

SIEMENS

SINUMERIK

MindSphere application Manage MyMachines, Manage MyMachines /Spindle Monitor

Function Manual

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Valid for control:
SINUMERIK 840D s// 840DE s// 828D
SINUMERIK ONE


Software
Manage MyMachines, Version 02.03.02.00
Manage MyMachines /Spindle Monitor, Version 02.03.02.00


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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Introduction

1.1 About Manage MyMachines

Manage MyMachines

The "Manage MyMachines" MindApp visualizes numerous operating and plant-specific data of machine tools or individual machine components for production, service and maintenance. This increases the transparency of the machine tools connected in MindSphere.

The following functions are possible:

- Globally distributed machines can be managed and displayed.
- Visualize relevant information in an overview page.
- Intuitive creation of rules and queries.
- Simple installation through integrated SINUMERIK Integrate client.
- Combines critical machine data for a meaningful analysis.
- Create your own digital service portfolio based on the MindApp.

The data that you provide is exclusively variables from the NC, the PLC or from the drives. This data enables conclusions to be drawn with regard to:

- Availability
- Operating times
- Operating state, state duration
- Maintenance, wait times
- Technical state

The corresponding data is either preconfigured or can be defined centrally by the user and configured with appropriate warning limits. It is also possible to identify trends with the aid of measuring series.

The data processing and visualization is performed on the MindSphere platform.

1.2 About this documentation

Overview

This document describes the following:

- How to connect MindSphere to the SINUMERIK control
More information can be found at: Setting up the SINUMERIK control system for Manage MyMachines (Page 27)
- The functionality of the MindSphere Application "Manage MyMachines"
More information can be found at: Working with Manage MyMachines (Page 161)

MindSphere

MindSphere is a cloud-based, open IoT operating system from Siemens which connects your machines and physical infrastructure with the digital world. This gives you a complete overview of your data at all times.

Several MindSphere-based applications are available - the "MindSphere Applications".

More information

More information about the MindSphere applications can be found at: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/ManageMyMachine.html>)

As well as the manuals, you will also find data sheets and FAQs at the following link: MindSphere (<https://support.industry.siemens.com/cs/de/en/view/109742256>).

Target group

This publication is intended for:

- Project engineers
- Technology experts (from machine manufacturers)
- Commissioning engineers (systems/machines)
- Programmer-users

Benefits

The Function Manual describes the functions in such a way that the target group is aware of them and can select them. The manual provides the target group with the information required to implement the functions.

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.

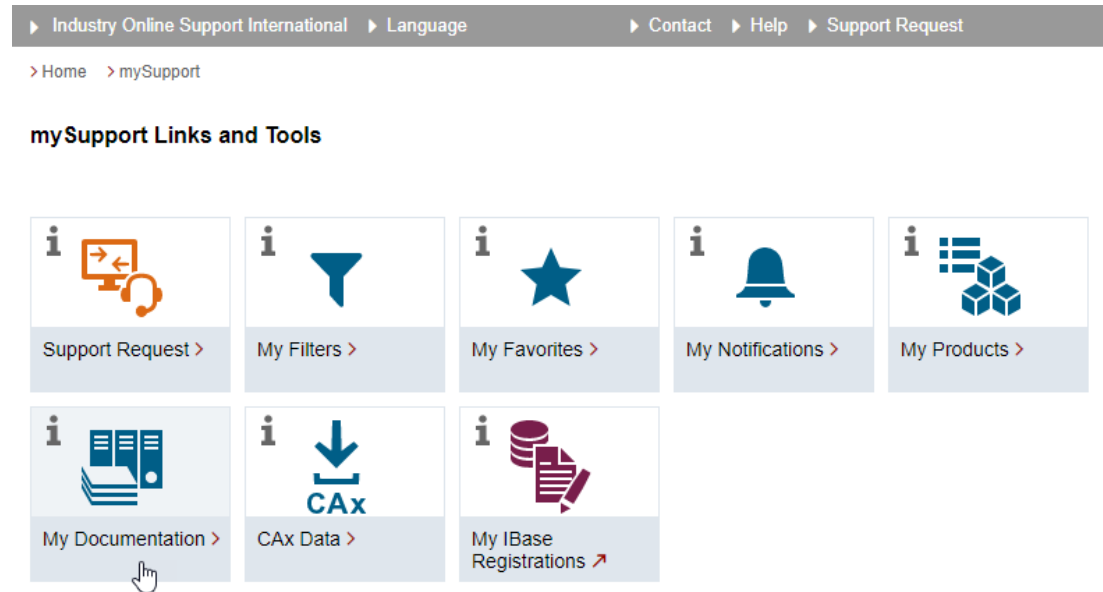
1.3 Feedback on the technical documentation

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

1.4 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/ww/en/my>):



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.

1.5 Service and Support

Product support

You can find more information about products on the internet:

Product support (<https://support.industry.siemens.com/cs/ww/en/>)

The following is provided at this address:

- Up-to-date product information (product announcements)
- FAQs (frequently asked questions)
- 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 (<https://support.industry.siemens.com/cs/ww/en/sc/4868>) in the "Contact" area.

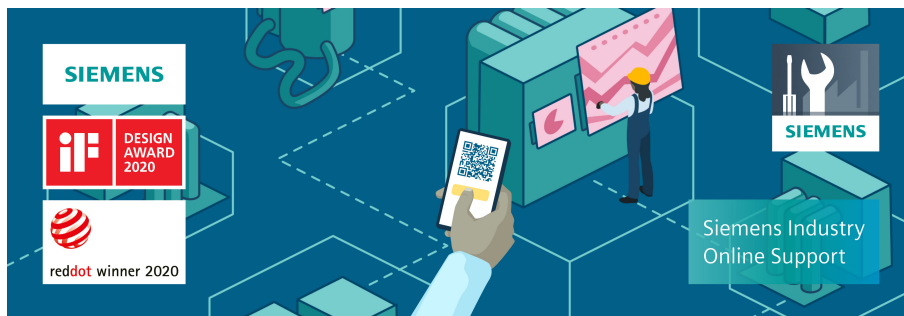
If you have any technical questions, please use the online form in the "Support Request" area.

Training

You can find information on SITRAIN at the following address (<https://www.siemens.com/sitrain>).

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.

1.6 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://www.cryptsoft.com>)

1.7 General Data Protection Regulation


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

2.1 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.
<ul style="list-style-type: none">• 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.
<ul style="list-style-type: none">• 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.

System requirements

Hardware and operating software

SINUMERIK 840D sl

SINUMERIK Integrate client software version	Operating software SINUMERIK Operate version	Hardware version	Operating system
2.0.11	4.5 SP4, HF1, 2, 3, 4	NCU 7x0.3 PN	Linux
2.0.12	4.5 SP6, HF1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	NCU 7x0.3B (PN)	
2.0.13			
2.0.14	4.5 SP5, HF1, 3, 5	PCU 50.5	Windows 7
2.0.16	4.5 SP6, HF2, 3, 5, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18, 19	IPC427E	Windows 10
2.0.18		IPC477E	
2.0.19			
3.0.11	4.7 SP1, HF1	NCU 7x0.3 PN	Linux
3.0.12	4.7 SP2, HF1, 3, 4	NCU 7x0.3B (PN)	
3.0.13	4.7 SP3, HF1, 2, 3	PCU 50.5	Windows 7 Windows 10
3.0.14	4.7 SP4, HF1, 3, 4, 5, 6	IPC427E	
3.0.16	4.7 SP5, HF1	IPC477E	
3.0.18	4.7 SP6, HF1, 3, 4, 5, 6, 7		
3.0.19	4.7 SP7, HF1, 3		
	4.7 SP7, HF14		
	4.8 SP1, HF1, 2, 3		
	4.8 SP2, HF1, 3		
	4.8 SP3, HF1		
	4.8 SP4, HF1, 3, 4, 6, 8		
	4.8 SP5, HF5, 6		
	4.8 SP6, HF1, 3, 4, 5		
	4.8 SP7		
4.0.15	4.92, HF3	NCU 710.3B	Linux
4.0.16	4.93, HF1, 2	NCU 7x0.3B (PN)	
4.0.18	4.94, HF3, 4	PCU 50.5	Windows 7 Windows 10
4.0.19	4.95	IPC427E	
4.0.20	4.95, HF1	IPC477E	
	4.95 SP1, HF1		
	4.95 SP1, HF3		

SINUMERIK ONE

SINUMERIK Integrate client software version	Operating software SINUMERIK Operate version	Hardware version	Operating system
4.0.15	6.13, HF1, 2, 4, 6	NCU 1750	Linux
4.0.16	6.14, HF3	NCU 1760	
4.0.18	6.15, HF1	IPC 427E	Windows 10
4.0.19	6.15 SP1		
4.0.20	6.15 SP1, HF1		
	6.15 SP1, HF3		

SINUMERIK 828D

SINUMERIK Integrate client software version	Operating software SINUMERIK Operate version	Hardware version	Operating system
2.0.11	4.5 SP4	PPU 281.3	Linux
2.0.12	4.5 SP5, HF1, 2	PPU 261.3	
2.0.13	4.5 SP6, HF1, 2, 3, 4	PPU 241.3	
2.0.14			
2.0.16			
2.0.18			
2.0.19			
3.0.11	4.7 SP2, HF1	PPU 290.3	
3.0.12	4.7 SP3, HF2	PPU 28x.3	
3.0.13	4.7 SP4, HF1, 2	PPU 26x.3	
3.0.14	4.7 SP5	PPU 24x.3	
3.0.16	4.7 SP6, HF1, 2		
3.0.18	4.7 SP7, HF1, 3, 4, 5		
3.0.19			
3.0.13	4.8 SP4, HF1	PPU 271.4	
3.0.11	4.8 SP4, HF1, 2, 3, 4, 5	PPU 27x.4	
3.0.12	4.8 SP5, HF5, 6	PPU 29x.4	
3.0.13	4.8 SP6, HF1, 2, 3		
3.0.14	4.8 SP7		
3.0.19			
4.0.17	4.94		
4.0.18	4.95, HF1		
4.0.19			

Retrofit

SINUMERIK Integrate Client Version	Operating software HMI Advanced Version	Hardware version	Operating system
4.15.0.13	7.7.1.0 7.7.1.1	IPC 427D	Windows 10

SINUMERIK Integrate Gateway

The following SINUMERIK Integrate Client software versions support the Gateway function:

- 04.01.08.01
- 04.01.10.00

Operator PC

Processor	1 GHz processor
RAM (GB)	4
Free hard disk capacity (GB)	1
Operating systems	Windows 7 SP1 (x64) Professional/Enterprise/Ultimate Windows 10 (x64) Pro/Enterprise
Screen resolution	At least 1980 x 1080 pixels

Web browser or tablet

You can use the following web browsers:

- Chrome
Version from 65.0.3325.18 (64 bit) up to the current version
- Firefox
Version 59.0.2 (64 bit) up to the current version
- Microsoft Edge (Chromium based)
Version from 85.0.564.51 up to the current version
- Safari for tablets
iOS and Android systems are supported for the current version and 10 inch tablet size.

Note

Parallel operation with SINUMERIK Integrate applications is not possible

Security notes

NOTICE
Security standards for SINUMERIK controllers connected to MindSphere
The connection of SINUMERIK controllers to MindSphere via TLS 1.2 /https meets the highest security standards.
SINUMERIK versions that do not meet these standards are not part of the product. For these versions, additional security measures must be taken.
You are solely responsible for preventing unauthorized access to your plants, systems, machines and network. Systems, machines and components should only be connected to the company's network or the Internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.
The actions required in this regard are described in the following Configuration Manual: Industrial Security (https://support.industry.siemens.com/cs/ww/en/view/108862708).

NOTICE
Data misuse due to an unprotected Internet connection
An unrestricted Internet connection can lead to data misuse, e.g. when transferring the asset data.
Before establishing a network connection, ensure your PC is exclusively connected to the Internet via a secure connection. Pay attention to the security-relevant notes.
More information about communications security can be found in the Configuration Manual: Industrial Security (https://support.industry.siemens.com/cs/ww/en/view/108862708).

Note

SINUMERIK control system security

The necessary security measures (e.g. virus scanner, firewalls, operating system patching, etc.) must be implemented on the SINUMERIK controllers.

More information about communications security can be found in the Configuration Manual: Industrial Security (<https://support.industry.siemens.com/cs/ww/en/view/108862708>).

Note

Operating PC security

The necessary security measures (e.g. virus scanner, firewalls, operating system patching, etc.) must be implemented on the PCs that are used to visualize and configure MindSphere applications at the OEM or end user facility.

More information about PCs in the industrial environment can be found in the Configuration Manual: Industrial Security (<https://support.industry.siemens.com/cs/ww/en/view/108862708>).

Note**Data archiving**

When archiving your exported data, observe that you are responsible for ensuring that this data is securely archived.

These include, for example, the following measures:

- Save exported data to an area with restricted access within the OEM/end customer location, for example, access restrictions to SharePoints, databases through user administration with, e.g. proof of authorization.
 - Protect your encrypted storage locations, such as SharePoints, against manipulation.
 - If absolutely necessary, only store your confidential or security-relevant data encrypted on your PC / systems or the network. Security-relevant data includes sensitive data, such as archives, passwords, or executable files (*.exe).
 - Regularly back up your security-relevant data and carefully protect it against loss and manipulation.
-

Note**Transporting data**

Apply the following measures when transporting data:

- If you send confidential and/or security-relevant data by email, always send this e-mail only encrypted or signed, especially in the public domain or on the Internet.
- If you wish to transport confidential and/or security-relevant data on a data storage medium (USB flash drive, hard disk, etc.), carefully investigate as to which data storage media are considered secure. These data storage media must be regularly checked for viruses. Always save your data on local data storage media so that the data is encrypted.

These measures are especially important for sensitive data, such as archives, passwords or executable files (*.exe).

Type of delivery

The updates and more information on the applications and products are stored on PridaNet and can be downloaded directly from there.

- OR -

You can contact your machine manufacturer.

- OR -

You contact Siemens Service and Support.

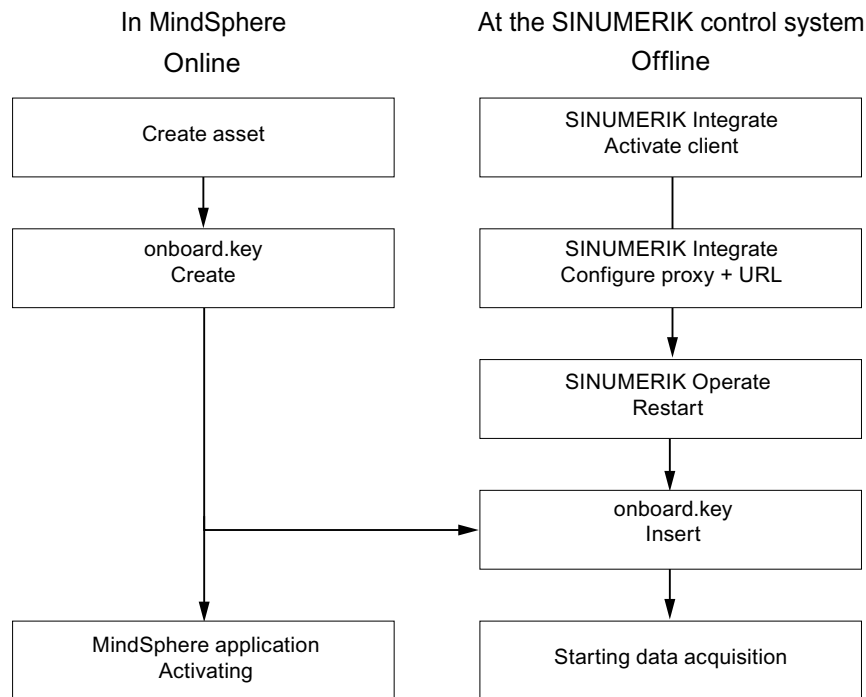
Setting up the SINUMERIK control system for Manage MyMachines

4

4.1 Activating the data acquisition

Overview

To use the MindSphere application, you must perform various steps in MindSphere and on the SINUMERIK control system itself.



Procedure

In MindSphere:

1. Create the desired assets.
Further information can be found at: Asset Manager (Page 71)
Detailed information can be found at: MindSphere - Asset Manager System Manual
2. Create the "onboard.key".
Further information can be found at: Connecting controller with MindSphere (Page 125)
3. Activate the required MindSphere application.
More information is provided at: Activating/deactivating Manage MyMachines (Page 86)

4.1 Activating the data acquisition

At the SINUMERIK control system:

1. Check the installed versions.
Further information can be found at: Displaying version data (Page 29)
 - If an appropriate SINUMERIK Integrate version is not installed, then perform a client update.
Further information can be found at: Client update under Windows (Page 32)
2. Activate the SINUMERIK Integrate client.
Further information can be found at: Activating the SINUMERIK Integrate client (Page 40)
3. Enable the use of SINUMERIK Integrate.
Further information can be found at: Activating use of SINUMERIK Integrate (Page 41)
4. Configure the URL and proxy.
 - On the SINUMERIK 840D sl control system:
Further information can be found at: Configuring the URL and proxy (Page 42)
 - OR -
 - On the SINUMERIK 828D control system:
Further information can be found at: Configuring the URL and proxy (Page 50)
5. Restart SINUMERIK Operate.
6. Insert "onboard.key".
 - On the SINUMERIK 840D sl control system:
Further information can be found at: Install the registration key on a SINUMERIK control system (Page 45)
 - OR -
 - On the SINUMERIK 828D
Further information can be found at: Install the registration key on a SINUMERIK control system (Page 53)
7. Start with editing the diagram.

Note

File "onboard.key"

The file "onboard.key" contains safety-related information for the one-time connection setup of a SINUMERIK controller with MindSphere and must therefore be stored safely - both on the terminal, on which the file is stored temporarily, and on the target controller. Only when the connection between the SINUMERIK control system and MindSphere has been completely set up is this connection setup key no longer relevant.

This file is then automatically deleted on the SINUMERIK control system.

Secure the terminals used for this accordingly, for example, using virus protection programs, firewalls, OS updates, etc.

4.2 Checking and updating the versions

4.2.1 Displaying version data

In the "Version data" window you can check whether you are using a suitable version.



Only use the versions specified in this document.

Additional information is provided in Chapter: System requirements (Page 21).

The following components with the associated version data are specified:

- CNC software
Among other things, the SINUMERIK Operate version is displayed in the details.
- PLC basic program
- PLC user program
- System extensions
Among other things, the SINUMERIK Integrate version is displayed in the details.
- OEM applications
- Hardware

Information is provided in the "Nominal version" column as to whether the versions of the components differ from the version supplied on the CompactFlash card.

Icon	Description
	The version displayed in the "Actual version" column matches the version of the CF card.
	The version displayed in the "Actual version" column does not match the version of the CF card.

Procedure

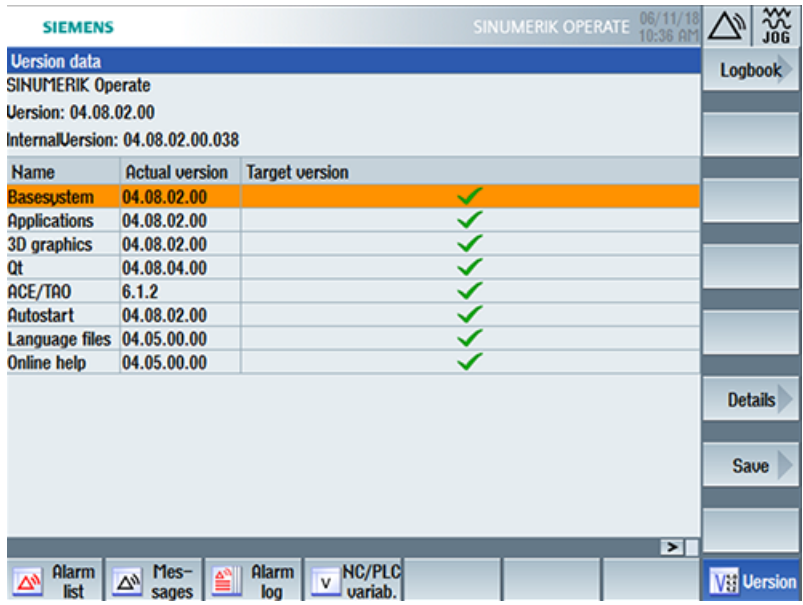


1. Start the SINUMERIK Operate operating software on the SINUMERIK control system.
2. Press the <MENU SELECT> key.
3. Select the "Diagnostics" operating area.
4. Press the "Version" softkey.
The "Version data" window opens.
The data of the available components is displayed.
5. Select the component for which you would like more information.

4.2 Checking and updating the versions



6. Press the "Details >" softkey in order to obtain more detailed information on the components displayed.



Start a client update if you have the required SINUMERIK Integrate version on your SINUMERIK control system.

Information is provided in the following chapter as to how you perform a client update:


- Client update under Windows (Page 32)
- OR -
- Client update under Linux (Page 36)

4.2.2 Installing a SINUMERIK 828D update

If you are not using a suitable software version on the SINUMERIK 828D control, you must install the required software update/backup.

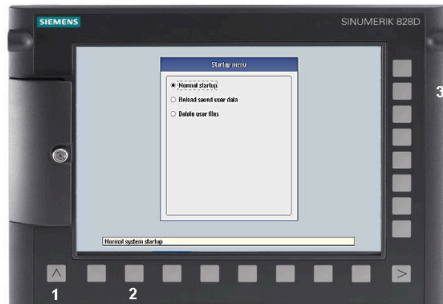
Procedure

1. Switch the control on.
The following is displayed during startup:



Press SELECT key to enter setup menu

2. Press the <SELECT> key within three seconds.
To call the "Startup menu", press the following keys in succession:
Menu back key, **HSK2** (horizontal softkey 2), **VSK2** (vertical softkey 2)



Note

PPU with touch operation

To call the "Startup menu" during startup, there is an additional shortcut key for all PPU: **"8"**
→ **"2"** → **"8"**

3. The "Startup menu" is displayed, "Normal startup" is the default setting.



4. Select the "Install software update/backup" option to install an update on the system CompactFlash card from the user CompactFlash card or USB flash drive.

4.2 Checking and updating the versions

5. The following message is displayed:
"Do you want to install the software update? Either CF card or USB stick must be plugged in".
6. Insert the USB flash drive into the USB interface on the front of the operator panel and click "Yes".
7. Make sure that only individual ".tgz" files are located on the USB flash drive. Press the <INPUT> key to install the required files.
8. The installation preparation and then the installation procedure are shown on the screen.
9. At the end, the following message is displayed: "Restoring complete. Switch off and remove data medium!"
Switch the control off and remove the storage medium.

