SIEMENS

SINUMERIK

Mcenter, Optimize MyProgramming /NX-Cam Editor

Operating Manual

Valid for control:
SINUMERIK 840D sl/ 840DE sl,
SINUMERIK 828D, SINUMERIK ONE

Software
Mcenter, version 5.2.1.0
Optimize MyProgramming /NX-Cam Editor, version 1.2.1.0

10/2022
A5E45610259B AM

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Ⓟ 10/2022 Subject to change

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Introduction

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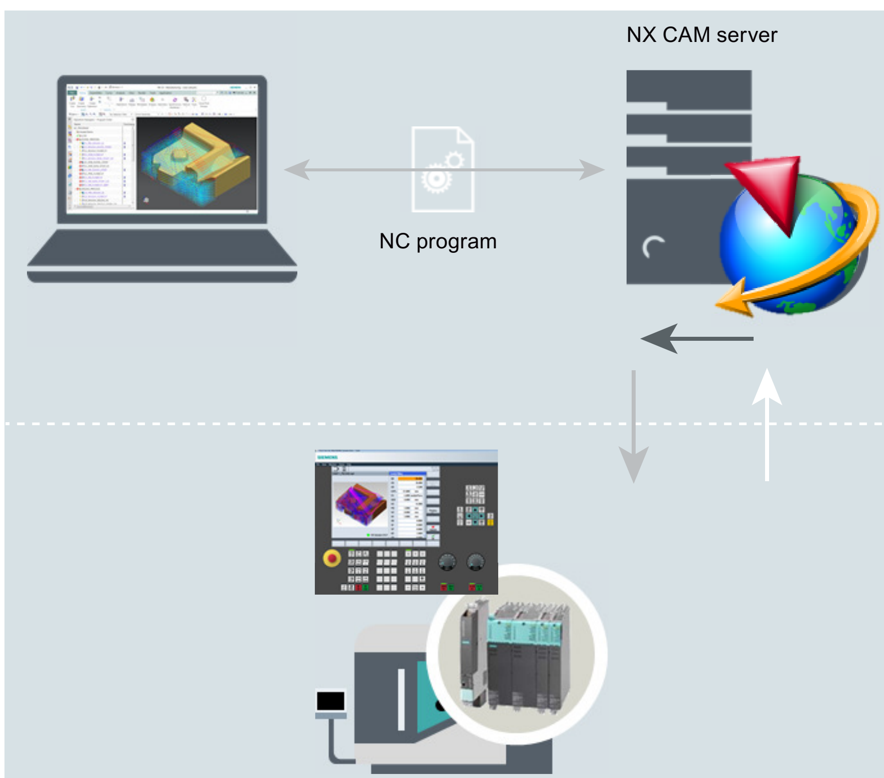
1.1 About Optimize MyProgramming /NX-Cam Editor

Overview

"Optimize MyProgramming /NX-Cam Editor" closes the gap between production planning (CAM) and production (control).

The product allows CAM functions to be accessed from the control (including 3D preview), and transfers the changes from the machine back to the CAM system.

- Optimize MyProgramming /NX-Cam Editor - seamless CAM-CNC process - single license for 1 unit (machine tool)
- You require the "Connect MyMachines" option to connect SINUMERIK control systems to the Mcenter server.



1.2 About this documentation

Target group

The operating manual is aimed at all machine tool users. This publication provides information required by the user to understand the software.

Scope of validity

This manual is valid for use with the following product versions:

- Mcenter, version 5.2.1.0
- Optimize MyProgramming /NX-Cam Editor, version 1.2.1.0

Benefits

The operating manual allows the target group to get familiar with the software user interface. Based on the manual, the target group is capable of responding to problems and to take corrective action.

1.2.1 Standard scope

Standard scope

This documentation only describes the functionality of the standard version. This may differ from the scope of the functionality of the system that is actually supplied. Please refer to the ordering documentation only for the functionality of the supplied drive system.

It may be possible to execute other functions in the system which are not described in this documentation. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

For reasons of clarity, this documentation cannot include all of the detailed information on all product types. Further, this documentation cannot take into consideration every conceivable type of installation, operation and service/maintenance.

The machine manufacturer must document any additions or modifications they make to the product themselves.

Websites of third-party companies

This document may contain hyperlinks to third-party websites. Siemens is not responsible for and shall not be liable for these websites and their content. Siemens has no control over the information which appears on these websites and is not responsible for the content and information provided there. The user bears the risk for their use.

1.3 Documentation on the internet

Comprehensive documentation about the functions provided in SINUMERIK ONE Version 6.13 and higher is provided in the Documentation overview SINUMERIK ONE (https://support.industry.siemens.com/cs/ww/en/view/109768483).

You can display documents or download them in PDF and HTML5 format.

The documentation is divided into the following categories:

- User: Operating
- User: Programming
- Manufacturer/Service: Functions
- Manufacturer/Service: Hardware
- Manufacturer/Service: Configuration/Setup
- Manufacturer/Service: Safety Integrated
- Information and training
- Manufacturer/Service: SINAMICS

Comprehensive documentation about the functions provided in SINUMERIK 840D sl Version 4.8 SP4 and higher is provided in the Documentation overview SINUMERIK 840D sl (https://support.industry.siemens.com/cs/ww/en/view/109766213).

You can display the documents or download them in PDF and HTML5 format.

The documentation is divided into the following categories:

- User: Operating
- User: Programming
- Manufacturer/Service: Functions
- Manufacturer/Service: Hardware
- Manufacturer/Service: Configuration/Setup
- Manufacturer/Service: Safety Integrated
- Manufacturer/Service: SINUMERIK Integrate/MindApp
- Information and training
- Manufacturer/Service: SINAMICS

Comprehensive documentation about the functions provided in SINUMERIK 828D Version 4.8 SP4 and higher is provided in the 828D documentation overview (https://support.industry.siemens.com/cs/ww/en/view/109766724).

You can display documents or download them in PDF and HTML5 format.

The documentation is divided into the following categories:

- User: Operating
- User: Programming
- Manufacturer/Service: Configuring
- Manufacturer/Service: Commissioning
- Manufacturer/Service: Functions
- Manufacturer/Service: Safety Integrated
- SINUMERIK Integrate/MindApp
- Info & Training

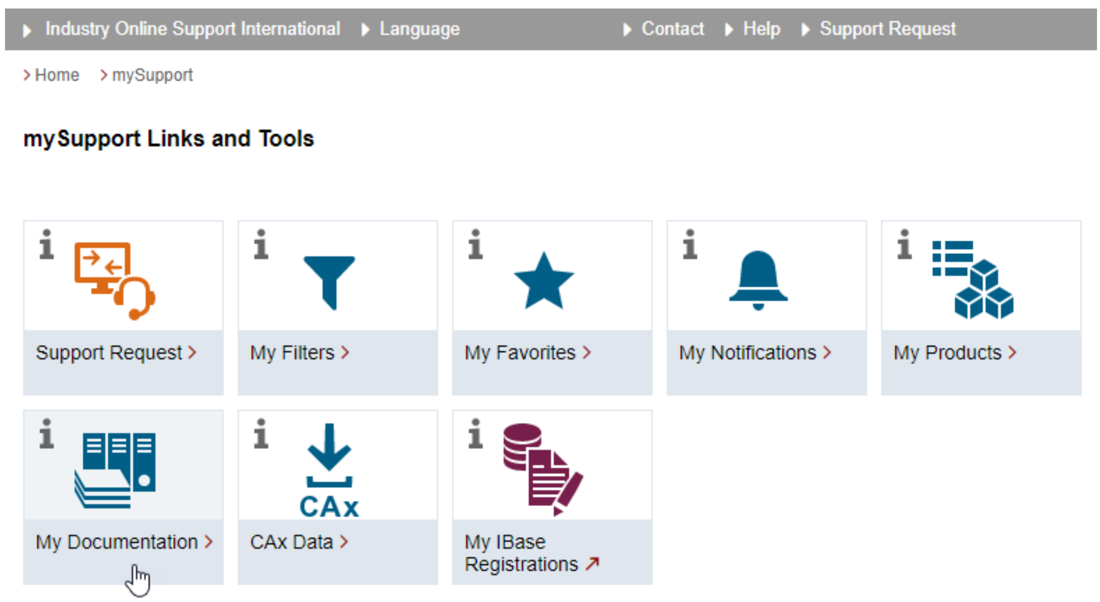
1.4 Feedback on the technical documentation

If you have any questions, suggestions or corrections regarding the technical documentation which is published in the Siemens Industry Online Support, use the link "Provide feedback" which appears at the end of the entry.

1.5 mySupport documentation

With the "mySupport documentation" web-based system you can compile your own individual documentation based on Siemens content, and adapt it for your own machine documentation.

To start the application, click on the "My Documentation" tile on the mySupport homepage (https://support.industry.siemens.com/cs/my?lc=en-WW):



The configured manual can be exported in RTF, PDF or XML format.

Note

Siemens content that supports the mySupport documentation application can be identified by the presence of the "Configure" link.

1.6 Service and Support

Product support

You can find more information about products on the internet:

Product support

The following is provided at this address:

- Up-to-date product information (product announcements)
- FAQs
- Manuals
- Downloads
- Newsletters with the latest information about your products
- Global forum for information and best practice sharing between users and specialists
- Local contact persons via our Contacts at Siemens database (→ "Contact")
- Information about field services, repairs, spare parts, and much more (→ "Field Service")

Technical support

Country-specific telephone numbers for technical support are provided on the internet at address in the "Contact" area.

If you have any technical questions, please use the online form in the "Support Request" area.

Training

You can find information on SITRAIN at the following address.
SITRAIN offers training courses for automation and drives products, systems and solutions from Siemens.

Siemens support on the go

With the award-winning "Siemens Industry Online Support" app, you can access more than 300,000 documents for Siemens Industry products – any time and from anywhere. The app can support you in areas including:

- Resolving problems when implementing a project
- Troubleshooting when faults develop
- Expanding a system or planning a new system

Furthermore, you have access to the Technical Forum and other articles from our experts:

- FAQs
- Application examples
- Manuals
- Certificates
- Product announcements and much more

The "Siemens Industry Online Support" app is available for Apple iOS and Android.

Data matrix code on the nameplate

The data matrix code on the nameplate contains the specific device data. This code can be read with a smartphone and technical information about the device displayed via the "Industry Online Support" mobile app.

1.7 OpenSSL

This product can contain the following software:

- Software developed by the OpenSSL project for use in the OpenSSL toolkit.
- Cryptographic software created by Eric Young.
- Software developed by Eric Young

You can find more information on the internet:

- OpenSSL (https://www.openssl.org/)
- Cryptsoft (https://cryptsoft.com/)

1.8 General Data Protection Regulation (GDPR)

Siemens observes standard data protection principles, in particular the data minimization rules (privacy by design).

For this product, this means:

The product does not process or store any personal data, only technical function data (e.g. time stamps). If the user links this data with other data (e.g. shift plans) or if he/she stores person-related data on the same data medium (e.g. hard disk), thus personalizing this data, he/she must ensure compliance with the applicable data protection stipulations.

Fundamental safety instructions 2

2.1 General safety instructions

⚠ WARNING
Danger to life if the safety instructions and residual risks are not observed
If the safety instructions and residual risks in the associated hardware documentation are not observed, accidents involving severe injuries or death can occur. • Observe the safety instructions given in the hardware documentation. • Consider the residual risks for the risk evaluation.

⚠ WARNING
Malfunctions of the machine as a result of incorrect or changed parameter settings
As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death. • Protect the parameterization against unauthorized access. • Handle possible malfunctions by taking suitable measures, e.g. emergency stop or emergency off.

2.2 Warranty and liability for application examples

Application examples are not binding and do not claim to be complete regarding configuration, equipment or any eventuality which may arise. Application examples do not represent specific customer solutions, but are only intended to provide support for typical tasks.

As the user you yourself are responsible for ensuring that the products described are operated correctly. Application examples do not relieve you of your responsibility for safe handling when using, installing, operating and maintaining the equipment.

2.3 Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit
https://www.siemens.com/industrialsecurity (https://www.siemens.com/industrialsecurity).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
https://www.siemens.com/cert (https://www.siemens.com/cert).

Further information is provided on the Internet:

Industrial Security Configuration Manual (https://support.industry.siemens.com/cs/ww/en/view/108862708)

⚠ WARNING

Unsafe operating states resulting from software manipulation

Software manipulations, e.g. viruses, Trojans, or worms, can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.

- Keep the software up to date.
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.
- Make sure that you include all installed products into the holistic industrial security concept.
- Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.
- On completion of commissioning, check all security-related settings.

3 Prerequisite

Prerequisite

To establish a connection to the NX CAM server (Version 3.19.5), the CAM server must be configured.

Operating on the server 4

4.1 Introduction

You start Mcenter by entering a URL in the Internet browser.

Overview

The start page is called after logging on.

Displaying information about the product and the version (Page 23)

The following applications can be started:

- Mcenter
  - Manage machines (Page 50)
  - Manage users (Page 34)
  - Administration Overview (Page 31)
  - Manage applications on machines (Page 65)
  - Manage openness clients (Page 74)
  - Manage adapters (experimental) (Page 82)

Calling applications with http communication

This Operating Manual only describes calling applications with https communication.

You can also call all applications with http communication. To do this, add port ":8090" after the IP address and change the protocol from "HTTPS" to "HTTP".

4.2 Logging in to and logging out from Mcenter

4.2.1 Without an external authentication provider

Prerequisite

You have set up your user account.

Procedure

1. Open the following URL: Start page (https://{ServerIP}/start-page)
   The login window opens.
   – Enter your user credentials.
   – Click on the "Login" button.

Note

Invalid login attempt

The error message "Invalid login attempt" is displayed when you enter incorrect credentials.

After the fifth unsuccessful attempt, your user account is locked for 5 minutes.

2. The start page opens.
   To use the functions, click on the required application. If you do not see the required application, it means your user does not have the neccessary role to view it.
   E.g. you need administrator rights to use certain Mcenter functions, for example "Administrate Mcenter".

Logging out

1. To log out from the application, open the drop-down menu in the upper right section of the window.
2. Click "Logout" to log out from all applications.

4.2.2 With an external authentication provider

Prerequisite

The user account for the external user has been set up.

Note

Login as an external user

You must configure an external authentication provider to log in as an external user. Additional information is provided in the Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData / Collector".

Procedure

1. Open the following URL: Start page (https://{ServerIP}/start-page)
   The external authentication provider login window opens.
2. Enter your user credentials.

   Note

   Invalid login attempt

   The error message "Invalid login attempt" is displayed when you enter incorrect credentials or no user with a matching external user ID exists.

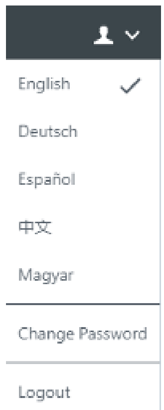
   After the fifth unsuccessful attempt, your user account is locked for 5 minutes.

   ---

3. The Mcenter start page opens.
   To use the functions, click on the required application.
   You need administrator rights to use certain Mcenter functions, for example "Administrate Mcenter".

Logging out

1. To log out from the application, open the drop-down menu in the upper right section of the window.
2. Click "Logout" to log out from all applications.



Authentication with an internal user

Logging in with an external authentication provider depends on the configuration. Follow the file path "Siemens\Mcenter\Platform\SinInt.Identity.Service\appsettings.production.json" and check the "UseExternalUserManagement" value: "UseExternalUserManagement": {value}.

"UseExternalUserManagement": false

If the value is "false", logging in with an internal user is allowed.

Open the following URL: Start page (https://{ServerIP}/int/identity/account/login/start-page)

Follow the steps as described in Without an external authentication provider (Page 19).

"UseExternalUserManagement": true

If the value is "true", logging in with an internal user is not allowed.

4.3 Displaying information about the product and the version

The following Mcenter data is displayed:

- Product version
- Build identifier

Prerequisite

The start page is open.

Procedure

1. In the header of the Mcenter window, click on the hamburger menu (upper left corner).
2. The "Main menu" window pane opens.
3. Click on entry "Mcenter".
   The "Product information" dialog box opens and shows the installed version.
   Click on the "OK" button to close the dialog box.

4.4 Switch language

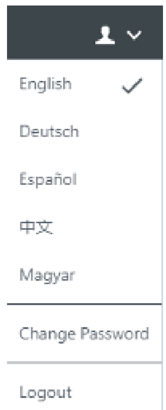
The user interface is available in the following languages:

- English
- German
- Spanish
- Chinese
- Hungarian

If you select a language in a server application, this language is used for the GUI of any other application even if you log out.

Procedure

1. Open the drop-down menu in the upper right section of the window.
2. Click on your chosen language.
   The user interface is displayed in the desired language.



4.5 Password change

You have the possibility to change your password at regular intervals.

This function is not available for external users.

Prerequisites

This function only applies to internal users.

Procedure

1. In the header of the Mcenter window, click the user icon (upper right corner).
   A drop-down menu opens.
2. Click "Change Password".

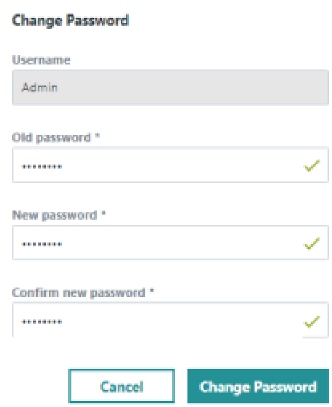
3. The "Change Password" window opens.
   – Enter your current password in the "Old password *" input field.
   – Enter a new password in the "New password *" input field.

   Note

   Properties of a strong password

   - Use at least 8 characters
   - Contains at least one uppercase letter
   - Contains at least one lowercase letter
   - Contains at least one special character
   - Contains at least one numerical character

   – Repeat the new password in the "Confirm new password *" input field.
   – To change the password, click on "Change Password".
   - OR -
   To cancel processing without saving, click on "Cancel".
   The window is closed.



Error messages

An appropriate error message is displayed below the input field if the entries are not correct.

- Input required.
  Enter a password.
- The old and the new password must be different.
  Enter a new password that is different from the old one.
- The new passwords must be identical.
  Enter the new password and confirm it by entering it again, exactly as before.
- An error message is displayed in the top-right window area: "The old password may be wrong or the new password is too weak."
  - Enter the correct password.
  - Enter a password that satisfies the security criteria.

4.6 List filtering

On many overview pages, for example Manage MyResources /Tools or Manage MyResources / Orders, you can use the filter function to reduce the amount of displayed data.

When you save a filter, it is stored even if you refresh the page.

When, on logout, you have active filters set for an application, the filters remain active when you log in again and open the application. You can select the saved filters, even after logout.

Symbols

The following symbols are taken into account when filtering:

Symbol	Description
	Opens or closes the "My Filters" window.
	Copies the selected filter to the "My Filters" list.
	Removes the selected filter criterion from the current filter. Removes the corresponding filter from the "My Filters" list.

Symbol	Description
+	Adds additional criteria to the current filter.
	Shows that a filter is active.

Operators

The following operators are taken into account when filtering text fields or datetime fields:

- is equal
- includes
- starts with
- ends with
- empty
- not empty

The following operators are taken into account when filtering numbers:

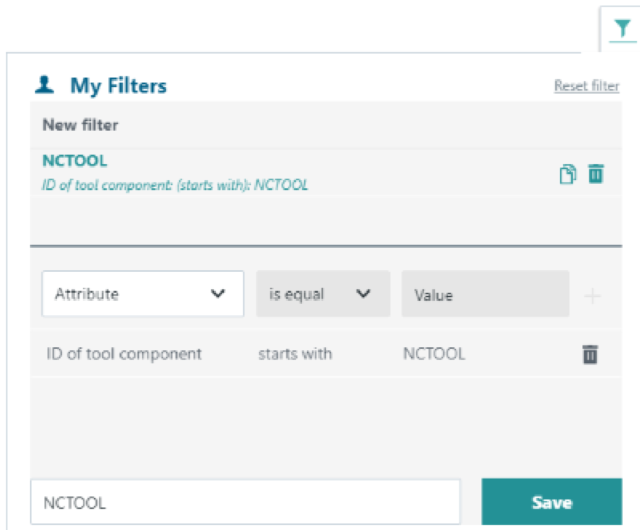
- is equal
- larger than
- smaller than
- empty
- not empty

The following operators are taken into account when filtering enum fields:

- is equal

Procedure

1. Click the "Filter" symbol.
   The "My Filters" window opens.

2. Select a filter from the "My Filters" list.
   - OR -
   Define a new filter.
3. To do this, select the filter criterion from the "Attribute" drop-down list.
   Each filter criterion can be used multiple times, but only once with the same operator.
4. Select the desired filter operator from the drop-down list.
5. In the "Value" field, precisely enter the text, and in its full length, for which a search is to be made.
6. Add the filter criterion for the current filter using the "+" character.
   Remove the corresponding filter criterion using the "Delete" symbol.
7. If you wish to reuse the filter:
   - Enter a filter name.
   - Click on "Save".
     The filter is displayed in the "My Filters" list.
8. Click on "Reset filter" to redisplay all of the data.

Note

Filters

The filters are saved in your user profile. Once you have selected a filter, it remains active until you deactivate it, log out or close the browser tab.

5 Using Mcenter on the server

5.1 Administration Overview

The "Administration overview" window allows administration with the following option:

- Managing the hierarchy of the plant.
  For more information, see Managing plant hierarchy (Page 31).

Prerequisite

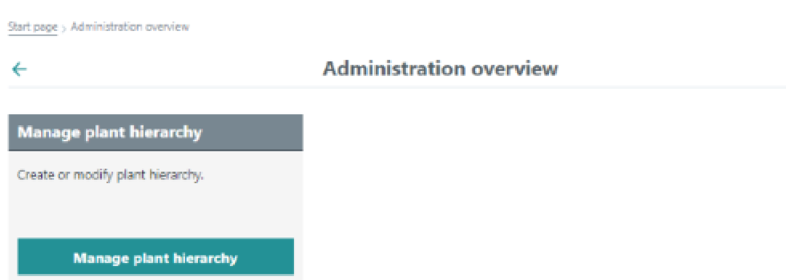
You need the rights of the Administrator or Key user role to access the "Administration overview" window.

