

Simcenter X Advanced Onboarding Guide

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1. About Simcenter X Advanced

What is Simcenter X Advanced?

Simcenter X Advanced is a flexible, cloud-powered multi-domain collection of simulation products.

Simcenter X Advanced provides the following benefits:

Simplified access and management

- Utilize cloud-centralized license management
- Download, install, and update your simulation products with the Siemens Software Center
- Access your simulation tools from anywhere with an internet connection, with limited offline capabilities

Flexible licensing and resource optimization

- Share Simcenter X Tokens across multiple solvers and simulation products

Enhanced collaboration and productivity

- Work collaboratively on simulation projects through built-in data management
- Share models, results, and insights across engineering teams

Intelligent assistance

- Access help through an integrated AI-powered chat assistant
- Quickly find answers to technical questions and optimize your workflow

Simcenter X Advanced licenses

Your Simcenter X Advanced license is a named-user license supporting the applications listed below.

Simcenter X Advanced applications

Application	Application specific documentation and support	Named-user add-ons
Simcenter Femap	Simcenter FEMAP	

Simcenter X Advanced applications (continued)

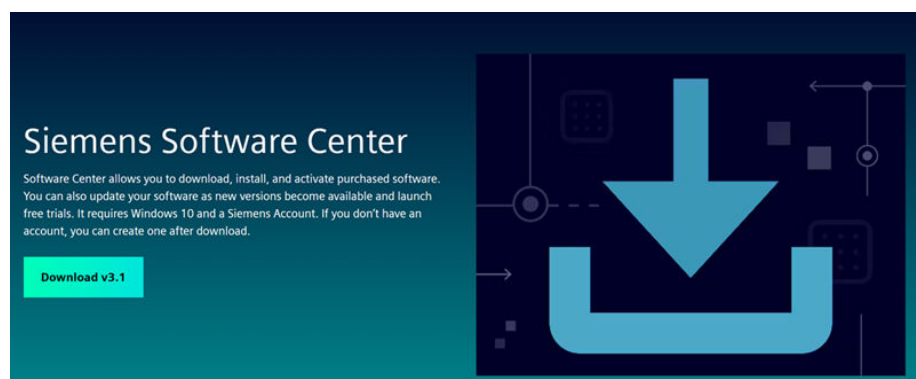
Application	Application specific documentation and support	Named-user add-ons
<ul style="list-style-type: none"> • Nastran • Response Dynamics • Thermal 		
<p>Simcenter 3D</p> <ul style="list-style-type: none"> • Nastran • Motion • Multiphysics Thermal • Harmonic BEM • Durability & Response • Dynamics solvers 	<p>Simcenter 3D</p>	
<p>Simcenter STAR-CCM+</p> <ul style="list-style-type: none"> • Mixed precision • Double precision variants 	<p>Simcenter STAR-CCM+</p>	
<p>Simcenter Amesim</p>	<p>Simcenter AMESIM</p>	<ul style="list-style-type: none"> • Simcenter Amesim Client for Git • Simcenter Amesim FMI Export • Simcenter Amesim Standalone FMI Export
<p>Simcenter HEEDS</p>	<p>HEEDS</p>	

In addition to the named-user license and named-user add-on product licenses, you need to purchase bundles of Simcenter X Tokens to use the simulation solvers included in the applications above. Simcenter X Tokens are also needed for specific add-on features. For a list of token counts required for the various add-on features and solvers, download the spreadsheet available [here](#).

Siemens Software Center

Siemens Software Center allows you to download, install, and activate your purchased software. You can also update your installed software to newer versions as they become available.

Your welcome email contains a link to the Siemens Software Center web page. From here, you can download and install Siemens Software Center by clicking the download link.



The software displayed in Siemens Software Center depends on the licenses your company has with Siemens and which applications your Enterprise Cloud Account (ECA) admin has assigned you to. These entitlements are associated with the login information you provide. When you open Siemens Software Center, it prompts you to enter your login information.

Once you are logged in, your licensed software is displayed. You can then manage your software as needed, including uninstalling it if necessary.

Download and install Simcenter X Advanced applications

Prerequisites

Your administrator must add you as a Simcenter X Advanced user so that you receive a welcome email with instructions to download and install Siemens Software Center.

Procedure

1. In the welcome email, click the link provided and sign in with your Siemens Webkey account.
If you do not have a Webkey account, you can select a link on the sign in page to create a new account.
2. Download and install Siemens Software Center.

If you are entitled to more than one Enterprise Cloud Account (ECA), you may be prompted to select an ECA from a drop-down menu. You can contact your administrator to determine which ECA to select.



3. Start Siemens Software Center.

If you are not signed in, you are prompted to sign in using your Webkey credentials and select your account.

4. In the Siemens Software Center window, select the **My Products** tab.
5. (Optional) Next to the **Install** button for your Simcenter X Advanced application, click (□ □ □) to change install or download options.

For more information about Siemens Software Center options, click Help .

6. Click **Install** to download and install your Simcenter X Advanced application.

Launching a Simcenter X Advanced Application

You can launch the graphical user interface (GUI) of a Simcenter X Advanced application directly from Siemens Software Center. When you launch the GUI, you must login with your Siemens account to authenticate as a named user.

On Linux machines, before you launch a Simcenter X Advanced application, make sure that the following are installed:

- *xdg-open* command – required for opening files, directories, and URLs; available through the *xdg-utils* package.
- *xcb-cursor* library – required for handling cursor images and related operations.

To launch a Simcenter X Advanced application:

Procedure

1. Within **Siemens Software Center**, in the **My Products** tab, click **Open** next to the application.

You can also launch the application using one of its usual methods, for example, from the Start menu on Windows.

The GUI launches and the login page opens in your web browser.

