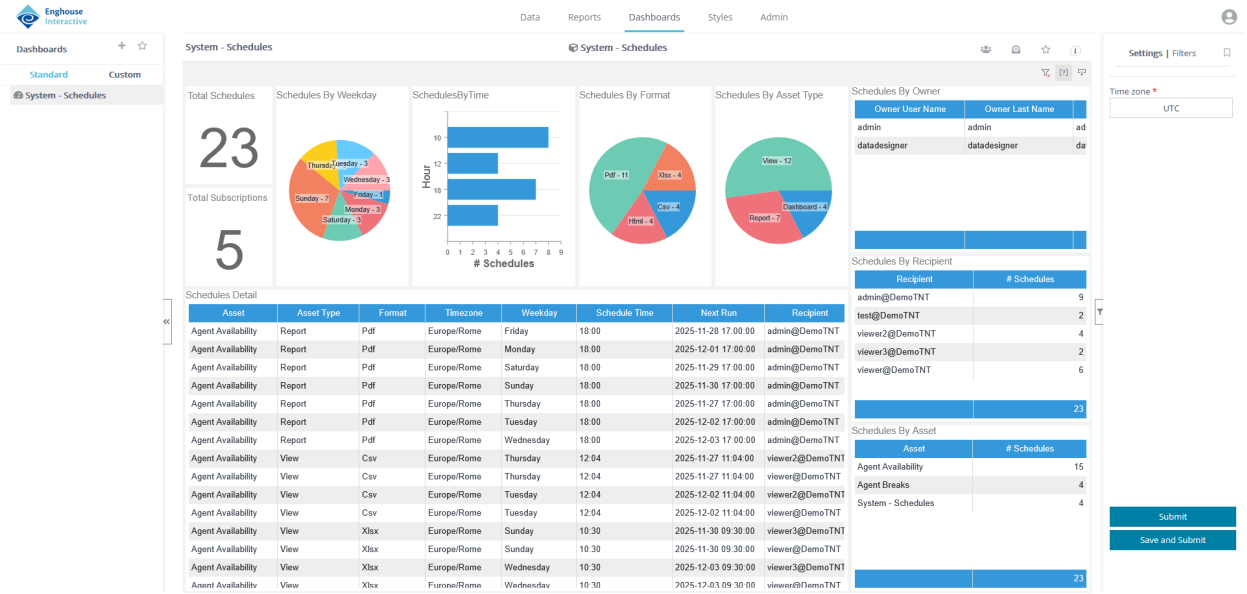
Report values are part of the report itself and are shown once the report is generated. They are predefined and cannot be modified through the report settings and filters. In practical terms, report values are the columns shown in your report. Each metric shown in your report's columns is described below in more detail.

The following report values are used in the System - Reports Check System Report:

| Label | Tooltip |
|---|---|
| Tenant | The tenant where the report/view is deployed. |
| Asset ID | The internal ID of the report/view. It’s useful in case you have to identify it when multiple assets have the same name. |
| Asset name | The name of the report/view. |
| Asset UUID | The unique UUID of the report/view. It identifies the report itself, not the specific instance of the report. The same report on different tenants or system share the same UUID. |
| Asset type | Type of the asset, that could be a **report** or a **view**. |
| # of authorized users | Number of users the report/view is shared with. |
| Has datamodel | Detects if there is a problem with the source datamodel. This column shows a red cross when the datamodel used by the report/view is missing (for example, it has never been imported or it has been deleted). |
| Has report | Detects if the base report of a view is available. This column shows a red cross when the base report used by the view is missing (for example, it has never been imported or it has been deleted). |
| Datamodel share | Detects incongruences between report/view sharing and their datamodel sharing. This column shows a red cross when at least one user can access the report/view, but the underlying datamodel has not been shared. |
| Report share | Detects incongruences between view sharing and its base report sharing. This column shows a red cross when at least one user can edit a view, but it doesn’t have permissions of reading the underlying report. |

# System - Schedules Report

This system report provides a consolidated view of scheduled activities across the platform, allowing System Administrators, Administrators and end-users of Reporting to easily monitor upcoming executions with granular control over visibility and filtering.