Procedure

1. On the start page of Mcenter, click on "Administrate Mcenter"

   - OR -
   Open the following URL: Administration overview (https://{ServerIP}/admin-overview)
   – Enter a username and password.
2. The "Administration overview" window opens.



5.2 Managing plant hierarchy

Prerequisite

You need rights of the Administrator or Key user role to access the "Plant management" window.

Parameter

The following parameters are available:

Parameter	Description
Hierarchy path *	Select the hierarchy path from the drop-down list. If you do not select a path, the displayed path is adopted.
Node name *	Enter a unique name. A maximum of 30 characters can be entered.
Node type *	Select the node point from the drop-down list. The following node points can be selected: • Enterprise • Site • Area • Production line • Work cell • Storage zone • Storage unit
ⓘ	Shows further information.

*) All fields with an asterisk are mandatory. If you enter a value that does not comply with the rules, a red warning symbol and a corresponding red highlighted error message below the input field are displayed.

Definition of node types

Enterprise: The Enterprise is a collection of one or more plants, connected within the given installation. An alternative interpretation is about the owner of the installation. There can only be one single enterprise node.
Example: Siemens AG

Site: The site is a structural, logical or geographical arrangement that is determined by the enterprise. The delimitation of a plant is usually based on organizational and entrepreneurial criteria as opposed to technical criteria.
Example: Factory at a given address

Area: The area complex is a structural, geographical, or logical arrangement that is determined by the site. The areas may represent different stages, steps, or processes in the production lifecycle of the product.
Example: Preprocessing Area

Production line: The production line contains all sub-areas, technical facilities and individual machines that are required to manufacture one or more batches. A batch does not always have to use all facilities within the production line, but it will usually perform the same operation on the products in the production. Additionally production planning is usually done on line level based on the capacity of the underlaying working cells.
Example: Manufacturing of Servomotors

Working cell: A cell consists of technical equipment and machines. The parts that make up the working cell, can be part of the subsystem or can be used temporarily to perform certain tasks. A cell can perform one or more major processing activities. It combines all the necessary process engineering and I&C equipment needed to carry out these activities as an independent facility

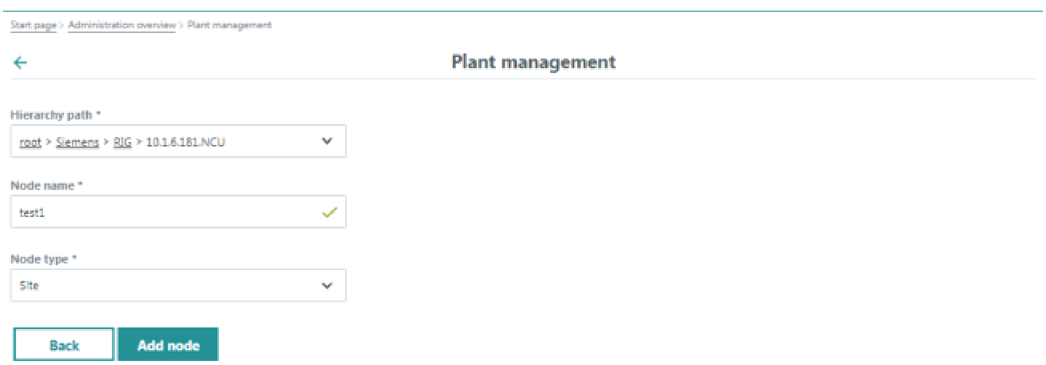
group. Often most of the machines within a cell are able to process the very same manufacturing process.
Example: Drilling holes in shafts

Storage zone: The storage zone is a designated location within the area, which holds the materials that are required for the production, or the already manufactured products.

Storage unit: A physical unit which is located in the storage zone. This can usually be a desk or shelves to store the required parts or produced products.
Example: Tool cabinets

Procedure

1. Click "Administrate Mcenter" on the Mcenter start page.
2. In the "Administration overview" window, click on "Manage plant hierarchy".
3. The "Plant management" window opens.
4. Fill in the required fields.
5. To create a node, click "Add node".
   – A success message is displayed in the upper right corner of the window.
   - OR -
   – To return to the "Administration overview" window, click "Back".



Note

Nodes

You cannot delete or update the nodes you created.

5.3 Manage users

Note

External user management

When you use the external user management, the functionalities of "Manage users" are not usable.

Additional information is provided in the Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData / Collector".

5.3.1 Overview of the users

The "Overview of users" window allows administration with the following options:

- Create users
  - internal
  - external
- Update users
  - account status
  - roles
- Delete users

When your session expires, press the <F5> button and you are redirected to the login page.

Prerequisite

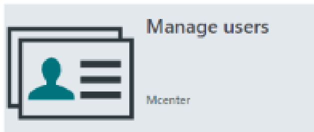
You need an administrator or key user role to manage users.

Parameters

Parameter	Description
	This symbol appears when you click on the column heading. Click on the symbol to sort the elements alphabetically/numerically, either in ascending or descending order.
User Account ID	Provides user identification. • Displays the username of internal users. • Displays the external user Id with the prefix "extId". The external users are displayed at the top of the list. You can create, disable and delete users. For more information, see • Creating new users (Page 40) • Updating the account status (Page 42) • Deleting user accounts (Page 45)
Account type	Shows the account type:· • Internal: Internal user • External: External user
Username	Shows the name of the user. **Note:** The currently logged in <Admin> user with the administrator role can disable another administrator, but not himself/herself.
Roles	Shows the roles. You cannot sort the elements in this column. For more information, see Users and functions (Page 36).
Account status	Shows the account status: • Active • Disabled
	Deletes the user account. **Note:** When you delete a user account, you cannot use the same username to create a new one.
	Opens the "My Filters" window and filters the user table according to the following criteria: • User Account ID • Account type • Username • Roles • Account status For more information, see List filtering (Page 27). Click on the filter icon again to close the filter window.

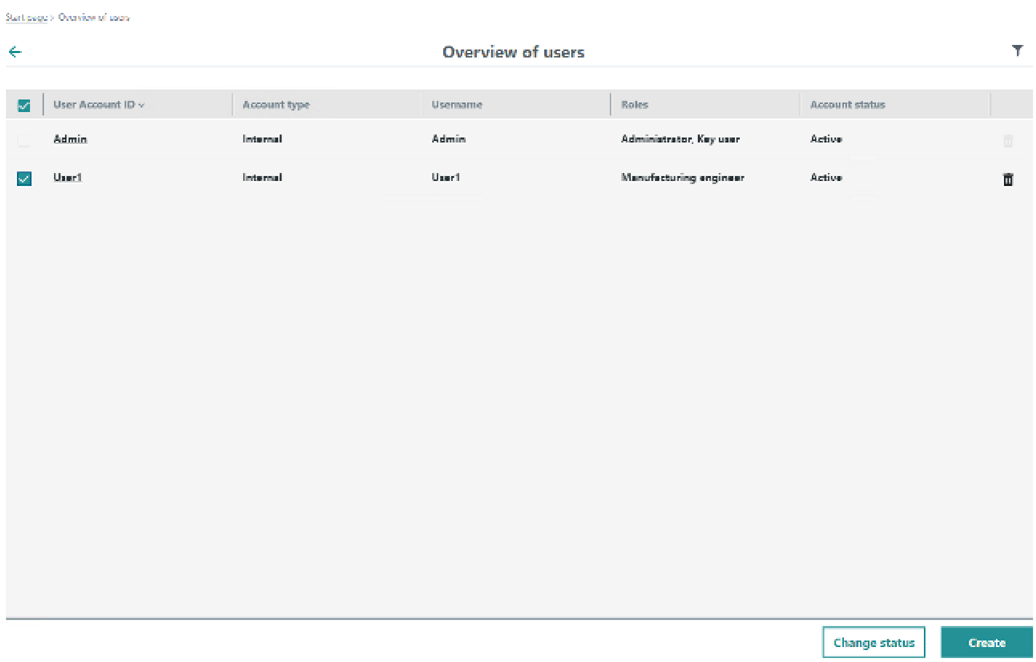
Procedure

1. On the start page of Mcenter click on "Manage users".



   - OR -
   Open the following URL: Manage users (https://{ServerIP}/user-overview)

2. The "Overview of users" window opens and displays an overview of all users with their rules. In order to set your preferred column width, press the left mouse button and drag the column edges to the left or to the right. The respective parameters are automatically saved when you release the mouse button. The next time you log in with your user Id, the columns are displayed with the width you opted for.



5.3.2 Users and functions

The following users are available in the Mcenter:

- The user "Admin" is set up during the installation.
- The "Admin" user can create further users.

Overview

Users have access to the following functions:

- Write: The user has writing rights.
- Read: The user has only reading rights.
- Read+: The user has reading rights and can, in addition, assign or write the sistertool for a greenfield tool.

Mcenter	**Roles**										
Views	**Administrator**	**Key user**	**Manufacturing engineer**	**Technologist**	**NC Programmer**	**Production planner**	**Tool presetting operator**	**Logistician**	**NC Programmer expert**	**Machine operator**	**Maintenance engineer**
Manage applications on machines	write	write				read			read		read
Manage openness clients	write										
Administrate/ Manage plant hierarchy	write	write				read			read		read
Manage users	write	write									
Manage machines	write	write				read			read		read
Manage tasks	write	write				read			read		read
Manage NC Packages	write	write	write	write	write				write	read	
Storage locations	write	write						write	write	write	write
Tool component stacks	write	write						write	write	write	write
Plan manufacturing equipment /Add	write	write	write	write	read	write	read		read	read	
Plan manufacturing equipment /Balancing	write	write	write	write	read	write	read		read	read	
Monitoring tools change lifetime	write	write				write		read	write	read	read
Monitoring tools add sister tool	write	write				write		write	write	write	write
Set Trial tool	write	write				write					
Update Trial tool life	write	write				write				write	
Provide tools	write	write		write		write	write		write		

Mcenter	Roles										
Views	**Administrator**	**Key user**	**Manufacturing engineer**	**Technologist**	**NC Programmer**	**Production planner**	**Tool presetting operator**	**Logistician**	**NC Programmer expert**	**Machine operator**	**Maintenance engineer**
Tool stock	write	write		read	read	read		write	write	write	write
Tool master data	write	write	write	write	read		read		write	read	
OEM tool data sets	write	write	write	write	read		read		write	read	
Tool component master data	write	write	write	write	read		read		write	read	
Display OEE & KPIs	read & write					read			read		read
Custom Date Queries	read & write					read			read		read
Display to all data shown on the charts	read & write					read			read		read
Display Applied Plans to the Machines	read & write					read			read		read
Edit Templates (Create new templates & Delete Existing Template)	read & write										
View Templates	read & write	read	read	read	read		read	read			
Assign Templates to the Asset	read & write										
Display Produced Workpieces (Total Piece, Scrap Piece, etc.)	read & write					read			read		read
Edit Produced Workpieces (Total Piece, Scrap Piece, etc.)	read & write										
Display Missing Workpieces	read & write					read			read		read
Display Selected KPI Formulas	read & write	read	read	read	read	read	read	read	read		read
Edit KPI Formulas	read & write										

Mcenter	**Roles**										
Views	**Administrator**	**Key user**	**Manufacturing engineer**	**Technologist**	**NC Programmer**	**Production planner**	**Tool presetting operator**	**Logistician**	**NC Programmer expert**	**Machine operator**	**Maintenance engineer**
Display Selected Color Options for the KPIs	read & write	read	read	read	read	read	read	read	read		read
Edit Color Options for the KPIs	read & write										
Display Selected Production Levels	read & write	read	read	read	read	read	read	read	read		read
Edit Production Levels	read & write										
Operator States Configuration	read & write										
Using Operator States	read & write									read & write	
Manual State History	read & write										
Operator States History	read & write										
Exploring Machine Status	read & write					read			read		read
Tools on Managed Machines	write	write	read	read	read	write	read	read	read	write	read
Programs on Managed Machines	write	write	write		write	write			write	write	
Tool lifecycle distribution	read	read				read					
Tool scheduling	read	write				write					
Tool statistics	read	read				read					
Additional resources master data	write	write	write	write			read		write	read	
Additional resources instances	write	write		write		write	write	write	write	write	write

Note

Users with multiple roles

If you are assigned multiple roles, you receive the rights for each respective role. There is no hierarchical relationship between the roles.

5.3.3 Creating new users

Parameters

The following parameters are available:

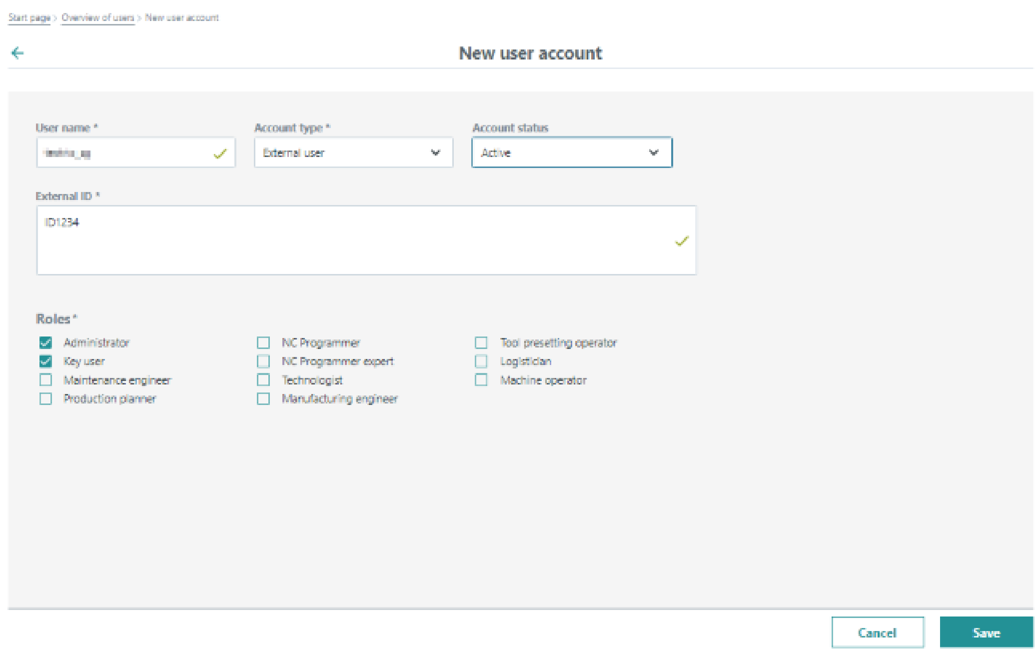
Parameter	Description
Username *	Enter the username. You can enter a maximum of 50 characters. The following characters are permitted for user names: [a...z], [A...Z], [0...9], [-]; [_]
Account type *	You can choose the following type: • Internal user • External user
Account status	You can choose the following status: • Active • Disabled
External ID *	• Enter the unique identifier used in the external authentication provider. You can enter a maximum of 255 characters. • Only visible and mandatory if the account type is: External User
Roles *	Set role(s) to the new user. You can choose the following roles: • Administrator • Key user • Maintenance engineer • Production planner • NC Programmer • NC Programmer expert • Technologist • Manufacturing engineer • Tool presetting operator • Logistician • Machine operator For more information, see List filtering (Page 27).
Password *	• Enter a secure password. Password criteria**:** – Use at least 8 characters – Contains at least one uppercase letter – Contains at least one lowercase letter – Contains at least one special character – Contains at least one numerical character • Only requested and mandatory if the account type = Internal user

Parameter	Description
Confirm password *	Re-enter the password.
ⓘ	Shows further information.

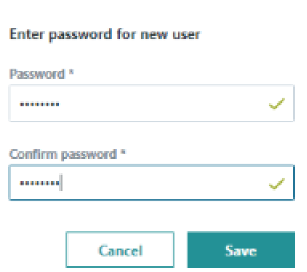
*) The fields marked with an asterisk are mandatory and must be completed. An error message is output if you make an erroneous entry.

Procedure

1. Click "Create" on the "Overview of users" window.
   The "New user account" window opens.
2. Enter the required information.
3. Click "Save" to create a new user.
   - OR -
   Click "Cancel" to discard the inputs.



4. Enter a password for the new user.
   Confirm the password and click "Save".



5. You receive the message "User created successfully" in the top-right window area.
   The users created are displayed in the " Overview of users" window.

5.3.4 Updating the account status

You can enable and disable users. Disabled users cannot login to the Mcenter applications, but they still have access to the applications until their next logout.

Note

Administrator or Key user rights

The currently logged in users with "Administrator" or "Key user" rights cannot disable themselves.

Parameters

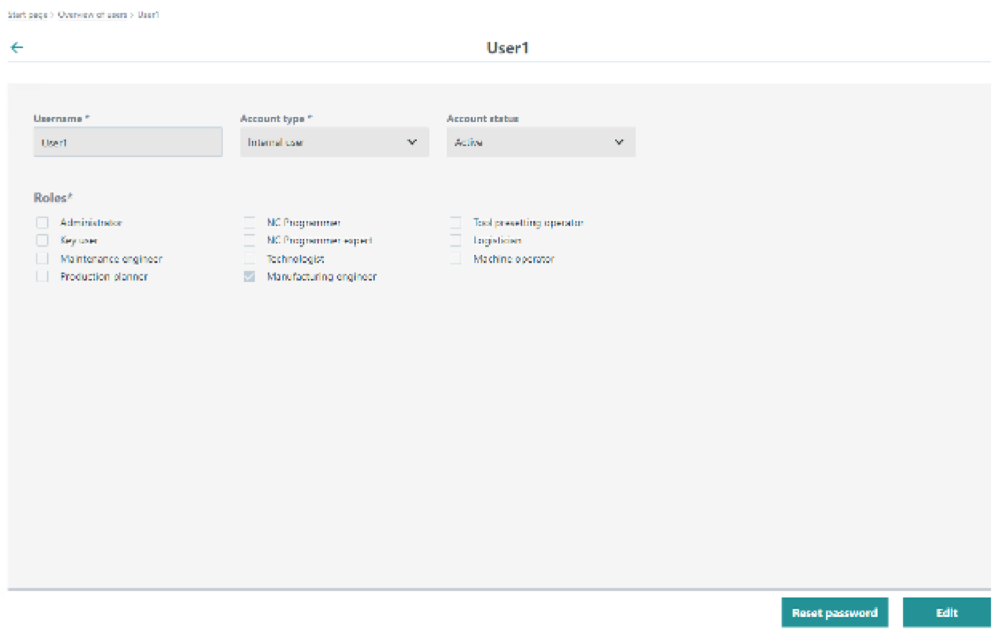
The following parameters are available:

Parameter	Description
Username *	Shows the username. The username must be unique. You cannot use the name of a deleted user account.
Account type *	Shows the Account type: • Internal user - OR - • External user
Account status	You can choose the following status: • Active • Disabled
Roles *	You can choose the following roles: • Administrator • Key user • Maintenance engineer • Production planner • NC Programmer • NC Programmer expert • Technologist • Manufacturing engineer • Tool presetting operator • Logistician • Machine operator For more information, see List filtering (Page 27)
ⓘ	Shows further information.

*) The fields marked with an asterisk are mandatory and must be completed. An error message is output if you make an erroneous entry.

Procedure

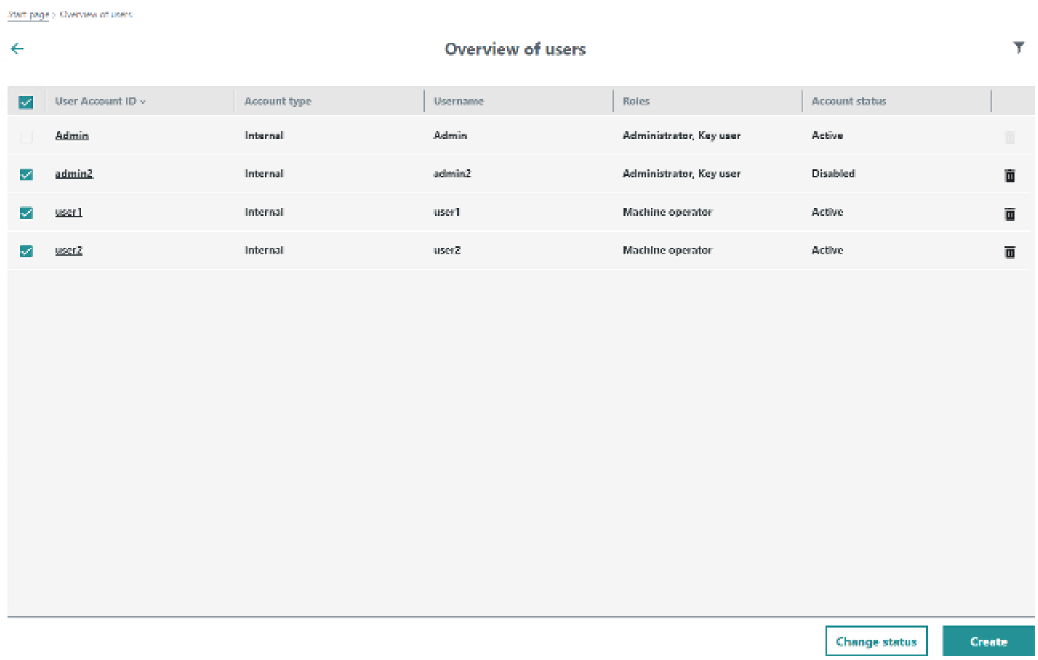
1. Click on the underlined name of the user in the "Overview of users" window.
   The "<username>" window opens.
   - Click "Edit".
   - Enter the required information.
   - Click "Save" to change the user.
     \- OR -
     Click "Cancel" to discard the inputs.