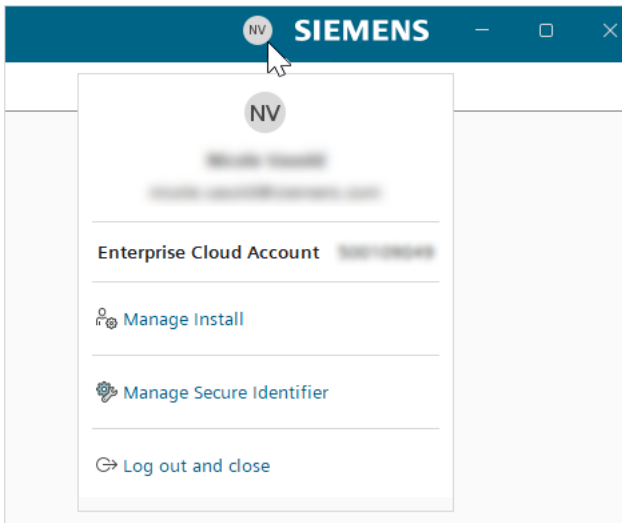
2. Authenticate on the Siemens authentication server:
 - a. On the login page, sign in with your Siemens Webkey email, then click **Continue**.
 - b. Select an identity provider, such as **Siemens Webkey**, then click **Continue**.
 - c. If your site is entitled to more than one ECA, select your ECA ID, then click **Continue**.

3. After successful authentication, close the login page in your web browser and return to the GUI of the application.

Note

Your GUI login remains active for 12 hours. After 12 hours, you are automatically logged out from all your GUI sessions and you must login again. For more information, see [Authentication and Secure Identifiers](#).

4. In the upper right corner of the application window, click your user avatar.



The user profile popup provides the following information:

- User credentials.
- **Manage Install**—a link to Siemens Software Center to manage the installation, such as updating or uninstalling the application.
- **Manage Secure Identifier**—a link to the Secure Identifier Manager, which allows you to install, update, or delete your secure ID. For more information, see [Authentication and Secure Identifiers](#).
- **Log out and close/Log in**—ends/starts your Simcenter X Advanced session.

Note

A warning sign on your profile icon indicates that the application cannot connect to the Siemens cloud license server and is therefore operating in offline mode.

5. To end your session, in the user profile popup, click **Log out and close**.

Logging out also ensures that tokens that are reserved for your session are added back to the token pool of your company and are available to other users.

Device Policy and Entitlement Transfer

Simcenter products running under the Simcenter X Advanced licensing scheme are governed by a Device Policy. This policy defines the number of machines on which you can launch concurrent interactive desktop sessions for each product.

A concurrent interactive desktop sessions means an active instance of the software product running on a machine that you are directly interacting with. The Device Policy doesn't limit the number of interactive sessions; it limits the number of machines on which you can launch interactive sessions. On a given machine, you can launch as many interactive desktop sessions as you wish (within the limits of the machine's resources).

Device Policy

Key points about the device policy are:

- The policy applies to interactive desktop sessions only. Batch sessions are not governed by this policy (although you must deploy your secure ID on any remote machines on which you intend to run batch sessions).
- Limits vary by product. Currently, the limits are as given in the following table:

Device Policy Limits

Application	Device Policy Limit
Simcenter STAR-CCM+	1
Simcenter HEEDS	3
Simcenter 3D	1
Simcenter Femap	1
Simcenter Amesim	1

Device Policy = 1

Allows you to launch multiple interactive desktop sessions of the product on a single machine. For example, if you are using Simcenter STAR-CCM+, you can open several instances of the interactive client on your primary workstation, but you cannot simultaneously open it on a remote Linux machine.

Device Policy = 3

Allows you to launch concurrent interactive desktop sessions of the product on up to 3 different machines simultaneously. For example, you could use Simcenter HEEDS on three different Windows machines at the same time, and have multiple instances of the product running on each of those machines.

Named User Entitlement Transfer

You can close an interactive session on one machine and open a new interactive session on another machine. No specific steps are required in order to achieve this entitlement transfer — but if the Device

Policy is exceeded, an entitlement transfer dialog appears asking if you wish to relinquish the entitlement on the original machine.

Chat

Chat is an embedded, conversational user interface that lets you use natural language to query the official online help documentation from your Simcenter X Advanced application.

You can use **Chat** to ask questions about commands, workflows, and applications. After you submit your question, the chat:


- Searches the official help.
- Returns an AI-generated response, based on the resources.
- Provides clickable links to the applicable topics in the online help.
- Provides a list of related, AI-generated questions that you can query using the chat.

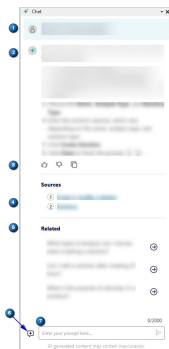
Warning


AI may hallucinate, which means that it may generate and present incorrect or misleading information as fact.

When using AI-generated material, you should always verify the accuracy of the content using the provided sources and your professional discernment.

The user interface

To activate **Chat** in the current session of your Simcenter X product, click **Chat**  in the top right corner of the window. Typically, the chat window appears on the right side of the graphics window, but you can move the window as desired.



#	Component	Description
1	Submitted question	Displays the question you submitted.
2	Answer	Displays the answer to your question and the referenced version of the help documentation.
3	Good Response 👍 Bad Response 👎	Reserved for future capability.
3	Copy 	Lets you copy the provided answer.
4	Sources	Displays a list of references that are used in the given answer. Each item in this list points to a topic in the Help.
5	Related	Displays a list of questions that are related to the current conversation. You can click a question to find more information.
6	New Chat	Lets you start a new conversation.
7	Prompt text box	Lets you type your question. You can enter up to 2000 characters in this text box.

Asking Chat a question

When asking a question in **Chat**, use best practices for prompt engineering.

- Use natural language.
Phrase each question as if you are asking a question to a colleague.

Example

Instead of...	Ask this..
Magnet orientation	How do I assign orientation to a magnet?

- Be specific and provide context.

Example

Instead of...	Ask this..
How do I run a parametric study?	How do I run a parametric study in Design Space Explorer?

- Verify the answer with the provided sources and your professional discernment.

Note

Chat is trained on English-language documentation. If you submit a question in a different language, the AI will translate both your question and its response. Please note that this translation process may introduce some inaccuracies.

Source documentation

Chat determines the product version of the Simcenter X Advanced application (such as Simcenter 3D, Simcenter HEEDS, Simcenter STAR-CCM+, etc) that you are using. When you submit a question, the chat references the official online Help for that application and version. The reply to your question specifies the version of the documentation the chat referenced.

2. Built-in data management

Each Simcenter X Advanced user is automatically assigned a storage quota of 25GB in which to store data on the cloud. You can use the **Teamcenter Simulation Desktop** application to perform daily activities such as reviewing tasks and uploading and downloading files.