Additional information on commissioning SINUMERIK 828D can be found in the SINUMERIK 828D Commissioning Manual

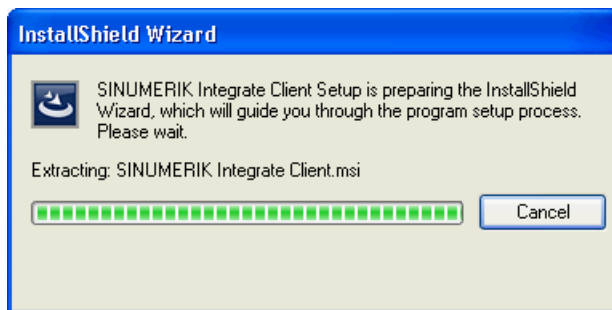
4.2.3 Client update under Windows

Requirement

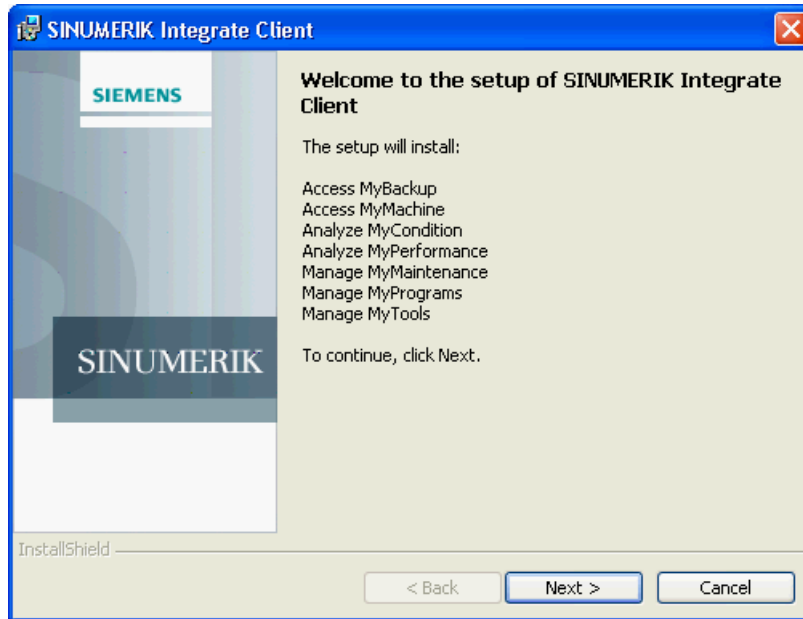
The SINUMERIK Integrate client update required "setup.exe" was transferred into the installation directory.

Procedure

1. Start the SINUMERIK control system in the Windows service mode.
2. Open the installation directory.
3. Start setup file "setup.exe" with a double-click.
SINUMERIK Integrate Client - InstallShield Wizard opens.



4. The welcome screen opens and shows the applications to which the update applies. Click "Next >" to start the installation preparation.

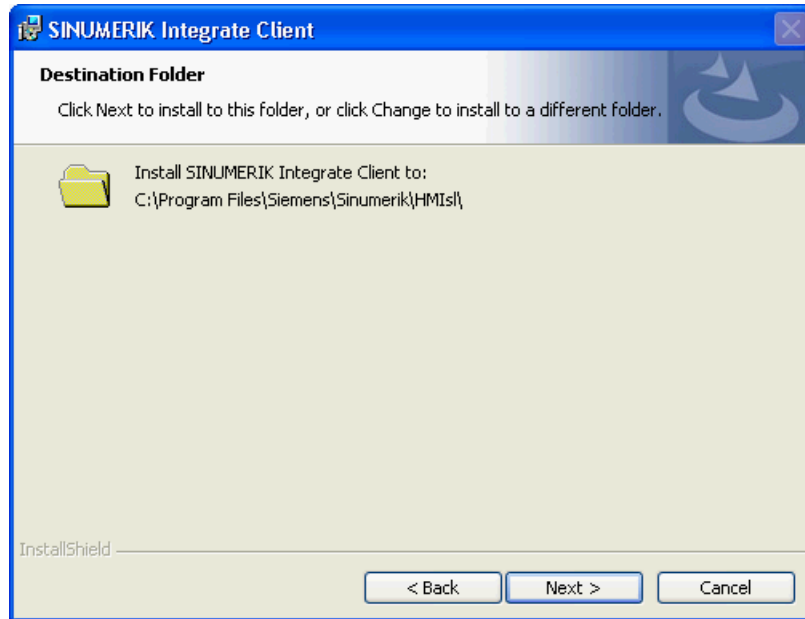


5. The "License Agreement" window opens. Read the license agreement.
- If you want to print the terms, click "Print."
 - Then activate the "I accept the terms in the license agreement" checkbox and click "Next >".
 - OR -
 - Click "< Back" to return to the previous window.

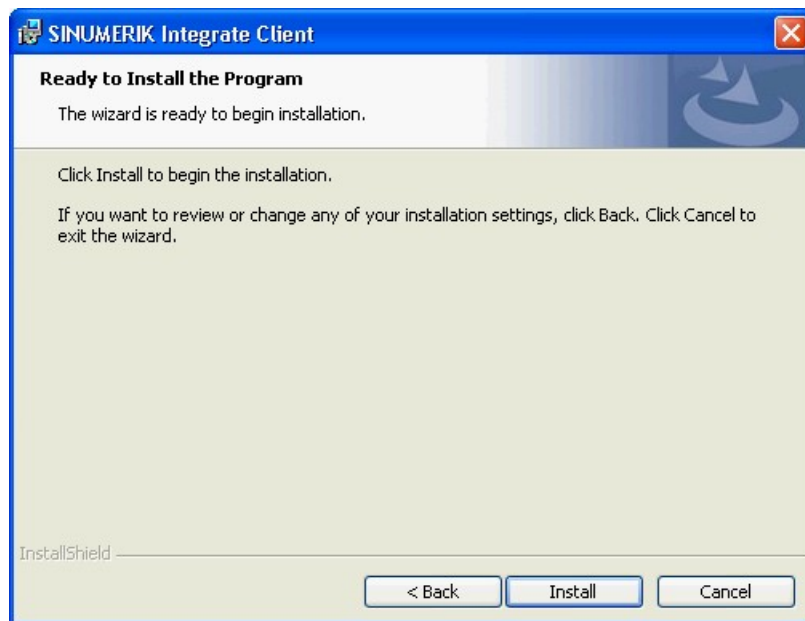


4.2 Checking and updating the versions

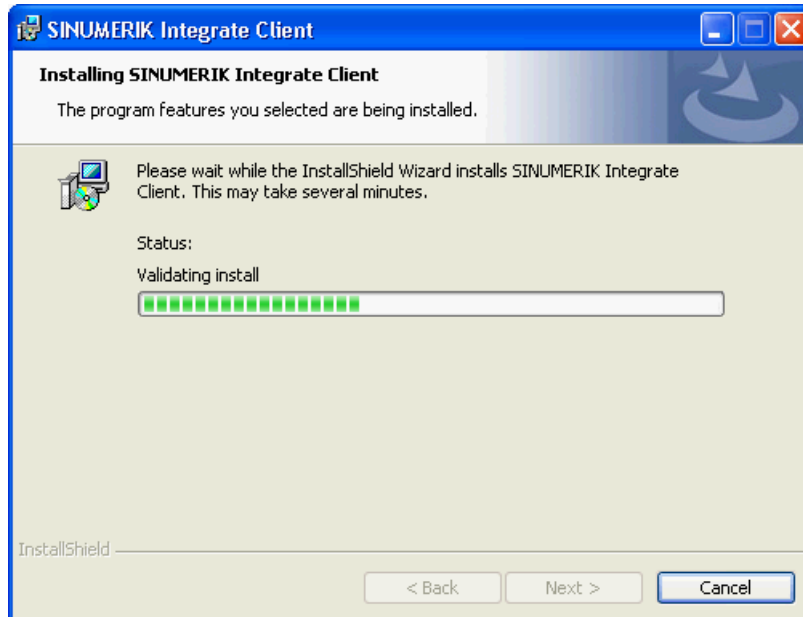
- The next window displays the installation directory for the application. Click "Next >" to accept the directory suggested by the setup.



- The Wizard is ready to start the installation. Click "Install" to start the installation.



- The installation is started, and the progress is displayed with a progress bar.



- Click "Finish" to complete the installation.



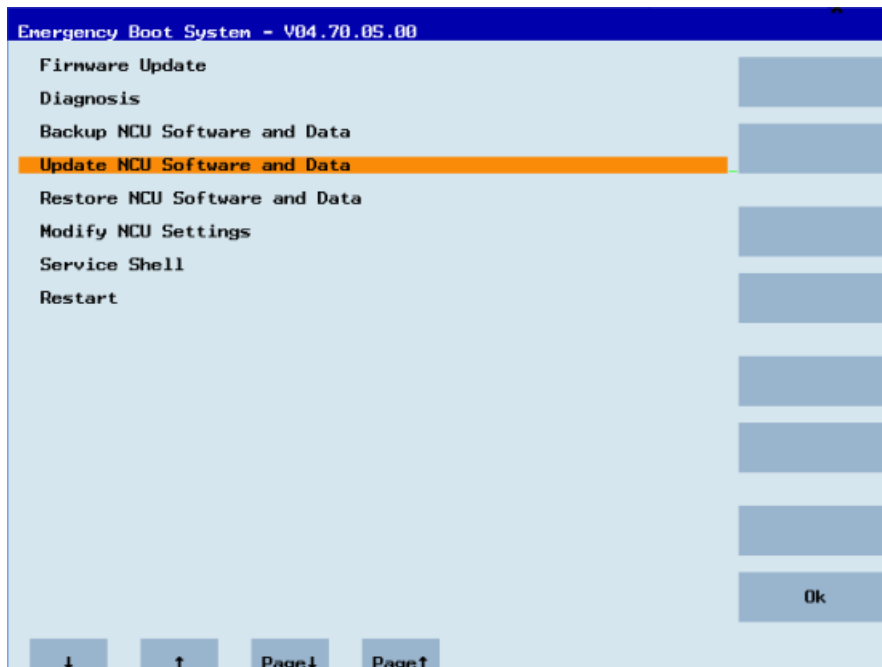
4.2.4 Client update under Linux

Requirement

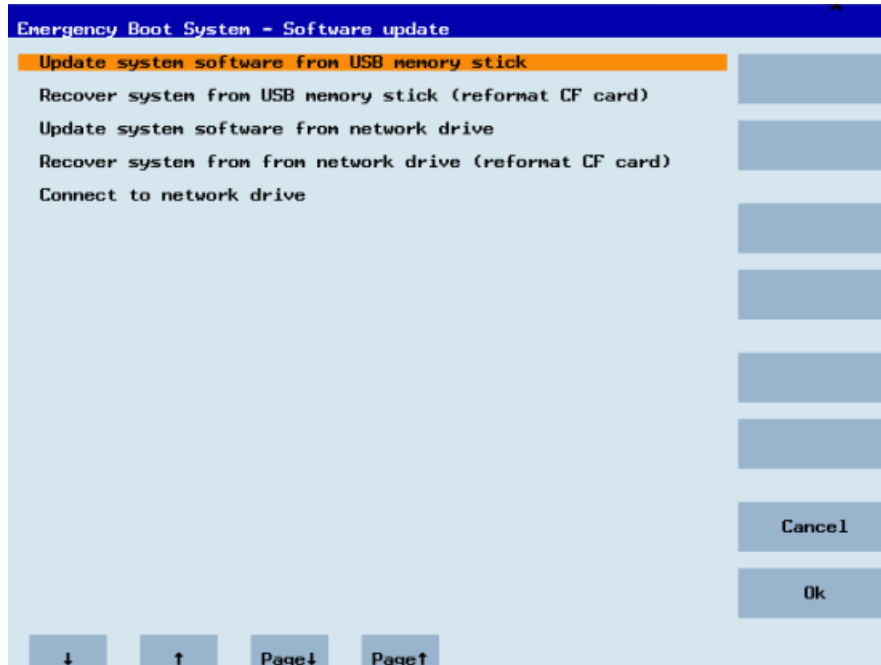
- Emergency Boot System V04.70.05.00
- SINUMERIK Operate 4.5 SP4
- OR -
- SINUMERIK Operate 4.7 SP2

Procedure

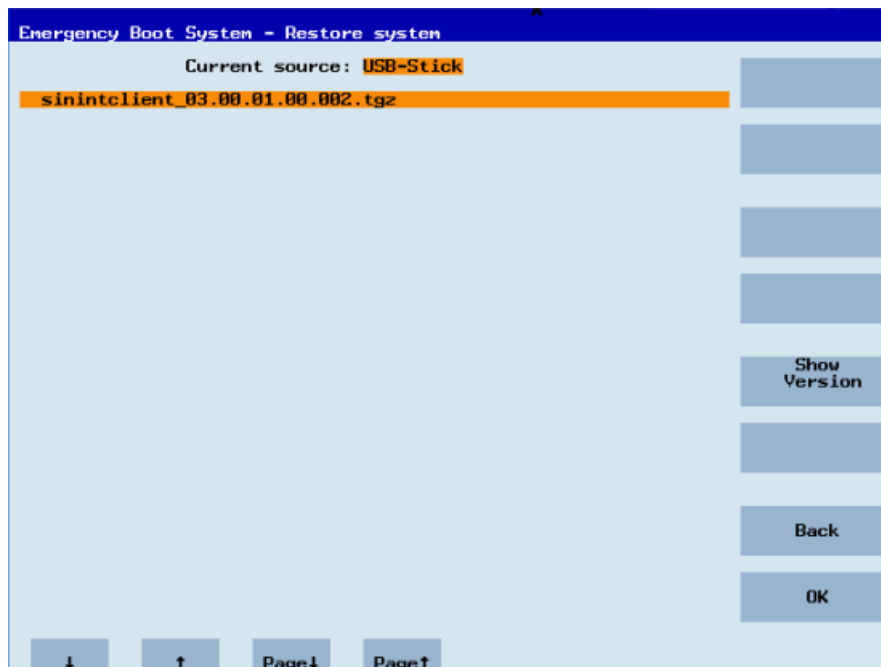
1. Copy the "sinintclient.tgz" file to the USB flash drive.
2. Insert the USB flash drive into the NCU.
3. Start the NCU.
4. In the menu, select "Update NCU Software and Data" with the cursor keys and press the "OK" softkey.



- In the menu, select "Update system software from USB memory stick" with the cursor keys and press the "OK" softkey.

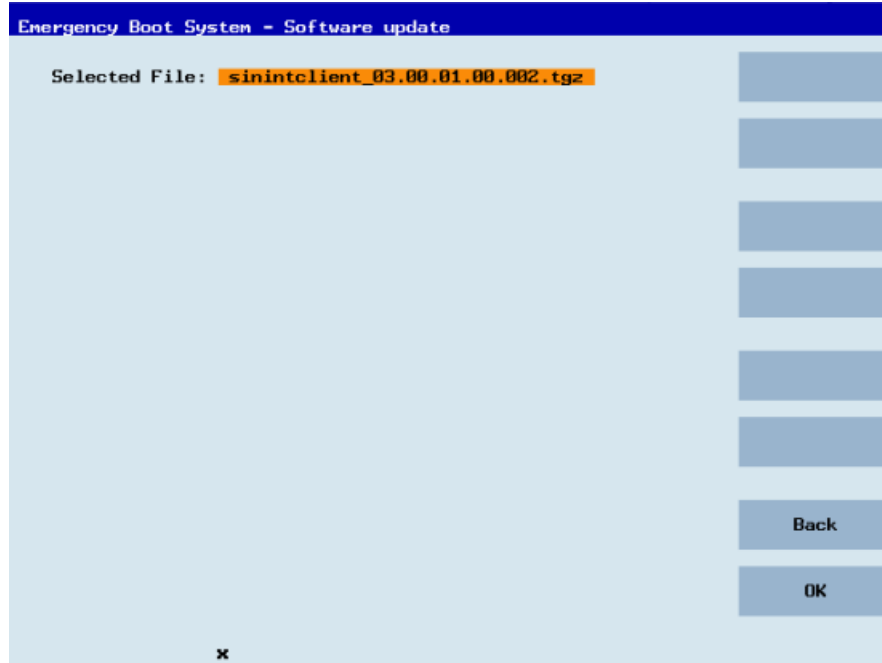


- You receive a list with all tgz files. Select the current file. Press the "OK" softkey to confirm your selection.
- OR -
Press the shortcut key <Shift> + <F8> on the operator panel.

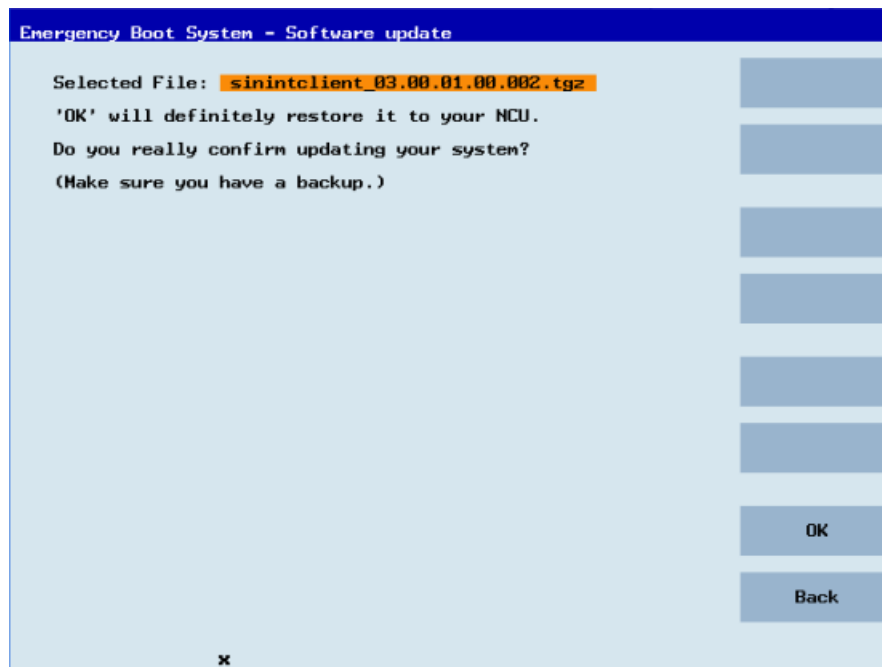


4.2 Checking and updating the versions

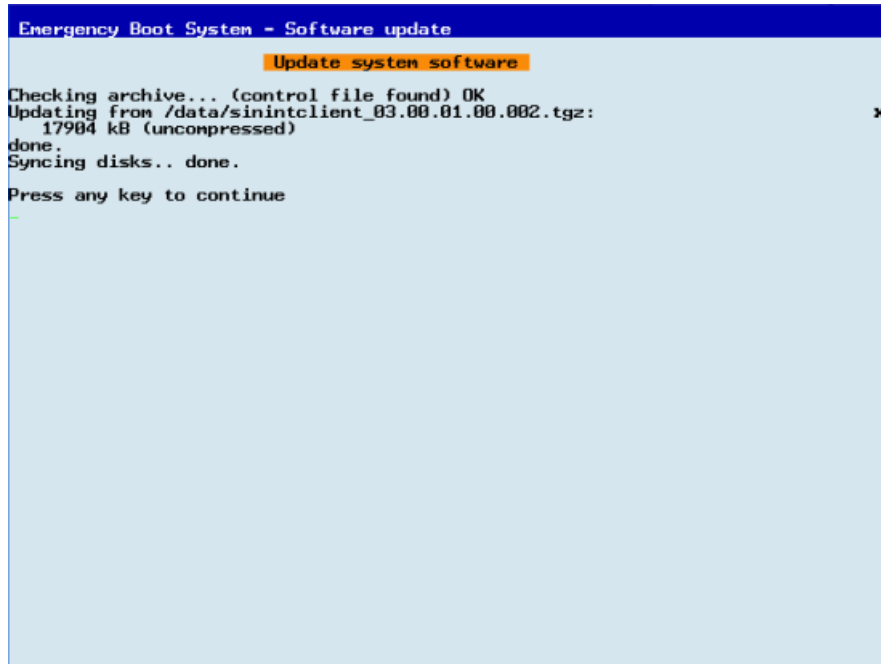
- 7. The selected file is displayed.
Press the "OK" softkey to confirm your selection.
- OR -
Press the shortcut key <Shift> + <F8> on the operator panel.



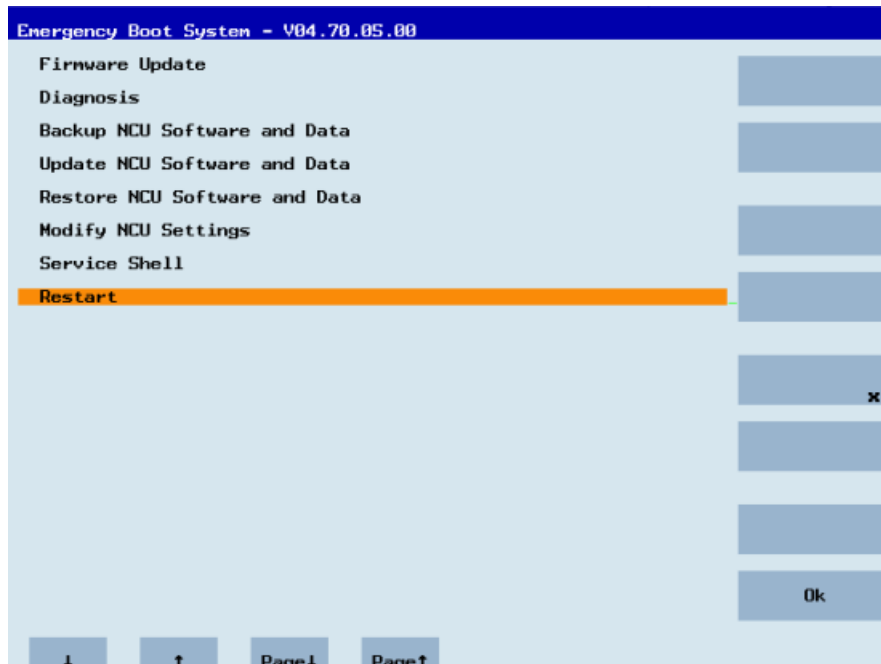
- 8. A confirmation prompt appears.
Press the "OK" softkey to confirm the confirmation prompt.
- OR -
Press the shortcut key <Shift> + <F7> on the operator panel.



9. The installation is started.



10. When the installation has been completed, the following message appears. Remove the USB flash drive. Select "Restart" from the menu and press the "OK" softkey.

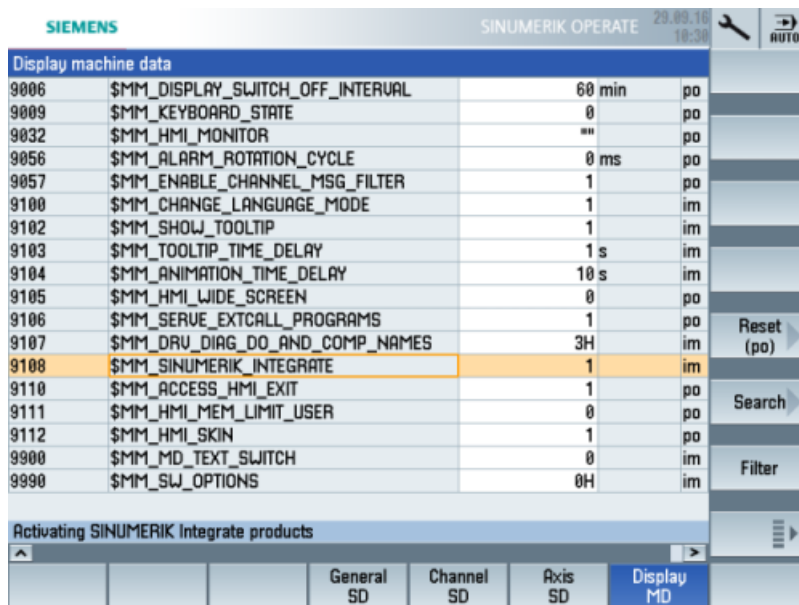


4.3 SINUMERIK Integrate

4.3.1 Activating the SINUMERIK Integrate client

Procedure

1. Start the SINUMERIK Operate operating software on the control.
2. Press the "Setup" and "Mach. data" softkeys.
3. Press the "Password" softkey.
4. The "Set password" window opens.
5. Enter the password for "Manufacture" and press the "OK" softkey.
6. Press the menu forward key and the "Display MD" softkey.
 - Set the machine data MD9108 \$MM_SINUMERIK_INTEGRATE to "1".