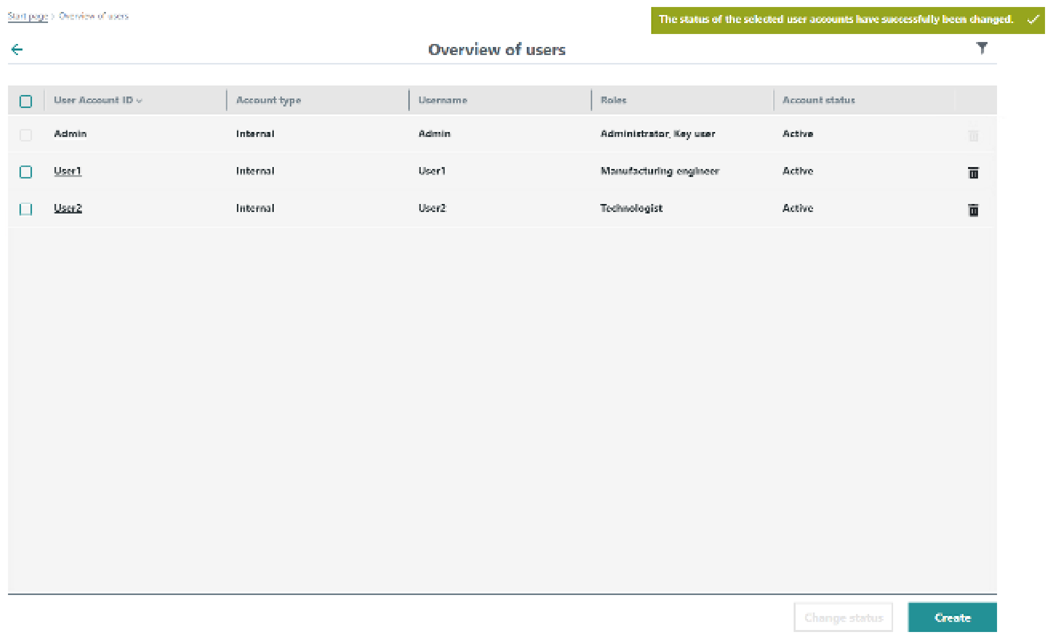
   \- OR -

2. Open the "Overview of users" window.

3. Activate the checkbox in front of the User Account ID.
   You have two possibilities:
   - Activating individual checkboxes.
   - Activating the column header checkbox in order to select all users except the logged-in admin.



4. Click "Change status".
   The message "The status of the selected user accounts have successfully been changed" is displayed in the top-right window area.



Note

Change status button

The "Change status" button is only activated if

- you activate one or several checkboxes and
- all selected user checkboxes have the same account status.

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5. If you want to change the password, see further information in Chapter: Password change (Page 25)

5.3.5 Deleting user accounts

You have the possibility to delete user accounts.

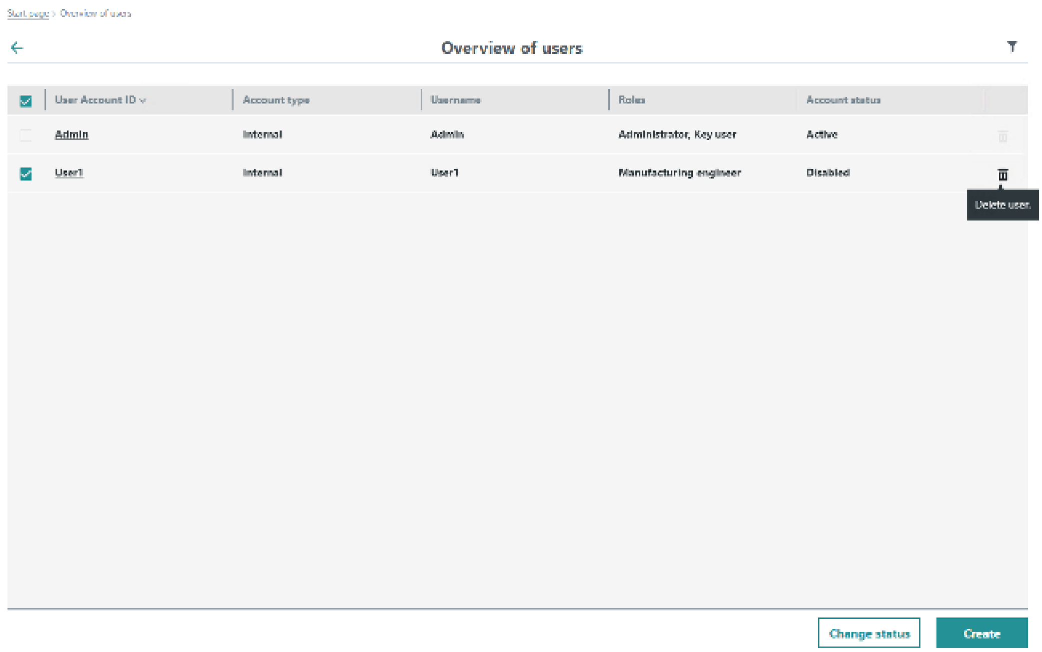
Parameters

The following parameters are available:

Parameter	Description
v	This symbol appears when you click the column heading. Click the symbol to sort the elements alphabetically/numerically, either in ascending or descending order.
User Account ID	Provides user identification. • Displays the username of internal users. • Displays the external user Id with the prefix "extId".
Account type	Shows the account type:· • Internal: Internal user • External: External user
Username	Shows the name of the user. **Note:** The currently logged in <Admin> user with the administrator role can disable another administrator, but not himself/herself.
Roles	Shows the roles. For more information, see Users and functions (Page 36).
Account status	Shows the account status: • Active • Disabled
	Deletes the user account.
	Opens the "My Filters" window and filters the user table according to the following criteria: • User Account ID • Account type • Username • Roles • Account status For more information, see List filtering (Page 27). Click on the filter icon again to close the filter window.

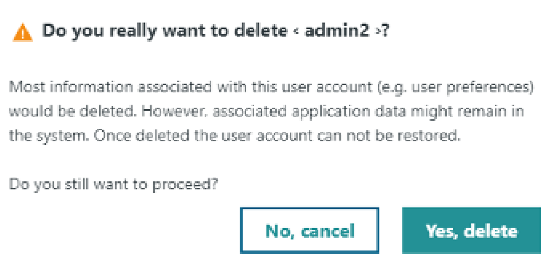
Procedure

1. Open the "Overview of users" window.
   – Set the cursor on the "Delete" symbol next to the user account you wish to delete.



2. Click the "Delete" symbol.
   A dialog box appears.
   – Click "Yes, delete" to delete the user account.
   - OR -
   – Click "No, cancel" to cancel the operation.

   Once a user account has been deleted, the message "Invalid log-in attempt" appears if the user tries to log in again.



Note

Deleted user accounts

Once you have deleted user accounts, the respective users have a time slot to finish ongoing operations, and can log out. By default, the time slot is 10 minutes and the count-down starts with the user log-in. If the administrator deletes an account 5 minutes after the user has logged in, the user has 5 minutes left to work on an open application. If the user clicks another application, the message "Access denied. You do not have access to this resource" is displayed. You can change the default time slot within consul.

Note

User account data

The data from deleted user accounts is permanently erased from the system.

5.3.6 Resetting the password

You have the possibility to reset the password if it has been deactivated after a long absence. You can enter a new password or the user's old one which is thus reactivated.
The administrator sends the reset password to the user via a communication channel outside Mcenter. The system does not automatically notify the user.

Prerequisites

- In order to reset a password, you need the following rights:
  - Administrator rights
    - OR -
  - Key user rights
- You can reset the password only for the internal users.
  When you select an external user, there is no "Reset" button on the detail page.

Parameters

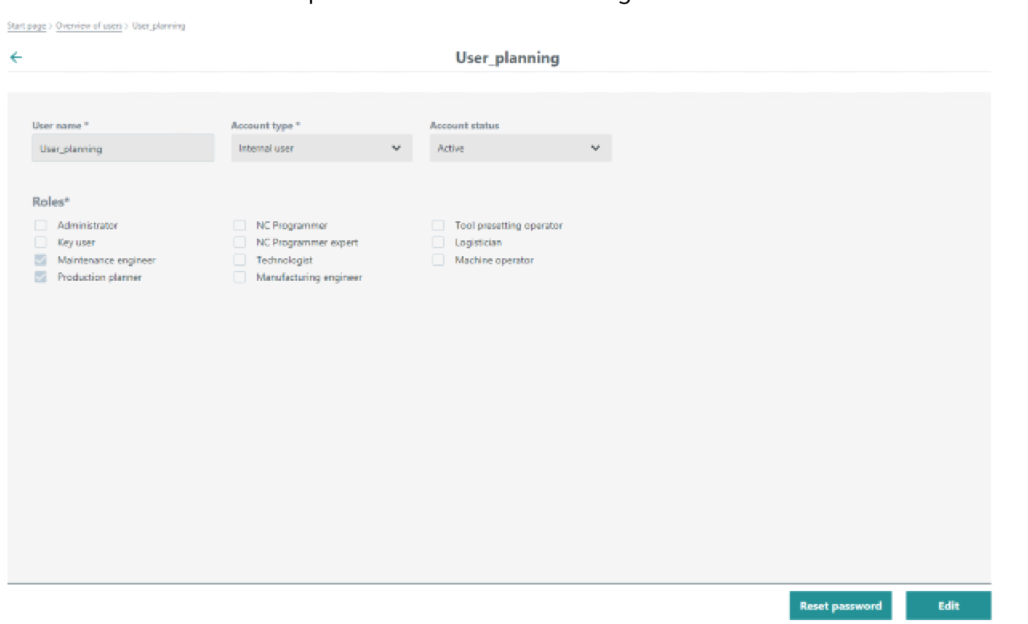
The following parameters are available:

Parameter	Description
Account status	You can choose the following status: • Active • Disabled
Password *	Enter a secure password. Password criteria**:** • Use at least 8 characters • Contains at least one uppercase letter • Contains at least one lowercase letter • Contains at least one special character • Contains at least one numerical character
Confirm password *	Re-enter the password.
ⓘ	Shows further information.

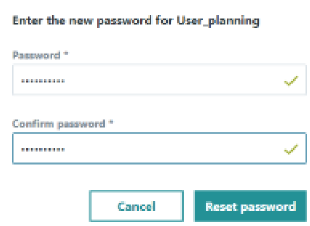
*) The fields marked with an asterisk are mandatory and must be completed. An error message appears if you make an erroneous entry.

Procedure

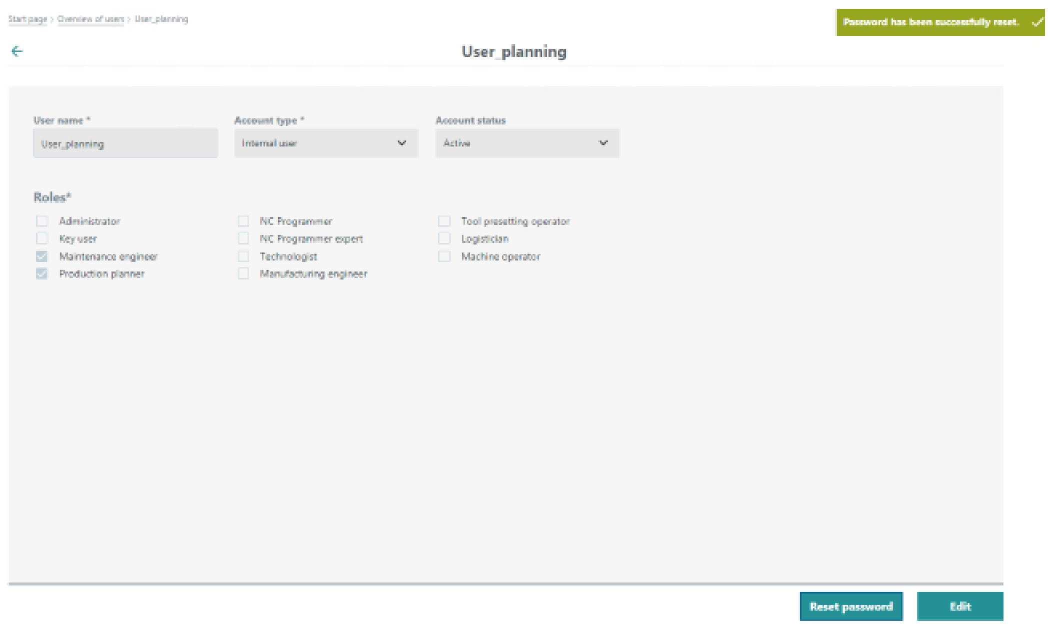
1. Log in as Administrator or Key user.
2. Click "Manage users".
3. The window "Overview of users" is open. Select the user who needs a password reset.
4. Click on the username and open the detail page.
5. Click on the button "Reset password" in the bottom-right window area.



6. Enter the new password and confirm it by retyping it in the line underneath.
   Click on "Reset password" to save the new password.
   - OR-
   Click "Cancel" to discard to cancel the operation.



7. A green message appears in the top-right window area indicating that the operation was successful.



5.4 Manage machines

5.4.1 Overview of machines

The "Manage machines" window shows an overview of all created machines.

Parameter

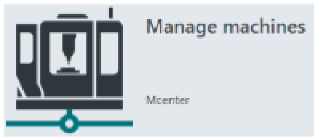
The following information is displayed for machines:

Parameter	Description
v	This symbol appears when you click on the column heading. Click on the symbol to sort the elements alphabetically/numerically, either in ascending or descending order.
	Activate the column header checkbox to select all machines. - OR - Activate the checkbox in the first column to select the desired machines. Only the "Machine Agent" type machines can be selected
	Shows a managed machine.
	Shows an onboarded and online machine.
	Shows an onboarded and offline machine.
	Shows a not onboarded machine.
Machine name	Shows the name of the machine.
Connectivity type	Shows the supported connectivity types: • SINUMERIK Integrate • Machine Agent • Managed client
Onboard state	Shows the onboard state: • Onboarded: The machine has been connected to the server at least once. It does not indicate whether there is a continuous connection between the machine and the server, at any given point in time. • Not onboarded: The machine has not yet been connected to the server. • - : The machine connection is not defined. In this column, you can sort the onboard connection state alphabetically, either in an ascending or descending order.
Connection state	Shows the connection state between the machine and the server: • Online • Offline • <empty> = The machine has not yet been connected to the server. The machine is not onboarded • Undefined In this column, you can sort the state alphabetically, either in an ascending or descending order.
Machine type	Shows the type of the machine. You can create, edit and delete machine types. In this column, you can sort the delete machine types alphabetically, either in an ascending or descending order.
Autoconnect address	Shows the IP or MAC address or None, if the machine connection is not defined. In this column, you can sort the autoconnect address alphabetically, either in an ascending or descending order. The sort works inside in groups (IP or MAC or "other").

Parameter	Description
Hierarchy path	Shows the path of the hierarchy. In this column, you can sort the hierarchy paths, either in an ascending or descending order.
•••	Opens a window in which you select additional columns to be displayed in the overview. These columns can optionally be configured to show further information: • Connectivity type • Connection state • Machine type You can sort the individual columns in the overview. The next time you log in with your user Id, the selected columns are on display.
	Opens the "My Filters" window and filters the machine table according to the following criteria: • Machine name • Connectivity type • Onboard state • Connection state • Machine type • Autoconnect address • Hierarchy path For more information, see List filtering (Page 27). Click on the filter icon again to close the filter window.
	Deletes the machine after a confirmation prompt.

Procedure

1. On the start page of the Mcenter, click on "Manage machines".

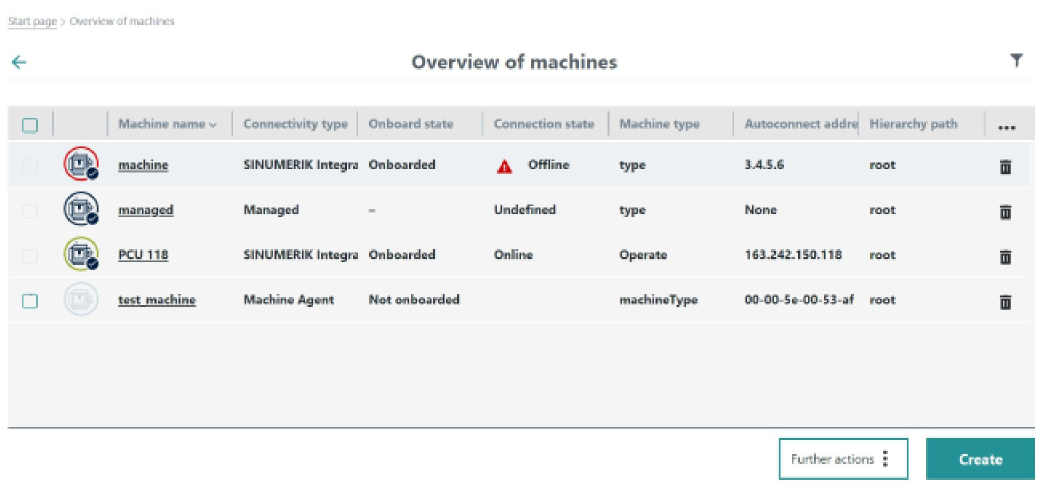
   - OR -
   Open the following URL: Overview of machines (https://{ServerIP}/configure-plant)

2. The "Overview of machines" window opens and displays an overview of all created machines with their respective properties.
   In order to set your preferred column width, press the left mouse button and drag the column edges to the left or to the right. The respective parameters are automatically saved when you release the mouse button. The next time you visit the "Overview of machines" page, the columns are displayed with the width you opted for.
   You can create, edit, or delete a machine:

   – Creating a machine (Page 56)

   – Editing a machine (Page 61)

   – Deleting a machine (Page 64)

3. If you click the underlined name of the machine with the right mouse button, you have the following options:

   – Open in a new tab

   – Open link in new window

   – Open link in incognito window

   – Save link as ...

   – Copy link address

   – Inspect

Download "Machine Agent installer"

If you connect the machine and the server via the Machine Agent, you need the "Download Machine Agent installer".

User rights are important because the admin, key user, production planner, nc programmer expert and maintenance engineer can download.

1. Click on the "Further actions" button.
2. Click on "Download Machine Agent installer".
3. The browser opens and the file "machineagent_v...tar.gz" is displayed in the default directory.

Additional information about installing and configuring the Machine Agent client is provided in the Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData /Collector".

Download "onboarding keys"

If you connect the machine and the server via the Machine Agent, you need the "onboarding keys".

At least 1 Machine Agent type machine must be selected for this feature. If no Machine Agent is selected, the item is disabled.

User rights are important because the admin, key user, production planner, nc programmer expert, maintenance engineer can download.

1. In the "Overview of machines", select the machine(s)the key(s) of which can be downloaded. You can only select "Machine Agent" connectivity type machine(s).
2. Click on "Further actions" button.
3. Click on "Download onboarding key".
4. Depending on your browser settings, you have the following options:
   – The download starts and the file "onboardingkeys.zip" is displayed in the lower left window area.
   – The file "save dialog" is open and you can select where the file should be saved to.
5. Transfer the onboarding key to your Machine Agent client.

Additional information is provided in the Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData / Collector".

5.4.2 Creating a new machine type

You can create a new machine type and it is added to the machine type list.

Parameters

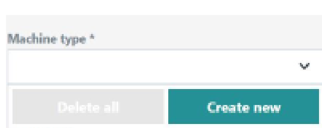
Parameters	Description
Machine type *	
	Indicates that the input is correct.
	Cancels the data you entered into the field.
	Edits the machine type name.
	Deletes a machine type.

Procedure

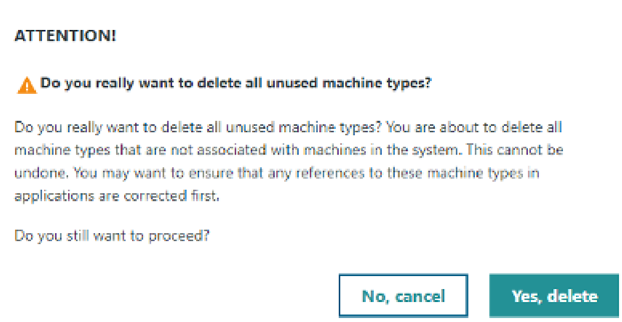
1. Open the "Overview of machines" window.
2. Click on the "Create" button.
   The dialog window "Please select the connectivity type for your machine" opens.
   – Select the desired connectivity type and click on the "Select" button.

   The "Create new machine" window opens.

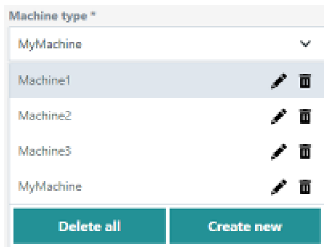
   – Click the "Machine type" field to display the "Create new" and "Delete all" button.
3. Click on the "Create new" button.
   – Enter the machine type into the "Machine type" field.
   – Click the check symbol to save the new machine type. The check symbol turns green when you click it.

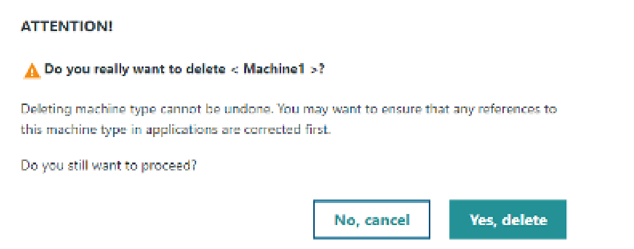
4. The new machine type becomes part of the drop-down list and can be selected.
   It is displayed in the "Overview of machines" window.
5. To delete the unused machine types, click the "Delete all" button in the activated "Machine type" menu.
   A dialog box appears.
   – Click "Yes, delete" to delete all unused machine types.
   - OR -
   – Click "No, cancel" to cancel the operation.