You can install the **Teamcenter Simulation Desktop** application using **Siemens Software Center**.

View and download recent files

View assigned tasks and the recent files you have worked on and download those files.

Procedure

1. To view tasks assigned to you, in Teamcenter Simulation Desktop, click the **Home** tab. Hover over the appropriate task and click **Open** to view the task in a window embedded with the **Active Workspace** user interface. You can complete the required task in the **Overview** tab of the viewer.
2. To view the recent files you have worked on, click the **Home** tab. Hover over the appropriate file and click **Open** to view the selected file in the **Active Workspace** user interface.
3. To download files, click the **Data** tab.
 - a. Select the file, and click **Download**.
 - b. To download multiple files, press **CTRL** on your keyboard, select multiple files, and click **Download All**.
4. To navigate quickly to the location where the file was downloaded, click the **Go to Files** hyperlink.

Upload files

Upload files to Simcenter X built-in data management.

Procedure

1. To upload files, click the **Transfers** tab.
2. Drag and drop the files you want to upload.

When you drag and drop files to upload, you do not need to know the name of the file upload rule. The system recommends the appropriate domain, internally evaluates the domain, selects the correct upload rule, and uploads the file.

CAE objects and their subclasses are categorized into a specific simulation domain based on the upload rules and the files being uploaded. The system automatically selects the best domain. You can override the selected domain. The system shows only the CAE objects that are stored within the specified simulation domain when you upload files.

Application	Teamcenter Domain
Simcenter Femap	3D simulation
Simcenter 3D	
Simcenter STAR-CCM+	
Simcenter Amesim	Systems simulation
Simcenter HEEDS	Multidisciplinary design analysis and optimization

3. Select the target object recommended by the system. If it is not available, click the **New** button to create a new target object.
4. Click **Upload** to upload the files.
5. (Optional) To verify if the files have been uploaded correctly, select the **Data** tab, select the recent file you have uploaded, and click the **Item Revision** link.
The system displays the viewer with the **Active Workspace** user interface. You can view the uploaded files under the appropriate object created in step 3.
6. (Optional) To verify if the object has any related objects, click the View Traceability link.

Results

To view **AppData** and log files, browse to the respective directory depending on the operating system:

- Windows:

```
%APPDATA%\teamcenter-simulation-app
```

- Linux:

```
$HOME/.config/teamcenter-simulation-app
```

3. Product-Specific Guidelines

Some products to which a Simcenter X Advanced license applies require you to observe specific guidelines in launching the product or using some of its features.

Setting Up and Running a Simcenter STAR-CCM+ Simulation

In Simcenter STAR-CCM+, to use cloud licensing for your simulations, you must specify your cloud entitlement.

The following workflow focuses on the specific aspects of cloud licensing in Simcenter STAR-CCM+. For more general information, see the Simcenter STAR-CCM+ User Guide.

Note

If you want to run a simulation on a remote machine or a compute cluster, make sure that your Secure ID for Simcenter STAR-CCM+ is installed on the remote machine or on the head node of the cluster, respectively, see [Managing your Secure ID—Common Scenarios](#).

To set up and run a Simcenter STAR-CCM+ simulation using cloud licensing:

Procedure

1. Launch Simcenter STAR-CCM+ using the following steps:
 - a. Create an environment variable on your machine. For example, on Windows:
 - i. Press the Windows+R key and enter `sysdm.cpl` in the **Run** dialog box. Press Enter.
 - ii. In the **System Properties > Advanced** tab, select **Environment Variables**.
 - iii. In the **Environment Variables** dialog box, navigate to *System variables* and select **New**.
 - iv. In the **New System Variable** dialog box, enter the following:

Variable Name	<code>CCM_LICENSE_OPTION7</code>
Variable Value	<code>1</code>

- b. Within [Siemens Software Center](#), in the **My Products** tab, click **Open** next to the application.

Alternatively, you can launch the GUI using one of the following methods:

 - On Windows, click the Simcenter STAR-CCM+ entry in the **Start** menu, assuming you did not change any of the defaults during the installation
 - On Windows or Linux, from the command prompt, enter the Simcenter STAR-CCM+ command.

Example for Linux:

```
% [INSTALL_DIR]/STAR-CCM+20.06.2506.002/star/bin/starccm+ &
```


where [INSTALL_DIR] is the path to the installation directory.

Note

For correct functioning of cloud licensing for Nastran co-simulation, Nastran version 2506.5000 or later is required.

The GUI launches and the login page opens in your web browser.

2. Create or load a simulation, as required, using cloud licensing:
 - a. Select **File > New** or **File > Load**, respectively.
 - b. In the opening dialog, set *Simulation License* to one of the following options, depending on your cloud entitlement:
 - **Simcenter STAR-CCM+ Cloud Entitlement**
 - **Simcenter STAR-CCM+ Cloud Unlimited Entitlement**
 - c. Complete the dialog, then click **OK**.
3. Set up your simulation, then save the simulation to file.
4. Depending on whether you want to run the simulation from the GUI or from a batch client, do one of the following:

Method	Procedure
Running directly from the GUI	In the Solution toolbar, click  (Run).
Running from a batch client	<ol style="list-style-type: none"> 1. Open a command prompt. 2. In the command line, call Simcenter STAR-CCM+ using one of the following licensing options: <ul style="list-style-type: none"> • For Simcenter STAR-CCM+ Cloud Entitlement: -license cloud • For Simcenter STAR-CCM+ Cloud Unlimited Entitlement: -license unlimited <p>Example:</p> <pre>[STAR-CCM+_INSTALL_DIR] \starccm+.bat -batch [WORKING_DIR] \[SIMULATION].sim -license unlimited [OPTIONS]</pre>

Method	Procedure
	<p>where:</p> <ul style="list-style-type: none"> • [STAR-CCM+_INSTALL_DIR] is the path to the Simcenter STAR-CCM+ installation directory. • [WORKING_DIR] is the path to your working directory. • [SIMULATION] is the name of the simulation file. • [OPTIONS] are optional arguments, such as for running the simulation in parallel or on a remote host. <p>This command line applies on Windows. For Linux, you must use forward slashes.</p>

Setting Up and Running a Simcenter STAR-CCM+ Design Study

In Simcenter STAR-CCM+, to use cloud licensing for design studies with Design Manager, you must specify your cloud entitlement and pass it to the design simulations.