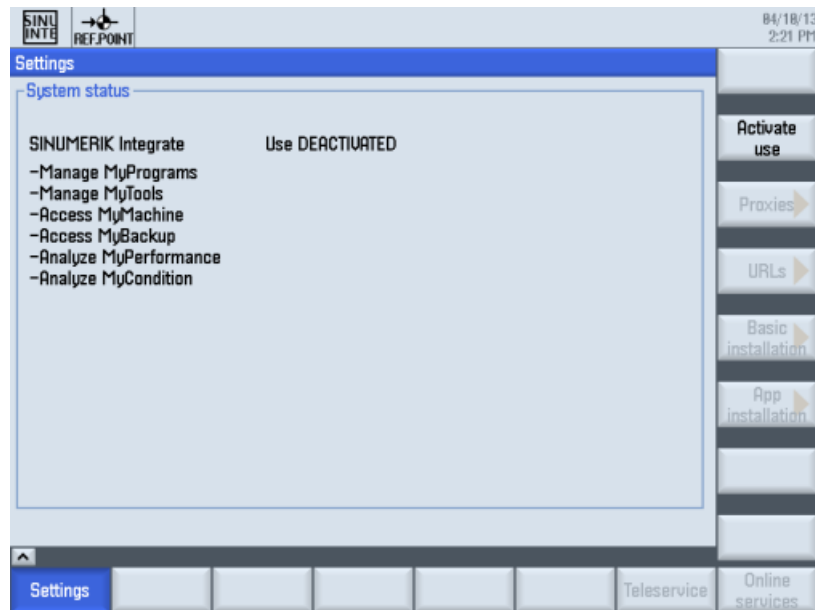
7. Press the <MENU SELECT> key followed by the menu forward key.
8. The "SINUMERIK Integrate" softkey is displayed on the extended horizontal softkey bar.



4.3.2 Activating use of SINUMERIK Integrate

Procedure

1. Press the "SINUMERIK Integrate" softkey.
The "SINUMERIK Integrate" welcome window opens.
2. Press the "Settings" softkey.
The "Settings" window opens displaying the system status "Use DEACTIVATED".
 - Press the "Activate use" softkey.



3. The confirmation prompt "Do you want to activate the use of SINUMERIK Integrate applications?" is displayed.
 - Press the "OK" softkey to confirm the prompt.
The use of SINUMERIK Integrate applications is enabled.

4.4 SINUMERIK ONE and SINUMERIK 840D sl

4.4.1 Configuring the URL and proxy

Note

Transferring SINUMERIK data on the MindSphere platform

The following steps allow you to transfer the SINUMERIK data to the MindSphere platform.

By performing the steps described below, in particular through input and confirmation of the Web service URL, processes are performed automatically in which software scripts are loaded to the SINUMERIK control.

Requirement

The use of SINUMERIK Integrate has been activated.

Check whether the Internet connection is available and activated:

- TCU:
Press the "Online Services" softkey. The "Login" window is opened.
If this is not the case, check the connected Internet connection.
- PCU:
Start the control in service mode, and call up an Internet page using the Web browser, for example, "www.siemens.com".

Procedure

1. The "Settings" window is open.
Press the "URLs >" softkey.
2. Press the "Edit" softkey and select the following settings:
 - Directory: Select the "User" entry in the "Directory" drop-down list.
 - Display home page: Select the "Overwrite here" check box.
 - RenderService: Select the "Overwrite here" check box.
 - Web service URL: Select the "Overwrite here" check box.
 - Enter the following Web service URL depending on which MindSphere system you are connected with:
MindSphere V3 Livesystem (<https://gateway.eu1.mindsphere.io/api/agentcom-mmmops/v3/ws11>)
MindSphere Alibaba (<https://gateway.cn1.mindsphere-in.cn/api/agentcom-dimcopt/v3/ws11>)
 - Enter the required value in the "Transmit timeout in seconds" input field. The default value is 200. Then select the "Overwrite here" check box.
 - Enter the required value in the "Receive timeout in seconds" input field (default value is 200), and select the "Overwrite here" check box.

The screenshot shows a settings window with the following fields and options:

- Directories:** A dropdown menu with "User" selected.
- Display home page:** A text input field with a checked "Overwrite here" checkbox.
- RenderService:** A text input field with a checked "Overwrite here" checkbox.
- URL Web service:** A text input field containing the URL `https://gateway.eu1.mindsphere.io/api/agentcom-mmmops/v3/ws11` with a checked "Overwrite here" checkbox.
- Send timeout in seconds:** A text input field with the value "200" and a checked "Overwrite here" checkbox.
- Reception timeout in seconds:** A text input field with the value "200" and a checked "Overwrite here" checkbox.

3. Press the "OK" softkey.
A syntax check is performed and the access data is saved.
Usually, the settings are now complete. If further adaptations need be made within your company network, read the following paragraph:

Proxy adaptations (optional)

1. Clarify with your network administrator whether the Proxy settings have to be adjusted for the connection to Cloud mode.
If this is necessary, proceed as follows:
2. Press the "Proxys >" softkey.
The stored settings are displayed.

3. Press the "Edit" softkey and select the following settings:
 - Select the "Use fix proxy" check box.
 - Enter your proxies in the "Proxy 1" to "Proxy 3" input fields.
 - Select the "Overwrite here" check box even if you only enter one proxy in order to accept the new entry.

Directories: User

Use system proxy settings Overwrite here

Automatic Overwrite here

Use proxy script Overwrite here

URL (proxy script)

Use fix proxy Overwrite here

Proxy 1: sq4.ocimaws.net:3128

Proxy 2: [input field]

Proxy 3: [input field]

Direct Overwrite here

4. Press the "OK" softkey to save the settings.
5. If an authentication is required for the proxy, press the "Authorization" softkey.
 - Select the "Overwrite here" check box to accept the new entry.
 - Enter the user data in the "Domain", "User name" and "Password" input fields.

Directories: User

Overwrite here

Domain: [input field]

User name: mtaproxy

Password: [input field]

Overwrite here

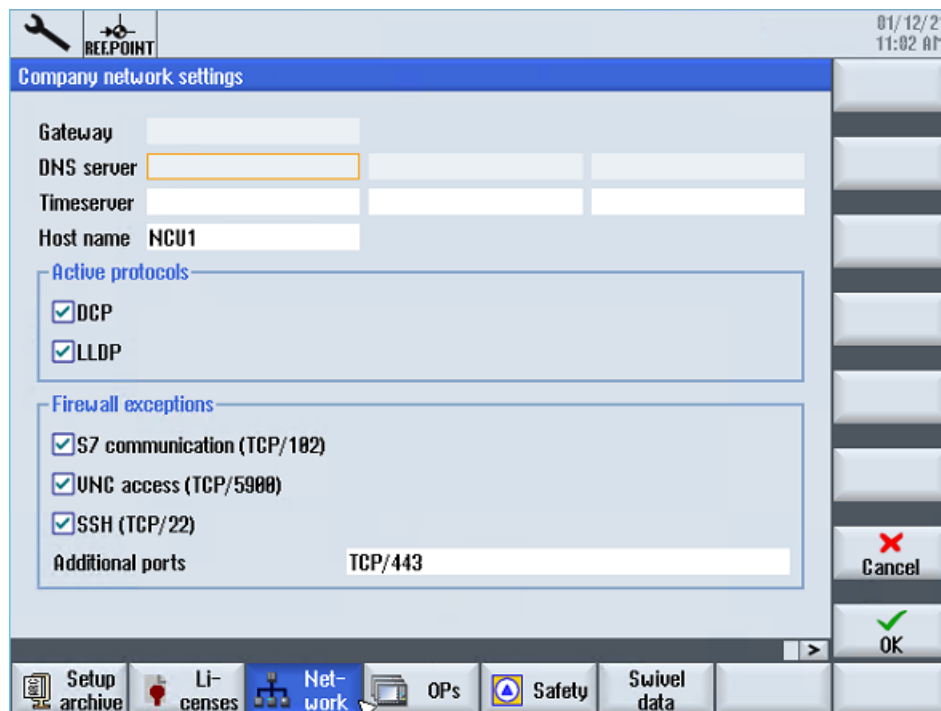
Workstation: [input field]

6. Press the "OK" softkey to save the settings.
7. Restart the control so that the access data can take effect.

Additional ports

Activate the port for https communication to ensure secure data transfer between the user server and the control.

1. Press softkey "Commissioning" > "Network" > "Company network".
The "Company network settings" window opens.
2. To edit the settings, press the "Change" softkey.
3. In the "Firewall exceptions" area, add port "TCP/443" in the "Additional ports" input box.
4. Press the "OK" softkey.



4.4.2 Install the registration key on a SINUMERIK control system

Activating SINUMERIK Integrate generates the setup of the URL/proxy and the restart in the directory of the "boot_job" folder.

- Operate (PCU): C:\temp\boot_job
- Operate (NCU): /var/tmp/boot_job (accessible on the CF card via WinSCP)

If the folder was not set up, then create the folder manually.

There are 2 ways to copy the "onboard.key" to the SINUMERIK control system:

- Via the SINUMERIK Operate user interface
- With the aid of WinSCP

Requirement

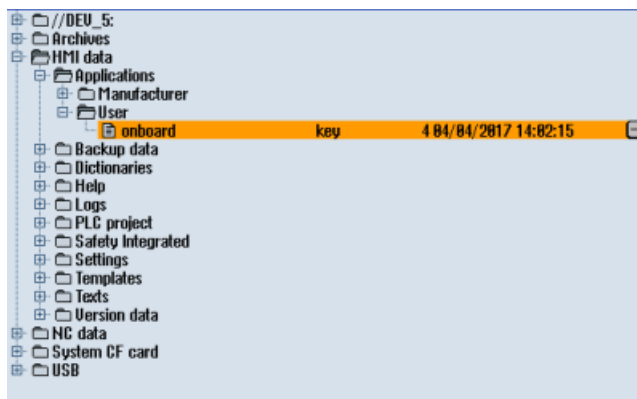
- The "onboard.key" has been generated.
- The "boot_job" folder is created on the SINUMERIK control system, e.g. at C:\temp
- The time and date on the control system has been synchronized with the current time and date.
- The Internet connection has been checked and is established.

Procedure with SINUMERIK Operate (PCU 50)

1. Insert the USB flash drive with the "onboard.key" file into the PCU.
The USB flash drive is shown in the directory tree.
2. Copy the file "onboard.key" into the following directory: C:\temp\boot_job.
3. Check the PCU configuration.

Procedure with SINUMERIK Operate (NCU)

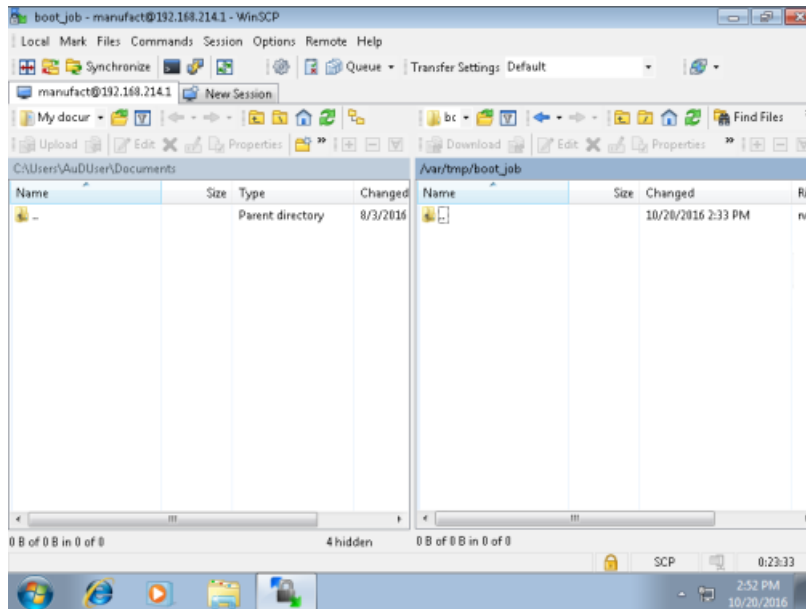
1. At the SINUMERIK control system, start the SINUMERIK Operate operating software.
2. Press the "Setup" softkey.
3. Press the "System data" softkey.
The directory tree is displayed.
4. Insert the USB flash drive with the "onboard.key" file into the NCU.
The USB flash drive is displayed in the directory tree.
If the USB flash drive is not detected by SINUMERIK Operate, you must change to a different USB port or configure a logical drive.
Further information is provided in Chapter: Create drive (Page 48)
5. Select the "onboard.key" and press the "Copy" softkey.
6. Navigate in the following directory: HMI data\Applications\User and press the "Paste" softkey.



7. Then restart.

Procedure with, e.g. WinSCP (NCU)

1. Copy the generated "onboard.key" file using a suitable tool, e.g. using WinSCP via the network to the control system.
2. Start the SINUMERIK control system and open the directory /var/tmp/boot_job.



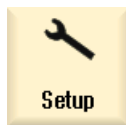
3. Insert the "onboard.key" file in the "boot_job" directory.
 - If a "cert.key" file exists in the /var/tmp/boot_job folder, then the control system was already connected to MindSphere. Delete the complete content of folder "boot_job" and empty the cache. Then insert the new "onboard.key" file.
 - Alternatively, you can also insert the "onboard.key" file into the following directory: /user/sinumerik/hmi/appl.
4. Then start the SINUMERIK Operate operating software. When the connection to the server is successful, the "cert.key" file is created.
5. The onboarding process is completed. The "onboard.key" is no longer displayed in the directory.

4.4.3 Create drive

Parameters

Entry		Meaning
Connection	Front	USB interface that is located at the front of the operator panel.
	X203/X204	USB interface X203/X204 that is located at the rear of the operator panel.
	X212/X213	TCU20.2/20.3
Symbolic		Symbolic name of the drive

Procedure



1. Select the "Start-up" operating area.



2. Press the "HMI" and "Log. drive" softkeys.
The "Set up drives" window opens.



3. Select the softkey that you want to configure.



4. To configure softkeys 9 to 16 or softkeys 17 to 24, click the ">> Level" softkey.



5. To allow input fields to be edited, press the "Change" softkey.



6. Select the data for the appropriate drive or enter the required data.
7. Press the "Details" softkey if you want to enter additional parameters.
Press the "Details" softkey to return to the "Set up drives" window.



8. Press the "OK" softkey.
The entries are checked.



A window with a prompt opens if the data is incomplete or incorrect. Acknowledge the prompt with the "OK" softkey.
The drive, e.g. "usb-NEU" is shown in the directory tree.



4.5 SINUMERIK 828D

4.5.1 Configuring the URL and proxy

Note

Transferring SINUMERIK data on the MindSphere platform

The following steps allow you to transfer the SINUMERIK data to the MindSphere platform.

By performing the steps described below, in particular through input and confirmation of the Web service URL, processes are performed automatically in which software scripts are loaded to the SINUMERIK control.

Requirement

The use of SINUMERIK Integrate has been activated.

Procedure

1. The "Settings" window is open.
Press the "URLs >" softkey.
2. Press the "Edit" softkey and select the following settings:
 - Directory: Select the "User" entry in the "Directory" drop-down list.
 - Display home page: Select the "Overwrite here" check box.
 - RenderService: Select the "Overwrite here" check box.
 - Web service URL: Select the "Overwrite here" check box.
 - Enter the following Web service URL depending on which MindSphere system you are connected with:
MindSphere V3 Livesystem (<https://gateway.eu1.mindsphere.io/api/agentcom-mmmops/v3/ws11>)
MindSphere Alibaba (<https://gateway.cn1.mindsphere-in.cn/api/agentcom-dimcopt/v3/ws11>)
 - Enter the required value in the "Transmit timeout in seconds" input field. The default value is 200. Then select the "Overwrite here" check box.
 - Enter the required value in the "Receive timeout in seconds" input field (the default value is 200), and select the "Overwrite here" check box.

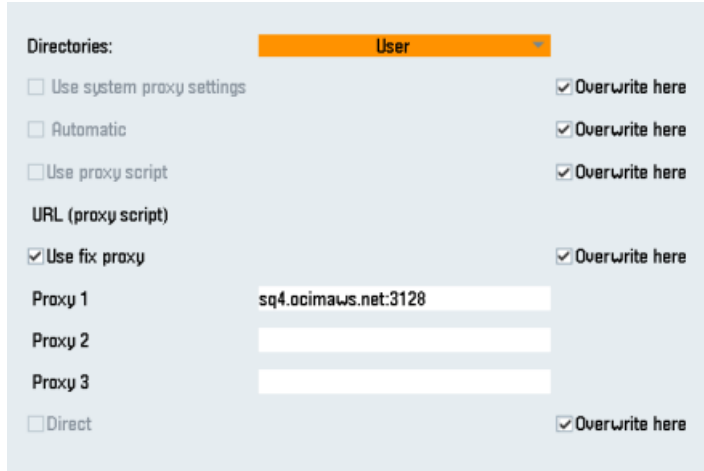
The screenshot shows a settings window with the following fields and options:

- Directories:** A dropdown menu with "User" selected.
- Display home page:** A text input field with a checked "Overwrite here" checkbox.
- RenderService:** A text input field with a checked "Overwrite here" checkbox.
- URL Web service:** A text input field containing the URL `https://gateway.eu1.mindsphere.io/api/agentcom-mmmops/v3/ws11` with a checked "Overwrite here" checkbox.
- Send timeout in seconds:** A text input field containing the value `200` with a checked "Overwrite here" checkbox.
- Reception timeout in seconds:** A text input field containing the value `200` with a checked "Overwrite here" checkbox.

3. Press the "OK" softkey.
A syntax check is performed and the access data is saved.
4. In order to establish a connection from the customer network, you must adapt the proxy settings.
Press the "Proxys >" softkey.
The stored settings are displayed.

4.5 SINUMERIK 828D

- 5. Press the "Edit" softkey and select the following settings:
 - Select the "Use fix proxy" check box.
 - Enter your proxies in the "Proxy 1" to "Proxy 3" input fields.
 - Select the "Overwrite here" check box even if you only enter one proxy in order to accept the new entry.



- 6. Press the "OK" softkey to save the settings.
- 7. If an authentication is required for the proxy, press the "Authorization" softkey.
 - Select the "Overwrite here" check box to accept the new entry.
 - Enter the user data in the "Domain", "User name" and "Password" input fields.

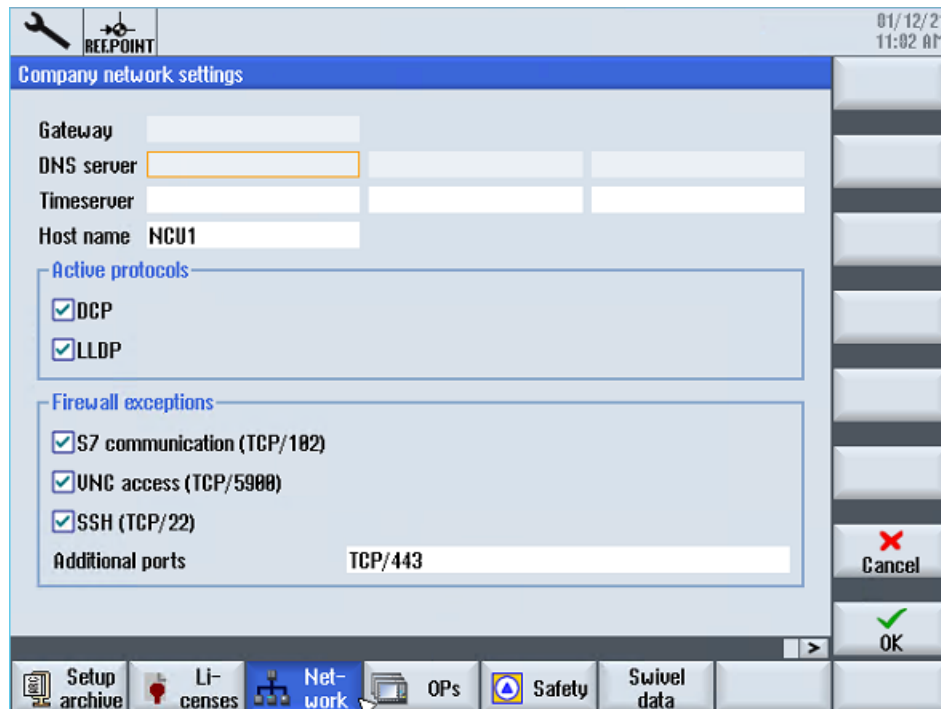


- 8. Press the "OK" softkey to save the settings.
- 9. Restart the control so that the access data can take effect.

Additional ports

Activate the port for https communication to ensure secure data transfer between the user server and the control.

1. Press softkey "Commissioning" > "Network" > "Company network".
The "Company network settings" window opens.
2. To edit the settings, press the "Change" softkey.
3. In the "Firewall exceptions" area, add port "TCP/443" in the "Additional ports" input box.
4. Press the "OK" softkey.



4.5.2 Install the registration key on a SINUMERIK control system

The activation of SINUMERIK Integrate, the setting up of the URL/proxy and the restart creates the "boot_job" folder in the /var/tmp/ directory.

If the folder was not set up, then create the folder manually.

Copy the "onboard.key" to the SINUMERIK control system, e.g. using WinSCP.

Precondition

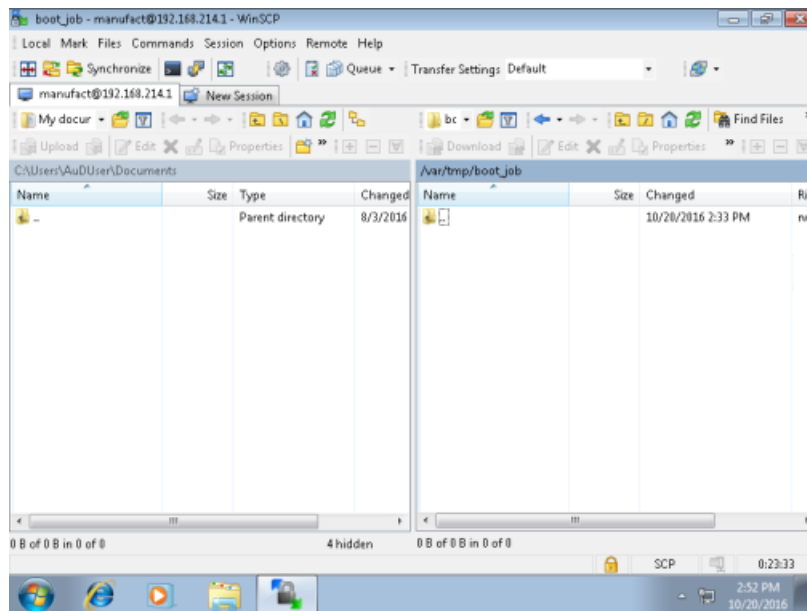
- The "onboard key" has been generated.
- The "boot_job" folder is created on the SINUMERIK control system, e.g. at C:\tmp

4.5 SINUMERIK 828D

- The time and date on the control system has been synchronized with the current time and date.
- The Internet connection has been checked and is established.

Procedure

1. Copy the generated "onboard.key" file using WinSCP for example via the network to the SINUMERIK control system.
2. Start the SINUMERIK control system and open the directory, e.g. /var/tmp/boot_job. If the "boot_job" folder does not exist, then create the folder manually.



3. Open folder "boot_job" and insert file "onboard.key".
 - If a "cert.key" file exists in the /var/tmp/boot_job folder, then the control system was already connected to MindSphere. Delete the complete content of folder "boot_job" and empty the cache. Then insert the new "onboard.key" file.
4. Then start the SINUMERIK Operate operating software. When the connection to the server has been successfully established, then the "cert.key" file is created.
5. The onboarding is completed and the "onboard.key" is no longer displayed in the directory.