6. To delete an individual machine type, click the "Machine type" field.
   – The drop-down list displaying the machine types opens.
   – Select a machine type and click the "Delete" symbol.



7. A dialog box appears.
   – Click "Yes, delete" to delete the selected machine type.
     - OR
   – Click "No, cancel" to cancel the operation.



8. To change the name of a machine type, click the "Machine type" field. The drop-down list opens. Click the "Edit" symbol and enter the new name. Confirm the new name by clicking the check symbol.

Note

List filtering

You can search for a specific machine type by entering the name into the "Machine type" field.

5.4.3 Creating a machine

Create a machine in the "Create new machine" window.

With the Mcenter, machine tools with different controller manufacturers can be connected. The controller manufacturer must be specified when creating a machine.

Connectivity types have a physical connection between the machine tool and the Mcenter Server.
The following connectivity types are supported:

- SINUMERIK Integrate: Machine Tools with Siemens SINUMERIK controllers
- Machine Agent: Other controller manufacturers.
- Managed Client: Other unsupported controller manufacturers
  Connectivity types which do not have a physical connection between the machine tool and the Mcenter server.

Parameter

The following parameters are available:

Parameter	Description
Connectivity type	Activate the connection type: • SINUMERIK Integrate • Machine Agent • Managed
Machine name *	Enter a unique name for the machine. You can enter up to 50 characters.
Machine type *	Create a new machine type if the required type does not exist. Click the "Machine type" field in the "Create new machine" window to add a new machine type. The application recognizes whether the machine type exists while you fill in the input field. It displays an error message if the machine type is not unique. When you enter a new machine type, you need to save it to add it to the machine type list. For further information, see Creating a new machine type (Page 54).
Controller type *	Open the drop-down list and select the controller type of the machine. The controller type is a mandatory field which must be specified when creating the machine. The content must match the controller type of the machine to be connected to the server. If the correct controller type is not in the list, you should choose a similar controller type or the "Other" option. The controller type can influence which applications can be assigned or installed to the given machine.
Hierarchy path	Open the drop-down list and select the hierarchy path. A newly created machine can be assigned to an existing hierarchy path. The machine can be assigned to only one parent.
Description	Enter a detailed description of the machine. You can enter a maximum of 280 characters.
Connection details	
Connectivity type	Shows the connectivity type you have selected.
Onboard state	Shows the onboarded state.

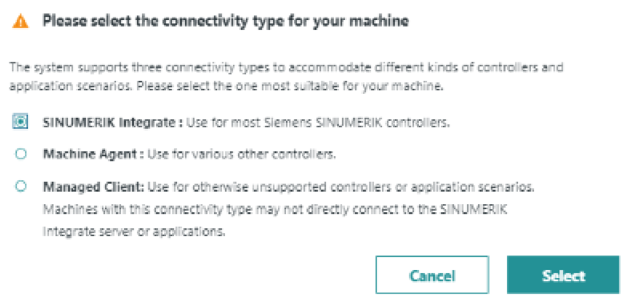
Parameter	Description
Autoconnect address *	For the connectivity type "SINUMERIK Integrate", enter the IP address or MAC address. Enter the unique and valid IP address or MAC address. • IP addresses consist of 4 decimal integers between 0 and 255. Separate each of the numbers with a period, for example 192.168.0.254. • MAC addresses consist of six two-digit hexadecimal numbers separated consistently by colons or hyphens, for example 00:A0:C9:14:C8:29.
MAC address *	For the connectivity type "Machine Agent", enter the MAC address. Enter a unique and valid MAC address. MAC addresses consist of 6 two-digit hexadecimal numbers separated consistently by colons or hyphens, for example 00:A0:C9:14:C8:29.
Connection state	Shows the connection state.
Adapter details - If the connectivity type is "Machine Agent"	
Adapter type *	Open the drop-down list and select the adapter of machine.
Adapter configuration *	Enter the adapter configuration of machine. The configuration depends on the adapter.
	Shows further information.
	Indicates that input is required in the field. - OR - Shows that the input is incorrect and provides a short description.
	Indicates that the input is correct.

*) All fields with an asterisk are mandatory. If you enter a value that does not comply with the rules, a red warning symbol and a corresponding red highlighted error message below the input field are displayed.

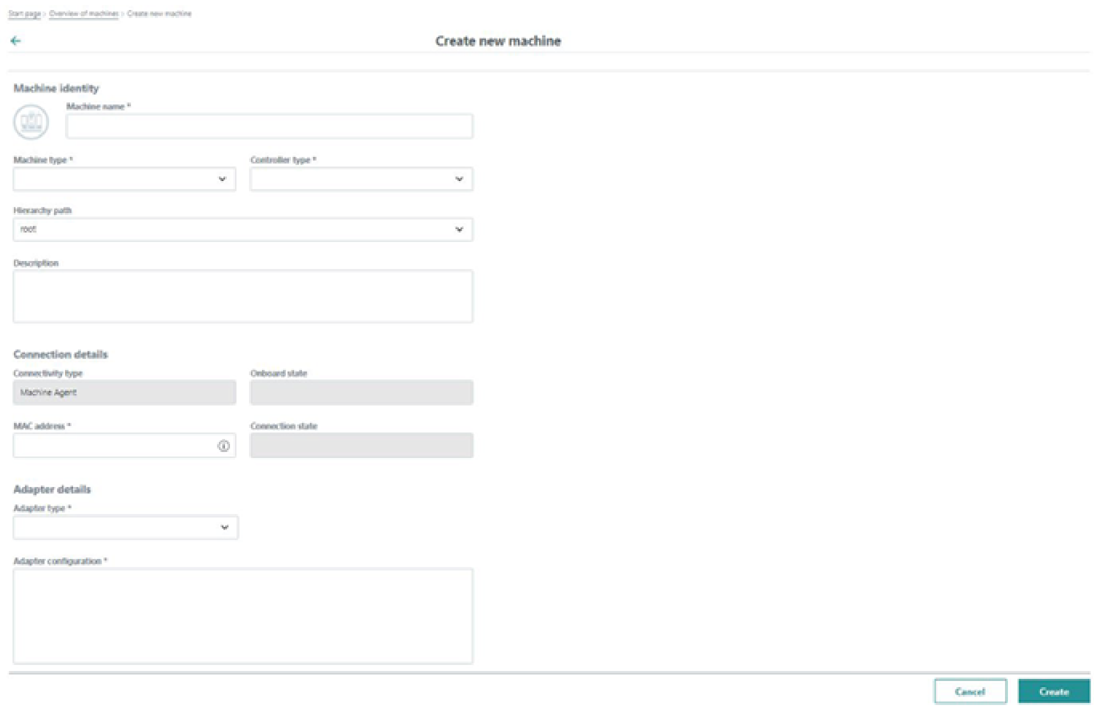
Procedure

1. Click "Create" in the "Overview of machines" window.
2. The dialog window "Please select the connectivity type for your machine" opens.
   Select the connection between the machine and the server.
   The following options are available:
   - SINUMERIK Integrate
   - Machine Agent
   - Managed Client

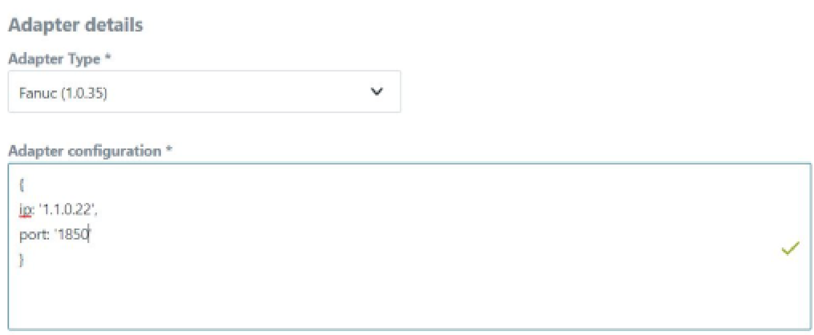
   Activate the option "SINUMERIK Integrate" and click "Select" button.

3. The "Create new machine" window opens.
   - Enter the required information.
   - Click "Create" to create the machine.
     The machine is shown in the "Overview of machines": Overview of machines (Page 50)
     - OR -
     Click "Cancel" to discard the inputs.



For the Machine Agent machines, you can enter the adapter details, adapter type and adapter configuration.



License management

After a machine is successfully connected, a license is issued.

The Managed machines are not required licenses.

If problems occur at this point, the following error messages are displayed:

Error message "Problem: New machine could not be created. Reason: There is no connection to the license server or the license server actively refused it."

The new machine cannot be created, because there is no connection to the license server.

Remedy: Additional information on resolving the error is available under:

- "Siemens PLM user guide"
- "Flexera manual"
- Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData /Collector"

Error message "Problem: New machine could not be created. Reason: No more licenses left."

The new machine cannot be created because no further licenses are available.

Remedy: Additional Information on resolving the error is available under:

- "Siemens PLM user guide"
- "Flexera manual"

Error message "Problem: New machine could not be created. Reason: No valid license found."

The new machine cannot be created because the license file is invalid or does not contain Mcenter license.

Remedy: Additional information on resolving the error is available under:

- "Siemens PLM user guide"
- "Flexera manual"

Error message "Problem: New machine could not be created. Reason: The license has expired."

The new machine cannot be created because the license has already expired.

Remedy: Additional information on resolving the error is available under:

- "Siemens PLM user guide"
- "Flexera manual"
- Contact the Mcenter sales representative

Error message "Problem: New machine could not be created. Reason: No valid Mcenter license found.The new machine could not be created because it has no valid Mcenter license.

Remedy: Additional information on resolving the error is available under:

- "Siemens PLM user guide"
- "Flexera manual"
- Contact the Mcenter sales representative

5.4.4 Editing a machine

Once a machine has been created successfully, the associated data can be edited at any time, and you can display the controller details.

Prerequisite

The machine is onboarded.

Parameter

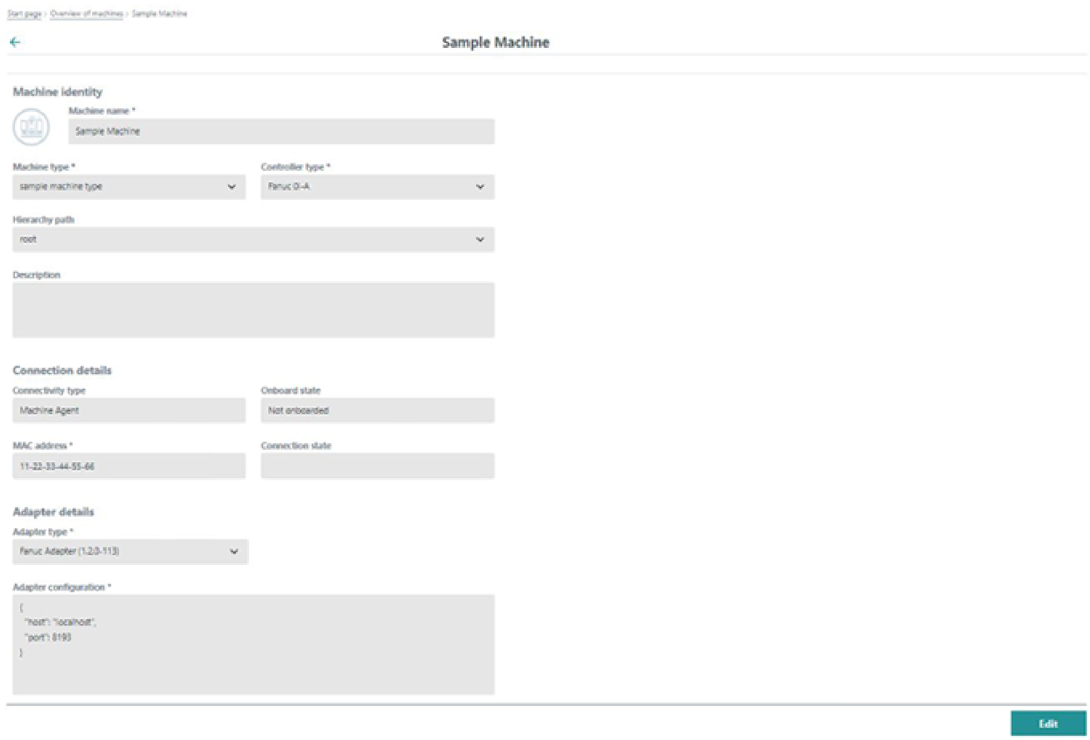
The following parameters are available:

Parameter	Description
Machine identity	
Machine name *	Enter a unique name for the machine. You can enter up to 50 characters.
Machine type *	Open the drop-down list and select the type of machine or create a new machine type.
Controller type *	It is not editable, but displays the selected controller type of machine.
Hierarchy path	Open the drop-down list and select the hierarchy path. The machine can be assigned to an existing hierarchy path. The machine can be assigned to only one parent.
Description	Enter a detailed description of the machine. A maximum of 280 characters can be entered.
✓	Indicates that the input is correct.
Connection details - The following parameters are not editable	
Connectivity type	Displays the connectivity type.
Onboard state	Displays the onboarded state.
Autoconnect address *	Displays the autoconnect address
Connection state	Displays the connection state.
Controller details	
PCU	Displays the version of the connected PCU hardware component. The property is displayed, when a PCU is connected to the server.
NCU	Displays the version of the connected NCU hardware component.
Operating system	Displays the operating system and version.
HMI	Displays the SINUMERIK Operate type and version.
HMI components	Displays information about an additional software that is running on the machine, e. g. SINUMERIK Integrate client version or Machine Handler version.
Adapter details - If the connectivity is "Machine Agent". These parameters are not editable	
Adapter type *	Displays the selected adapter of machine
Adapter configuration *	Displays the entered adapter configuration of the machine.

*) All fields with an asterisk are mandatory. If you enter a value that does not comply with the rules, a red warning symbol and a corresponding red highlighted error message below the input field are displayed.

Procedure

1. Click the underlined name of the desired machine in the "Overview of machines" window.
2. Window "<Machine name>" opens and displays the machine data.
   Click on "Edit" button.



3. The input fields can be edited.
   – Enter the new data and select the desired changes from the drop-down lists.
     You cannot enter any changes in the "Connection details" section!
   – To save the changes, click on the "Save" button.
     The "Overview of machines" window opens and displays the changed machine in the list.
     - OR -
     Click on the "Cancel" button to cancel the editing without saving and to return to the "Overview of machines" window.

5.4.5 Deleting a machine

You can delete superfluous machines from the "Overview of Machines".

Note

Deleting machines without installed applications

Delete only machines without Mcenter applications.

If you have deleted a machine with such an application, uninstall it later manually. This can result in full or partial loss of the HMI functionality.

For information about uninstalling an application from a machine, see Changing assignments (Page 70).

Note

Deleting machines without tools

Only delete machines that are not equipped with tools.

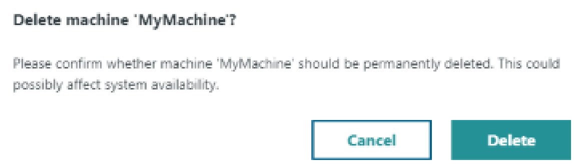
If necessary, shift the tools to "Assembly" or "Cabinet".

If you have deleted a machine equipped with tools, you must subsequently delete the tools in the Manage MyResources /Tools, Tool stock application. As these tools are still known to Manage MyResources /Tools, they will be shown in the following location: <hierarchy of the deleted machine>-LostMagazine.
Additional information about containers is provided in Operating Manual ManageMyResources.

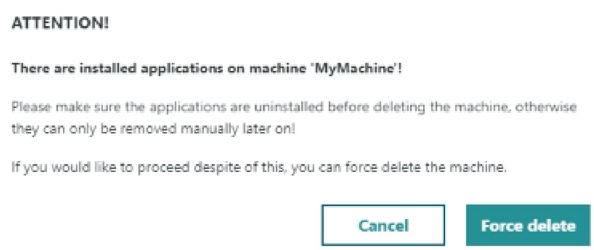
Procedure

1. Select the desired machine in the "Overview of machines" window.
2. Click the "Delete" symbol.

3. If there is no application on the machine, the following dialog box appears.
   – Click "Cancel" to cancel the operation.
     - OR -
     Click "Delete" to delete the machine.



   - OR -
   If there is at least one application installed on the machine, the following dialog box appears.
   – Click "Cancel" to cancel the operation.
     - OR -
     Click "Force delete" to delete the machine.



4. A success message is displayed in the upper right corner of the window.

Note

Deleting a "Machine Agent" connectivity type

- If the machine is in a "deletable" state, the deletion is executed immediately and the machines deleted from the list.
- If the machine is not in a "deletable" state:
  – The deletion is not executed immediately
  – First an "Offboard" command is sent to the machine in the background
  – After some time (10-15 minutes) you can try to delete again and if the machine has already been switched to a deletable state by that time, the deletion will be successful.

5.5 Manage applications on machines

5.5.1 Overview of assignments

You can assign Mcenter applications to the connected machines. The assigned applications are installed automatically. The only necessary user interaction on the machine’s side is a reboot.

The "Overview of assignments" window shows an overview of all created machines from "Manage machines".

Prerequisites

- The connection between the server and the machine is configured.
- Appropriate roles are required to open the "Overview of assignments" page".
  For more information, see Manage users (Page 34).
- The connections between the server and the machines must be established to use the application assignment.
  For more information, see Manage machines (Page 50).
- Before installing any applications using the Mcenter Server, uninstall all applications, which were installed with the SINUMERIK Integrate 4.1 Installer. If you do not do this,
  the installation using “Manage applications on machines” fails, and neither of the installed applications works properly.
- Applications that were installed with the SINUMERIK Integrate 4.1 Installer are not recognized and displayed on the Application assignment page.
- If HMI-Advanced machines are connected to the server, check the configuration in the Installation Manual.
  For more information, see the chapter "Manage applications on the machines" in the Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData /Collector".

Parameter

The following information is displayed for machines:

Parameter	Description
v	This symbol appears when you click on the column heading. Click on the symbol to sort the elements alphabetically/numerically, in ascending or descending order.
Machine name	Shows the name of the machine.
Machine type	Shows the type of the machine.
Hierarchy path	Shows the path of the hierarchy.
Number of assignments	Shows the number of assigned client applications.
New version available	Shows the availability of a new version: • "Yes"- A new version is available on the server. You can select the machine for an update if the client of the target machine meets the update requirements. • "No"- No new version is available on the server. • "Unknown"- The machine cannot be updated. The server did not receive the hardware or software information from the machine or the machine is switched off and is in an unknown state. Restart the machine and try again later.

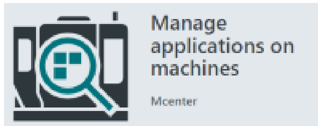
Parameter	Description

Status	Shows the application status:
	• "No changes in progress" for one of the following reasons:
	  – No application has been assigned yet
	  – No installation is in progress
	  – No uninstallation is in progress
	  – No update is in progress
	• "Changes in progress" for one of the following reasons:
	  – Installation is in progress
	  – Uninstallation is in progress
	  – Update is in progress
	• "Manual action required" for one of the following reasons:
	  – Machine or HMI needs to be restarted to complete the install/uninstall/update operation
	  – Error during the install/uninstall/update operation

	Opens the "My Filters" window and filters the machine table according to the following criteria: • Machine name • Machine type • Hierarchy path • Number of assignments • New version available • Status For more information, see List filtering (Page 27). Click on the filter icon again to close the filter window.

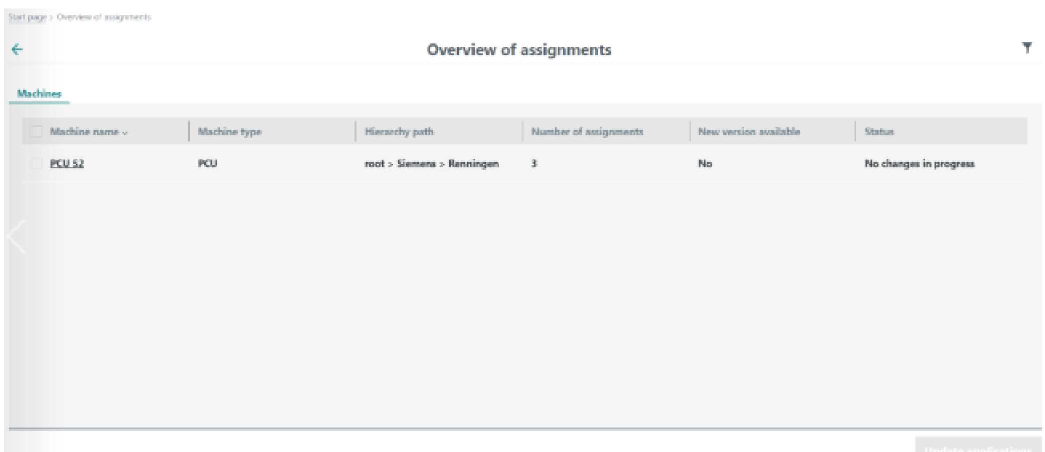
Procedure

1. On the start page of Mcenter, click on "Manage applications on machines".



   - OR -
   Open the following URL: Manage applications on machines (https://{ServerIP}/appassignment-overview)

2. The "Overview of assignments" window opens and displays an overview of all machines with their properties.
   In order to set your preferred column width, press the left mouse button and drag the column edges to the left or to the right. The respective parameters are automatically saved when you release the mouse button. The next time you log in with your user Id, the columns are displayed with the width you opted for.



3. When you select a machine for the first time, an update is carried out and the following message appears: "Post update information: Any actions regarding the application assignments are not possible due to performed Mcenter update. Please, wait a few minutes until the machine is ready to use and try again."