The following workflow focuses on the specific aspects of cloud licensing for design studies with Design Manager. For more general information, see [Simcenter STAR-CCM+ User Guide: Design Manager](#).

Note

If you want to run a design study on a remote machine or a compute cluster, make sure that your Secure ID for Simcenter X CFD is installed on the remote machine or on the head node of the cluster, respectively, see [Managing your Secure ID—Common Scenarios](#).

To set up and run a design study using cloud licensing:

Procedure

1. Launch Simcenter STAR-CCM+ as described in [Setting Up and Running a Simcenter STAR-CCM+ Simulation](#).
2. Create or load a design manager project, as required, using cloud licensing:
 - a. Select **File > New** or **File > Load**, respectively.
 - b. In the opening dialog, set the following properties:
 - **Term: Design Manager Project**

- *Simulation License*: Depending on your cloud entitlement, select one of the following options:
 - **Simcenter STAR-CCM+ Cloud Entitlement**
 - **Simcenter STAR-CCM+ Cloud Unlimited Entitlement**
- c. Complete the dialog, then click **OK**.
- 3. Setup your design studies as usual.
- 4. Pass your cloud entitlement to the design simulations:
 - a. Expand the **Tools > Compute Resources** node.
 - b. Set up the compute resource that you want to use, such as **Default Direct**, and add one of the following options to *Command Line Options*:
 - For Simcenter STAR-CCM+ Cloud Entitlement: **-license cloud**
 - For Simcenter STAR-CCM+ Cloud Unlimited Entitlement: **-license unlimited**
- 5. Save the Design Manager project to file.
- 6. Depending on whether you want to run the design studies from the GUI or from a batch client, do one of the following:

Method	Procedure
Running directly from the GUI	<p>Run your design studies as usual. Example:</p> <p>To run all design studies sequentially, right-click the Design Studies manager node and select Run All Studies.</p>
Running from a batch client	<ol style="list-style-type: none"> 1. Open a command prompt. 2. In the command line, call Simcenter STAR-CCM+ using one of the following licensing options: <ul style="list-style-type: none"> • For Simcenter STAR-CCM+ Cloud Entitlement: -license cloud • For Simcenter STAR-CCM+ Cloud Unlimited Entitlement: -license unlimited <pre>[STAR-CCM+_INSTALL_DIR] \starccm+.bat -batch run [PROJECT_ROOT_DIR]\[PROJECT].dmprj -license cloud [-passtodesign "-license cloud"]</pre> <p>where:</p>

Method	Procedure
	<ul style="list-style-type: none"> • [STAR-CCM+_INSTALL_DIR] is the path to the Simcenter STAR-CCM+ installation directory. • [PROJECT_ROOT_DIR] is the path to the project root directory. • [PROJECT] is the name of the Design Manager project file. • [-passtodesign <options>] allows you to pass the licensing option for your cloud entitlement to the design simulations. Passing the licensing option directly from the command line can be useful if you do not want to save them within your Design Manager project file. You can omit this option if you specified the licensing option for your cloud entitlement in Step 4. <p>This command line applies on Windows. For Linux, you must use forward slashes.</p>

Launching Simcenter Amesim

Simcenter Amesim can be downloaded and installed either from Support Center or from Siemens Software Center.

From Siemens Software Center

When you install Simcenter Amesim from Siemens Software Center, cloud mode is automatically enabled.

Note

To disable cloud mode after an installation of Simcenter Amesim from Siemens Software Center, delete the following file or the comment out the line where the environment variable `SALT_LICENSING_TYPE` is set.

In Windows: "%APPDATA%\Simcenter\AMESim\2025.2\AMEUserCustomization.bat"

In Linux: "\$HOME/Simcenter/AMESim/AMEUserCustomization.sh"

From Support Center

From Support Center, cloud mode is not automatically activated. To activate cloud mode, set the system environment variable `SALT_LICENSING_TYPE=cloud`. You can create a batch file that sets this environment variable and then launches Simcenter Amesim.

Note

Cloud mode is supported from Simcenter Amesim 2511 onward.

Systems simulation with Simcenter X Advanced

With Simcenter Amesim, the Simcenter X Advanced tier provides a comprehensive suite of powerful features, ready to enhance your simulation workflows. For a detailed breakdown of all capabilities, please consult the Siemens SW Simcenter X Advanced Licensing Fact Sheet document available from your Siemens DISW representative.