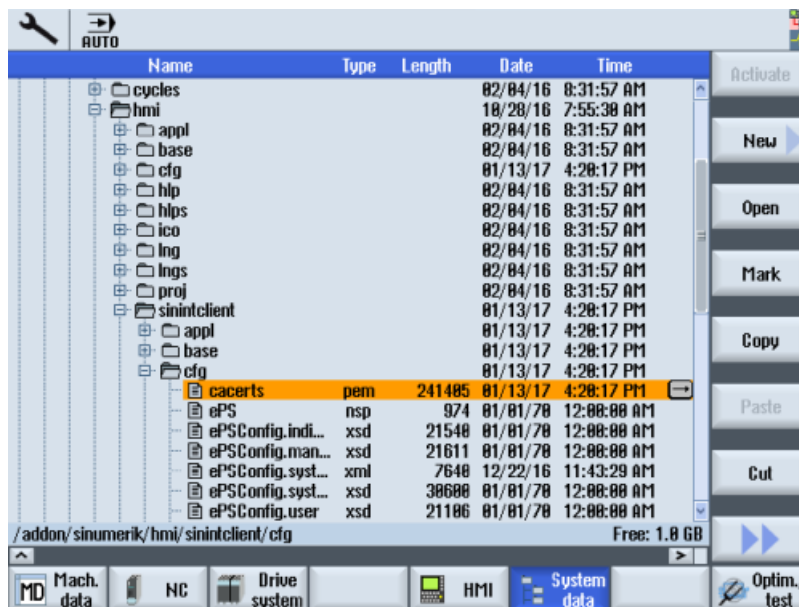
4.6 Adapting SINUMERIK Operate

4.6.1 Exchanging a certificate (optional)

In order to achieve comprehensive security, it is necessary to update the certificate "cacert.pem". The following manual steps are required for this purpose.

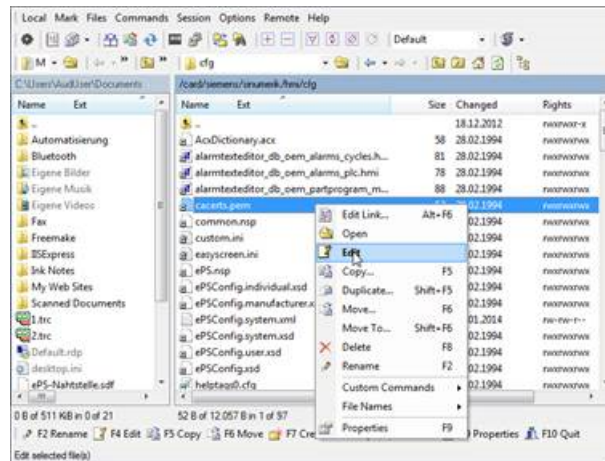
SINUMERIK Operate with SINUMERIK Integrate client under Linux

1. Open the directory: card/addon/sinumerik/hmi/sinintclient/cfg
2. Select "cacerts.pem".



SINUMERIK Operate under Windows

1. Open the "Customer Root CA" file in the editor and copy the entire content to the clipboard.
2. Use WinSCP, for example, to open "cacerts.pem" in the editor.
C:\ProgramData\Siemens\MotionControl\addon\sinumerik\hml\sinintclient\cfg\cacerts.pem



3. Insert the content of "Customer Root CA" at the end of "cacerts.pem".



4. Close the file to save the certificate.
5. Store the adapted file in the same directory again:
C:\ProgramData\Siemens\MotionControl\addon\sinumerik\hml\sinintclient\cfg
6. Perform a restart.

4.6.2 Activating logs for troubleshooting

At the SINUMERIK control system, activate the logs in the "ePSConfig.user.xml" file for troubleshooting.

Procedure

1. Press the "System data" softkey.
2. Navigate in the following directory: System CF card/user/sinumerik/hmi/cfg.
3. Open file "ePSConfig.user.xml".
4. Make the following setting:

```
<logging>  
<separateScriptLog active="1">1</separateScriptLog>  
<scriptLogPath active="1">/var/tmp/scriptLog</scriptLogPath>  
<scriptLogSeverity active="1">8</scriptLogSeverity>  
<uiScriptLogSeverity active="0">2</uiScriptLogSeverity>  
<maxScriptLogSize active="1">10000</maxScriptLogSize>  
<maxLogLifeTimeDays active="0">30</maxLogLifeTimeDays>  
</logging>
```
5. Restart the SINUMERIK control system and have the log files sent to you.

4.7 Setting the action log

In the "Action log Settings" window you can specify whether the operating sequences are to be logged.

Here, you select which control actions should be logged, so that operating sequences can be tracked and understood at a later date.

Note

No liability

Siemens accepts no responsibility for the completeness of the action log data or for any subsequent data manipulation.

When the action log is active, you can display recorded traces in the system data using the following files:

- "actual_actionlog.com", actual action log report
- "actual_crashlog.com", crashlog backup

Data that can be logged

Parameter	Description
Logging on	Logging is activated or deactivated.
Logged data:	
Alarm status change	Incoming and outgoing alarms are logged.
Keyboard actions	All actions on the operator panel front and on an external keyboard are logged.
Channel status change	NC/PLC states are logged via the information channel status. If this information can be obtained in a timely manner, in many cases these states can be used to verify the operation of the machine control panel.
Window switchover	The form and dialog names (assigned by the programmer) are logged each time a window is opened or closed.
Writing NCK/PLC data	The writing of NCK and PLC variables is logged.
File access	Copying to the NC is logged.
Function calls in the NCK (PI service)	Some program calls, for example, ASUB, are logged.
Curr. program status	Additional information for particular events is activated. For important alarms that require NC stop, NC start, or NC reset, actual values and the current block are recorded, for example. The program ascertains which channel and which spindle are used for the additional information.

4.7 Setting the action log

Parameter	Description
Write interval for file:	Settings for updating files: <ul style="list-style-type: none"> "automatic": The action log saves the information to an internal buffer. If the buffer is full, the entries are written to the CF card. The entries may be lost when the control is switched off. "after every event": All entries are backed up immediately, thus preventing data loss due to a power failure or similar. Notice: As CF cards only permit a limited number of write accesses, this setting is not recommended for normal operation. "time-controlled": New entries are backed-up for a defined length of time. An additional input field appears in which you can specify a period in seconds.
Save log as file for alarm(s)	The alarm numbers for which a "crash log" is generated are specified. The alarms are entered separated by a comma.

Procedure



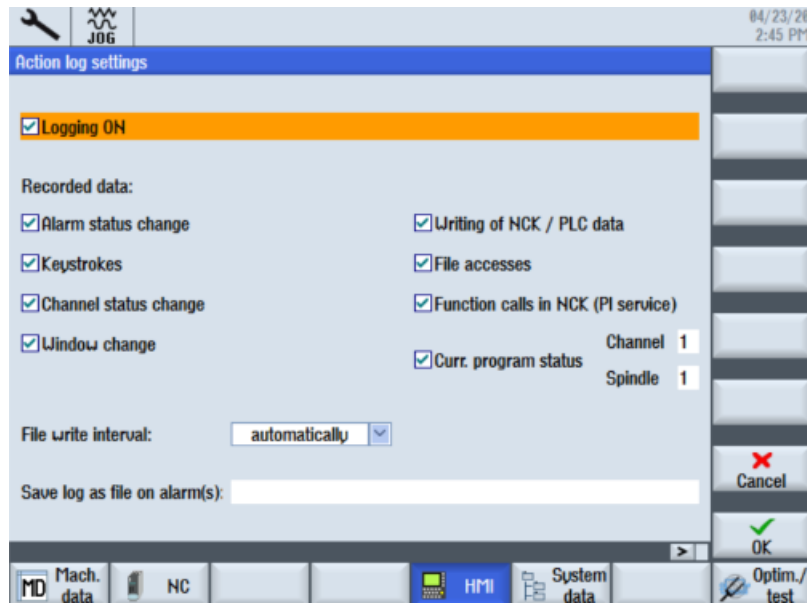
1. Select the "Setup" operating area.



2. Press the "HMI", "Diagnostics", and "Action log" softkeys
The "Action log" window appears.



3. Activate the "Logging on" checkbox to activate the action log.
4. Check the relevant checkbox if you want to acquire particular events in the action log.



4.8 PCU retrofit

Precondition

HMI Advanced V7.7 is installed. More information about the installation is provided in the Commissioning Manual SINUMERIK 840D PCU Retrofit.

Setting up SINUMERIK Integrate Client for PCU Retrofit

1. Install the current SINUMERIK Integrate Client. More information is provided in the Installation Manual SINUMERIK Integrate 5, Manage MyResources, Optimize MyProgramming /NX-Cam Editor, Analyze MyPerformance /OEE.
2. Open the following file: F:\add_on\MH\settings.ini
 - Change the following entry:
[APP]
ACCESSTYPE ="DDE"
 - Save and close the file.
3. Open the following file: F:\add_on\regie.ini
 - Change the following entry:
[StartupConfiguration]
Startup42 = name := oemframe, cmdline := "cmd.exe /c F:\add_on\MH\MhDdeService.exe"
Startup43 = name := oemframe, cmdline := "cmd.exe /c F:\add_on\MH\MachineHandler.exe"
 - Save and close the file.
4. Create and connect the machine with MindSphere. More information is provided in Chapters:
 - Setting up the SINUMERIK control system for Manage MyMachines (Page 27)
 - Connecting controller with MindSphere (Page 125)

Integrating MindSphere

5.1 Logging in to MindSphere

Precondition

You require a MindAccess user account in MindSphere.

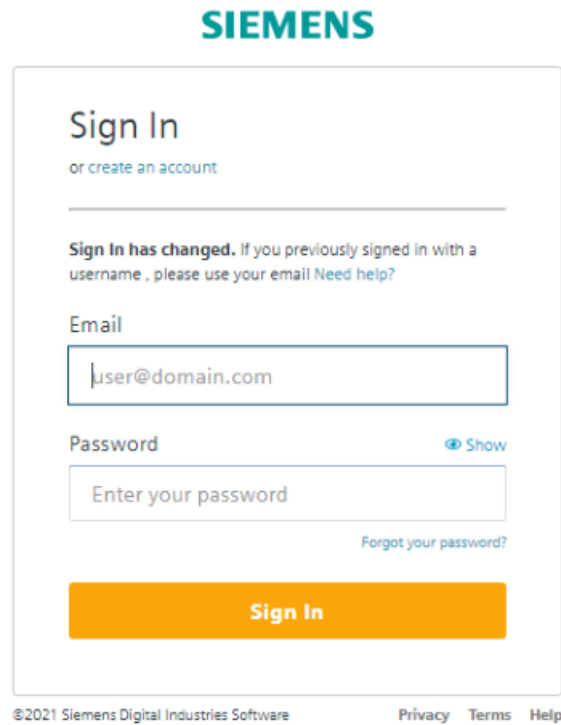
More information on creating an account can be found at:

- "MindSphere - Settings System Manual"
- "MindSphere - Asset Manager System Manual"

Procedure

1. Click the link provided by email from Siemens AG.
The website is displayed: `https://<customer-tenant-name>.<mindsphere>`
2. The "Sign In" window opens.
 - Enter your e-mail address and your password.

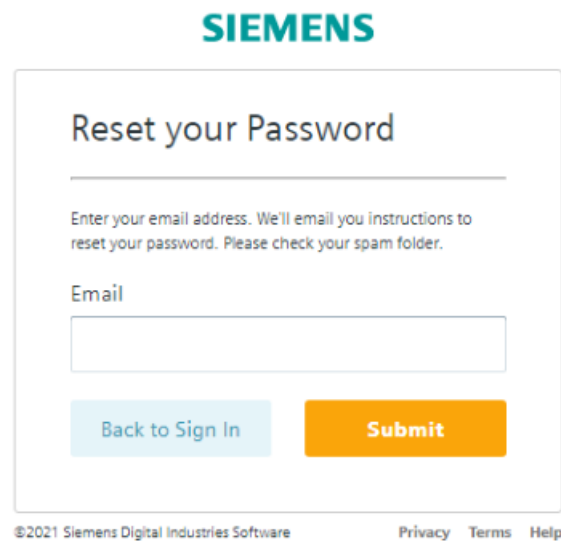
- Click the "Sign In" button.



The image shows the Siemens Sign In page. At the top is the SIEMENS logo. Below it is the heading "Sign In" with a link "or create an account". A message states: "Sign In has changed. If you previously signed in with a username, please use your email. Need help?". There are two input fields: "Email" containing "user@domain.com" and "Password" containing "Enter your password". A "Show" icon is next to the password field. A "Forgot your password?" link is below the password field. A large orange "Sign In" button is at the bottom. Footer text includes "©2021 Siemens Digital Industries Software" and links for "Privacy", "Terms", and "Help".

- OR -

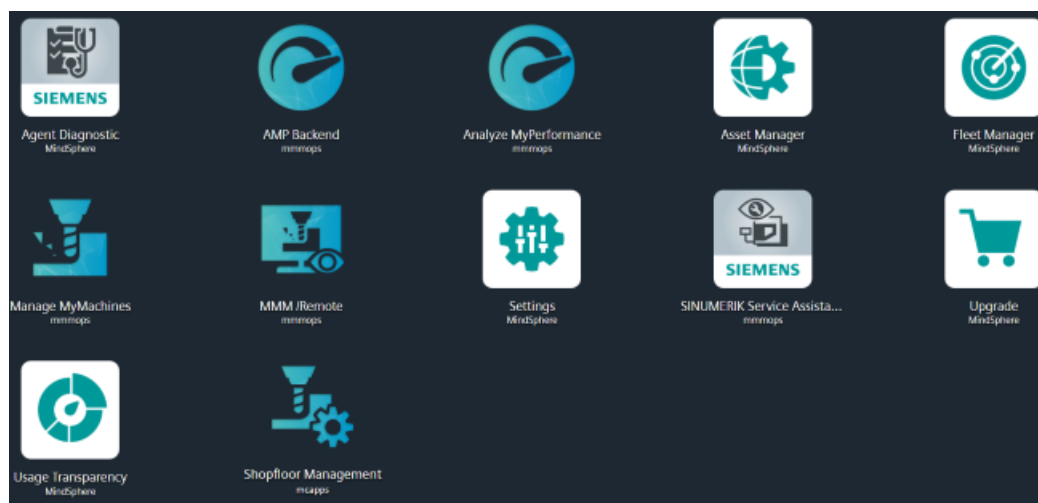
If you have forgotten your password, click "Forgot Password?". The "Reset your Password" window opens. Enter your e-mail address and click the "Submit" button. Your password is reset and you are informed of this via e-mail. Click on "Back to Sign In".



The image shows the Siemens "Reset your Password" page. At the top is the SIEMENS logo. Below it is the heading "Reset your Password". A message states: "Enter your email address. We'll email you instructions to reset your password. Please check your spam folder." There is one input field for "Email". At the bottom are two buttons: "Back to Sign In" (light blue) and "Submit" (orange). Footer text includes "©2021 Siemens Digital Industries Software" and links for "Privacy", "Terms", and "Help".


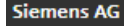
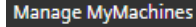


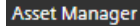




3. The launch pad opens. You can access the individual applications via this user interface.





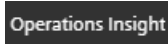
5.1 Logging in to MindSphere



5.2 Icons and buttons in MindSphere

The following icons and buttons are available.

Icon	Description
	Switches to the MindSphere launch pad.
	Opens a menu and shows the following data: <ul style="list-style-type: none"> • Tenant name • Tenant type • Tenant location
	Opens a menu with the following information: <ul style="list-style-type: none"> • Shows the version • Copyright Siemens AG Links to the product: <ul style="list-style-type: none"> • Function Manual • Readme • Application Note • Readme OSS • MindSphere OSS • Support information
	Opens a menu with the following information and links to the product: <ul style="list-style-type: none"> • Shows the version • Link to the MindSphere store • Link to the MindSphere status • Third-party software • MindSphere Academy • MindSphere Support • Corporate Information • Acceptable Use Policy
	Logging out of MindSphere after a security prompt.
Asset Manager	
	Opens a menu with the following information: <ul style="list-style-type: none"> • Shows the version • Copyright Siemens AG Links to the product: <ul style="list-style-type: none"> • Third-party software • Documentation - System Manual Asset Manager
	Hides the list of assets.
	Shows the list of assets again.
	Input field for free text search
	Opens the Asset search

Icon	Description
	Switches to the hierarchical view of the assets
	Editing an asset
	Adding a subordinate asset
	<p>Opens a selection of "Asset Manager" functions, and provides the option of directly accessing the required views.</p> <ul style="list-style-type: none"> • Share asset • Move asset • Files • Operations Insight • Delete asset
Operations Insight	
	<p>"Operations Insight" is the successor of the "Fleet Manager" application.</p> <p>Opens a menu with the following information and links to the product:</p> <ul style="list-style-type: none"> • Shows the version • Copyright Siemens AG <p>Links to additional information:</p> <ul style="list-style-type: none"> • Third-party software: Frame Application • Third-party software: Frame Dashboards • Third-party software: KPIs • Third-party software: Work orders • Third-party software Web <p>Components</p> <ul style="list-style-type: none"> • Third-party software: Tour guide • Documentation - Operations Insight System Manual

5.3 Managing users

You process/edit users, roles and rights in the MindSphere "Settings" application.

More information can be found at: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Precondition

The following roles are required to use "Manage MyMachines":

- mtaassetconfig
- mmmdashboard
- basicservice
- agentcom

The following role is required to use the "Shopfloor Management Application":

- shopfloormgmtapp

Manage MyMachines

For "Manage MyMachines", you can create users with different rights.

The following users can be created:

- Standard users
 - mtaassetconfig.user
 - mmmdashboard.user
 - basicservice.user
 - agentcom.user
- Administrator
 - mtaassetconfig.admin
 - mmmdashboard.admin
 - basicservice.admin
 - agentcom.admin
- Subtenant user

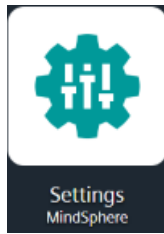
Shopfloor Management Application

You create users with various rights for the "Shopfloor Management Application":

- Standard user: shopfloormgmtapp.user
- Administrator: shopfloormgmtapp.admin

Procedure

1. In the launch pad, click on the "Settings" application.



The "Settings" window opens and offers you user administration for editing/processing.

2. Create or edit the users.
3. Assign the corresponding roles.

5.4 Asset Manager

5.4.1 Overview

Functions

"Asset Manager" is a MindSphere application belonging to the Industrial IoT platform of Siemens. In the "Asset Manager", using assets, you model the structure of an industrial process within MindSphere.

In the "Asset Manager", connect your machine tool, the asset, with the MindSphere application and configure the data acquisition.

The specific functions and configuration options for the "SINUMERIK" area are discussed in the following.

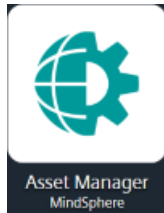
Using an asset type, you can define which aspects should be integrated into the template. Using asset types, you have the option of creating a template, e.g. for several devices, and linking this with your aspects. When creating a new asset, you can access the template or the type.

Aspects are combined, preconfigured data and form the context for evaluating industrial processes. An aspect can comprise several variables. Within an industrial process, assets transfer the aspects into the MindSphere application as time series data.

5.4.2 Opening the Asset Manager

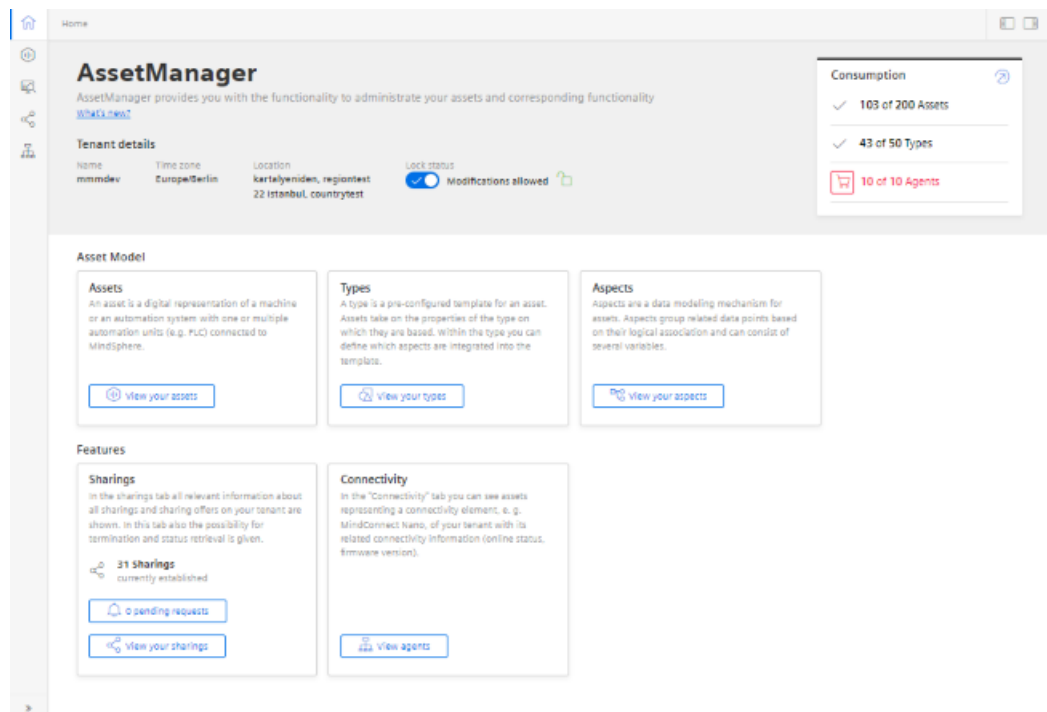
Procedure

1. In the Launchpad, click on the "Asset Manager" MindSphere application.



2. The "AssetManager" window opens and you have the following options:

- Edit assets
- Add subordinate assets
- Creating assets
More information can be found in the following section: Creating an Asset (Page 75).
- Creating and editing types
More information can be found in the following section: Creating an asset type (Page 73)
- Creating and editing aspects



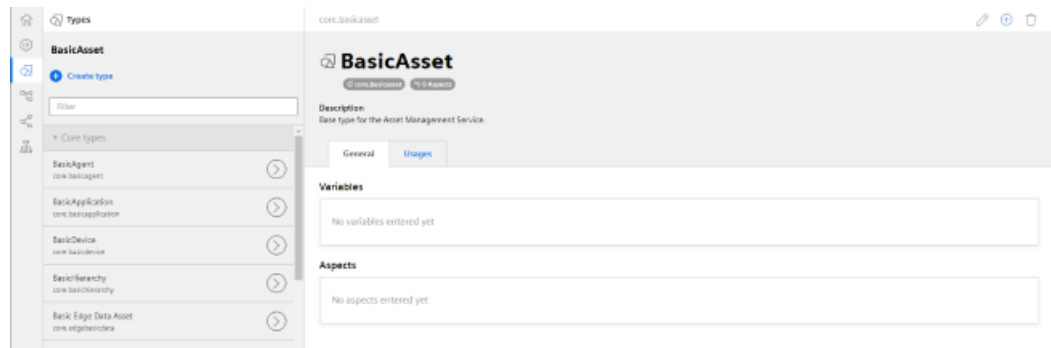
5.4.3 Creating an asset type

The following asset types are supported:

- BasicAsset
- BasicAsset > BasicDevice
- BasicAsset > BasicDevice > BasicSinumerikAsset
- BasicAsset > BasicAgent
- BasicAsset > BasicAgent > MindConnectIoT2040
- BasicAsset > BasicAgent > MindConnectLib
- BasicAsset > BasicAgent > MindConnectNano

Procedure

1. In the left window pane, click the "Library" > "Asset Types" button. The "BasicAsset" window opens.



2. In the center window pane, select "BasicDevice" and click the small arrow (navigate to the child element). The "BasicDevice" window opens.