5.5.2 Machine overview of applications

The "<Machine name>" window shows details of the application assignments on the selected machine. If no application is assigned to the machine, the table is empty.

Prerequisites

- The proper rights are required to open the "Overview of assignments".
  For more information, see Manage users (Page 34).
- The connection between the server and the machine is configured.
  For more information, see Manage machines (Page 50).

Parameter

The following information is displayed for machines:

Parameter	Description
Application name	Shows the name of the assigned software application.
Client application state	Shows the application state, for example: • Waiting for machine client to install • Installing • Installed • Uninstalling • Downloading • Error occurred during installation
Client application version	Only contains information when "Client application state" of this application is "Installed". Version can be: • Up-to-date • Not updatable • Update available For more information, see Updating assignments (Page 72). The tooltip shows the version of the applications that is available on the server and the version of the assigned and installed application.

Procedure

1. Click on the underlined name of the machine in the "Overview of assignments" window.
   The "<Machine name>" window opens and displays an overview of assigned software packages with their properties.

2. Click on "Change assignments" to add or delete assignments for the machine:
   – Changing assignments (Page 70)
3. If the machine is stuck in state "Installing" more than 5 minutes, check whether the machine is connected to the server.
4. If the application is in state "Reboot required on machine client ...", then:
   – Reboot the HMI to successfully complete the installation. For an HMI-Advanced machine, you must switch to the service mode configuration to reboot the PCU.
   - OR -
   – Restart the Machine Agent client. Additional information is provided in the Installation Manual "Mcenter, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE, Access MyData /Collector".

5. If the application is in state "Uninstall failed", the application has to be removed manually.
6. You can change the assignments at any time before the HMI is rebooted. Even if an assignment is already in the "Reboot required..." state.
   – Apply the changes of the assignments.
   – Wait until the assignment are in the "Reboot required..." state again.
   – Reboot the HMI.

5.5.3 Changing assignments

In "Change assignment of <Machine name>" window, select applications for installation and uninstallation on the machine.

Note

If you assign an application to a machine or clear the assignment, the machine goes automatically online or offline.

Prerequisites

- The proper rights are required to open the "Overview of assignments".
  For more information, see Manage users (Page 34).
- The machine model of the machine is available on the server. If the machine's machine model is not available, a message is displayed. Wait until the machine uploads its machine model to the server. If the problem persists, contact your system administrator.
- The connection between the server and the machine is configured.
  For more information, see Manage machines (Page 50).

Parameter

The following parameters are available:

Column	Description
Available applications	Displays the applications and their versions which are available on server.
Applications assigned to the machine	Displays the applications and their versions which are assigned to the machine.

Note

Not all applications have SINUMERIK Operate and HMI-Advanced compatible versions, so the application list depends on the software version.

For example, if an application is only compatible with SINUMERIK Operate, this application does not appear in the "Available applications" column, for HMI-Advanced machines.

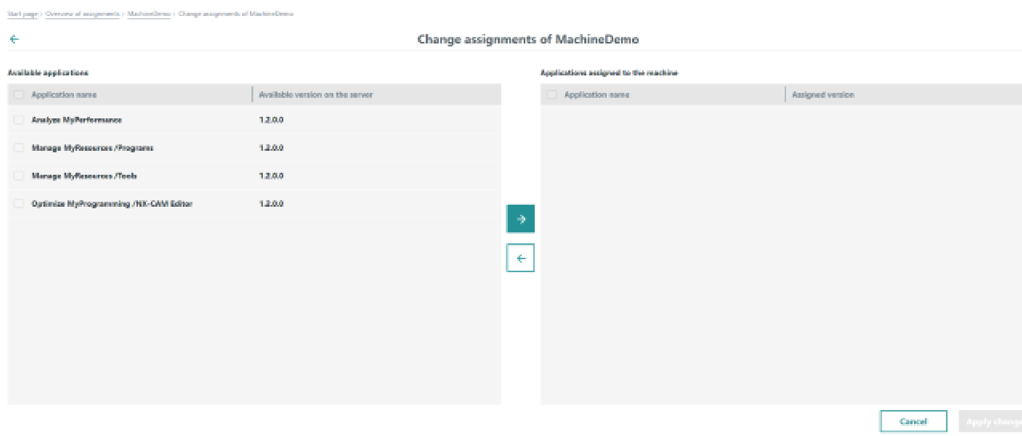
Note

Changing assignments on Managed machines

In case of machines with a Managed client connectivity type, the Changing assignments procedure is the same. However, the client application state is installed immediately.

Procedure with an activated checkbox

1. Click on "Change assignment" button in the "<Machine name>" window.
   The "Change assignments of <machine name>" window opens.



2. In the column "Available applications", select the applications, that you want to assign to the machine and click the arrow button to right.
   To select all applications, activate the checkbox in the column header.
3. In the column "Applications assigned to the machine", select the applications, that you want to delete from the machine and click the arrow button to left.
   To select all applications, activate the checkbox in the column header.
4. Click "Apply changes".
   \- OR -
   Click "Cancel" to discard the changes.
5. The "Summary of changes" windows opens. Click "Apply" to confirm the changes.
6. Click symbol "Back".
   The "<Machine name>" window reopens. The previously chosen applications will be displayed. The "Client application state" will be "Waiting for machine client to install". The "Client application version" will be empty.

Note

Inactive checkbox

The checkbox is inactive when the machine is unavailable. A tooltip displays the information "The application cannot be assigned to the machine due to incompatible hardware or software."

5.5.4 Updating assignments

In the "Overview of assignments" window, select machines to update their applications. On the selected machines, all previously installed applications are updated.

Prerequisites

- The proper rights are required to open the "Overview of assignments".
  For more information, see Manage users (Page 34).
- Applications are installed on the machine.
  Server update is required to get new version of applications on server.

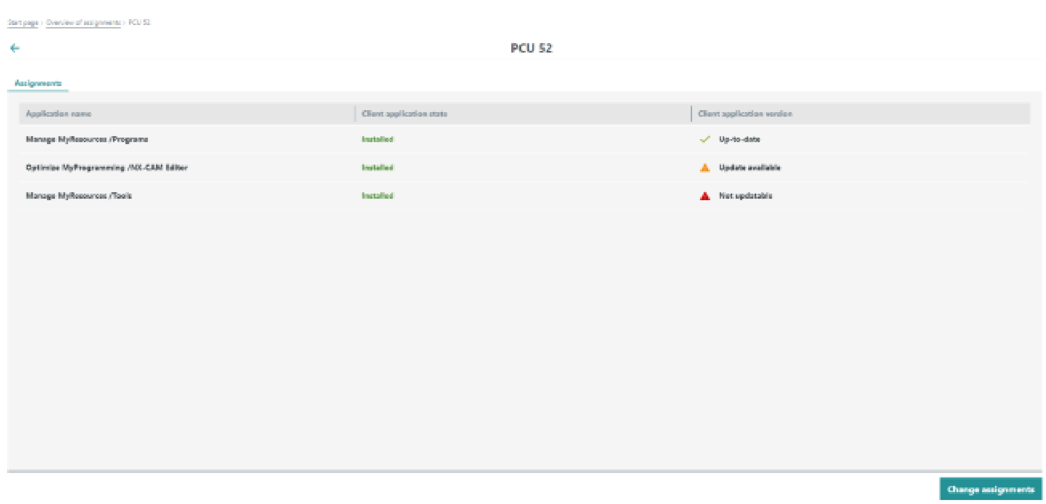
Note

Updating assignments on Managed machines

After the Mcenter server update, the client application version is "Up-to-date" instead of "Update available".

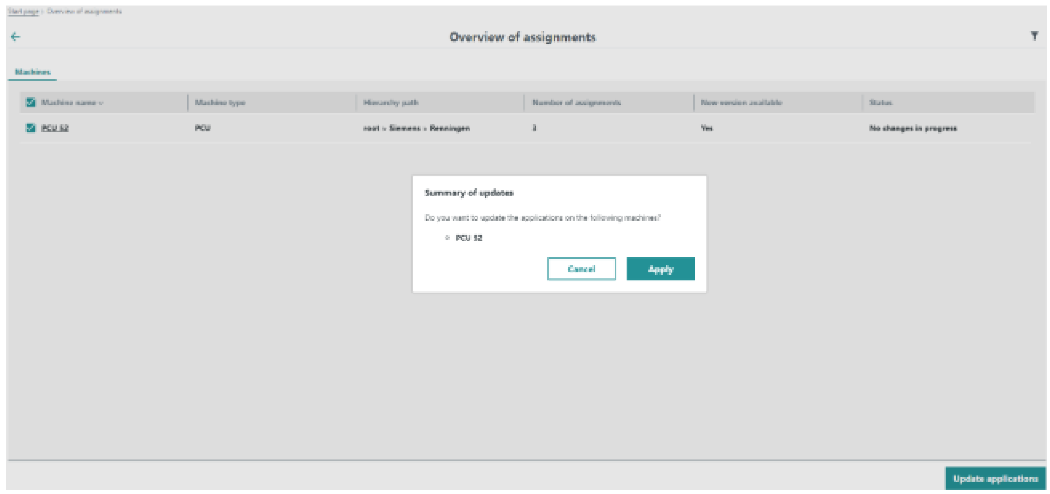
Procedure

1. In the "Overview of assignments" window, updatable machines are indicated with a "Yes" value in the "New version available" column.
   To display the status of the individual applications of a machine, click on the name of a machine.

   An application with the status "Update available" can be updated.
   An application with the status "Not updatable" must be uninstalled and a new version of the application must be installed.
2. In the "Overview of assignments" window, select the checkboxes for those machines that should be updated.
3. Click on the "Update applications" button.
   The "Summary of updates" window opens and displays all machines that will be updated.

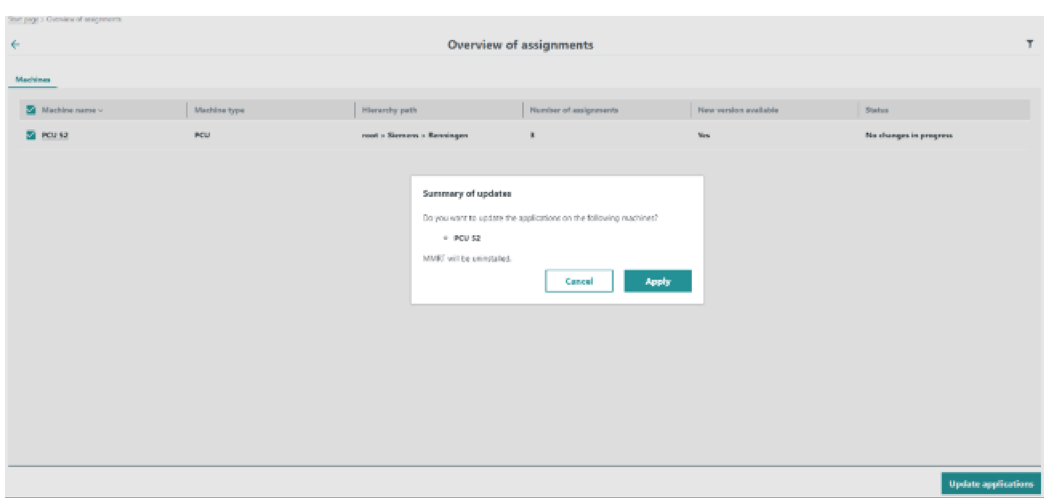
4. Click on the "Apply" button to continue.
   For the affected machines, the value in the "Updates available" column changes to "No" and the value in the "Status" column changes to "Changes in progress".
   - OR-
   Click the "Cancel" button to abort the process.



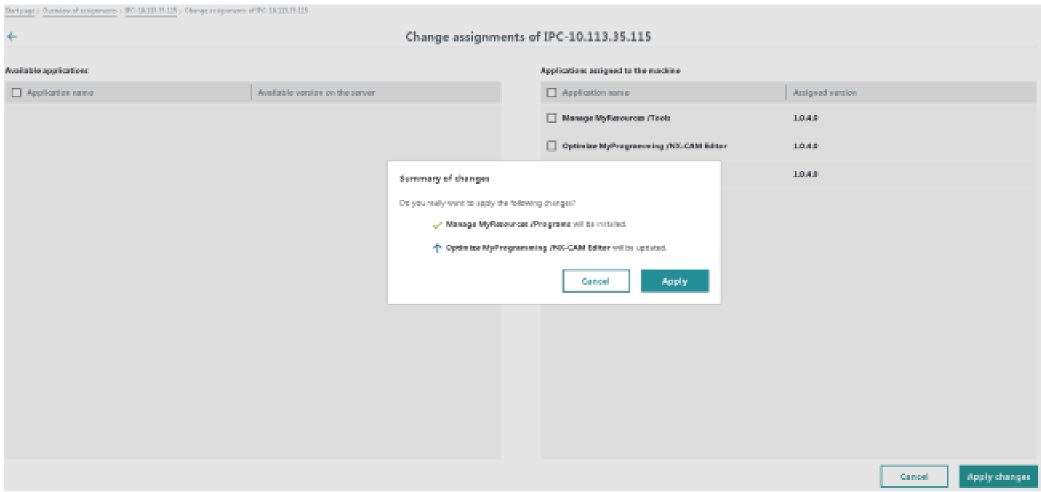
5. Click on the name of a machine.
   During the update process, the "Client application state" is "Download pending" and the "Client application version" is empty.
6. As soon as all applications of the affected machines have the state "Reboot required on machine client after installation", reboot the HMI.

Forced update or uninstall

If you have applications with the "Update available" version and you want to install a new so previously not installed application, you will be informed that during the installation an update process also will start for the applications with the "Update available" version.



If there are applications with outdated or previous versions and the user starts an update process, the “Summary of changes” window comes up. The window informs the user about the applications with outdated versions that will be uninstalled and applications with previous versions that will be updated.



Note

Machines with a Machine Agent connectivity type

Concerning machines with a Machine Agent connectivity type, additional information is provided in the Operating manual "Mcenter, Analyze MyPerformance /OEE".

5.6 Manage openness clients

Prerequisite

You need administrator rights to manage openness clients.

Software products from third-party suppliers can access data or functions from the Mcenter via its open interfaces. As a first step, external clients must authenticate themselves with Mcenter. An access token obtained from the Identity service is used for identification.

Use the Manage openness clients application to create an openness client. The created openness client includes all information you require to get an access token. With such a token you are able to use MMR-API and instantiate tools with geometry data, for example. You must create a dedicated openness client for each client.

Validity of openness clients

Newly created openness clients are valid for one year. After this period, you must renew the secret or create a new client.

Note

Expiration of openness API client

The expiration date of the openness API client for which an access token was requested will be checked.

If the client secret expires within the next 31 days (compared to the server time), a warning level entry will be written to the Identity service log.

5.6.1 Overview of Manage openness clients

The "Manage openness clients" window shows an overview of all created openness clients. It provides the following functions:

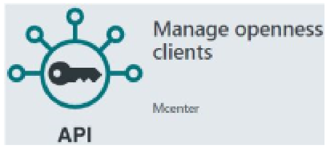
- Listing openness clients
- Create a new openness client
- Edit the name of an openness client
- Renew the secret of an openness client
- Delete one or multiple openness clients

Parameters

Parameter	Description
ID	Shows the Id of the openness client.
Name	Shows the name of the openness client.
Creation date	Shows the creation date of the openness client.
Expiration date	Shows the expiration date of the openness client.
Actions	The following actions are available: • Edit • Renew credentials • Delete

Procedure

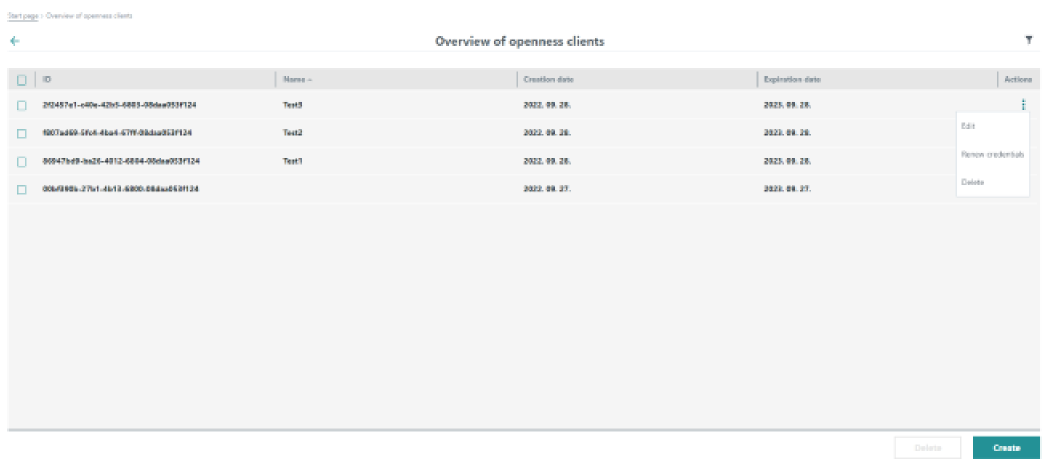
1. On the start page of Mcenter, click on "Manage openness clients".



   - OR -

   Open the following URL: Overview of openness clients (https://{ServerIP}/opennessclient-overview).

2. The "Overview of openness clients" window opens and displays an overview of all created openness clients with their properties.



5.6.2 Creating a new openness client

You can create openness clients in the "Overview of openness" window.

Note

Openness client name

The name of the openness client does not have to be unique.

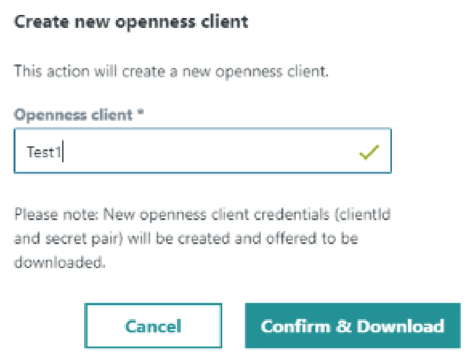
Parameter

Parameter	Description
Create new openness client	
Openness client*	Enter the name of the openness client.

*) The fields marked with an asterisk are mandatory and must be completed. An error message is output if you make an erroneous entry.

Procedure

1. Click on the "Create" button in the "Overview of openness clients" window.
2. The "Create new openness client" window opens.
   Enter the name of the openness client.
   Click on the "Confirm & Download" button to create an openness client.
   - OR -
   Click on the "Cancel" button to discard the inputs.

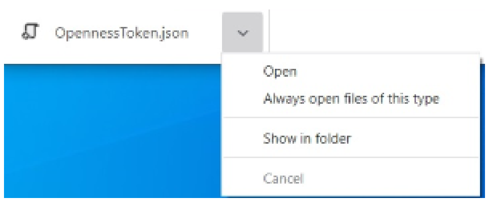
3. The created openness client is displayed in the " Overview of openness clients" window.

4. The "OpennessToken.json" file is created. This file contains all information required to receive an access token from the Identity service.
   Depending on the browser you use, the file is shown in the status bar.
   If you click the checkmark, you have the following options:
   – Open: To open the file select the corresponding program, for example the Editor.
   – Always open files of this type: The generated file is always opened.
   – Show in folder: Open the "Downloads" directory in which all previously generated files are stored with their dates.

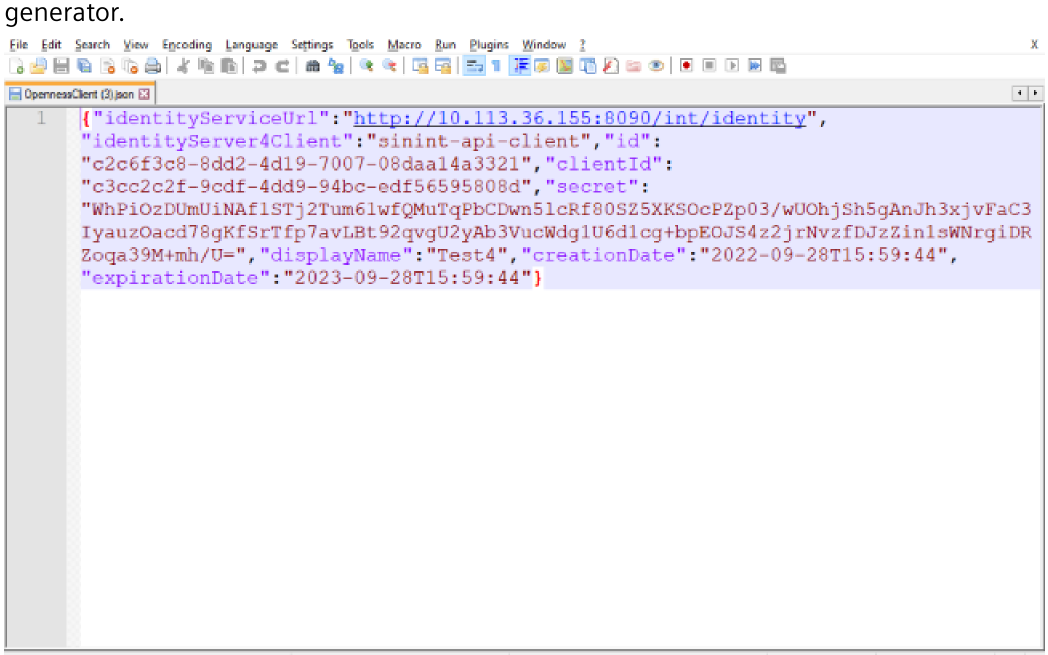
Note

"OpennessToken.json" file

If the "OpennessToken.json" file has been created, it is not possible to create a new file again. If the file is missing, you can renew the token, which will invalidate the previously created file.



5. If you open the file, you receive the access token with the information from the secret generator.



5.6.3 Editing an openness client

You can rename existing openness clients.