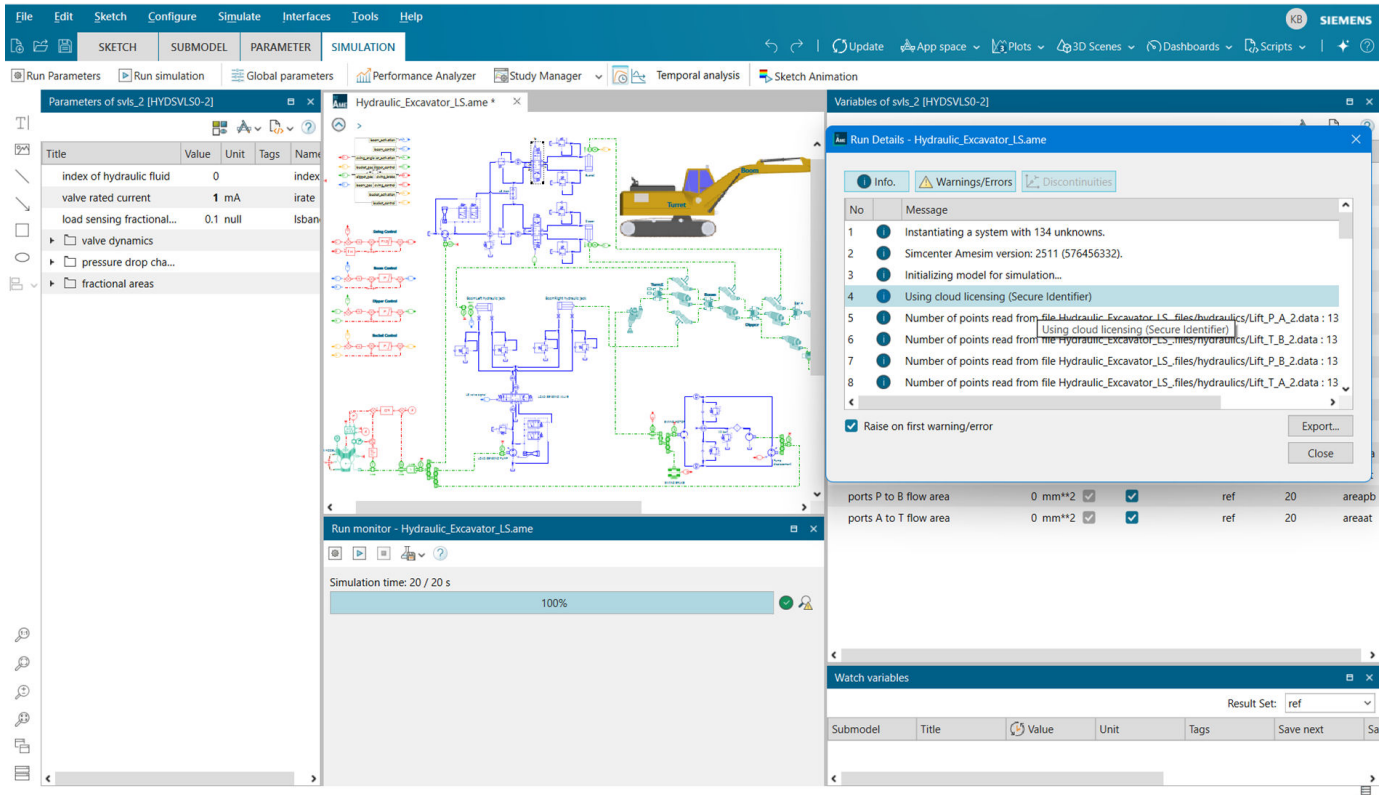
Comprehensive Library Access

The Simcenter X Advanced tier grants you access to all available Systems libraries. Your core offering includes a robust multi-physics package with 20 libraries. For specialized needs, you can access and integrate additional libraries into your path list by utilizing Simcenter X Tokens.

Seamless Simulation Workflow

The process for running your simulations locally using cloud licensing remains intuitive and consistent:

1. Navigate to the **Simulation** tab.
2. Click the **Run simulation** button.
3. Simcenter Amesim automatically verifies that you have sufficient Simcenter X Tokens for the task



Running any Systems simulation with the core solver requires 40 Simcenter X Tokens. These tokens are automatically returned to your pool upon successful completion of the simulation, ensuring efficient use of your resources.

Accelerate with Parallel Processing

Cloud licensing comes with native support for parallel processing, empowering you to run multiple simulations in parallel and significantly speed up your analysis. Token consumption for parallel processing scales linearly:

- For each parallel process initiated, 40 Simcenter X Tokens are consumed.
- Therefore, if you run 'n' parallel processes, the total token cost for the duration of that simulation is $n*40$.

Running Simulations on HPC Machines (Remote Linux)

For demanding simulations, you can leverage the power of High-Performance Computing (HPC) clusters. To get started running your Simcenter Amesim studies or batches on a remote Linux HPC machine:

1. **HPC Mode Configuration:** Ensure that HPC mode is activated and correctly configured within the parallel processing section of your locally installed Simcenter Amesim. Detailed setup instructions can be found in the HPC section of the documentation of Simcenter Amesim.

2. **Environment Variable:** On your HPC machine, the following environment variable must be set in your `.bash_profile` file to enable cloud licensing:
 - `export SALT_LICENSING_TYPE=cloud`
3. **Simcenter Amesim Version:** Your HPC Cluster must be running Simcenter Amesim 2511 or a more recent version.
4. **Secure ID:** Install a Secure ID using the Manage Secure Identifier tool. This tool is accessible from your user avatar within your local Simcenter Amesim. For more guidance, see [Authentication and Secure Identifiers](#).

Extend Your Capabilities with Simcenter X Advanced Named-User Add-ons

Simcenter X Advanced offers specialized add-ons, each requiring a specific Named User License. These add-ons provide powerful functionalities for advanced use cases:

Simcenter Systems Simulation Client for Git: This add-on requires a specific installation available from either the support center or the Siemens Software Center. It allows you to share/upload/download Simcenter Amesim models, libraries of component models, architectures, simulation templates on/from a git-based server, supporting a fine-grained development cycle by versioning and branching.

FMU Export Add-on: This feature allows you to export your Simcenter Amesim models as Model Exchange or Co-Simulation Functional Mock-up Units (FMUs). To utilize these exported FMUs, you need a Simcenter Amesim license (either cloud or on-premises). By means of these FMUs, you can integrate detailed Simcenter Amesim models into other simulation environments.

Standalone FMU Export Add-on: This advanced add-on empowers you to generate license-free FMUs directly from Simcenter Amesim. This method means the exported FMU can be run independently without requiring a Simcenter Amesim license, making it appropriate for sharing models with partners or deploying them in environments where a full Simcenter Amesim license is not available.

Note

To use the Standalone FMU Export Add-on, you must first have the FMU Export Add-on as a mandatory prerequisite.

License options for Simcenter 3D

When you use the Siemens Software Center to install Simcenter 3D, cloud mode is automatically enabled. However, to start solver runs from a command line you must first set the system environment variable `SPLM_LICENSE_SERVER=cloud`.

Switching to a node-locked license file or a license server

To disable cloud mode after an installation of Simcenter 3D, change the following files.

- In the *Nastran.rcf* file, comment out or delete the line `auth=cloud`.
- In the *ugii_env.master* file, comment out or delete the line `export SALT_LICENSING_TYPE=cloud`.
- Set the system environment variable `SPLM_LICENSE_SERVER` to point to the license location.

License options for Simcenter HEEDS

When you use the Siemens Software Center to install Simcenter HEEDS, it is configured to run with cloud-enabled, named user licensing.

You can change the licensing mode used by the product with either of the following steps.

- From the Windows **Start** menu, select the **Set license** command installed with Simcenter HEEDS.
- From a command line, run: `heedsmdo.exe -SetLicense`.

4. Authentication and Secure Identifiers

User authentication is essential for ensuring the security, integrity, and compliance of cloud-based applications. For this reason, Simcenter X Advanced provides a robust authentication framework for user identity verification and access control.