3. Select "BasicSinumerikAsset" in the middle pane and click the small arrow (navigate to the child element).
The "BasicSinumerikAsset" window opens.
4. In the center window pane, click "+ Create type" to create a new asset type.
The "Create type" window opens.
 - Enter a name for the new asset type.
Entering the name is mandatory and activates the "Save" button.
 - Enter a description of the new asset type.
 - Select an image with the maximum permitted size of 5 MB.

Note

Images in the working area

Ensure that the name of the image in your working area is unique.

- Add your chosen variables.
- Add your chosen aspects.
- Click "Save" to create the new type.

Filtering an asset type

1. Open the "Types" window.
2. In the center window pane, select "BasicDevice" > "BasicSinumerikAsset".
3. In the input field "Filter", enter the name.
The corresponding data is displayed in the right-hand window area

5.4.4 Creating an Asset

Online status

MindSphere applications can evaluate the status of an asset using the "OnlineStatus" variable. This variable is predefined in the aspects of the following asset types:

- BasicSinumerikAsset

The screenshot shows the configuration page for **BasicSinumerikAsset**. The breadcrumb path is `core.basicasset > core.basicdevice > core.basicnumerikasset`. The description is "Basic asset type for Sinumerik devices." The 'Variables' section contains a table with the following data:

Name	Unit	Data type	Max. length	Default value
manufacturer	-	STRING	255	-

The 'Aspects' section contains a table with the following data:

Name	Aspect	Category
AgentOnlineStatus	core.agentstatus	Dynamic
onlineStatus	-	BOOLEAN
Alarms	core.sinumerikbasicalarms	Dynamic

- BasicAgent

The screenshot shows the configuration page for **BasicAgent**. The breadcrumb path is `core.basicasset > core.basicagent`. The description is "Basic agent type for the Asset Management Service." The 'Variables' section is empty. The 'Aspects' section contains a table with the following data:

Name	Aspect	Category
connectivityStatus	core.connectivitystatus	Static
status	core.agentstatus	Dynamic

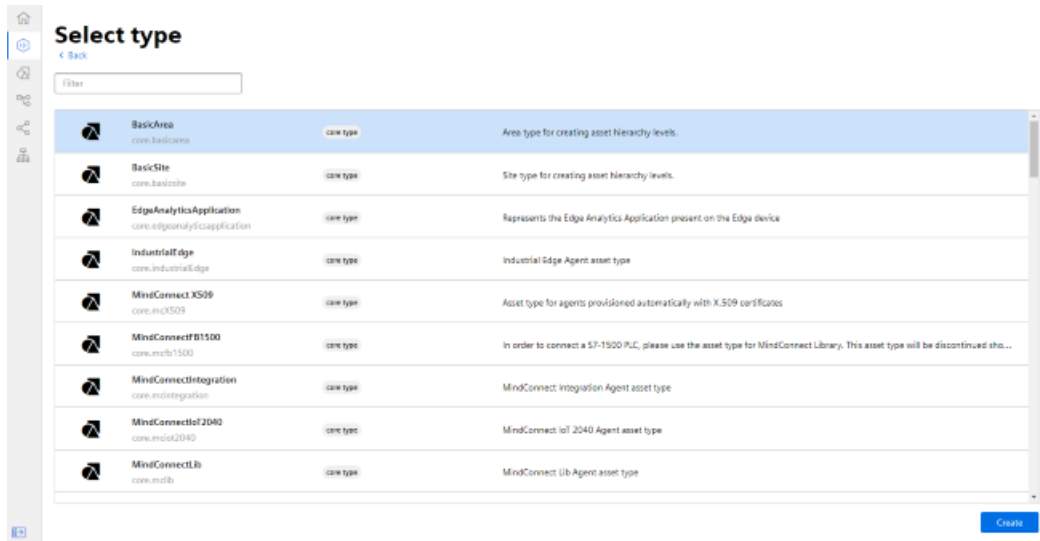
Below the aspects table, there is another table with the following data:

Name	Unit	Data type	Max. length
onlineStatus	-	BOOLEAN	-

To monitor the online status, use an asset type that is based on these types.

Procedure

1. In the left window pane, click "Assets".
2. In the center window pane, click "+ Create asset".
In the right window pane, you can see "Select type".
3. In the "Filter" field, enter the name of the required asset type or select the type that you have just generated from the list.
Click on "Create".



4. The "Add asset" window opens.
 - In the "Name: *" input field, enter a name. This input field is a mandatory field.
 - Populate the input fields in the "General" and "Location" areas. The "Save" button is activated.
 - Click "Save" to save the new asset.

5. The new asset is displayed.

Events [↗](#)
Last updated: 2020-09-02 10:26:56

No events in the last 24 hours

[Refresh](#)

Aspects [↗](#)
Last updated: 2020-09-02 10:26:56

Name	Status
feedrate_FL_C_bit	No data available 2020-09-02 10:26:00
MachineOn	No data available 2020-09-02 10:26:00
MachineState	No data available 2020-09-02 10:26:00
TimeBased	No data available 2020-09-02 10:26:00
valuebased	No data available 2020-09-02 10:26:00

Variables

Name	Data type	Unit	Max. length	Value
manufacturer	STRING	-	255	-

Connectivity

MTA Asset Config [↗](#)

msmdev
Operator

5.4.5 Activating the data acquisition

The following sliders are available in the "Application" tab:

- Variable Recording
Visualization of the standard aspects

Note

Activation

If you activate Manage MyMachines in the MindSphere application "Shopfloor Management Application", then the system automatically sets the slider "Variable recording" to "ON".

The activation activates pre-configured datasets.

You have the capability of configuring your own variable sets. More information on this topic can be found in this Chapter: Configuring variables (Page 98).

The following preconfigured variable sets exist for assets with the SINUMERIK open-loop control:

- SINUMERIK basic configuration
- Machine availability
- Advanced recording

Note

First channel

The preconfigured "SINUMERIK basic configuration" and "Machine availability" data only refers to data from the first NC channel.

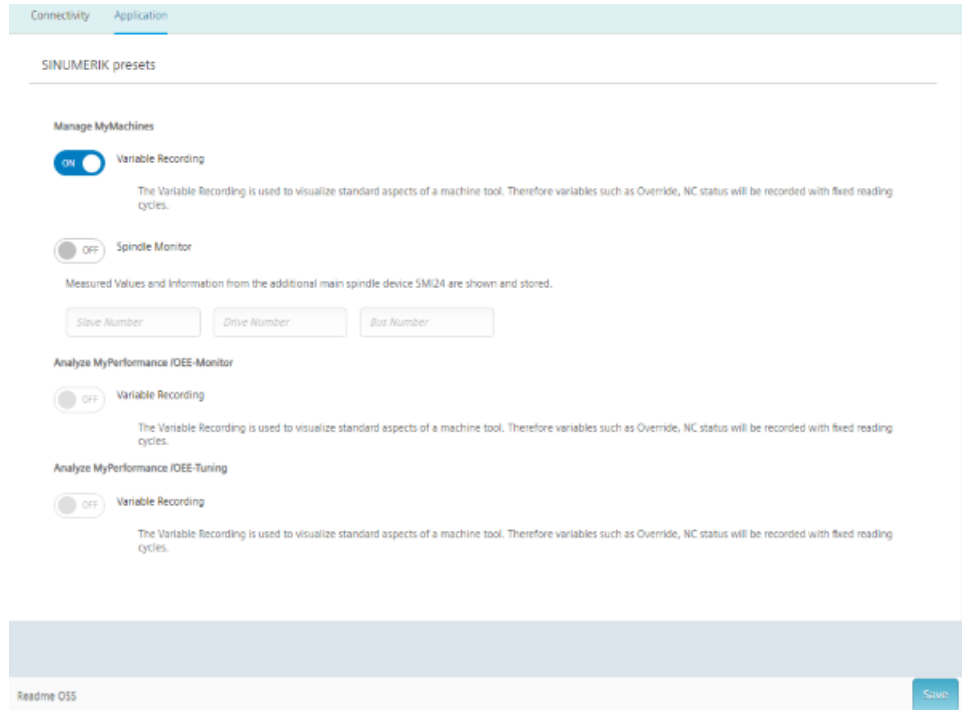
Parameters of the pre-configured SINUMERIK datasets

Standard aspects	Description
SINUMERIK basic configuration	The SINUMERIK basic configuration is used to visualize standard aspects of the machine tool. For this purpose, variables of the first machining channel are acquired with fixed recording rhythms. You can switch the data acquisition on or off with a slider. In "Manage MyMachines", the data is displayed at "CH1_BasicConfig".
Machine availability	Standard variables of the first machining channel are acquired for calculating the machine availability. You can switch the data acquisition on or off with a slider. In "Manage MyMachines", the data is displayed at "CH1_MachineStatus".
Advanced recording	The advanced recording configuration allows the following selections to be made: <ul style="list-style-type: none"> • Time-based / cyclic trigger • Variable value-based trigger • Alarm-based trigger • File upload

Procedure

1. In the Launchpad, click on the "Asset Manager" MindSphere application.
2. Select the required asset in the left-hand side of the window.
3. In the right-hand side of the window under "Connectivity", click on the arrow next to "MTA Asset Config".

4. Create an "onboard.key".
Additional information is provided in Chapter: Connecting controller with MindSphere (Page 125)
5. Open the "Application" tab.
Window "SINUMERIK presets" opens.
 - Ensure that slider "Variable recording" is set to "ON" to obtain data for "Manage MyMachines".
 - Click "Save" to save the settings.



5.4.6 Share asset

You have the option of releasing assets for other tenants using the "Cross Tenancy" function. MindSphere functions, such as data associated with time series, asset information, aspects etc. are then visible for these end users.

Note

Functions that are not supported

The following functions are not supported:

- File upload
 - Asset localization
-

Every data sharing requires an active authorization or rejection by the receiving tenant. Within a cooperation, the tenant that has been released remains the sole owner of the data that has been released.

Note**Data and configuration visible in shared assets**

If the "Manage MyMachines" application is used with function "Cross-Tenancy", then data and configurations are also visible in those tenants at which the assets have been shared. Carefully check the level of criticality of the configuration used by you or your customer and the data that could be possibly disclosed.

Note**Role as tenant administrator**

If you use function "Cross-Tenancy" in your role as "Tenant-Admin", then comply with the description in the corresponding MindSphere Manual.

More information on the "Cross-Tenancy" function is provided in the manual: Asset Manager System Manual (<https://siemens.mindsphere.io/en/docs/mindaccess.html>).

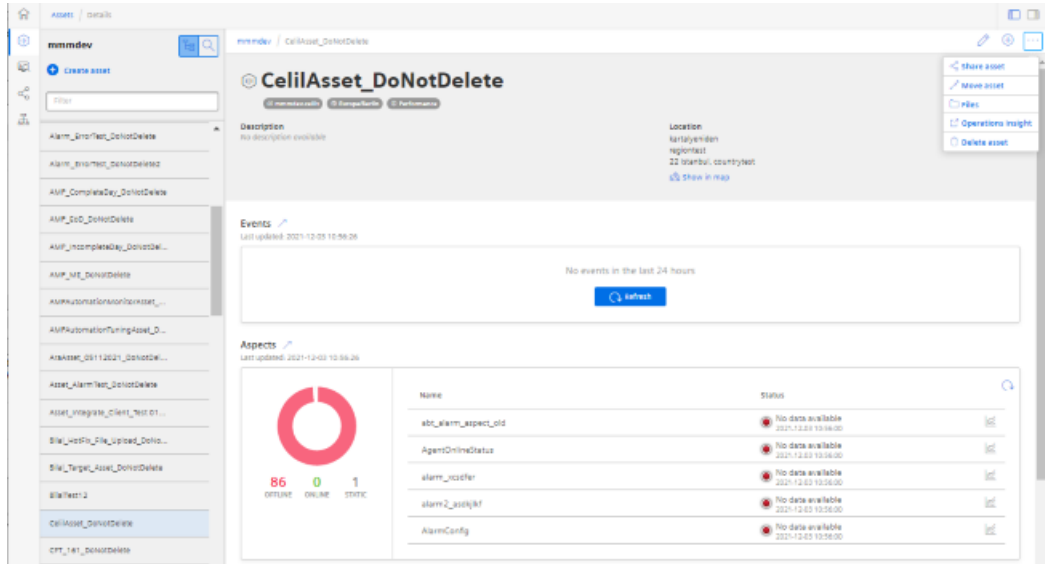
Precondition

You need an existing cooperation with another tenant.

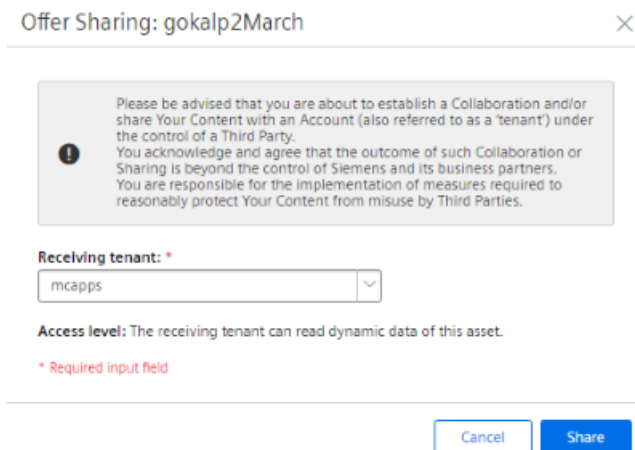
More information on creating a cooperation is provided in the Manual: System Manual Settings (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Procedure

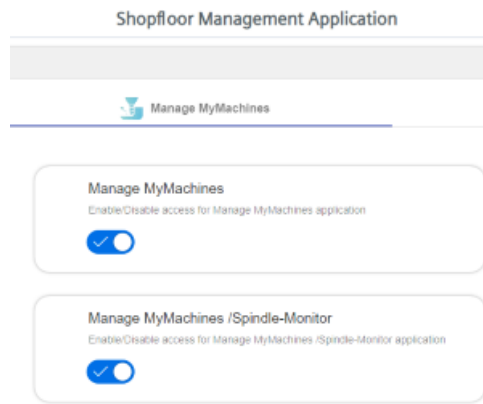
1. In the Launchpad, open the "Asset Manager" MindSphere application.
2. Select the required asset in the left-hand section of the window.
 - Click on the button with dots in the top right hand section of the screen.
 - Select "Share asset".



3. Window "Offer Sharing" opens.
 - Read the note:
 - Select the receiving tenant from the drop-down list.
 - Click on "Share".



4. You receive a message, and in the lower section of the window in the "Shares" area you can see the status of the asset:
 - Accepted
 - Open
 - Failed
5. Open application "Shopfloor Management Application".
The "Shopfloor Management Application" window opens.
 - Activate the functionality for "Manage MyMachines".
 - Activate the functionality for "Manage MyMachines /Spindle Monitor".
Option "Manage MyMachines /Spindle Monitor" must be available and visible.



6. You can identify the released asset at the following icon:



5.5 Shopfloor Management Application

5.5.1 Overview

The MindSphere "Shopfloor Management Application" has buttons in the left-hand section of the window which offer you the following functions:

- Activation of assets for the applications:
 - "Manage MyMachines"
 - "Analyze MyPerformance"
 - "Manage MyMachines /Remote"
 - "Asset Manager"
- Configuring variables
- Configuration of a gateway
- Opening SINUMERIK Service Assistance




Precondition






You require the following user role in order to use the MindSphere "Shopfloor Management Application":

- shopfloormgmtapp

More information is provided in Chapter: Managing users (Page 69).

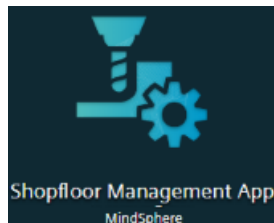
Buttons

Button	Description
	<p>Select an asset from "Shopfloor".</p> <p>In the "Application" tab, activate or deactivate access to the applications "Manage MyMachines" and/or "Manage MyMachines / Spindle Monitor".</p> <p>More information can be found in the following chapters: Activating/deactivating Manage MyMachines (Page 86) Activating Manage MyMachines /Spindle Monitor (Page 87)</p> <p>You configure the variables and file upload in the "Advanced" tab.</p> <p>More information on the configuration of triggers can be found in this Chapter: Configuring variables (Page 98)</p> <p>More information about the file upload function can be found in this chapter: File Upload (Page 110)</p>
	<p>Under "Gateway", you integrate data from "SINUMERIK Integrate Analyze MyCondition" into MindSphere.</p> <p>More information is provided in Chapter: SINUMERIK Integrate Gateway (Page 155)</p>
	<p>Add other controllers under "Data Mapping List".</p> <p>More information is provided in Chapter: Data mapping list (Page 120)</p>

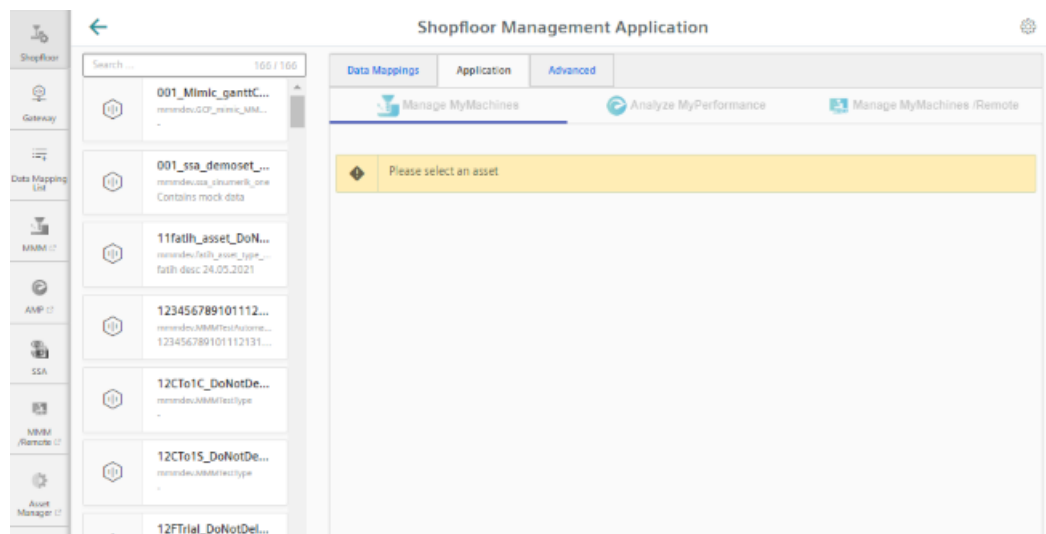
Button	Description
	The "Machine overview" window of the MindSphere application "Manage MyMachines" is opened under "MMM". More information is provided in Chapter: Working with Manage MyMachines (Page 161) Note: A prerequisite is that you have the appropriate MMM user role.
	The "Overview" window of the MindSphere application "Analyze MyPerformance" is opened under "AMP". More information can be found in the "Analyze MyPerformance" Function Manual.
	Under "SSA" the "SINUMERIK Service Assistance" window opens. You can find an overview in Chapter SINUMERIK Service Assistance (Page 122). The prerequisite is that you have purchased the "SSA" application.
	Window "Navigation view" of the MindSphere "Manage MyMachines /Remote" is opened under "MMM /Remote". More information is provided in the Function Manual "Manage MyMachines /Remote".
	The MindSphere application "Asset Manager" is opened under "Asset Manager". More information is provided in Chapter: Asset Manager (Page 71)

Procedure

1. In the launch pad, open the "Shopfloor Management App" MindSphere application.



2. Window "Shopfloor Management Application" > "Shopfloor" opens.
Select the required asset in the central section of the window.



5.5.2 Activating/deactivating Manage MyMachines

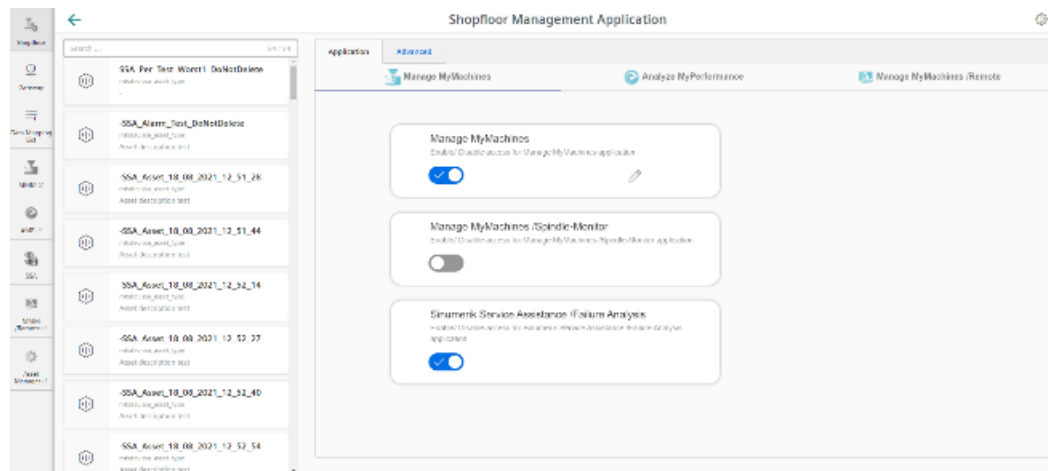
Requirement

- You have purchased the "Manage MyMachines" MindSphere application.
- You require the following user roles:
 - mmdashboard.admin
 - shopfloormgmtapp.admin

More information is provided in Chapter: Managing users (Page 69)

Procedure

1. In the launch pad, click the "Shopfloor Management App" MindSphere application.
2. Window "Shopfloor Management Application" > "Shopfloor" > tab "Application" > "Manage MyMachines" opens.
 - Select the required asset on the left-hand side of the window.
To filter the assets, enter a character string in the "Search ..." field.



3. To activate the use of "Manage MyMachines" for this asset, set the slider to the right to activate access to "Manage MyMachines".
4. A "Charging Model" pop-up opens and you can choose between different charging models. More information is provided in Chapter: Defining the billing period (Page 90)

Deactivating the MindSphere Application

If you deactivate the MindSphere application, e.g. Manage MyMachines, you will receive information about the availability of the asset configuration. If you are still in the subscription period, the configurations remain available until the specified date. If you do not reactivate Manage MyMachines, all asset configurations will be deleted.

- To disable the MindSphere application, click the "Confirm" button.
- OR -
- To continue activating the MindSphere application, click on "Cancel".



5.5.3 Activating Manage MyMachines /Spindle Monitor

You can display information and recorded operating conditions from the SMI24 Sensor Module of a spindle. The SMI24 is available as an option for a large number of Weiss spindles. After being tested, the spindles of other manufacturers can be converted to SMI24.