Note

Openness client name

The name of the openness client does not have to be unique.

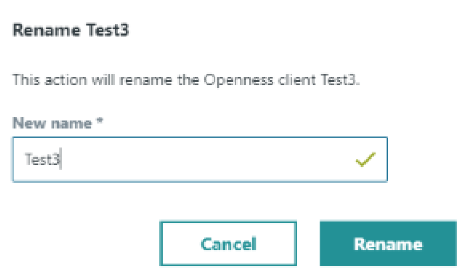
Parameter

Parameter	Description
Rename <openness client name>	
New name*	Enter the name of the openness client.

*) The fields marked with an asterisk are mandatory and must be completed. An error message is output if you make an erroneous entry.

Procedure

1. Click on the "Actions" button in the "Overview of openness clients" window and click on "Edit".
2. The "Rename <openness client name>" window opens.
   Enter the name of the openness client.
   Click on the "Rename" button to rename the selected openness client.
   - OR -
   Click on the "Cancel" button to discard the inputs.



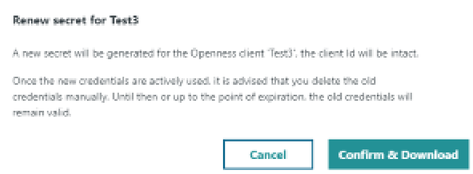
3. The renamed openness client is displayed in the "Overview of openness clients" window.

5.6.4 Renewing the secret of an openness client

You can renew the secret of a selected openness client.

Procedure

1. Click on the "Actions" button in the "Overview of openness clients" window and click on "Renew credentials".
2. The "Renew secret for <openness client name>" window opens.
   Click on the "Confirm & Download" button to renew the credentials of the selected openness client.
   - OR -
   Click on the "Cancel" button to cancel the operation.

3. The "OpennessToken.json" file is created. If you open the file, you receive the access token with the information from the secret generator.

Note

Renewed secret

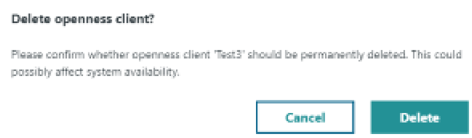
If the secret has been renewed, the previous secret and json file do not work anymore. Only the newly regenerated secret will be accepted.

5.6.5 Deleting openness clients

You can delete unnecessary openness clients from the "Overview of openness clients" window.

Procedure

1. Click on the "Actions" button in the "Overview of openness clients" window and click on "Delete".
   The "Delete openness client?" window opens.
   Click on the "Delete" button to delete the openness client.
   - OR -
   Click on the "Cancel" button to cancel the operation.

   - OR -

2. Activate the checkbox of the desired openness client in the "Overview of openness clients" window.

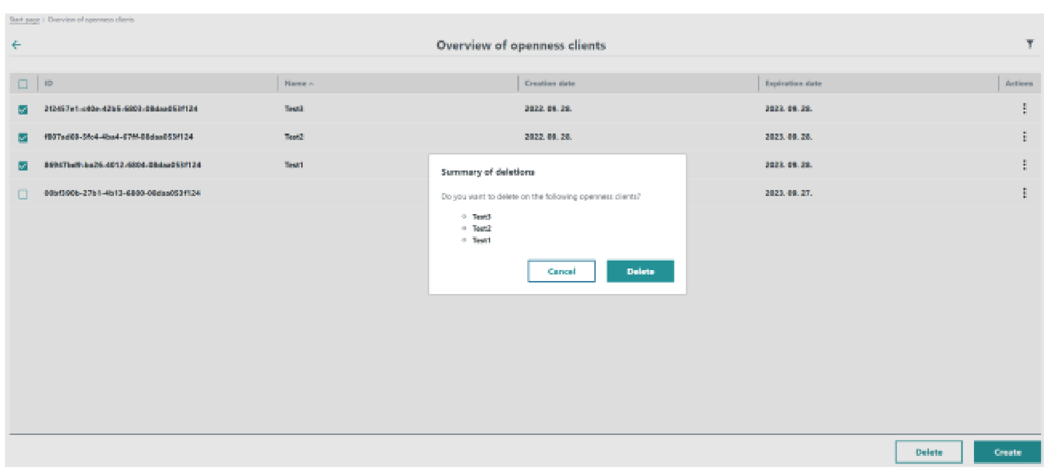
   – Activate individual checkboxes.
     - OR -

   – Activate the column header checkbox to select all openness clients.

   Click on the "Delete" button.
   The "Summary of deletions" window opens.

   – Click on the "Delete" button to delete the selected openness clients.
     - OR -

   – Click on the "Cancel" button to cancel the operation.

3. The selected openness clients are deleted.

5.7 Manage adapters (experimental)

5.7.1 Overview of adapters

The "Overview of adapters" window shows an overview of all uploaded Machine Agent adapters. It provides the following functions:

- Listing adapters both provided by Siemens and uploaded by users
- Displaying adapter package info content (pkginfo.json)
- Uploading new adapters
- Deleting user-uploaded adapters if those are not assigned to any machine (Generic adapters cannot be deleted)

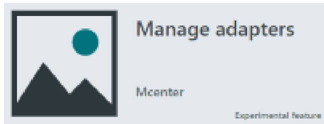
Parameters

The following information is displayed for adapters:

Parameter	Description
v	This symbol appears when you click on the column heading. Click on the symbol to sort the elements alphabetically/numerically, either in ascending or descending order.
>	Click on the symbol to expand the actual row and show the adapter package info content (pkginfo.json). Click again on the symbol to collapse the row.
	Shows that the adapter is a generic adapter, meaning it is provided by the installer.
Adapter name	Shows the name of the adapter.
Adapter version	Shows the version of the adapter.
	Deletes the adapter after a confirmation prompt.
	Opens the "My Filters" window and filters the adapters table according to the following criteria: • Adapter name • Adapter version • Generic adapter For more information, see List filtering (Page 27). Click on the filter icon again to close the filter window.

Procedure

1. On the start page of Mcenter, click on "Manage adapters".



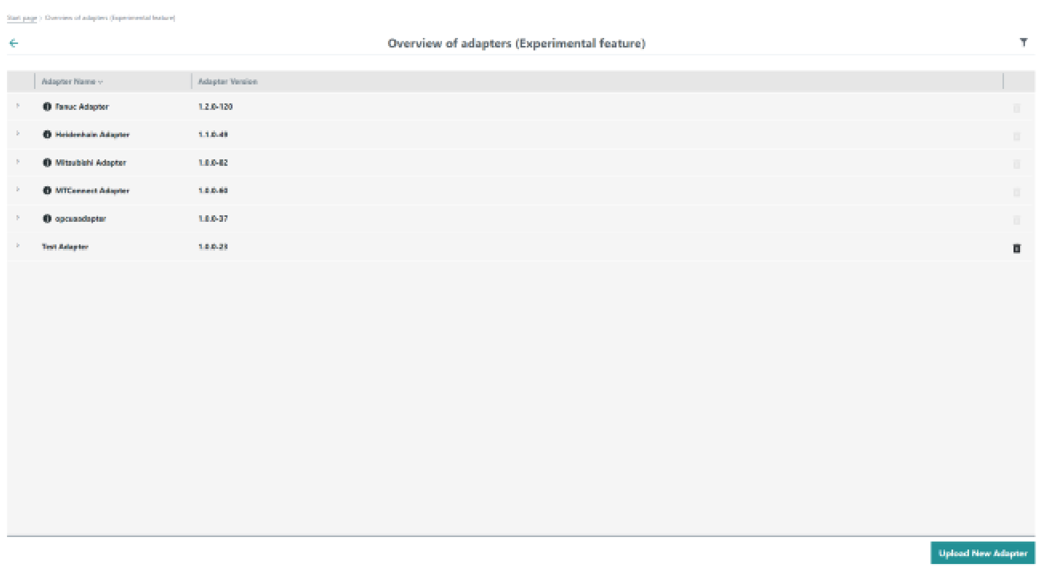
   - OR -
   Open the following URL: Overview of adapters (https://{ServerIP}/adapter-overview).

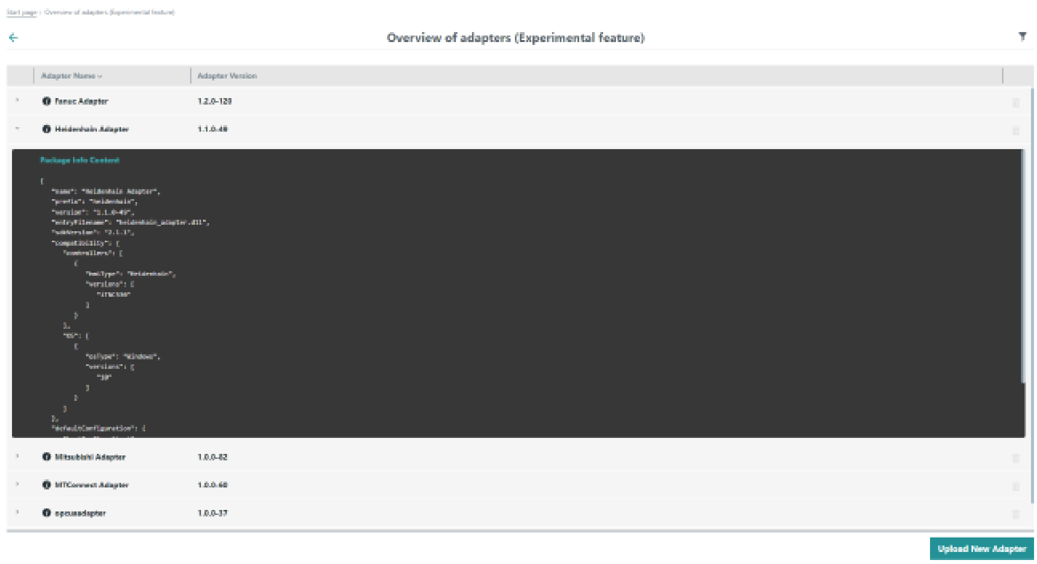
2. The "Overview of adapters" window opens and displays an overview of all uploaded adapters with their properties.
   In order to set your preferred column width, press the left mouse button and drag the column edges to the left or to the right. The respective parameters are automatically saved when you release the mouse button. The next time you open the "Overview of adapters" window, the columns are displayed with the width you opted for.
   You can upload or delete an adapter.

Note

Black info icons

Black info icons are only shown for generic adapters which are installed during setup. Generic adapters cannot be deleted.



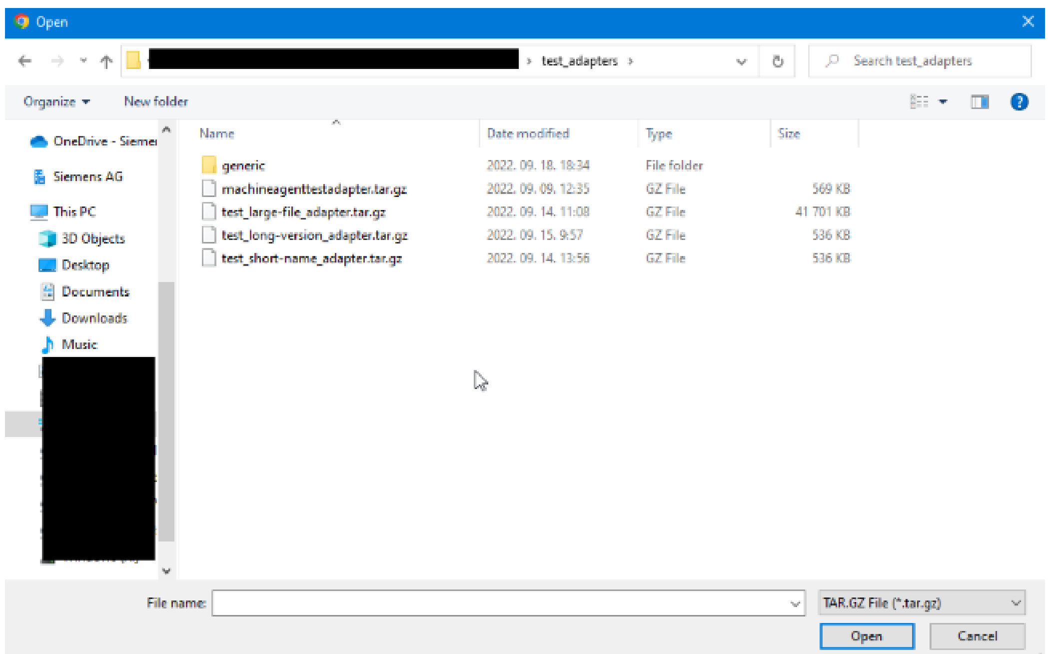


5.7.2 Uploading an adapter

You can create a new adapter by uploading its package file.

Procedure

1. Click the "Upload New Adapter" button in the "Overview of adapters" window to install a new adapter.
   The file selection dialog opens.
2. Select the desired adapter file and click on the "Open" button.
   – Multiple file selection is not allowed.
   – During the upload process, user interactions are disabled on the page.
   – If the extension of the selected file is not ".tar.gz", the following error message is displayed: "File extension must be '.tar.gz'!".
   – If the selected adapter file has an incorrect content, its size is too big, there is a version mismatch or 'pkginfo.json' is missing, error messages are displayed.
   – If there is already an adapter installed with the same name and version, the following error message is displayed: "Problem: The adapter could not be created. Reason: Adapter with the same name and version already exists for this user.".



5.7.3 Deleting an adapter

You can delete adapters from the "Overview of adapters" window

---

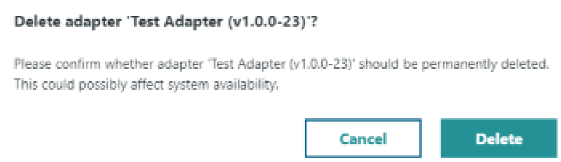
Note

"Delete" symbol not enabled for generic adapters

The "Delete" symbol is not enabled for generic adapters, because they cannot be deleted. Deleting an adapter is only possible if the adapter is not assigned to any machine.

Procedure

1. Open the Overview of adapters" window.
2. Click the "Delete" symbol in the "Actions" column to delete an adapter.
3. The following dialog box appears.
   Click on the "Delete" button.
   - OR -
   Click on the "Cancel" button to abort the process.



4. If deletion is successful, a success message is displayed in the upper right corner of the window.
5. If the adapter cannot be deleted, an error message is displayed in the upper right corner of the window.

6 Operating on the SINUMERIK controller

6.1 Shortcut keys

The representation uses an Open GL implementation. This means the following mouse actions and shortcut keys are available:

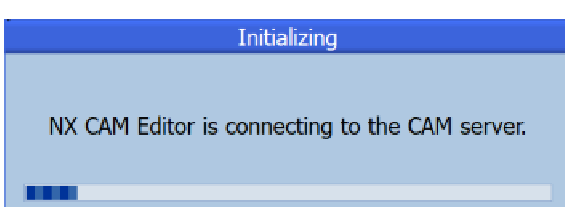
Available actions and shortcut keys

Action	Function
Mouse actions	
Left-click and drag	Rotates the 3D graphic.
Right-click and drag	Moves the 3D graphic.
Scroll	Zooms the 3D graphic.
Key actions	
<arrow keys>	Moves the 3D graphic.
<SHIFT> + <arrow keys>	Rotates the 3D graphic.
<Ctrl> + <T>	Switches the toolpath on or off.
<Ctrl> + <Z>	Restores the graphic to its original position.
<Ctrl> + <C>	Assigns a color to each lower body.
<Ctrl> + <C>, 2x	Switches the function off.
<Ctrl> + <X>	In conjunction with a right-click, performs a rotation along the z axis. The background color changes on the display.
<Ctrl> + <X>, 2x	Switches the function off.

6.2 Starting and closing Optimize MyProgramming /NX-Cam Editor

Connecting to the NX-Cam Server

Start the "Optimize MyProgramming /NX-Cam Editor" to establish a connection to the NX-CAM server.
The CAM operation assigned to the active or selected NC program is loaded. The initialization process is displayed via a progress bar:
"NX CAM Editor is connecting to the CAM server."



Procedure: Start with "OMP" softkey

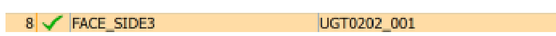
1. Start the "SINUMERIK Operate" operating software.
2. Press the "OMP NX-Cam Editor" softkey.

Procedure: Start and close from program editor

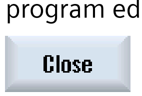
1. Start the "SINUMERIK Operate" operating software.
2. Press the "PROGRAM" key.

3. Select the NC program that needs to be opened in "Optimize MyProgramming /NX-Cam Editor".
4. Navigate to the CAM operation where a small right arrow button appears.

5. Press the right arrow button.
6. After opening OMP /NX-Cam Editor, the selected operations row will be selected.



7. Press the "Close" softkey to close the OMP /NX-Cam Editor and returns the view to the program editor.



6.3 CAM operation

Once you have started Optimize MyProgramming /NX-Cam Editor, the "NC-Program parameterize: ..." window opens and you see an overview of all CAM operations.

The name of the NC program is displayed in the title bar.

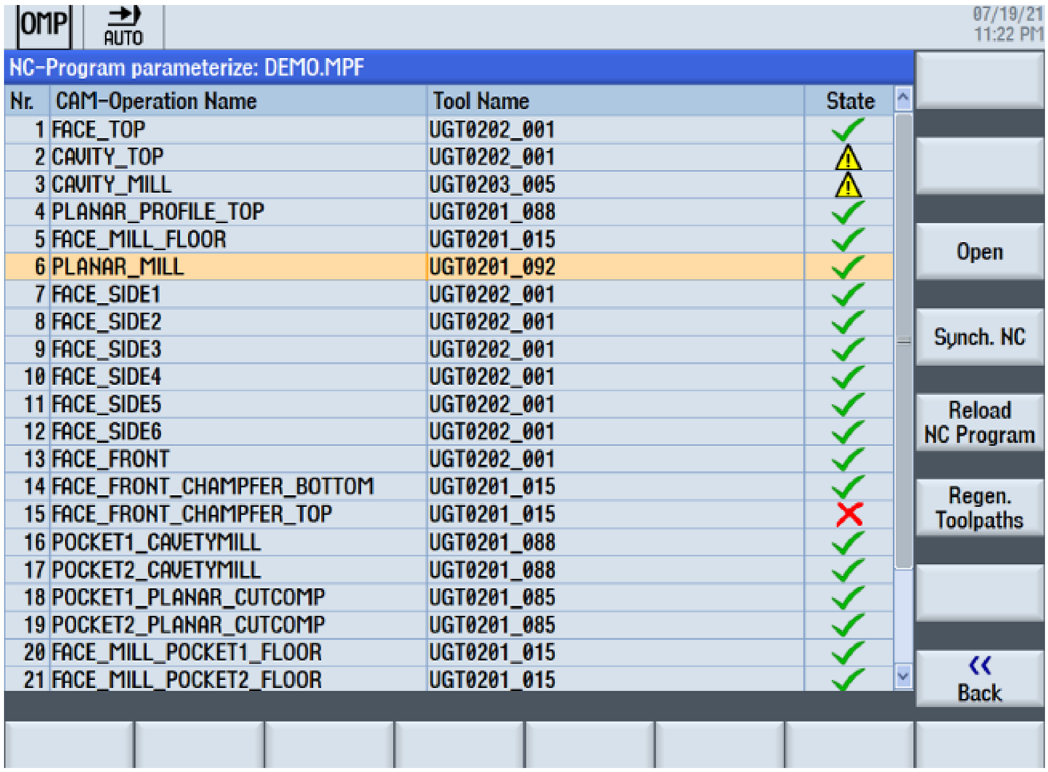
Parameters

Parameter	Description
Nr.	Shows the consecutive number.
CAM-Operation Name	Shows the name as used in the NX CAM server.
Tool Name	Shows the name of the tool.

Parameter	Description		
State	Shows that the operation is supported by OMP or not.		
		Operation available	This operation type is supported by NX cam server, and the toolpath is generated for the current parameter set.
		Toolpath needed	The toolpath is not generated for the current parameter set. The operation details can be opened and the possibility of generating a new toolpath is available. In this state, you also have the possibility to regenerate the toolpaths for all the operations with the "Regen. Toolpaths" softkey.
		Operation not available	This operation type is either not supported by NX Cam server or the operation details can not be opened because there is no parameter for it. The user is informed via a modal dialog.

Procedure

- To obtain additional information about CAM operations, select a line and press the "Open" softkey.
  For more information, see CAM details (Page 91).
- To synchronize the NC program with the NX CAM server, press the "Synch. NC" softkey.
  For more information, see Regenerating the NC program (Page 94).
- To reload the NC program, press the "Reload NC Program" softkey.
- To generate a toolpath for all required toolpath operations, press the "Regen. Toolpaths" softkey.

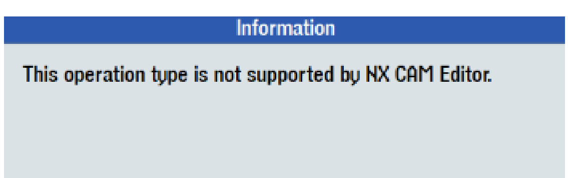


Unsupported CAM-Operation

The selected operation has no parameters for OMP /NX-Cam Editor. The type of the operation described in the original part file (NX model file) is not included in the scope descriptive file on the CAM server, possibly because it does not have any remotely changeable parameters.

You receive the following information:

"This operation type is not supported by NX CAM Editor."



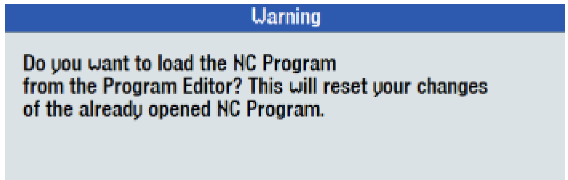
Select another one.