Authentication Modes

The authentication framework for Simcenter X Advanced cloud-enabled applications involves the following authentication modes:

Interactive authentication

With interactive authentication, you authenticate via a web browser connection to the Siemens Authentication Server. You login using either your Siemens ID (Webkey) or an alternative identity provider (IdP), as set up by your Enterprise Cloud Account (ECA) Admin in the Siemens Xcelerator Admin Console.

Non-interactive authentication

With non-interactive authentication, you authenticate via a Secure Identifier (ID) on your local disk, where a secret authentication key is encrypted and stored. Note that for each user, there is one Secure ID per Simcenter X Advanced application. The Secure Identifier is connected to your Enterprise Cloud Account (ECA).

Session Management

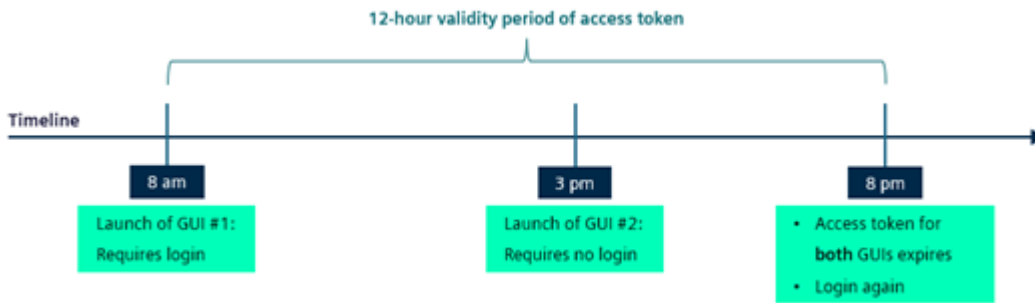
To deliver a seamless and secure authentication process, sessions of Simcenter X cloud-enabled applications combine interactive and non-interactive authentication.

The graphical user interface (GUI) of a Simcenter X Advanced application uses interactive authentication. When you launch the GUI, you are prompted for interactive authentication. Then, the Siemens Authentication Server validates your login credentials, generates an access token that contains identity and role information, and returns the token to the Simcenter X Advanced application.

Your access token to the Siemens Authentication Server remains active for 12 hours. Any GUI session that you launch during this time does not request your login. When the 12-hour period ends, you are automatically logged out from all your GUI sessions and you must authenticate interactively again.

This approach of periodic re-authentication enhances security by limiting the duration of access.

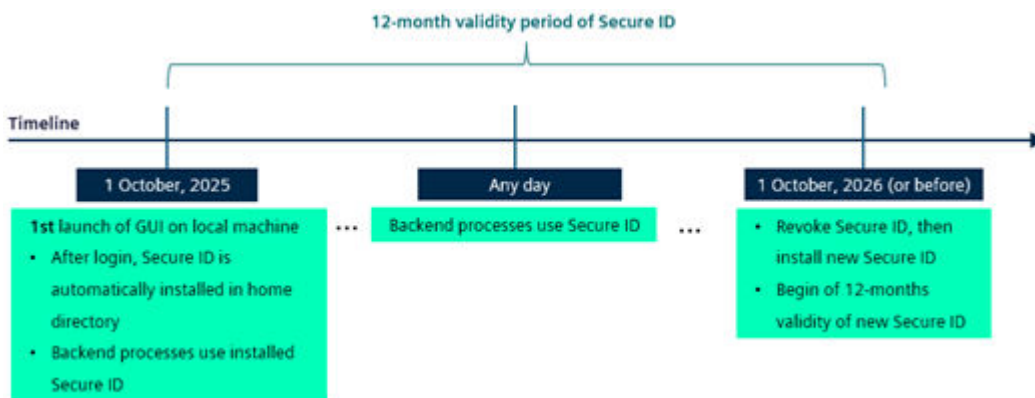
Example:



Non-interactive authentication via a Secure ID is used for authentication requests of various backend processes, such as solvers. When you first launch the GUI of a Simcenter X Advanced application and authenticate interactively, the product-specific Secure ID is automatically installed in the home directory on your local machine. When a backend process requests authentication, the Simcenter X Advanced application checks the Secure ID and, if the Secure ID is valid, processes the request.

Secure IDs have a 12-month validity, which makes them particularly useful for scenarios where continuous access is needed, such as running processes that require long-term authentication without frequent interruptions. When the Secure ID expires, you must revoke the Secure ID on the Siemens Authentication Server and install a new Secure ID. For non-GUI enabled machines, such as Linux compute clusters, you must install the Secure ID remotely.

Example:



Secure ID Management

Each Simcenter X Advanced application allows you to manage its product-specific Secure ID using a tool called Simcenter X Secure ID Manager. You can use the Manage Secure Identifier command to open the tool from each application, or you can launch it from within the installation directory associated with the calling application. If you are using multiple Simcenter X Advanced applications, you must manage the Secure ID for each application individually.

The Manage Secure Identifier tool allows you to:

- Install a Secure ID (on local machines and remote Linux machines)

- Delete a Secure ID (on local machines and remote Linux machines)
- Revoke a Secure ID (on the Siemens Authentication Server)

Launch the Manage Secure Identifier Tool

You can launch the Manage Secure Identifier tool from your profile icon in the GUI of your Simcenter X Advanced application or directly from its installation directory.

On Linux machines, before you launch the Manage Secure Identifier tool, make sure that the following are installed:

- `xdg-open` command – required for opening files, directories, and URLs; available through the `xdg-utils` package.
- `xcb-cursor` library – required for handling cursor images and related operations.