More information can be found in the following Chapters:

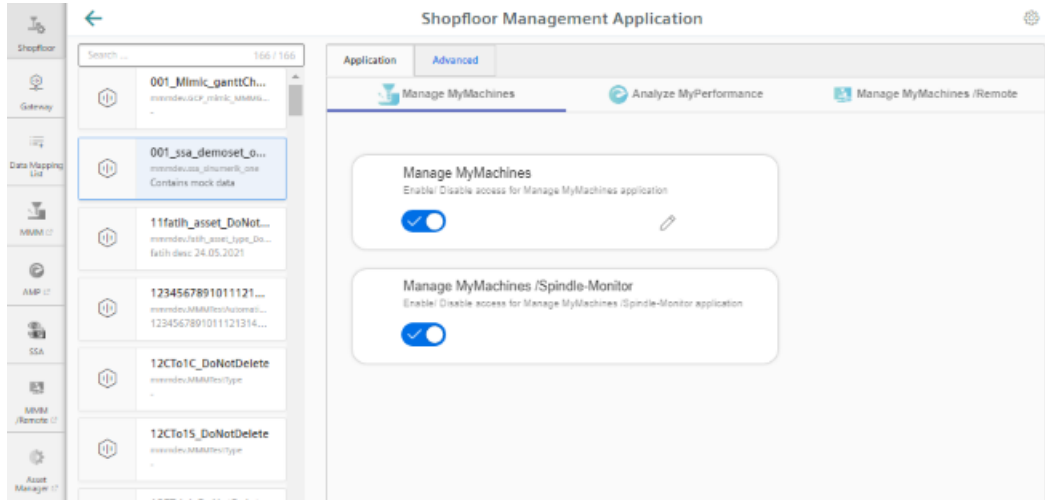
- Manage MyMachines /Spindle Monitor (Page 216)
- Determining the address of the spindles (only for 840D sl) (Page 249)
- Determining the address of the spindles (only for 828D) (Page 247)

Precondition

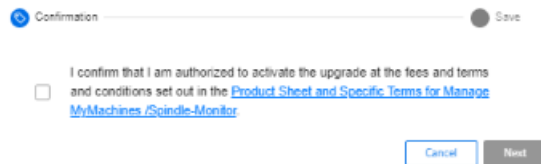
- You have purchased the "Manage MyMachines /Spindle Monitor" MindSphere application.
- For the "Manage MyMachines" MindSphere application, the option button "12 months enablement (charged annually upfront)" is activated under "Charging Model".
- The Weiss spindle is equipped with an SMI24 module.

Procedure

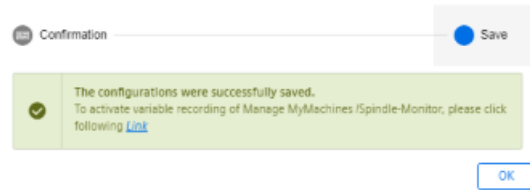
1. In the launch pad, click the "Shopfloor Management App" MindSphere application.
2. Window "Shopfloor Management Application" > "Shopfloor" > tab "Application" > "Manage MyMachines" opens.
 - Select the required asset in the left-hand part of the window. To filter this asset, enter a character string in text box "Search".
 - To activate this asset to use "Manage MyMachines /Spindle Monitor", set the slider to the right.



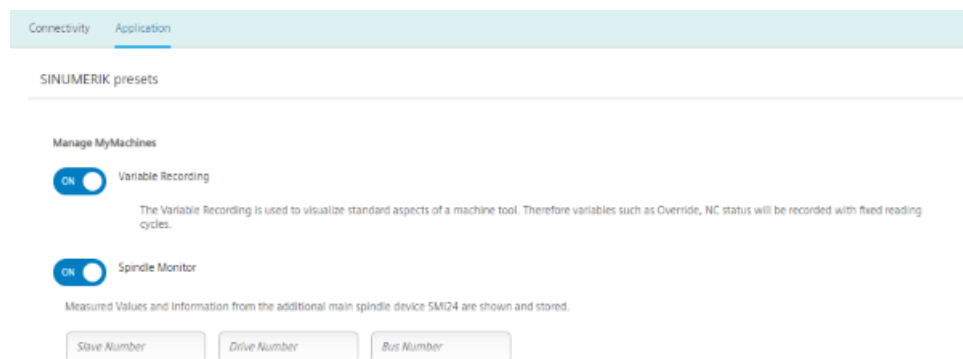
3. A pop-up opens.
 - Click on link "Product Sheet and Specific Terms for Manage MyMachines" and read through the information.
 - Activate the "I confirm that I am authorized to activate the upgrade at the fees and terms and conditions set out in the Product Sheet and Specific Terms for Manage MyMachines / Spindle Monitor." check box.
 - If you do not accept the terms and conditions and pricing model, click on "Cancel".
 - OR -
 - To accept the terms and conditions as well as the pricing model, click on "Next".



4. You receive the message: "The configurations were successfully saved.
To activate variable recordings of Manage MyMachines /Spindle-Monitor, please click following link."



5. Open the "Asset Manager" and select the corresponding asset.
Under tab "Application" set slider "Spindle Monitor" to "ON", and if required enter values and information from the additional SMI24 spindle module.
Click on "Save" to save the settings.



Pricing Model

If you click on the link "Product Sheet and Specific Terms for Manage MyMachines /Spindle Monitor", the document will be downloaded.

You obtain information about the product:

- Requirements
- A brief product description
- Cost model
- Special Terms & Conditions
- Export control regulations
- Safety information
- Explanation of terms

5.5.4 Defining the billing period

You can select one of the following settlement models:

- Monthly package
- Annual package
- Regularly annually

You can only activate the separate "Manage MyMachines /Spindle Monitor" offer if you have activated "Manage MyMachines" as an annual package or regularly annually. You can also activate "Manage MyMachines /Spindle Monitor" if the remaining activation duration of "Manage MyMachines" is less than 1 year. "Manage MyMachines /Spindle Monitor" is then only available up to the end of the quotation validity period.

Precondition

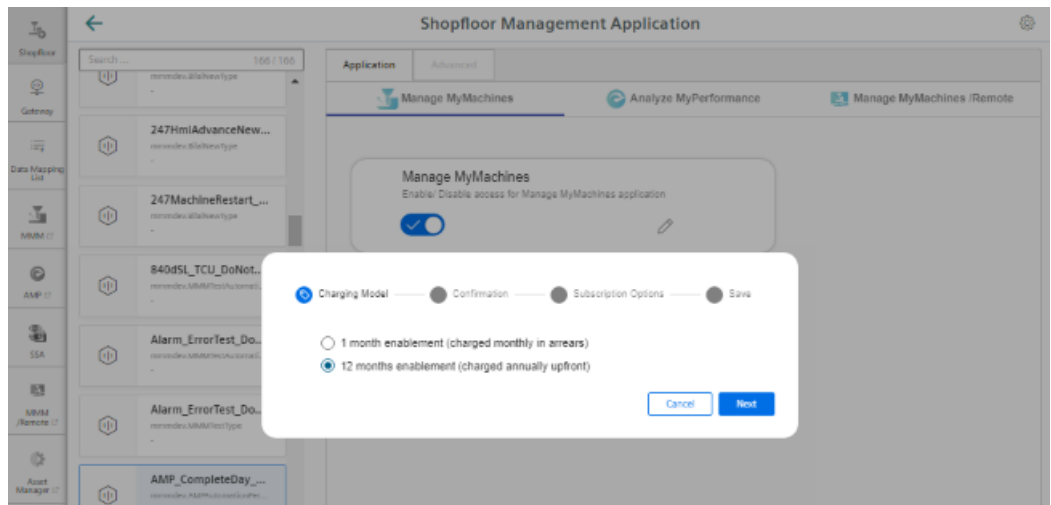
You require the following user roles:

- shopfloormgmtapp.admin
- Admin role for the application (mmm/amp/mmmremote) you are changing

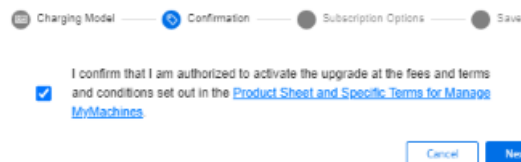
More information is provided in Chapter: Managing users (Page 69)

Activating the 12-month charging model

1. In the launch pad, click the "Shopfloor Management App" MindSphere application.
2. Window "Shopfloor Management Application" > "Shopfloor" > tab "Application" > "Manage MyMachines" opens.
 - Select the required asset in the left-hand side of the window.
To filter the assets, enter a character string in the "Search ..." field.
 - To activate the use of "Manage MyMachines" for this asset, move the slider to the right.
The access is activated.
 - A pop-up "Charging model" opens.
Activate option button "12 months enablement (charged annually upfront)".
 - If you do not want the selection, click the "Cancel" button.
- OR -
To confirm the selection, click on "Next".



3. Click on link "Product Sheet and Specific Terms for Manage MyMachines" and read through the information.
 - Activate the "I confirm that I am authorized to activate the upgrade at the fees and terms and conditions set out in the Product Sheet and Specific Terms for Manage MyMachines." check box.
 - Click on "Next".



4. Activate the "Start Now" option button to start the runtime with the current date.



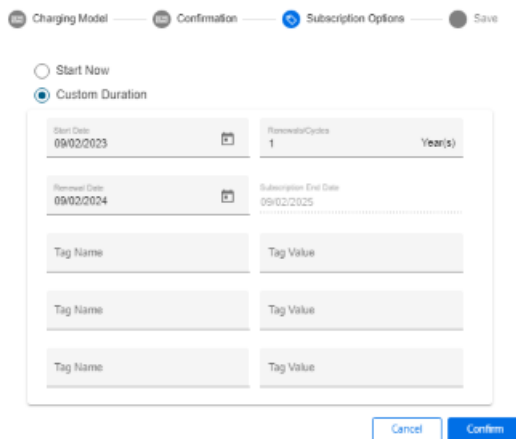
- OR -

Activate the "Custom Duration" option button to specify the runtime individually.

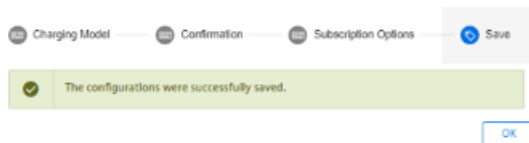
- In the "Start Date" text box, open the calendar to define the start date. In the "Renewal Date" text box, open the calendar to set the start date.
- Enter the renewal period in the "Renewals/Cycles" text box.
- The "Subscription End Date" field is automatically populated if you define the "Start Date", "Renewal Date" and "Renewals/Cycles" text boxes. The subscription end date obtained from the renewal period is displayed.
- Add the individual tag names in text box "Custom-Tag Name". Add the individual tag values in text box "Custom-Tag Value".
- Click "Cancel" to exit the procedure.

- OR -

Click the "Confirm" button to confirm the time period.



5. You will receive a confirmation that the configuration has been saved successfully. Click the "OK" button to close the message.



6. Data acquisition is started if the "Start Now" option is enabled or the "Custom Duration" option is enabled and the start date is set to "Today". If the "Custom Duration" option is enabled and the start date is not set to "Today", data acquisition will start at the date you specified.

Editing the billing period

When entering the data for the custom period, note the following:

- The renewal cycle for years/months must be between 0 and 99.
- The key of the custom tag and the value of the custom tag must not exceed 30 characters.

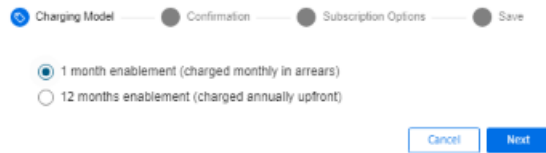
● Charging Model ● Confirmation ● **Subscription Options** ● Save

Start Now
 Custom Duration

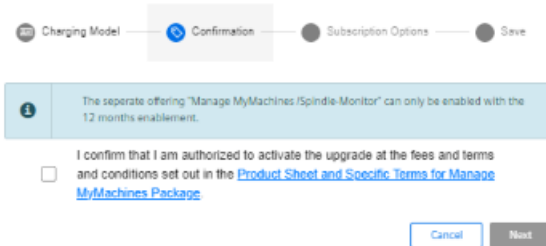
Start Date 09/10/2022	Renewals/Cycles -1 Month(s)
Renewal Date 09/11/2022	Subscription End Date 09/10/2022
Tag Name testtesttesttesttesttesttesttest <small>Name can contain at most 30 character</small>	Tag Value
Tag Name	Tag Value

Activating the 1-month charging model

1. To select a monthly period, activate the "1 month enablement (charged monthly in arrears)" option button and click on "Next".



2. A note is displayed indicating that you cannot activate the "Manage MyMachine /Spindle Monitor" application.
 - Click on link "Product Sheet and Specific Terms for Manage MyMachines Package " and read through the information.
 - Activate the "I confirm that I am authorized to activate the upgrade at the fees and terms and conditions set out in the Product Sheet and Specific Terms for Manage MyMachines Package." check box.
 - If you wish to use "Manage MyMachines /Spindle Monitor", then the annual payment option is required.
Click on "Cancel" to return to the selection.
- OR -
 - If you only wish to use "Manage MyMachines", click on "Next".



3. Activate the "Start Now" option button to start the runtime with the current date.



- OR -

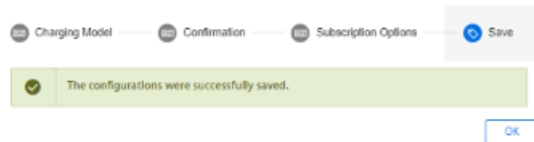
Activate the "Custom Duration" option button to define the runtime individually.

- In the "Start Date" text box, open the calendar to define the start date.
In the "Renewal Date" text box, open the calendar to set the start date.
- Specify the renewal period in months in the "Renewals/Cycles" text box.
- The "Subscription End Date" field is automatically populated if you define the "Start Date", "Renewal Date" and "Renewals/Cycles" text boxes. The subscription end date obtained from the renewal period is displayed.
- Add the individual tag names in text box "Custom-Tag Name".
Add the individual tag values in text box "Custom-Tag Value".
- Click "Cancel" to exit the procedure.

- OR -

Click the "Confirm" button to confirm the time period.

4. You will receive a confirmation that the configuration has been saved successfully. Click the "OK" button to close the message.



5. Data acquisition is started if the "Start Now" option is enabled or the "Custom Duration" option is enabled and the start date is set to "Today".
If the "Custom Duration" option is enabled and the start date is not set to "Today", data acquisition will start at the date you specified.

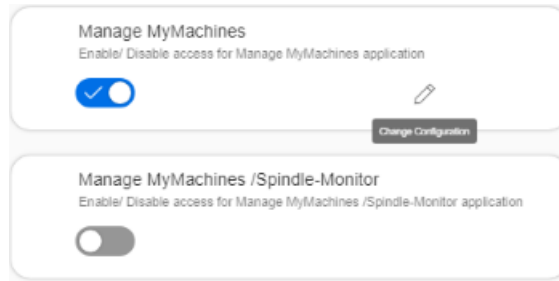
Changing the billing period

Note

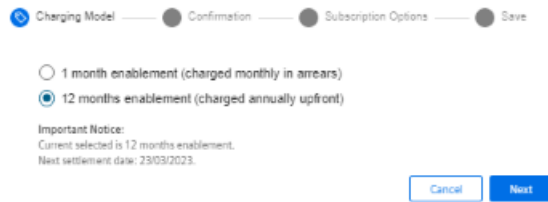
Multiple billing when changing the start date or subscription option

If you change the start date of an active billing period or the subscription option, then you receive a new billing, even if the new billing period already lies in the active billing period.

1. To change the billing period, click the "Change Configuration" icon.



2. A "Charging Model" pop-up opens and you are notified when the next settlement date will be.



3. In pop-up "Subscription options" you receive a note that the subscription for the asset is already active for a billing period.
 - If you change the "Renewal date" or the "Renewals/Cycles" of the billing period, the newly selected option will not take effect until the end of the currently active subscription option.
 - If you change the "Start date" of the billing period, the newly selected option becomes active at the defined start date.
The billing occurs either on the same day or later.

Charging Model Confirmation **Subscription Options** Save

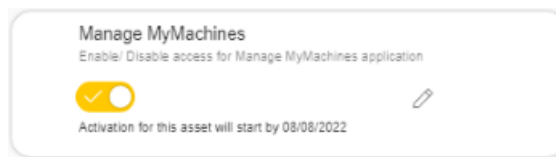
Start Now
 Custom Duration

Start Date 09/03/2022	Renewals/Cycles 99 Year(s)
Renewal Date 09/03/2023	Subscription End Date 09/03/2122
Tag Name	Tag Value
Tag Name	Tag Value
Tag Name	Tag Value

Important Notice:
 Current selected is 12 months enablement.
 Asset has already subscription between 09/03/2022 and 09/03/2025.
 Next settlement date: 11/03/2022.

Cancel Confirm

4. If you set the billing period in the future, you will see the activation date and the slider will be displayed in yellow.



Manage MyMachines Product Sheet and Specific Terms

If you click on link "Product Sheet and Specific Terms for Manage MyMachines Package", window "Manage MyMachines /Remote Product Sheet and Specific Terms" opens.

You obtain information about the product:

- Requirements
- A brief product description
- Cost model
- Special Terms & Conditions
- Export control regulations
- Safety information
- Explanation of terms

5.5.5 Configuring variables

5.5.5.1 Overview

Using this function, you can individually configure which data is sent from the machine to MindSphere and how this data is sent. If a specific alarm occurs, for example, you can define that the HMI trace, NC status and machine data are sent from the machine to MindSphere.

The MindSphere "Shopfloor Management Application" application allows you to individually configure the following trigger:

- Time-based/cyclic trigger (Page 101)
- Configuring a value-based trigger (variable) (Page 104)
- Alarm based trigger (Page 107)
In addition, you can also send an alarm by email.
More information on the configuration is provided in Chapter: Configuring an alarm message and sending by email (Page 128)
- File Upload (Page 110)

It is also possible to copy all configurations of one asset to another asset.

More information: Copying configurations (Page 116)

Precondition

- Manage MyMachines is activated for the required asset or the activation date has been defined to be in the future.
More information is provided in Chapter: Activating/deactivating Manage MyMachines (Page 86)
For an activation data in the future, the previously set configurations only become active on the activation date.
- To send HMI traces to MindSphere, the HMI action log on the machine must be activated for the following data:
 - HMI trace
 - NCU data
 - Machine data











Software option

In order to use the variable data, you need the "Path length evaluation" software option (6FC5800-0AM53-0YB0).

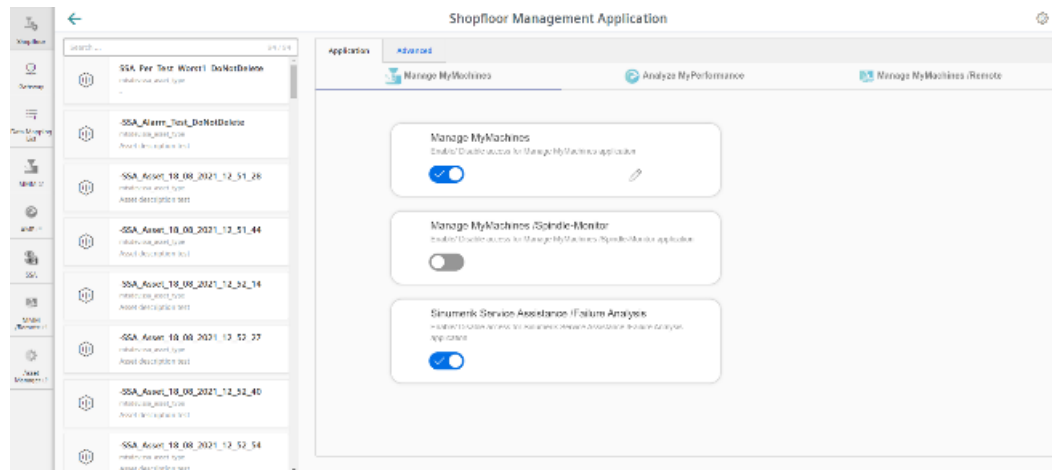
- If the "Manage MyMachines" application is used with the "Cross-Tenancy" function, the data and configurations are then visible in the tenants, but they cannot be changed.

Icons

Icons	Description
	Creates a new configuration.
	Copies the configurations of an asset to other assets. More information is provided in Chapter: Copying configurations (Page 116) When copying, setting "Configuration activated" or "Configuration deactivated" is also copied.
	Click the down arrow to open the area and to display the associated configurations.
	Click on the up arrow to close the area.
	Set the slider to the right to activate the corresponding configuration. The data for this configuration are recorded and sent to MindSphere. As default setting, each new configuration is activated.
	Set the slider to the left to deactivate the corresponding configuration. The data for this configuration are not recorded and sent to MindSphere.
	Opens a configuration that has already been created in order to make changes.
	Deletes a configuration that has already been created.

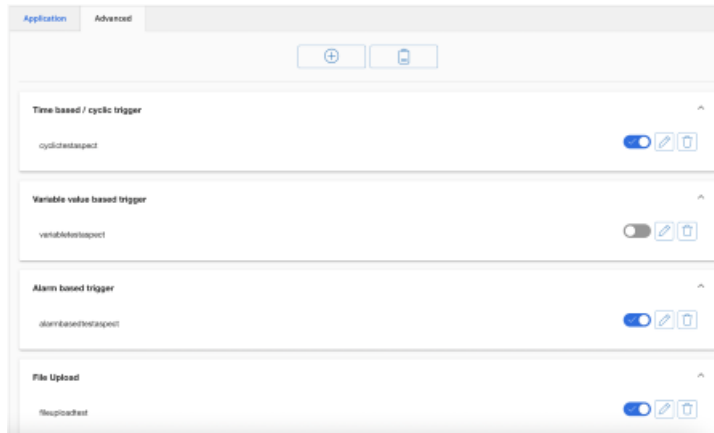
Procedure

1. In the Launchpad, click the "Shopfloor Management App" MindSphere application. The "Shopfloor Management Application" > "Shopfloor" > "Application" tab > "Manage MyMachines" window opens.

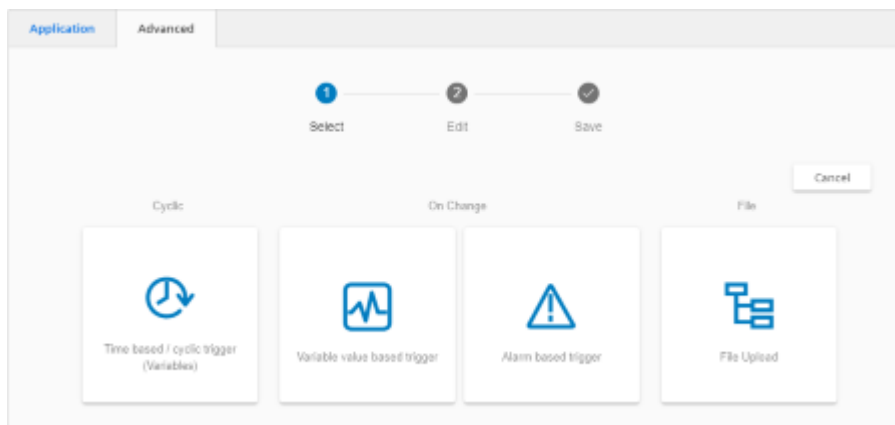


2. Select the required asset in the central section of the window.

3. Open the "Advanced" tab in the right-hand section of the window. The window with the overview of the configurations that have been created opens.
 - If you have an incorrect configuration or a configuration that is no longer required, set the slider to the left to deactivate the configuration. The data flow from the machine to MindSphere is stopped, and the associated configuration is no longer displayed in window "Machine aspects". It can take up to 15 seconds until data recording is stopped.
 - Set the slider to the right to activate the required configuration.
 - To change an existing configuration, click on the "Edit" icon in the corresponding line.
 - To delete an existing configuration, click on the "Recycle bin" icon in the appropriate line. Confirm the message that the operation cannot be undone.



4. Click on the "+" button to add a new configuration. The input window to select the functions opens. Select one of the following functions:
 - Time-based/cyclic trigger (Page 101)
 - Configuring a value-based trigger (variable) (Page 104)
 - Alarm based trigger (Page 107)
 - File Upload (Page 110)



More information

You can find **more information** about NC variables in the List Manual:

- SINUMERIK 840D sl, NC variables
- SINUMERIK 828D, NC variables

5.5.5.2 Time-based/cyclic trigger

Configure the "Time-based/cyclic trigger", to periodically send variable values from the machine to MindSphere:

If you no longer require the configuration, you can deactivate this in the MindSphere application "Shopfloor Management Application" using the slider.