## Report Objective

The purpose of System - Schedules Report System Report is to deliver a clear, role-based snapshot of all scheduling data within the environment. System administrators can access every schedule across all tenants, while tenant administrators are limited to schedules belonging to their own tenant. Regular users see only the schedules they own.

By supporting flexible filters and settings, the report enables each stakeholder to focus precisely on the data most relevant to their responsibilities.

## Report Deployment

This system report becomes accessible only after the system administrator has deployed the report definition. Once deployed, the administrator must explicitly share the report with the appropriate user(s) or user groups before anyone can view or interact with it. This ensures that the report is only exposed to the intended audience.

# Report Parameters

## Filters

You can use multiple filters for this report. From a list of available filters, select one or more values for which you want to see the data. For non-datetime filters, you can select all available values, search for specific values, or clear all selected values from the dropdown list. Mandatory filters are marked with *, while non-mandatory filters can be left empty, i.e., unset, in which case this filter will not influence the report.

The following filters can be used for this report:

- **Tenant**: From the list of available tenants, choose tenants configured in the system whose data you want to include in the report. If empty, all the tenants are included in the report. The list of tenants (and the report content) is limited to the user tenant if the report is not used from the System tenant.

## Settings

### Time zone

With this setting, you can choose which time zone to view your data, filters and settings in. See *Report settings* for more information.

# Dashboard components definition

Dashboard components are part of the dashboard itself and are shown once the dashboard is generated. They are predefined and cannot be modified through the report settings and filters, but can be interacted with in ways described in *Report Objective* and in the *ReportingViewer Guide*. In practical terms, dashboard components are the elements, such as tables and charts, shown in your dashboard. Each metric shown in the components is described below in more detail.

The following components are used in the System - Reports Check System Report:

### Schedules by Asset

This section shows of the total number of schedules by asset (dashboard, report, or view).

### Schedules by Asset Type

This pie chart visualizes how scheduled tasks are allocated across the three asset categories - dashboard, report, and view.

### Schedules by Format

This pie chart illustrates the proportion of schedules exported in each format: CSV, HTML, PDF, and XLSX. The HTML option is embedded into the email body.

## Schedules by Owner

The table lists each owner’s schedule count. Every row shows the owner’s user name, last name, first name, and the total number of schedules assigned to that owner.

> **Note**
> Viewers, Power Viewers, Designers, and Data Designers can only see their own information.

## Schedules by Recipient

The table lists each recipient’s schedule count.

## Schedules by Time

This chart illustrates the distribution of schedules by time slot.

## Schedules by Weekday

The pie chart shows the distribution of schedules across the seven days of the week, indicating the number of schedules assigned to each day.

## Schedule Details

This table summarizes each asset’s key scheduling details, including its name, type and format, time zone, day of the week and scheduled time, next run, recipient, owner, and tenant.

| Label | Description |
|---|---|
| Asset | The name of the item being managed. |
| Asset Type | The category or class of the asset (dashboard, report, or view). |
| Format | The file or data format of the asset. |
| Timezone | The regional time zone in which the asset’s schedule is interpreted. |
| Weekday | The day of the week on which the asset is scheduled to run. |
| Schedule Time | The specific clock time (hour : minute) the asset is set to execute. |
| Next Run | The upcoming date and time when the asset will be processed (based on the specified timezone). |
| Recipient | The individual or system designated to receive the asset’s output. |
| Owner's First Name | The given name of the person who owns or is responsible for the asset. |
| Owner's Last Name | The family name of the person who owns or is responsible for the asset. |
| Tenant name | The organization or account under which the asset resides. |

## Total Schedules

Total count of schedules. This count differs according to role: System Administrators (all users in the organization), Tenant Administrators (users within a specific tenant), and other users (individual users accessing their own schedules).

## Total Subscriptions

Total count of active subscriptions. Each subscription may contain one or more schedules, which are reported separately in the **Total Schedules** metric.