To launch the Manage Secure Identifier tool:

Procedure

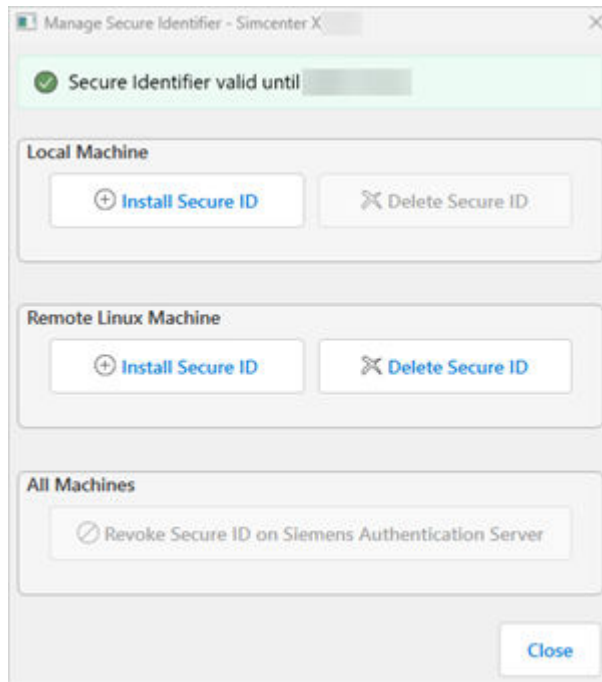
1. Depending on how you want to launch Secure Identifier Manager, do one of the following:

Method	Procedure
Launch from the GUI of the Simcenter X Advanced application, such as Simcenter STAR-CCM+.	<ol style="list-style-type: none"> 1. In the title bar of the Simcenter X Advanced application, click your profile icon. 2. In the profile menu, click Manage Secure Identifier.
Launch directly from its installation directory. With this method, you must have access to the installation directory of the Simcenter X Advanced application and administrator privileges.	<ol style="list-style-type: none"> 1. Open a command prompt and navigate to the following directory: <code>[SimcenterXapp_installDir]/sidtool_ui/0.6.0/win64/bin</code> where <code>[SimcenterXapp_installDir]</code> is the installation directory of the Simcenter X application. 2. In the command prompt, enter the following command: <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <pre>SimcenterXSecureIDManager.exe --product [SimcenterX_prod]</pre> </div>

(continued)

Method	Procedure											
	<p>where <i>[SimcenterX_prod]</i> is one of the following options, depending on your Simcenter X Advanced application:</p> <table border="1" data-bbox="954 491 1516 936"> <thead> <tr> <th data-bbox="954 491 1235 617">Simcenter X Advanced application</th> <th data-bbox="1240 491 1516 617">[SimcenterX_prod]</th> </tr> </thead> <tbody> <tr> <td data-bbox="954 623 1235 709">Simcenter STAR-CCM+</td> <td data-bbox="1240 623 1516 709">cfd</td> </tr> <tr> <td data-bbox="954 716 1235 764">HEEDS</td> <td data-bbox="1240 716 1516 764">mdao</td> </tr> <tr> <td data-bbox="954 770 1235 819">Simcenter Femap</td> <td data-bbox="1240 770 1516 819" rowspan="2">mech</td> </tr> <tr> <td data-bbox="954 825 1235 873">Simcenter 3D</td> </tr> <tr> <td data-bbox="954 879 1235 928">Simcenter Amesim</td> <td data-bbox="1240 879 1516 928">systems</td> </tr> </tbody> </table>	Simcenter X Advanced application	[SimcenterX_prod]	Simcenter STAR-CCM+	cfd	HEEDS	mdao	Simcenter Femap	mech	Simcenter 3D	Simcenter Amesim	systems
Simcenter X Advanced application	[SimcenterX_prod]											
Simcenter STAR-CCM+	cfd											
HEEDS	mdao											
Simcenter Femap	mech											
Simcenter 3D												
Simcenter Amesim	systems											

- If your last interactive authentication with the Siemens Authentication Server was more than 12 hours ago, you are prompted for interactive authentication in your web browser. After successful authentication, the **Manage Secure Identifier—[SimcenterX_prod]** dialog appears, where you can manage your Secure ID for the respective Simcenter X Advanced application.



Managing your Secure ID—Common Scenarios

Simcenter X Advanced applications allow you to manage your Secure ID, including revoking an expired Secure ID and installing a new one.

The following table lists common scenarios that require you to actively manage your Secure ID:

Scenario	Procedure
Your Secure ID expires after 12 months.	<p>When your Secure ID expires after its 12-month validity, you must revoke the Secure ID from the Siemens Authentication Server and install a new Secure ID.</p> <div data-bbox="854 699 1515 879" style="border: 1px solid black; padding: 5px;"> <p>Note</p> <p>You are advised to update your Secure ID shortly before its expiration date to avoid any periods where your Secure ID is not valid.</p> </div> <p>To update an expired Secure ID:</p> <ol style="list-style-type: none"> 1. Launch the Manage Secure Identifier Tool. The Manage Secure Identifier dialog displays the expiration date of your Secure ID. 2. Revoke the expired Secure ID on the Siemens authentication server. See Revoking a Secure ID. 3. (Optional) To clean up your machine, delete the disabled Secure ID file. See Deleting a Secure ID. 4. Install a new Secure ID. See Installing a Secure ID. The 12-month validity period of the new Secure ID file starts on the date of its installation.
You want to run a Simcenter X Advanced application remotely.	<p>If you want to run a Simcenter X Advanced application remotely, you must install your product-specific Secure ID on the remote machine.</p> <p>To install the Secure ID on the remote machine, do one of the following, depending on the operating system (OS) of the remote machine:</p> <ul style="list-style-type: none"> • For Linux: See Installing a Secure ID: Remote Linux machine.

Scenario	Procedure
	<ul style="list-style-type: none"> For Windows: See Installing a Secure ID: Remote Windows machine.
<p>You want to run the Simcenter X Advanced application on a compute cluster.</p>	<p>If you want to run a Simcenter X Advanced application on a compute cluster, you must install the product-specific Secure ID on the head node of the cluster.</p> <div data-bbox="857 516 1513 764" style="border: 1px solid black; padding: 5px;"> <p>Note</p> <p>For compute clusters, to make the Secure ID accessible from all cluster nodes, the cluster must provide a shared home directory. Additionally, all cluster nodes must have outbound internet access.</p> </div> <p>To install the Secure ID on the head node of the cluster, do one of the following, depending on the OS of your cluster:</p> <ul style="list-style-type: none"> For Linux: See Installing a Secure ID: Remote Linux machine. For Windows: See Installing a Secure ID: Remote Windows machine.
<p>A security breach occurred.</p>	<p>If you suspect that your Secure ID or associated credentials are compromised or exposed to unauthorized individuals, you are strongly advised to do the following:</p> <ol style="list-style-type: none"> 1. Revoke the Secure ID on the Siemens authentication server. See Revoking a Secure ID. 2. Delete the disabled Secure ID files from your local and remote machines. See Deleting a Secure ID. 3. Install a new Secure ID on your local and remote machines, as required. See Installing a Secure ID.