Parameter

Parameter	Description
Create aspect	
Aspect name	Enter a name to designate a common group of variables. The name must be unique and not exceed 30 characters. The following characters are permissible: <ul style="list-style-type: none"> • Letters • Underscore • Numbers
Read cycle used	
Time interval	The sampling rate of the data acquisition is specified with this value. Select the time period from the drop-down list: <ul style="list-style-type: none"> • 5 seconds • 30 seconds • 1 minute • 5 minutes • 15 minutes • 30 minutes • 1 hour • 4 hours • 12 hours • 24 hours
Variable	

Parameter	Description		
Name	<p>In the variable set, enter a name for the variables to be acquired. The name must be unique and not exceed 30 characters. The following characters are permissible:</p> <ul style="list-style-type: none"> • Letters • Underscore • Numbers <p>Remark: The name of the variable must not consist solely of numbers. In this case, the input field is marked red.</p>		
Address	<p>Enter the address or the path of the variable. Examples:</p>		
	<table border="1"> <tr> <td>Axis data:</td> <td>/Nck/MachineAxis/AATRAVELCOUNT[1] /Nck/MachineAxis/AATRAVELDIST[2]</td> </tr> </table>	Axis data:	/Nck/MachineAxis/AATRAVELCOUNT[1] /Nck/MachineAxis/AATRAVELDIST[2]
	Axis data:	/Nck/MachineAxis/AATRAVELCOUNT[1] /Nck/MachineAxis/AATRAVELDIST[2]	
	<table border="1"> <tr> <td>Channel data:</td> <td>/Channel/ChannelDiagnose/CuttingTime[u1] /Channel/ChannelDiagnose/OperatingTime[u1]</td> </tr> </table>	Channel data:	/Channel/ChannelDiagnose/CuttingTime[u1] /Channel/ChannelDiagnose/OperatingTime[u1]
Channel data:	/Channel/ChannelDiagnose/CuttingTime[u1] /Channel/ChannelDiagnose/OperatingTime[u1]		
<table border="1"> <tr> <td>Machine operating mode:</td> <td>/Bag/State/opMode[u1]</td> </tr> </table>	Machine operating mode:	/Bag/State/opMode[u1]	
Machine operating mode:	/Bag/State/opMode[u1]		
Data type	<p>Select the data type of the variable from the drop-down list:</p> <ul style="list-style-type: none"> • DOUBLE • BOOLEAN • STRING <p>Note: If values exceed the floating-point number accuracy, they are displayed with faulty decimal places.</p>		
Unit	<p>Select the physical unit of the variable from the drop-down list. Example: m/s³</p>		

Procedure

1. Click on the "Time-based / cyclic trigger (variables)" function.



2. The "Time-based trigger" input window opens.
 - Enter a name in the "Create aspect" input field.
 - Enter the sampling rate in the "Read cycle used" input field.
 - Enter the variable properties in the input fields.
 - Click the "+" button to add a new variable. Repeat this step as often as is necessary.

Note

Limiting the number of variables

You can create a maximum of 50 variables with 5-second options.

A warning message appears when the maximum number is reached.

- Click the "Cancel" button to exit the Properties window without saving the entries. You are taken back to the aspects overview.
- OR -
- Click the "Save" button to accept the entries. The "Data recording saved successfully" message appears.
- Click the "OK" button to exit the operation. You are taken to an overview of the aspects.

 A screenshot of the "Shopfloor Management Application" interface. The window title is "Shopfloor Management Application". At the top, there are tabs for "Application" and "Advanced". Below the tabs, there is a progress indicator with three steps: "1 Select", "2 Edit" (which is currently active), and "3 Save". The main content area is titled "Time based trigger" and contains several input fields:

- "Create aspect" section with a "Cyclic aspect name" input field.
- "Applied reading cycle" section with a "Reading cycle" dropdown menu.
- "Variables" section with a table-like structure for adding variables. It has columns for "Name", "Address", "Datatype", and "Unit". There is a "+" button below this section to add new variables.

 At the top right of the input area, there are "Save" and "Cancel" buttons. A counter "2/100" is visible in the top right corner of the input area.

5.5.5.3 Configuring a value-based trigger (variable)

View "Variable-based trigger" provides you with functions to create user-defined condition rules based on variable values.

If a configured condition occurs, then the following data and values are sent to MindSphere:

- Variable value
- Machine trace files
- User-defined file(s) in the specified directory





If you no longer require the configuration, you can deactivate this in the MindSphere application "Shopfloor Management Application" using the slider.

Parameters

Parameter	Description
Create aspect	
Aspect name	Enter a previously created variable name. The name must be unique. If the aspect does not yet exist in MindSphere, the aspect is created when saving the configuration.
Configuring a trigger	
With these settings, you specify the trigger conditions for the following actions.	
Variable address	Enter the address of the variables.
Data type	From the drop-down list select the data type of the variable. <ul style="list-style-type: none"> • DOUBLE • BOOLEAN • STRING
	From the drop-down list, select the comparison operation that is restricted to the format of the variables: <ul style="list-style-type: none"> • Greater than • Less than • Equal to • Not equal to
Variable value	Enter a value.
With the following configuration	
Debounce time	Enter the debounce time. Remark: After the Condition variable has reached a specified value, the control checks whether the condition is still present until the debounce time has expired. The control does not check the status again during this time.
sec	Select the time unit from the drop-down list: <ul style="list-style-type: none"> • sec • min • hr

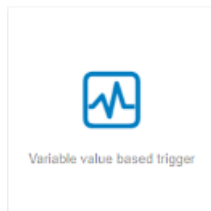
Parameter	Description
Hysteresis	<p>Select the check box if you want to include hysteresis.</p> <p>The hysteresis can be a value or a percentage (absolute or relative).</p> <p>Example:</p> <p>The temperature is 30 degrees. The absolute hysteresis equals 5. In this case, the check is from 25 to 35 °C instead of 30 °C.</p> <p>Activate the "Quick Range" option button if the relative value in relation to the comparison value is to be recorded.</p> <p>Activate the "Absolute" option button if the absolute value in relation to the comparison value is to be recorded.</p> <p>A new trigger on the comparison value is only performed when the actual value differs from the comparison value by more than the specified hysteresis.</p> <p>Enter a comparison value, this is restricted according to the selection of the address format.</p>
Then acquire the following values	
The following variable is recorded and sent to MindSphere.	
Variable address	Shows the address of the variable.
Data type	<p>Select the data type of the variable from the drop-down list:</p> <ul style="list-style-type: none"> • DOUBLE • BOOLEAN • STRING
Duration	<p>Enter the recording duration.</p> <p>The duration must be longer than the cycle.</p> <p>Select the time unit from the drop-down list:</p> <ul style="list-style-type: none"> • sec • min • hr <p>Minimum of 30 seconds.</p> <p>Maximum of 24 hours.</p>
Cycle	<p>Enter the cycle duration.</p> <p>Select a time unit from the drop-down list:</p> <ul style="list-style-type: none"> • sec • min • hr <p>30 seconds is the minimum</p> <p>24 hours is the maximum</p>
Adding trace files to the trigger	
Recorded traces are sent as files to MindSphere.	
Trace files	<p>Activate the option check box for the following data:</p> <ul style="list-style-type: none"> • HMI trace • NC status • Machine data <p>Activate the action log setting on the machine.</p> <p>More information is provided in Chapter: Setting the action log (Page 59).</p>

Parameter	Description
Selecting file(s) to be uploaded	
The selected files that are available on the machine will be transferred to the corresponding MindSphere tenants database.	
File or directory path *	Enter the file or directory path. <ul style="list-style-type: none"> • The maximum file size is 100 MB • If the hard disk is full, it is possible that not all of the files are sent to MindSphere. • When the directory path has been created, the file upload of the last 10 files in this directory to MindSphere takes place.

Icons	Description
	You will receive more information.
	Closes the entry field.
	Click on the down arrow to open and create further configurations.
	Click on the up arrow to close the area of further configurations.

Procedure

1. Click on function "Variable value based trigger" to specify dependencies.



2. The "Variable-based trigger" input window opens.
3. Enter a name in the "Cyclic aspect name" input field.
4. Define a variable as trigger.
5. Define the settings for the trigger.

6. Define which data is sent to MindSphere if the trigger occurs:
 - Recording variables
Enter a variable address.
 - Trace files
Activate the corresponding check box for "HMI-Trace", "NC-Status" or "Machine Data".
 - Files
Enter a file name or a directory path.
7. Click the "Cancel" button to exit the Properties window without saving the entries.
A safety message is output, which you must confirm
You are taken back to the aspects overview.
- OR -
Click on "Save" to accept the data entered.
Message "Data recording saved successfully" is output.
Click on "OK" to exit the operation.
You are taken back to the aspects overview.

5.5.5.4 Alarm based trigger

The "alarm-based trigger" reacts to all alarms programmed in the control.

With this function, you can send specific alarms for a certain aspect and acquired status data to MindSphere.

These alarms also contain the user range of alarm numbers that are assigned the machine functions for the machine diagnostics. If machine diagnostics are not performed on the basis of alarm numbers, these error messages cannot be integrated.

The alarm numbers that are triggered can be entered individually or in ranges. You can also hide individual or ranges of alarms from a selection.





When certain alarms occur, you can upload user-defined files to MindSphere.

If you no longer require the configuration, you can deactivate this in the MindSphere application "Shopfloor Management Application" using the slider.

Parameters and icons

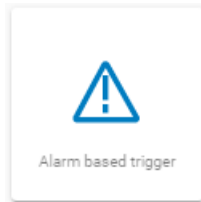
Parameter	Description
Create aspect	
Aspect name	Enter a descriptive name for the aspect. The name must be unique.
Include alarms	
Alarm numbers:	In the case of individual alarms, enter the alarm number or the alarm ID that activates the trigger. The alarm number must be within the range from 0 to 999999. The alarms are entered in the following notation: <ul style="list-style-type: none"> • Separate the individual alarms through a comma, e.g. 3200, 32100, ... • Enter the alarm number ranges with a "-" character, e.g. 4000-5000 The alarm list must not exceed 200 characters.
Alarm intervals:	Enter the alarm limits. <ul style="list-style-type: none"> • From: Enter the lowest alarm ID, e.g. 0 • To: Enter the highest alarm ID, e.g. 999999 All alarms between 0 and 999999 are included.
Exclude alarms	
Alarm numbers:	Enter the alarm numbers that do not activate the trigger. Excluded alarms are not transmitted to MindSphere. The alarm number must lie within the range from 0 to 999999. The alarms are entered in the following notation: <ul style="list-style-type: none"> • Separate the individual alarms through a comma, e.g. 3200, 32100, ... • Enter the alarm number ranges with a "-" character, e.g. 4000-5000 The list of alarm numbers must not exceed 200 characters.
Alarm intervals:	Enter the alarm limits: <ul style="list-style-type: none"> • From: Enter the lowest alarm ID, e.g. 0 • To: Enter the highest alarm ID, e.g. 999999 All alarms between 0 and 999999 are included.
Adding trace files to the trigger	
Trace files	Activate the option check box for the following data: <ul style="list-style-type: none"> • HMI trace • NC status • Machine data Activate the action log setting on the machine. More information is provided in Chapter: Setting the action log (Page 59).

Parameter	Description
Selecting file(s) to be uploaded	
The selected files that are available on the machine will be transferred to the corresponding MindSphere tenants database.	
File or directory path *	Enter the file or directory path. <ul style="list-style-type: none"> • The maximum file size is 100 MB • If the hard disk is full, it is possible that not all of the files are sent to MindSphere. • When the directory path has been created, the file upload of the last 10 files in this directory to MindSphere takes place.

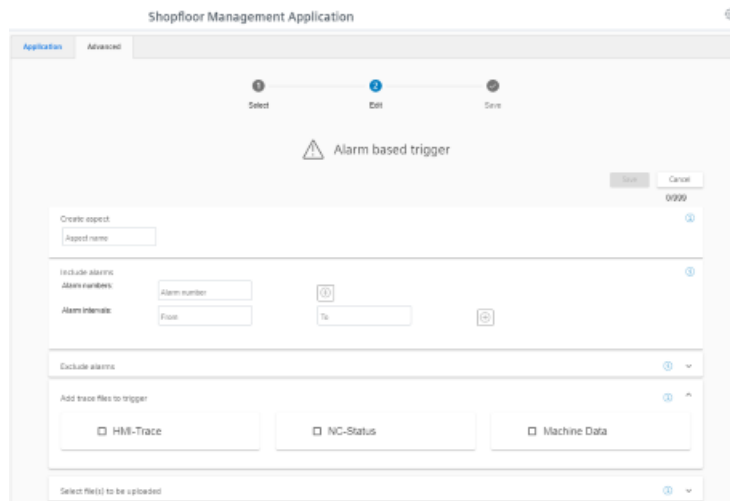
Icons	Description
	You will receive more information.
	Closes the entry field.
	Click on the down arrow to open and create further configurations.
	Click on the up arrow to close the area of further configurations.

Procedure

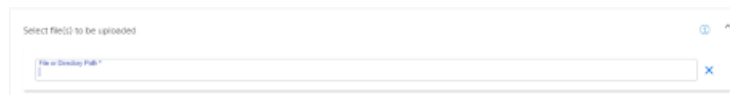
1. Click the "Alarm-based trigger" function to define alarm properties, such as when an alarm should be displayed.



2. The "Alarm-based trigger" input window opens.
 - Enter a name for the aspect and specify the properties.
 - Click on the "Cancel" button.
You receive a safety message that you must confirm.
Then you will be returned to the overview.
 - OR -
 - Click the "Save" button to accept the entries.
The "Data recording saved successfully" message appears.
 - Click the "OK" button to complete the operation.
You are taken to the overview.



3. Enter a file or directory path to load data from the control to MindSphere.



5.5.5.5 File Upload

Function "File Upload" allows files to be sent from the SINUMERIK control to MindSphere. You can send multiple files from various directories in the same trigger. In a cyclical trigger, you can upload trace files along with the customer-specific files.






There are two variants of the "File upload" function:

- Change-dependent file upload
The upload is carried out after a file is changed on the SINUMERIK control. The change date of the files is checked cyclically, i.e. hourly, on the SINUMERIK control.
- Cyclic file upload
The upload is carried out in a defined time cycle. The cycle duration is specified in the user interface.
The cyclic file upload does not check files for changes.

Parameters

Parameter	Description
Configuration name	Enter a name for the configuration. The name must be unique and not exceed 30 characters. The following characters are permissible: <ul style="list-style-type: none"> • Letters • Underscore • Numbers
Cyclic	The files are transmitted to MindSphere at defined intervals. Select the time interval from the drop-down list: <ul style="list-style-type: none"> • 1 hour • 2 hours • 4 hours • 6 hours • 8 hours • 12 hours • 24 hours • 1 week • 1 month
When modified	The control checks the files at 1-hour intervals. If the file or directory changes, the relevant files are uploaded to MindSphere.
Add trace files to the trigger	Recorded traces are sent as files to MindSphere. Activate the check box for the following data: <ul style="list-style-type: none"> • HMI trace • NC status • Machine data Activate the action log setting on the machine. More information is provided in Chapter: Setting the action log (Page 59).
File path	Enter the correct file path. A directory path must end with a "/" or "\" character. A maximum of 10 directories is allowed.
File	Enter the file name. You can use the asterisk symbol (*) as a placeholder. A maximum of 10 files per directory is allowed. If only a directory path is entered instead of a file, the last 10 modified files in the directory will be sent to MindSphere.

Icons

Icon	Description
	Create a new entry for the file or directory path.
	Change the entry for the file or directory path.
	Save the entry for the file or directory path.
	Delete the entry for the file or directory path.
	You will receive more information.

Requirement

The function "Variable Recording" has been activated in MindSphere application "Asset Manager".

More information is provided in Chapter: Activating the data acquisition (Page 78)

NOTICE**Data manipulation possible**

There is a risk that an attacker, within the network between SINUMERIK Integrate and MindSphere, gains access to the file system of the server or service clients. The hacker can then read or manipulate various system components (e.g. database content). As a consequence, the attacker can manipulate tool data, NC programs, machine archives or the system structure itself, for example. This type of attack cannot be prevented by MindSphere.

- It is therefore imperative that the person responsible for the machine network takes the appropriate industrial security measures for the production/machine network.

Siemens AG does not accept any liability in this regard.

Files

The maximum file size is 100 MB.

Use the following file extensions for the "File Upload" function:

- .xml
- .txt
- .log
- .png
- .jpg
- .ohs
- .pms
- .ems
- .mds

- .pdf
- .ini
- .csv
- .json
- .sav
- .mst
- .bst
- .stt

Directory paths

The following directories are available for the file upload:

- /card/user/sinumerik/hmi/appl/
- /card/oem/sinumerik/hmi/appl/
- /card/oem/sinumerik/hmi/OMATIVE_ACM/data/
- C:\ProgramData\Siemens\MotionControl\oem\sinumerik\hmi\appl\
- C:\ProgramData\Siemens\MotionControl\user\sinumerik\hmi\appl\
- /card/user/sinumerik/hmi/cfg/
- /card/oem/sinumerik/hmi/cfg/
- /card/user/sinumerik/hmi/log/
- /card/user/sinumerik/hmi/trace
- /card/oem/sinumerik/data/archive/
- /card/system/tmp/
- <temp>\

You can create multiple subdirectories in this directory.
- /var/user/
- C:\temp\datatransfer\

On PCU WIN NT
- C:\ProgramData\Siemens\MotionControl\oem\sinumerik\hmi\OMATIVE_ACM\data\
- C:\temp\datatransfer\

On PCU WIN XP
- var\tmp\datatransfer\

For Linux
- /user/sinumerik/hmi/data/version/
- /card/user/sinumerik/hmi/data/trace/CM
- C:\Program Files (x86)\Siemens\MotionControl\user\sinumerik\hmi\data\version\

SINUMERIK Operate also supports the following directories:

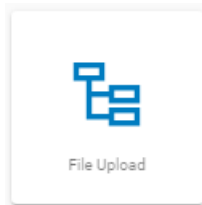
- D:\backups\
- D:\description\

HMI-Advanced also supports the following directories:

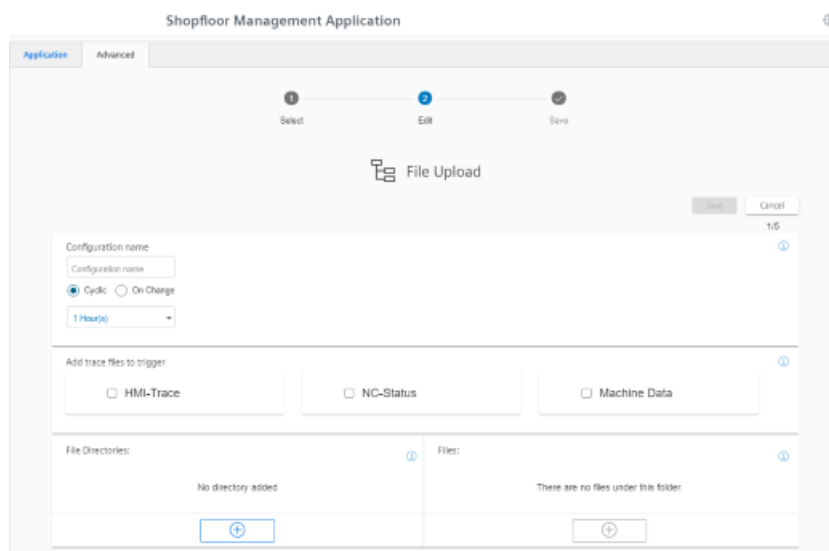
- F:\dh\
- F:\privatesyncdata\
- F:\loem\
- F:\user\
- F:\mmc2\
- f:\hmis\loem\sinumerik\hmi\OMATIVE_ACM\data\
- F:\hmis\siemens\sinumerik\hmi\trace
- F:\hmis\siemens\sinumerik\hmi\data\trace\CM

Procedure

1. Click the "File Upload" function.



2. The "File Upload" input window opens.
In the "File Upload" area, you can see the number of configurations created/number of possible configurations on the right.



3. Enter the name for the configuration.

4. Select the type of file upload:
 - Cyclic
Select the cycle length.
 - OR -
 - On Change
If you activate "On Change", you can select a directory.

The screenshot shows a configuration window with the following elements:

- Configuration name:** CyclicFileUploadTest
- Upload Type:** On Change (selected)
- File Directories:**
 - /var/tmp/datatransfer/ (with checkmark and trash icons)
 - <temp> (with checkmark and trash icons)
- Files:** There are no files under this folder (with a '+' button)

5. Activate the check boxes for the trace files that you want to transfer along with the customer-specific files.
6. Click the "+" button in the file paths area.
To simultaneously send files from multiple directories, click on this button for each directory. Once the maximum possible number of directories is reached, the button is deactivated.
7. Enter the directory path and click the "Checkmark" icon.
8. Specify the files to be transferred for each directory:
 - Click the "+" button in the file area.
To send multiple files from this directory, click on the "+" button for each file. Once the maximum possible number of files is reached, the button is deactivated.
 - Enter the file name. You can use the asterisk symbol (*) as a placeholder.
If more than 10 files correspond to the file name with placeholder, only the last 10 most recently modified files will be sent to MindSphere.
 - Click the "Checkmark" icon.
9. Click on the "Recycle bin" icon in the appropriate line to delete a directory path or a file.
10. Click on "Save" to save the configuration.
 - OR -
 - Click the "Cancel" button to exit the window without saving the entries.
You are taken back to the overview.
11. The "Data recording saved successfully" message appears.
Click the "OK" button to complete the operation.
12. You can see an overview of the files in the "Operations Insight" application.
For more information, see Chapter: Displaying uploaded files in "Operations Insight" (Page 132).

5.5.5.6 Copying configurations

You have the option of copying the configurations for variables and file upload from one asset to any number of assets.

If a variable with the same name already exists for the target asset, then the address of the variables on the target asset are overwritten when copying.

The copying procedure is canceled as soon as the target asset has reached the maximum number of variables.





Note

Continuing the copying procedure after closing the browser


Copying is interrupted if you close the browser window while copying. If you open the "Shopfloor Management Application" again, you can continue the operation by clicking on "Continue".

However, this is not possible if you are using an incognito window for the copying procedure, since no data is written to the cache in the incognito window.

Icons

Icons	Description
	Opens the "Copy configuration" window. The "Configuration activated" or "Configuration deactivated" setting is also copied.
	Shows the source and target of the last copying procedure.
	The yellow symbol indicates that there is a merge conflict warning. If you click on the icon, the warning will be displayed.
	The red symbol indicates that there is a merge conflict error. If you click on the icon, the error will be displayed. You will find more information on messages in the following chapter "Messages".

Procedure

1. In the "Shopfloor Management Application", select the asset with the required configurations.
2. Open the "Advanced" tab in the right-hand section of the window.
3. Click the  button.

4. The "Copy configuration" window opens.
 - In the "Select aspects" list, select the "Select All" check box.
All aspects are selected.
- OR -
 - In the "Select aspects" list, select the "Deselect All" check box.
 - Then activate only the check boxes whose triggers you want to copy:
 - Static Variables
 - Time-based / cyclic trigger
 - Variable value-based trigger
 - Alarm-based trigger
 - File upload
 - Click "Cancel" to cancel to the process.
- OR -
click "Next".
This button is only active if you have made at least one selection.

The screenshot shows the "Copy configuration" dialog box. At the top, there are tabs for "Application" and "Advanced". Below the tabs is a header with a document icon and the text "Copy configuration". The main content area is divided into several sections:

- Select Aspects:** A checkbox labeled "Deselect All" is checked.
- Static Variables:** A list of variables with checkboxes: "start" (unchecked), "stop" (unchecked), "test" (checked), "load" (checked), and "run" (checked).
- Time based / cyclic trigger:** A section with a downward arrow.
- Variable value based trigger:** A section with a downward arrow.
- Alarm based trigger:** A section with a downward arrow.
- File Upload:** A checkbox labeled "file_upload_trigger" is checked.

At the bottom right of the dialog, there are two buttons: "Cancel" and "Next".