Opening new NC program from editor

If the OMP NX CAM Editor application was started with the help of the area softkey and not from the program editor, there is a possibility to open another NC program from the program editor.

You receive the following warning:

"Do you want to load the NC Program from the Program Editor? This will reset your changes of the already opened NC Program."



6.4 CAM details

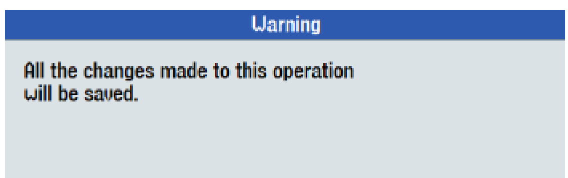
Further tool parameters are displayed in the "CAM Details" window.

The following information is displayed in the title bar:

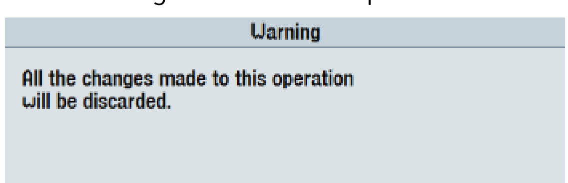
- Number of the selected operation
- Total number of operations
- Name of the opened NC program
- Name of the opened operation

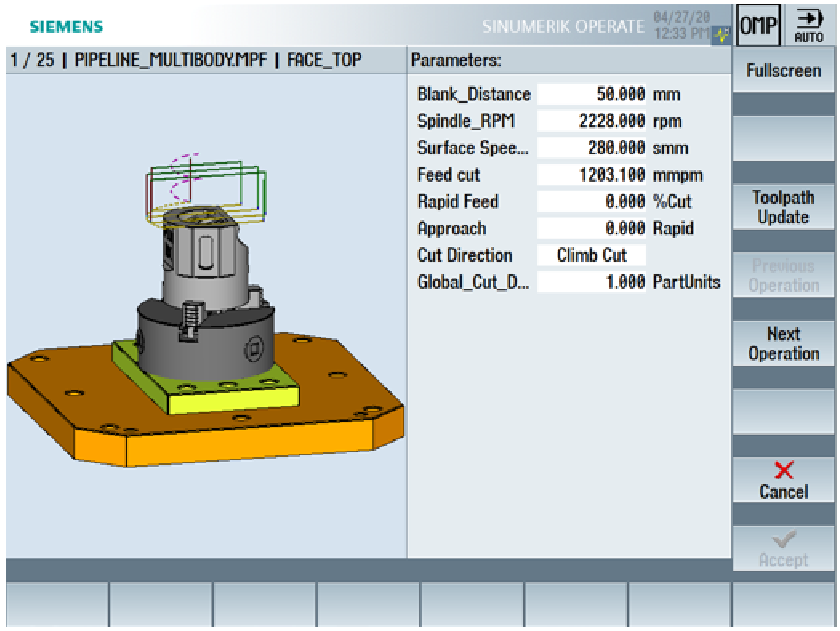
Available actions

1. Press the "CAM Details" softkey to display further information:
   - A 3D graphic of the model is shown in the left window area.
   - The right window area shows the available parameters with name, value and unit.
     Edit the values.
     Parameter names and units cannot be changed.
   - To update the changed parameters, press the "Toolpath Update" softkey.
     The tools are regenerated and displayed.
     For more information, see Regenerating the NC program (Page 94).
   - If you want to make further changes, press the "Next Operation" softkey or "Previous Operation" softkey.
     If the softkey is disabled, then this means that there is no further available operation for that file.
     If there is any changed parameter a modal dialog is displayed to discard them.
   - If you want to save the current changes, press the "Accept" softkey.
     You receive the following warning:
     "All the changes made to this operation will be saved."

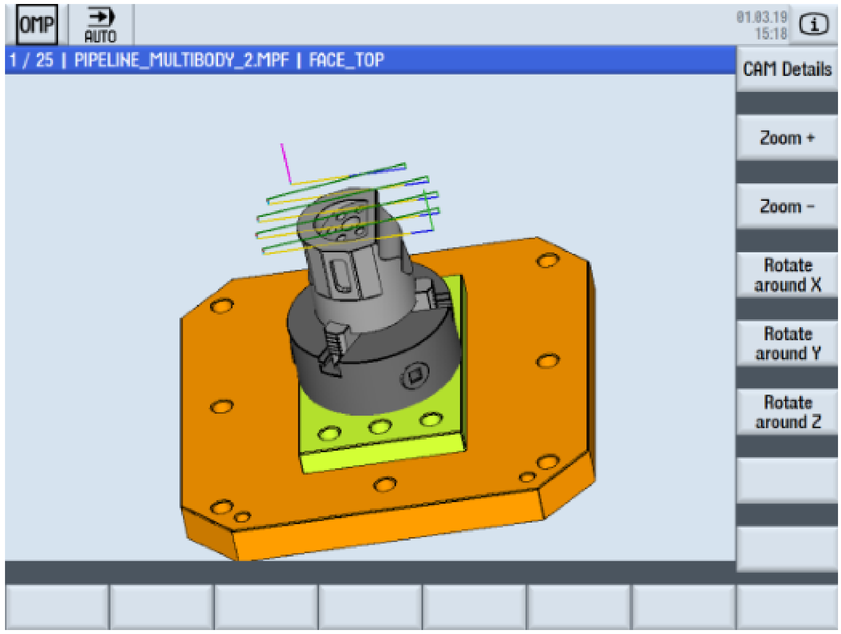


   - If you want to discard the changes, press the "Cancel" softkey.
     You receive the following warning:
     "All the changes made to this operation will be discarded."





2. Press the "Fullscreen" softkey.
   The list of parameters is hidden, and only the 3D model is shown.
   In this view, you can enlarge or reduce the 3D model, and rotate it in different directions. The movement per softkey press is 15 degrees in one direction. The softkeys are only available on the full screen.
   – Press the "Zoom +" or "Zoom -" softkey to enlarge or reduce the size of the 3D model.
   – To move the 3D model around the X axis, press the "Rotate around X" softkey.
   – To move the 3D model around the Y axis, press the "Rotate around Y" softkey.
   – To move the 3D model around the Z axis, press the "Rotate around Z" softkey.
   – Press the "CAM Details" softkey to display the overview of parameters again.

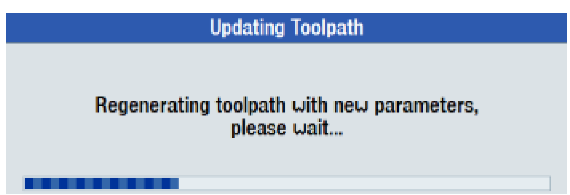


3. To load the tool path based on the newly entered values, press the "Toolpath Update" softkey.
   – The changes are not yet completed; a preview is displayed.

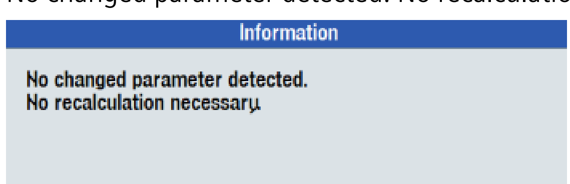
   Note

   Deleting changes

   The newly entered changes are deleted only when you press "Cancel" softkey.



   – If no changes are entered, the tool path is not loaded again.
   You receive the following information:
   No changed parameter detected. No recalculation necessary."



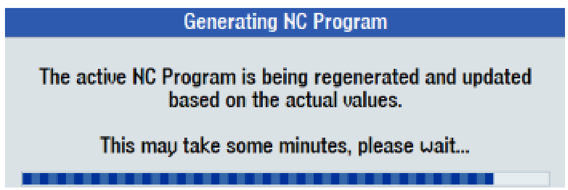
4. To navigate to the next operation, press the "Next Operation" softkey.
5. To navigate to the previous operation, press the "Previous Operation" softkey.

6.5 Regenerating the NC program

After saving the new values, you must regenerate the NC program based on the changes.

Procedure

1. Select the desired CAM operation.
2. Press the "Open" softkey.
   The selected CAM operation is opened in a new window.
   For more information, see CAM details (Page 91).
3. Perform the desired operation.
4. By pressing "CAM Overview" softkey, go back to the overview page.
5. Press the "Synch. NC" softkey.
   The NC program is regenerated and updated with the changed values.
   The data is saved and can also be seen in NX CAM.



6.6 Creating a new NC program revision

Prerequisite

You can create a new revision of the package once the NC programs have been updated and synchronized. MMR /Programs must be installed and running.

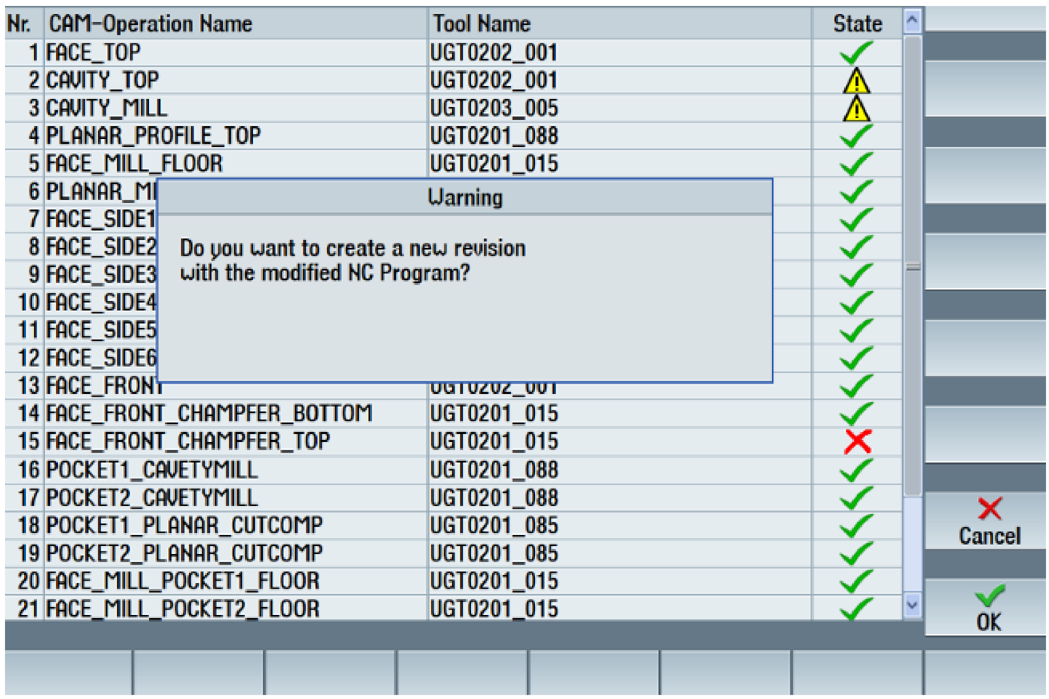
For more information, see Regenerating the NC program (Page 94).

Restrictions

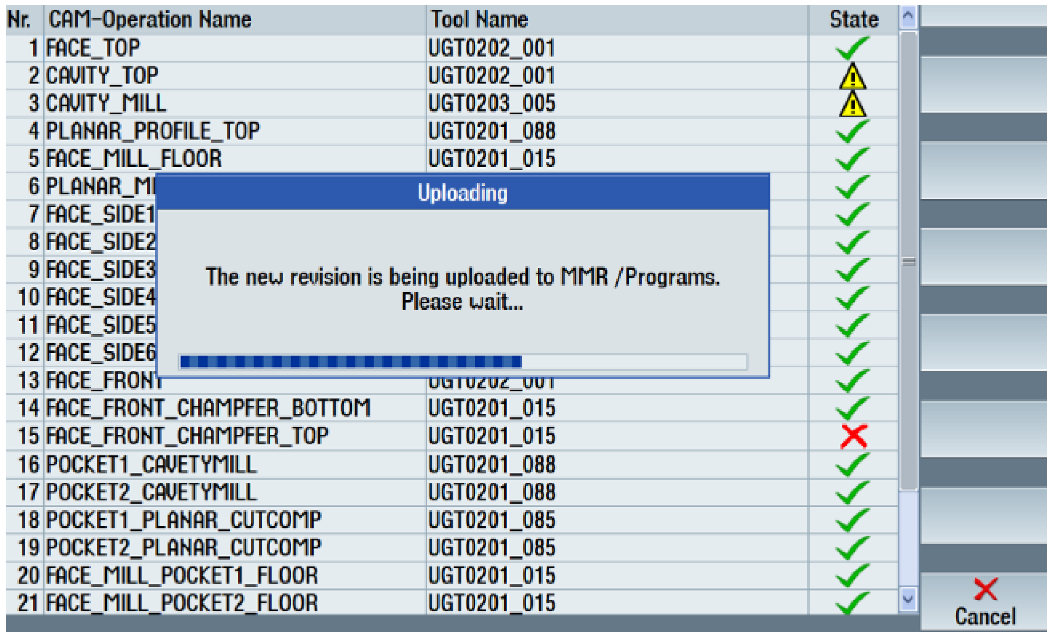
- Creating a new NC program revision is not working with MMR /Programs path variable feature. You cannot use path variables for NC programs, you have to use the exact path on the machine string value on MMR /Programs web application.
- Creating a new NC program revision is not working if the path of the NC program file contains white space:
  e.g. "/NC/_N_WKS_DIR/_N_NC_PACKAGE_WPD" is a valid file path for OMP, but "/NC/_N_WKS_DIR/_N_NC PACKAGE_WPD" is not a valid file path for OMP

Procedure

1. After the synchronization, the pop-up message: "Do you want to create a new revision with the modified NC Program?" appears.
   Press the "Cancel" softkey to cancel the operation. The "Overview" window opens.
   - OR -
   Press the "OK" softkey to create a new revision.



During the upload, a loading screen with the message "The new revision is being uploaded to MMR /Programs. Please wait..." is displayed. As soon as the upload is completed, the loading screen disappears.



2. If you want to perform other operations during the upload, press the "Cancel" softkey to close the dialog box.
   The uploading process is not interrupted.

Note

Canceling the upload dialog

If you press the "Cancel" softkey to close the "Uploading" dialog box, no error message appears if there is a problem during the upload.

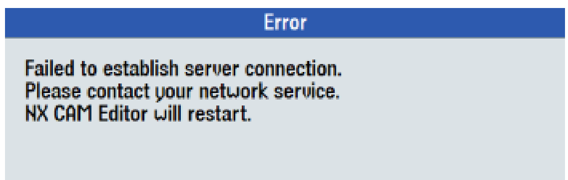
Error and system messages 7

Connection failed

The server connection was not established within the prescribed time frame.

You receive the following error:

"Failed to establish server connection.
Please contact your network service.
NX CAM Editor will restart."



Error correction

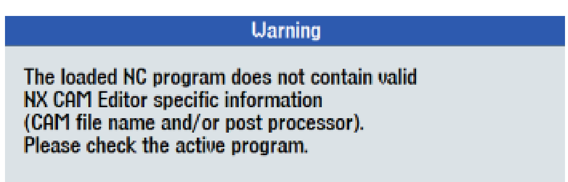
1. Check the connection between the SINUMERIK controller and the server.
2. Press the "OK" softkey to re-establish a connection.

Missing essential data

The selected NC program does not contain the required specific information to download the initial data from the server. For example, the part file name or the associated postprocessor is missing.

You receive the following warning:

"The loaded NC program does not contain valid NX CAM Editor specific information
(CAM file name and/or post processor).
Please check the active program."



1. Press the "OK" softkey.
2. Check and correct the active NC program.
3. Restart the Optimize MyProgramming /NX-Cam Editor.
   - OR -
   Press the "Reload NC program" softkey.
   The NC program is reloaded. The correct path is read out.

Error when overwriting the active NC program

The active NC program is not replaced by the processed program which is downloaded from the server. The reason is, for example, it is currently running or has been opened by an external source path.

Note

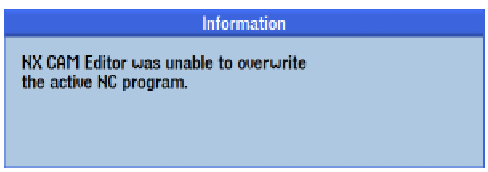
Automatic overwriting internal NC programs

Internal NC programs can be overwritten automatically if they are not running or open.

Stop and close the appropriate program.

You receive the following information:

"NX CAM Editor was unable to overwrite the active NC program."



Error correction:

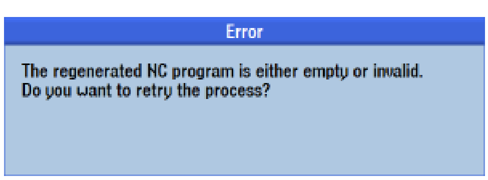
1. Switch to the "HMI tmp" directory.
   The regenerated NC program is loaded into the "HMI tmp" directory and replaces the active NC program.
   The directory can be configured on the controller in the "epsConfig.user.xml" file.
2. Search for the appropriate NC program.
3. Replace the NC program manually.

The regenerated NC program is blank

The regenerated NC program is sent back from the NX-Cam Editor with a blank file.

You receive the following error:

"The regenerated NC program is either empty or invalid.
Do you want to retry the process?"



Error correction:

Press the "OK" softkey.
Optimize MyProgramming /NX-Cam Editor attempts to regenerate and load the NC program.

- OR -

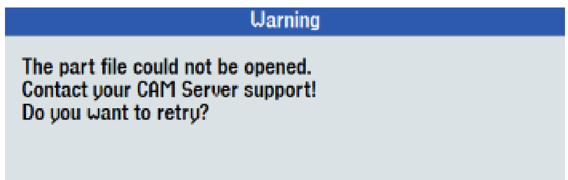
Press the "Cancel" softkey to cancel the action.

The NX-Cam Editor project file is not opened

If the Optimize MyProgramming /NX-Cam Editor client cannot load/open the NX CAM server project.

You receive the following warning:

"The part file could not be opened.
Contact your CAM Server support!
Do you want to retry?"



Error correction

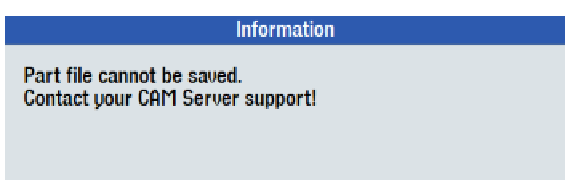
1. Press the "OK" softkey.
   The Optimize MyProgramming /NX-Cam Editor Client is reloaded.
2. If the error message is still displayed, check the content of the NC file for possible errors.
   - OR -
   Please contact the CAM server support team.

Storage failed

The storage process is not performed before the regeneration.

You receive the following information:

"Part file cannot be saved.
Contact your CAM Server support!"



Error correction

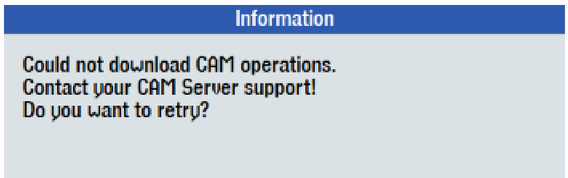
1. Press the "OK" softkey.
   The Optimize MyProgramming /NX-Cam Editor Client attempts to reload the NC program.
2. Please contact the CAM server Support.

Initialization failed

The initialization process failed. The operation list cannot be downloaded from the CAM server.

You receive the following information:

"Could not download CAM operations.
Contact your CAM Server support!
Do you want to retry?"



Error correction

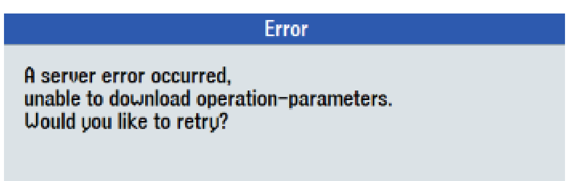
1. Check the connections to the Mcenter and to the CAM server.
2. Check the validity of the selected NC program.
3. Press the "OK" softkey to repeat the initialization.
   - OR -
   Contact the CAM server support team.

Opening the operation failed

Downloading the operation parameters failed.

You receive the following error:

"A server error occurred,
unable to download operation-parameters.
Would you like to retry?"



Error correction

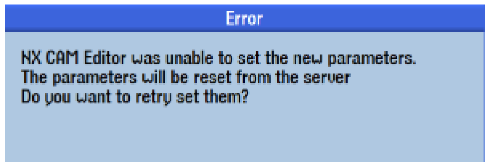
1. Press the "OK" softkey to repeat the action.
2. Open another operation.
3. Check whether the parameter list can be downloaded correctly.
4. If it can, check and correct the corrupted file on the CAM server.

Updating the tool path failed

The server cannot update the tool path.

You receive the following error:

"NX CAM Editor was unable to set the new parameters.
The parameters will be reset from the server.
Do you want to retry set them?"



Error correction

Press the "OK" softkey to repeat the update process.

- OR -

Press the "Cancel" softkey to cancel the entire action.

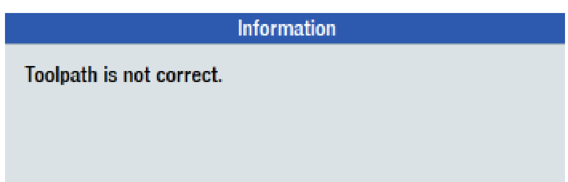
Tool path incorrect

The following error message is displayed:

- If the tool path assigned to this operation is empty or invalid.
- If the available parameters are not displayed in a correct tool path.
- If the parameters for the update are not correct.

You receive the following information:

"Toolpath is not correct."



Error correction

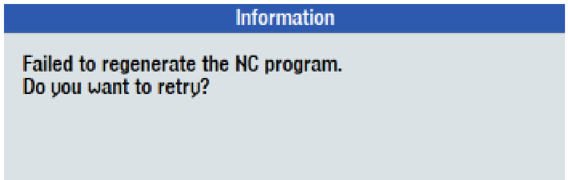
Check whether the parameters are correct.