Installing a Secure ID

When you first launch a Simcenter X Advanced application and authenticate interactively, a Secure ID is automatically installed on your machine.

However, some scenarios require that you manually install a Secure ID. See [Managing your Secure ID—Common Scenarios](#).

To install a Secure ID, use a procedure from the table below.

Target Location of Secure ID	Procedure
Local machine (Windows or Linux)	<ol style="list-style-type: none"> 1. Launch the Manage Secure Identifier Tool on your local machine. 2. Within the Manage Secure Identifier dialog, in the Local Machine group box, click Install Secure ID. <div data-bbox="922 621 1511 800" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>If Install Secure ID is disabled, a valid Secure ID is already installed on your local machine.</p> </div> <p>The Secure ID is installed in your home on the local machine. A Success dialog appears and informs you that your Secure Identifier has been successfully created or loaded.</p> 3. Click OK.
Remote Linux machine	<ol style="list-style-type: none"> 1. Launch the Manage Secure Identifier Tool on your local machine. 2. Within the Manage Secure Identifier dialog, in the Remote Linux Machine group box, click Install Secure ID. <p>The Install secure identifier on Remote Machine dialog opens.</p> 3. Set the following properties: <ul style="list-style-type: none"> • Machine • Port • Username • Password • Private Key 4. Click Install. <p>Secure ID Manager connects to the remote Linux machine using ssh and installs the Secure ID in your home directory on the remote machine. A Success dialog appears</p>

Target Location of Secure ID	Procedure
	<p>and informs you that your Secure Identifier has been successfully installed on the remote machine.</p> <p>5. Click OK, then Close.</p>
Remote Windows machine	<p>The Manage Secure Identifier tool currently does not support the installation of Secure IDs on remote Windows machines. You are advised to directly login to the Windows machine and install the Secure ID locally.</p>

Deleting a Secure ID

With the Manage Secure Identifier tool, you can delete a Secure ID from a specific machine (local or remote).

To delete a Secure ID, use a procedure from the table below.

Location of Secure ID	Procedure
Local Machine (Windows or Linux)	<ol style="list-style-type: none"> 1. Launch the Manage Secure Identifier Tool. 2. Within the Manage Secure Identifier dialog, in the Local Machine group box, click Delete Secure ID. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note If Delete Secure ID is disabled, no Secure ID is installed on your local machine.</p> </div> <p>The Secure ID file is removed from your home directory.</p> <p>A Success dialog appears and informs you that your Secure Identifier has been successfully deleted from the local machine.</p> <ol style="list-style-type: none"> 3. Click OK, then Close.
Remote Linux Machine	<ol style="list-style-type: none"> 1. Launch the Manage Secure Identifier Tool. 2. Within the Manage Secure Identifier dialog, in the Remote Linux Machine group box, click Delete Secure ID.

Location of Secure ID	Procedure
	<p>The Delete secure identifier on Remote Machine dialog opens.</p> <ol style="list-style-type: none"> <li data-bbox="852 327 1521 632"> 3. Set the following properties: <ul style="list-style-type: none"> • Machine • Port • Username • Password • Private Key <li data-bbox="852 653 1521 915"> 4. Click Delete. Secure ID Manager connects to the remote Linux machine using ssh and deletes the Secure ID file from your home directory. A Success dialog appears and informs you that your Secure Identifier has been successfully deleted from the remote machine. <li data-bbox="852 936 1521 968"> 5. Click OK, then Close.
Remote Windows machine	<p>The Manage Secure Identifier tool currently does not support the deletion of Secure IDs on remote Windows machines. You are advised to directly login to the Windows machine and delete the Secure ID locally.</p>

Revoking a Secure ID

When you revoke a Secure ID, it is disabled on the Siemens authentication server and no longer valid for authentication.

To revoke a Secure ID:

Procedure

1. [Launch the Manage Secure Identifier Tool](#).
2. In the **Manage Secure Identifier** dialog, in the **All Machines** group box, click **Revoke Secure ID on Siemens Authentication Server**.
A **Warning** dialog appears and informs you that your Secure ID will be revoked and will cease working on all machines.
3. Click **Proceed**.

The Secure ID is disabled and no longer valid for authentication. The disabled Secure ID files remain on your machines.

A **Success** dialog appears and informs you that your Secure ID has been successfully revoked.

4. Click **OK**.
5. (Optional) To clean up your machines, delete the disabled Secure ID files from your local and remote machines. See [Deleting a Secure ID](#).
6. Click **Close**.

If you are experiencing issues connecting the solver to cloud licensing, try deleting and regenerating the Secure Identifier. This often resolves connectivity problems.

5. Simcenter X Advanced accounts and licensing

When you purchase Simcenter X Advanced, an email that contains information to activate the cloud account and add users is sent to an Enterprise Cloud Account (ECA) admin.

An administrator must assign a Simcenter X Advanced named-user license to a user to allow them to download, install, and run their Simcenter X Advanced application.

Named-user add-ons

If you have also purchased named-user add-ons, an administrator must assign those add-on licenses to a user after assigning a Simcenter X Advanced named-user license to them.

Tokenized add-ons

Simcenter X Advanced also offers tokenized add-ons. To use these add-ons, you need to purchase bundles of Simcenter X Tokens based on the number of users and the add-on products and solvers they use.

The tokens you purchase become part of a common token pool. When a team member uses an add-on product or solver, its token value is subtracted from the available pool. When a team member is finished with the product or solver, that token value is added back to the pool.

Starting and exiting your Simcenter X Advanced application

When you start your Simcenter X Advanced application, you must select an account and specify your credentials.

The Simcenter X Advanced session is associated to you, and your profile picture is displayed in the upper right corner of the Simcenter X Advanced product window with the option to sign out.

Siemens Digital Industries Software recommends you use the **Log Out** option to exit an Simcenter X Advanced session to ensure that Simcenter X Tokens are immediately added back to the token pool and are available to other users.

Configuring your cloud account and adding users

If you are an Enterprise Cloud Account (ECA) admin, you will receive a welcome email with a link to access the **Siemens Xcelerator Admin Console** so that you can activate the cloud account and add Simcenter X users.

For more information, you can refer to the **Getting Started** section of the Admin Console Documentation.