NC program regeneration error

The new NC program does not contain any Optimize MyProgramming /NX-Cam Editor-specific information.

You receive the following information:

"Failed to regenerate the NC program.
Do you want to retry?"



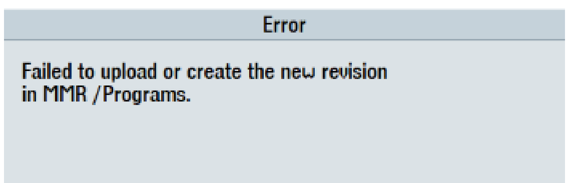
Error correction

To repeat the procedure, press the "OK" softkey.

Errors during creating a new NC program revision

In case of a problem during the upload, for example if the NC Program has not changed, you receive the following error:

"Failed to upload or create the new revision in MMR /Programs."



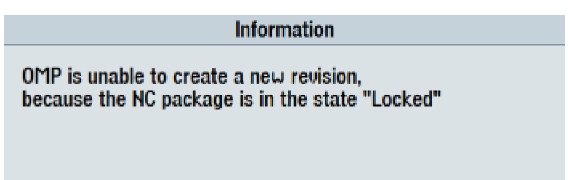
If the package is in a state that does not allow the creation of a new revision, an error message appears.

The message states one of the following reasons for the failed upload:

- "In preparation"
- "Locked"
- "Rejected"

You receive the following information:

"OMP is unable to create a new revision, because the NC package is in the state "Locked"



Mendix integration 8

8.1 Overview

In this chapter you can read how to use the openness interfaces of Mcenter from your Mendix low-code environment. The documentation of the existing openness interfaces is available in the
Operating Manual of each application that supports such API. This documentation is focused on how to reach those APIs from a Mendix application.

To be able to use the open APIs, you need to authenticate with our identity solution, acquire a token and send it with all your requests to the openness interface endpoints.

In the following sections you can find a detailed description on how this authentication works, followed by the documentation of the Mcenter authenticator module for Mendix that can be used to automate most of the steps of the authentication process.

8.2 Authentication

The Mcenter server uses OAuth2 for authentication. Getting data from the server requires an access token. Access tokens can be acquired via openness clients.

Keep in mind that the openness clients have limited rights and only the supported endpoints can be called with them.

8.2.1 Creating an openness client

Procedure

1. To create an openness client, start the "Manage openness clients" application.
2. Click on "Create".
3. Name your client.
4. Click on "Confirm & Download".
5. The downloaded file contains the credentials of the openness client.

8.2.2 Acquiring an access token

You can acquire tokens by sending a REST request to the server's token endpoint with the credentials of the openness client.

Request method: POST

Request URL: <URLoftheserver>/int/identity/connect/token

Header:

Content-Type: application/x-www-form-urlencoded

Body:

client_id: sinint-api-client

grant_type: ClientAuthGrantType

ClientAuthPayload: {"clientId":"<Client ID from file>","secret":"<secret from file>"}

The response is a JSON file containing the access token:

```
{
"access_token": "<accesstoken>",
"expires_in": 3600,
"token_type": "Bearer",
"scope": "sinint-api"
}
```

The access token is valid for an hour. The token should be used while it is valid. Only request a new token when the old one has expired.

8.2.3 Using the access token

When you request data from the Mcenter server, the access token must be included in the request. To use the access token, set the Authorization header of the request to "bearer" and insert the access token:

Authorization: bearer <insert access token here>

8.3 Using the openness client in Mendix

8.3.1 Storing the openness client

The credentials of the openness client need to be stored in the Mendix application. You can store the contents of the "OpennessToken.json" file or just the necessary properties (clientId and secret).

The URL of the server's token endpoint also needs to be stored. The token endpoint is:

<server URL> /int/identity/connect/token

You can also get the URL of the Identity service from the downloaded file. It is the identityServiceUrl field.

8.3.2 Getting access token from server

An access token can be acquired by sending a REST request to the server's token endpoint. Create a microflow in your Mendix application that sends the request to the server with the credentials of the openness client.

Create a REST request with the following configuration:

- Set Location to the address from configuration (should be <server address>/int/identity/connect/token)
- Set HTTP method to POST
- Add HTTP header Content-Type: 'application/x-www-form-urlencoded'
- At Request choose Custom request template
- Set Template to client_id=sinint-api-client&grant_type=ClientAuthGrantType&ClientAuthPayload={1}
- Parameter is the client credentials in JSON format
- At Response set Response handling to Apply import mapping and select the matching mapping

8.3.3 Storing access token

Store the received access token to be used for authentication. Create an entity with the following structure to store the access token:

- access_token: string
- expires_in: integer
- token_type: string
- scope: string

Store the datetime when the token was received. With the store datetime and the "expires_in" property, it can be determined if the token is still valid. The "expires_in" property is in seconds. Its default value is 3600 (one hour).

Create a JSON mapping to easily convert the received JSON into an entity.

8.3.4 Getting data from Mcenter server

To get data from the server, a REST request must be sent to the appropriate endpoint. An access token must be included in the request.

To achieve this in the Mendix application, create a microflow in your application. First, check stored access token. If no access token is stored or the stored token is expired, request a new access token.

Create a REST request. In the Call REST microflow activity at HTTP Headers, add a custom HTTP header:

- Key: Authorization
- Value: 'Bearer ' + <access token>

Set the URL to the server endpoint you want to get the data from. The returned data is in JSON format. Create an entity and JSON mapping to store the received data.

8.4 Using the provided Mendix authentication module

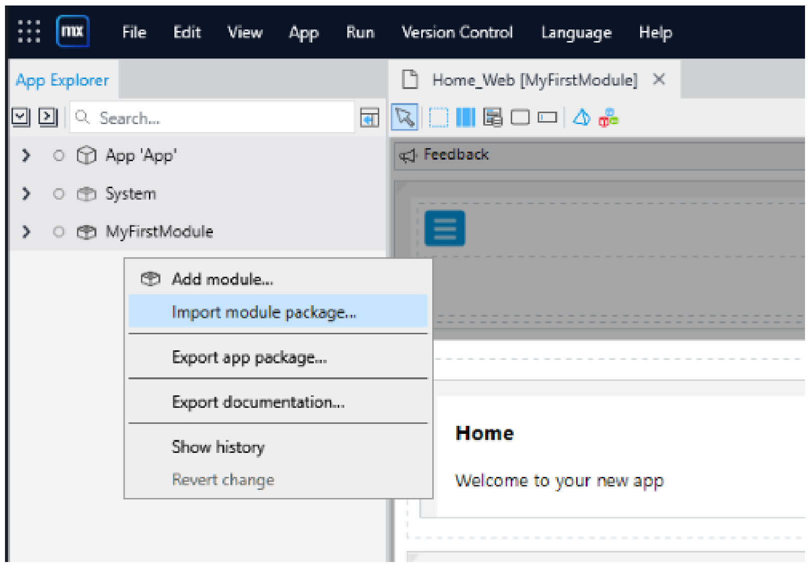
Prerequisite

You are familiar with Mendix development, have Mendix studio installed and already started to develop an application which needs to show data coming from Mcenter.

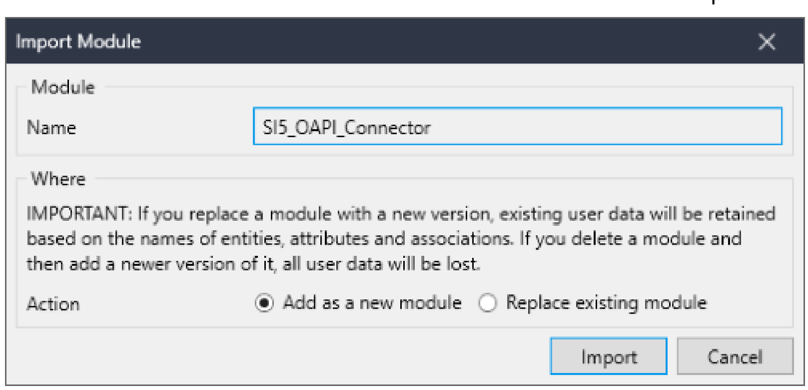
8.4.1 Installing the module

Procedure

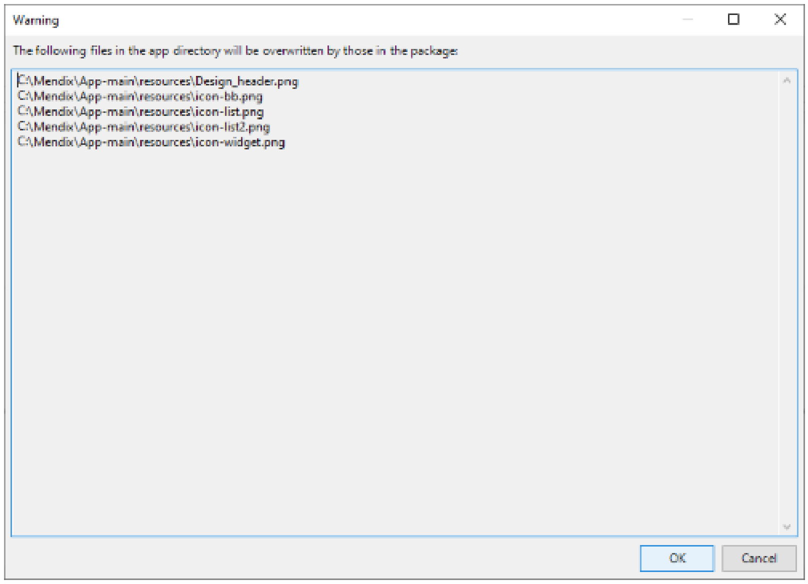
1. To import the authentication module into your Mendix application, right click on the empty space in the App Explorer view and select "Import module package".
   Select your package file (SI5_OAPI_Connector.mpk) and click "Open".



2. The "Import Module" window opens.
   Select the "Add as a new module" action and click on the "Import" button.



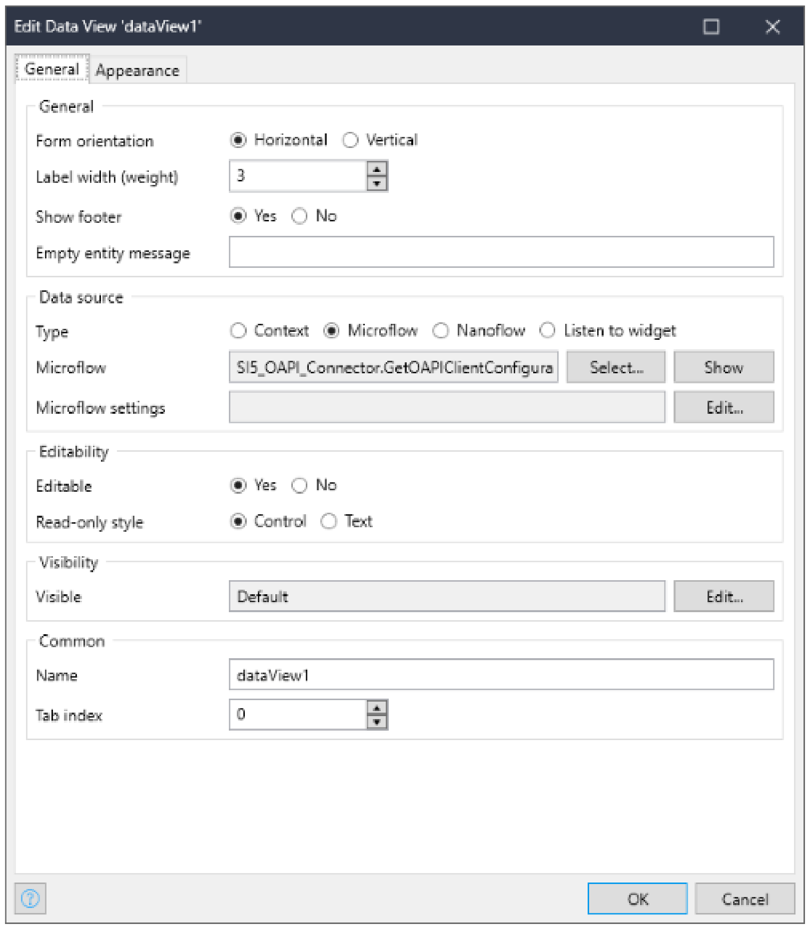
3. Click on the "OK" button to acknowledge the following warning:


Warning
The following files in the app directory will be overwritten by those in the package:
C:\Mendix\App-main\resources\Design_header.png
C:\Mendix\App-main\resources\icon-bb.png
C:\Mendix\App-main\resources\icon-list.png
C:\Mendix\App-main\resources\icon-list2.png
C:\Mendix\App-main\resources\icon-widget.png
OK
Cancel

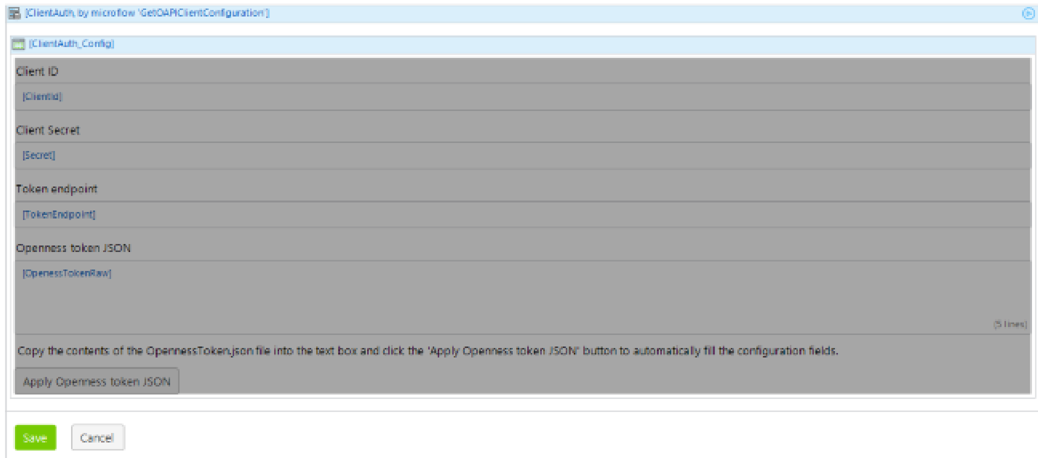
8.4.2 Setting up authentication

Procedure

1. Configure the connection to Mcenter. To start, create a dataview at the appropriate place.
2. Configure the microflow data source to use the following microflow: "SI5_OAPI_Connector.GetOAPIClientConfiguration"



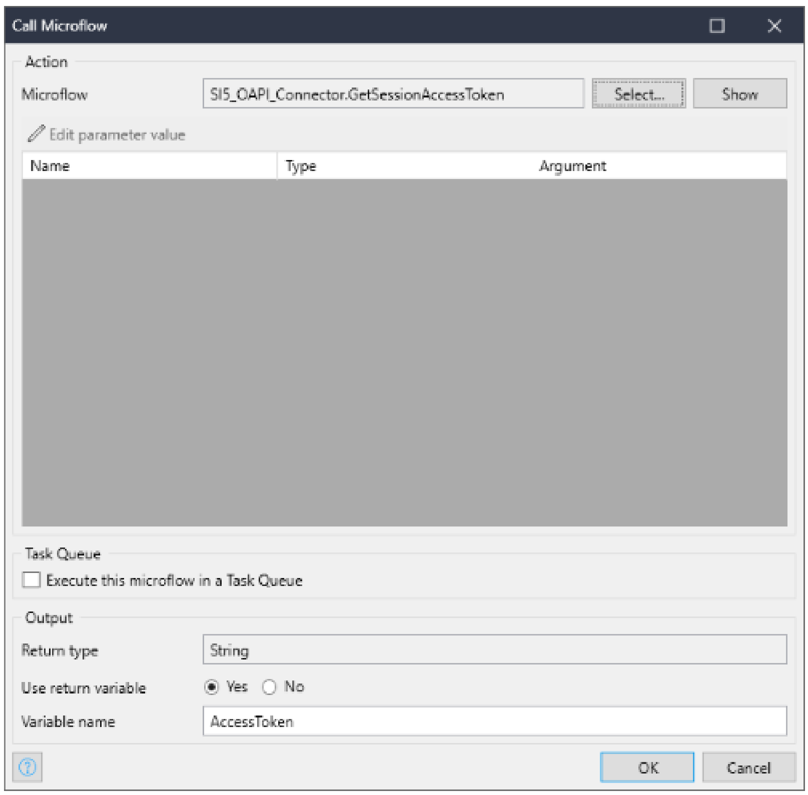
3. Add the "ClientAuth_Config" snippet from the "_USE ME" folder in the connector module, a "Save" and a "Cancel" button to the data view. The end result should look like the following:


[ClientAuth, by microflow 'GetOAPIClientConfiguration']
[ClientAuth_Config]
Client ID
[ClientId]
Client Secret
[Secret]
Token endpoint
[TokenEndpoint]
Openness token JSON
[OpenessTokenRaw]
Copy the contents of the OpennessToken.json file into the text box and click the 'Apply Openness token JSON' button to automatically fill the configuration fields.
Apply Openness token JSON
Save
Cancel

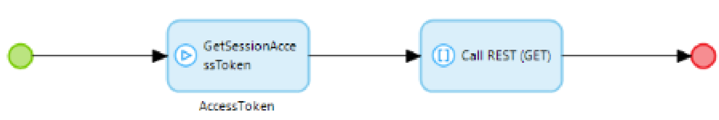
8.4.3 Accessing Mcenter open API

Procedure

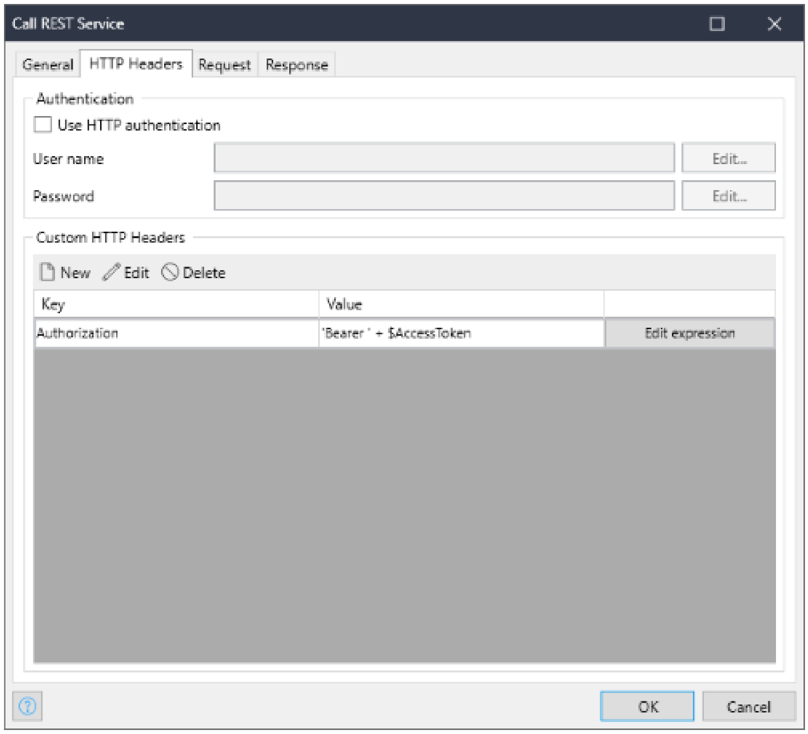
1. To insert the proper authorization header into your REST call, in your microflow, add a "Microflow call" activity before "Call REST".
   Configure it to run the "SI5_OAPI_Connector.GetSessionAccessToken" microflow. The returned string should be stored in a variable. In this example, the variable name "AccessToken" is used.

2. The resulting flow should look like the following:

3. Add the "Authorization" header into the request and set its value to 'Bearer ' + $AccessToken`. Replace "$AccessToken" with the name of your variable.


Call REST Service
General
HTTP Headers
Request
Response
Authentication
Use HTTP authentication
User name
Edit...
Password
Edit...
Custom HTTP Headers
New
Edit
Delete
Key
Value
Authorization
'Bearer ' + $AccessToken
Edit expression
OK
Cancel

Appendix A

A.1 List of abbreviations

Admin	Administrator (user role)
API	Application Programming Interface: Programming interface or extension interface for connection and interaction between software systems
CNC	Computerized Numerical Control
COM	Communication
DIR	Directory, directory
FAQ	Frequently Asked Questions
h	Hour
HTTP	Hyper Text Transfer Protocol, hypertext transfer protocol
HTTPS	Hyper Text Transfer Protocol Secure, secure hypertext transfer protocol
IB	Commissioning engineer (user role)
ID	Identification number
IE	Internet Explorer
IFC	Interface Client
IIS	Internet Information Services
IoT	Internet of Things
MB	Megabyte
MLFB	Machine-Readable Product Code
MMR /Tools	Manage MyResources /Tools management
MMR /Programs	Manage MyResources /Programs management
MSTT	Machine control panel
NC	Numerical Control: Numerical control
NCU	Numerical Control Unit: NC hardware unit
OEE	Overall Equipment Effectiveness
OEM	Original Equipment Manufacturer
OP	Operation Panel: Operating equipment
OMP /NX-Cam Editor	Optimize MyProgramming /NX-Cam Editor
PC	Personal Computer
PCU	PC Unit: Computer unit
PLC	Programmable Logic Control
SI	SINUMERIK Integrate
SK	Softkey
SSL	Secure Sockets Layer, cryptographic protocol to encrypt data transferred between server and client
SW	Software
TLS	Transport Layer Security, cryptographic protocol to encrypt data transferred between server and client

TMD	Tool Master Data
TMD-ID	Unique identification of Tool Master Data
TOA	Tool Offset Active, identifier (file type) for tool offset
URL	Uniform Resource Locator
UTC	Universal Time Coordinated

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