The following messages "Merge conflicts" are displayed:

- It is possible that the file upload path does not function on the target assets, as an unknown or different operating system type is involved.
Source and target asset have aspects that have the same name. The operation merges the configuration of these aspects if continue has been selected.



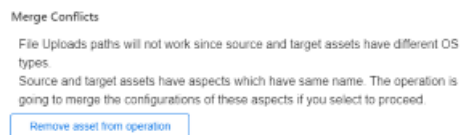
- File upload configurations with trace files are not merged. The maximum trace file limit has been reached.
File upload configurations were not merged. Max. file upload limit was reached.
Source and target asset have aspects that have the same name. The operation merges the configuration of these aspects if continue has been selected.



- Cyclic configurations (5 seconds) were not merged. Max. variable limit was reached.
File upload configurations with trace files are not merged. The maximum trace file limit has been reached.
Copying the configuration was unsuccessful. Max. variable limit was reached.



- File upload paths will not function as the source and target assets have different operating system types.
Source and target asset have aspects that have the same name. The operation merges the configuration of these aspects if continue has been selected.



You have the option of clicking on the following buttons: "Proceed with conflicts" or "Remove asset from operation".

Displaying information and switching between the assets

After completing a copying procedure, the information symbol is shown in the register line. The symbol is also displayed if you switch between various assets. The information is only deleted if you start a new copying procedure.




1. Click on the "i" symbol to display the source and target of the last copying procedure.
2. In window "Active Copy Configuration", click on an asset name. Tab "Advanced" is displayed for the corresponding asset.



5.5.6 Data mapping list

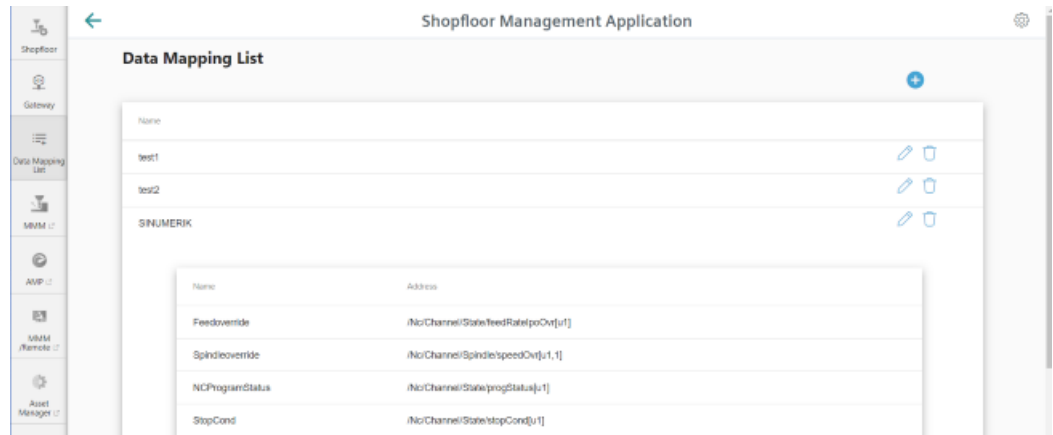
You have the option of saving your own controllers in the MindSphere Application "Shopfloor Management App" under "Data Mapping List".

Icons

Icon	Description
	Creates a new controller.
	Deletes a controller that has already been created.
	Opens a controller that has already been created for editing.

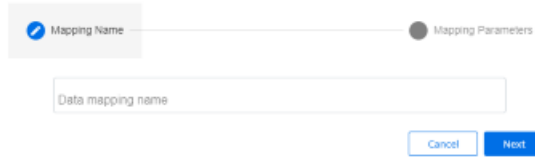
Procedure

1. In the launch pad, click the "Shopfloor Management App" MindSphere application.
2. The "Shopfloor Management Application" window opens.
 - In the left-hand window area, click on "Data Mapping List".
A list of the controllers that have been created is displayed.



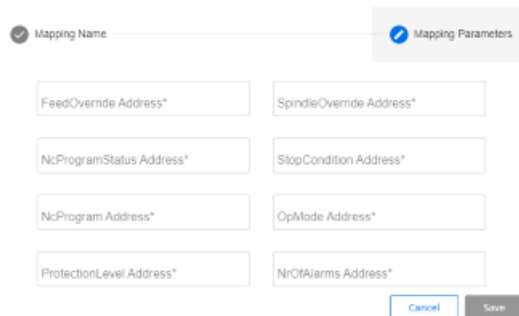
3. Click on the "+" icon to create a new controller.

4. Window "Mapping Name" opens.
Enter a data mapping name of the controller, and click on "Next".
- OR -
Click on "Cancel" to cancel the operation.



5. Window "Mapping Parameters" opens.
Enter the addresses of the controller.
 - FeedOverride address
 - NcProgramStatus address
 - NcProgram address
 - ProtectionLevel address
 - SpindleOverride address
 - StopCondition address
 - OpMode address
 - NrOfAlarms address

Click on "Save" to save the entries.
- OR -
Click on "Cancel" to cancel the operation.



5.5.7 SINUMERIK Service Assistance

The MindSphere application "SINUMERIK Service Assistance" (SSA) offers you a standardized software solution to help service experts perform an error analysis on a machine tool equipped with a SINUMERIK control. The increased transparency makes it possible to carry out any necessary service work more efficiently and reduce machine tool downtimes.

Precondition

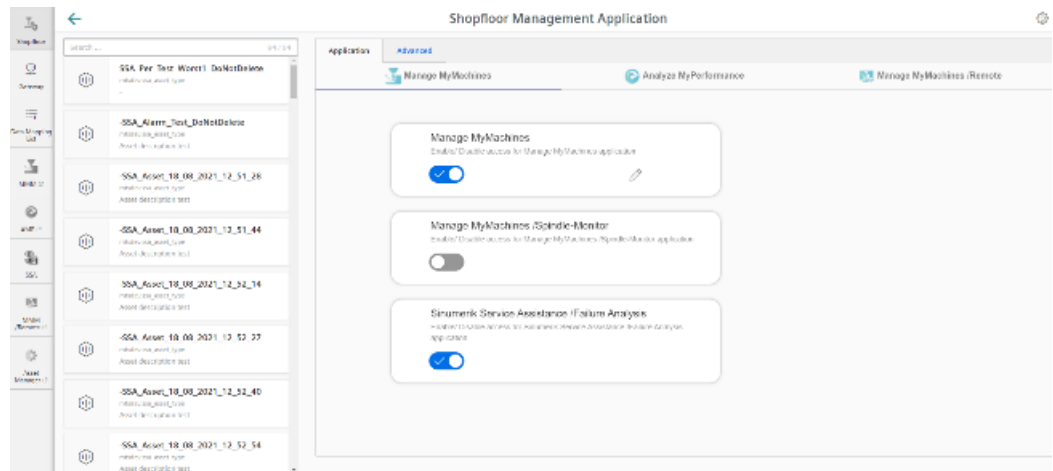
To use the error analysis function, you must purchase the "SSA" application (SIEMERIK Service Assistance).

You require the following user roles:

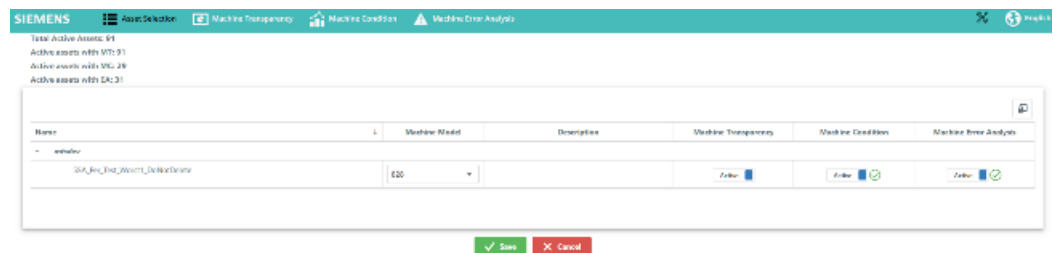
- ssa.admin
- OR -
- ssa.user

Procedure

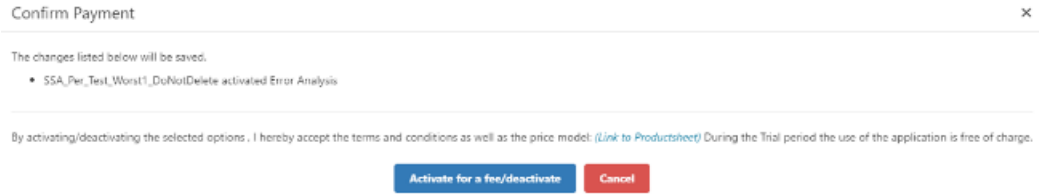
1. In the Launchpad, click on the "Shopfloor Management App" MindSphere application. The "Shopfloor Management Application" > "Shopfloor" > "Application" tab > "Manage MyMachines" window opens. Set the slider to the right to activate the use of "SIEMERIK Service Assistance /Failure Analysis" for this asset.



2. Click the "SSA" button in the left-hand section of the window. An overview of the SIEMERIK controls is displayed.



3. Click on "Save" to save your selection.
The "Confirm Payment" window opens.
- OR
Click on "Cancel" to cancel the operation



4. Click on button "Activate for a fee/deactivate".
- OR -
Click "Cancel" to cancel the operation.

More information

For more information about the features and operation of SSA, refer to the:
"SINUMERIK Service Assistance" Function Manual.

5.6 Connecting controller with MindSphere

Using the MindSphere application "Asset Manager", connect SINUMERIK controllers or other controllers with MindSphere.

More information on roles within MindSphere and on configuring assets is provided in: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Precondition

- The MindSphere application is activated.
More information can be found in this Chapter: Shopfloor Management Application (Page 84)
- You require the "MindAccess User" role in MindSphere to do this.
- The configuration must have been saved.

Procedure

1. Click on the "Asset Manager" MindSphere application.
2. Select the required asset in the left-hand side of the window.
3. In the right-hand side of the window under "Connectivity", click on the arrow next to "MTA Asset Config".
4. The "Onboarding / Offboarded" window > "Connectivity" tab opens and you can see the connection status, e.g. "Offboarded".
5. Select the "I hereby accept the conditions, which can be downloaded under the following link. Conditions" check box.
 - Click the "Conditions" link.
The "MindSphere – Terms & Conditions" window opens.
 - Click on your region.
 - From the list, select the appropriate Terms & Conditions.
 - Read the Terms & Conditions.
 - OR -
Download the Terms & Conditions.
 - OR -
Print the Terms & Conditions.
 - Close the window.
The "Connectivity" window is displayed again.

- Copy the "onboard.key" to one of the specified storage locations in the control system.

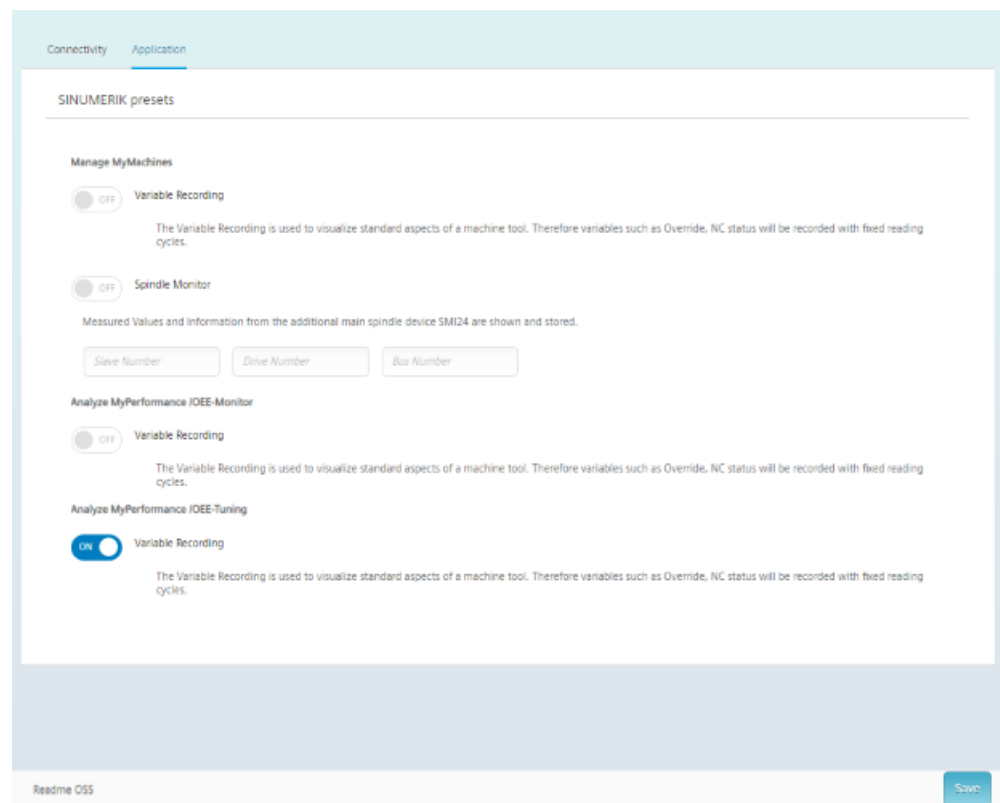
Note**Validity of the "onboard.key"**

The "onboard.key" must be copied to the control within 24 hours. The "onboard.key" becomes invalid once this time has elapsed.

More information can be found in the following chapters:

- SINUMERIK 840D sl: Install the registration key on a SINUMERIK control system (Page 45)
- SINUMERIK 828D: Install the registration key on a SINUMERIK control system (Page 53)

- Open the "Application" tab.
Window "SINUMERIK presets" opens.



5.7 Configuring an alarm message and sending by email

You have the option of configuring an alarm trigger, which notifies you by email if a "Manage MyMachines" event occurs.

Note

Maximum number of alarms per machine

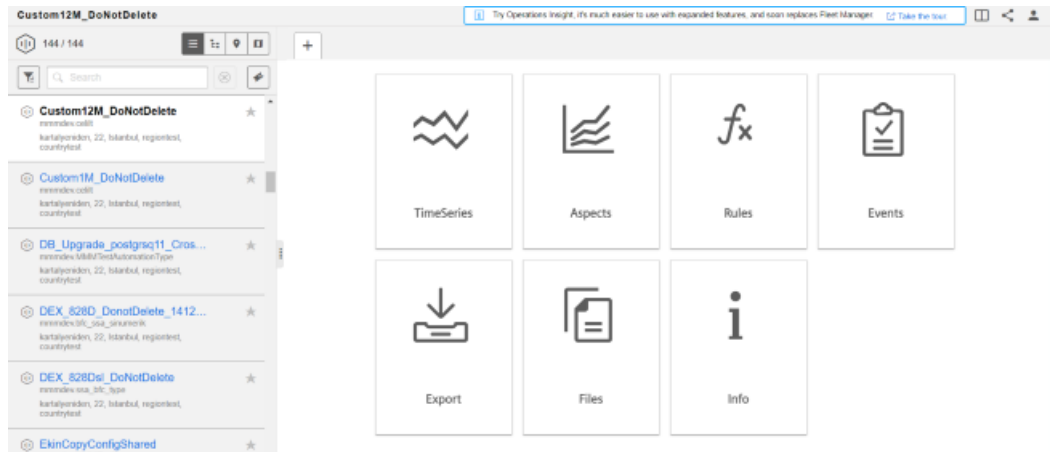
MindSphere supports a maximum of 40 alarms for an individual aspect of a machine. An email cannot be sent if this number is exceeded.

Procedure

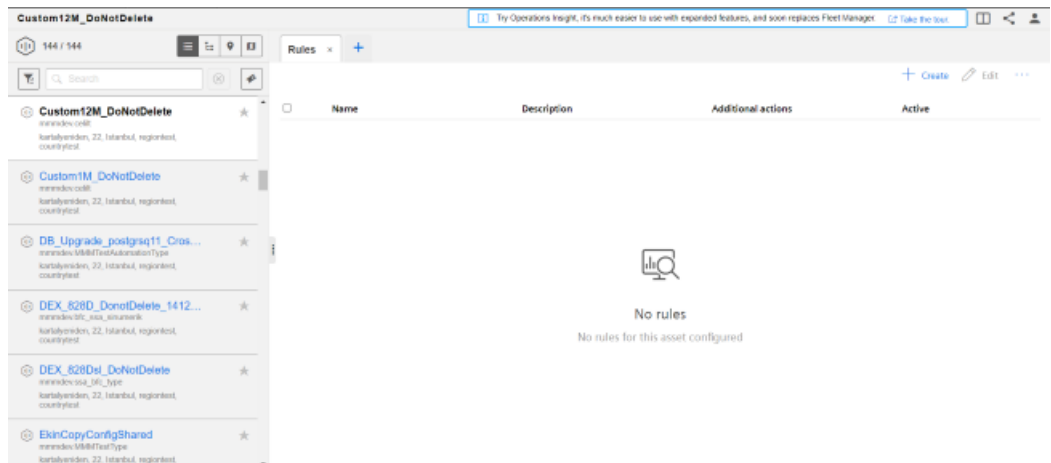
1. In the launch pad, open the "Shopfloor Management App" MindSphere application.
2. Select the required asset in the left-hand side of the window.
3. Click the "Alarm-based trigger" function.
4. The "Alarm-based trigger" input window opens.
 - Enter a name for the alarm and specify the properties.
 - Click the "Cancel" button to exit the Properties window without saving the entries. You are taken back to the aspects overview.
 - OR -
 - Click the "Save" button to accept the entries. The "Data recording saved successfully" message appears.
 - Click the "OK" button to complete the operation.

5. In the launch pad, open the "Fleet Manager" MindSphere application. The "Fleet Manager" opens.

6. Select the asset and click the "Rules" button in the right-hand side of the window.

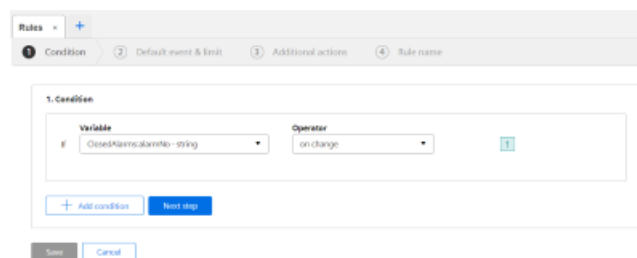


7. Click the "+ Create" button on the upper right-hand side of the window.



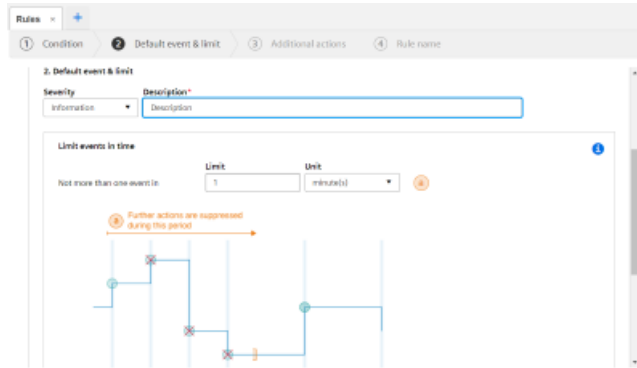
8. The window "Create" > "1. Condition" opens.

- From the drop-down list, select one or more variable(s) to be monitored. Sending an email is only supported for the "on change" condition.
- Click the "Next step" button.

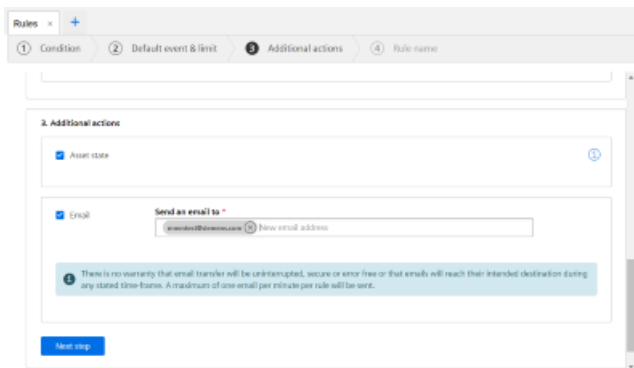


5.7 Configuring an alarm message and sending by email

- 9. The window "Create" > "2. Default event & limit" opens.
 - Select the desired events from the drop-down list and enter a description in the "Description" entry field.
 - Click the "Next step" button.



- 10. The window "Create" > "3. Additional actions" opens.
 - Enter the required email address in input field "Send an email to".
 - Click the "Next step" button.



11. The window "Create" > "4. Rule name" opens.
- Enter a meaningful name in the "Rule name" entry field.
 - Click the "Save" button.



12. The alarm trigger that was created, together with the following data, are displayed in the "Rules" overview window:
- Name
 - Description
 - Additional actions
 - Active
- You have the option of editing, activating/deactivating or deleting an alarm trigger.

5.8 Displaying uploaded files in "Operations Insight"

The files that you uploaded with the "File Upload" function are displayed in the "Operations Insight" application.

This application replaces the "Fleet Manager" application.

Requirements

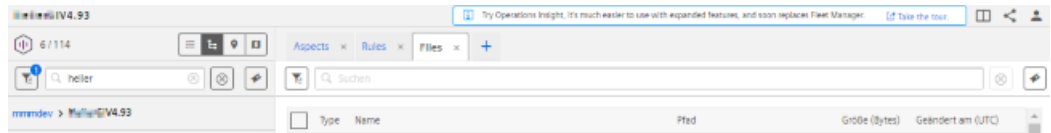
You have uploaded files.

You will find further information on how to set up "File Upload" in Chapter: File Upload (Page 110).

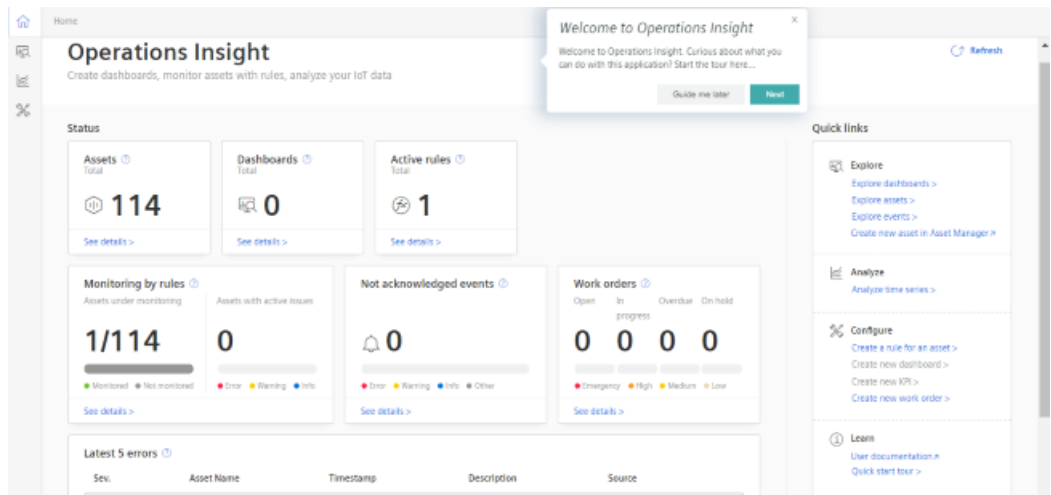
NOTICE
Data manipulation possible
<p>There is a risk that an attacker, within the network between SINUMERIK Integrate and MindSphere, gains access to the file system of the server or service clients. The hacker can then read or manipulate various system components (e.g. database content). As a consequence, the attacker can manipulate tool data, NC programs, machine archives or the system structure itself, for example. This type of attack cannot be prevented by MindSphere.</p> <ul style="list-style-type: none">• As the person responsible for the machine network, take measures to ensure the industrial security of the production/machine network. <p>Siemens AG does not accept any liability in this regard.</p>

Procedure

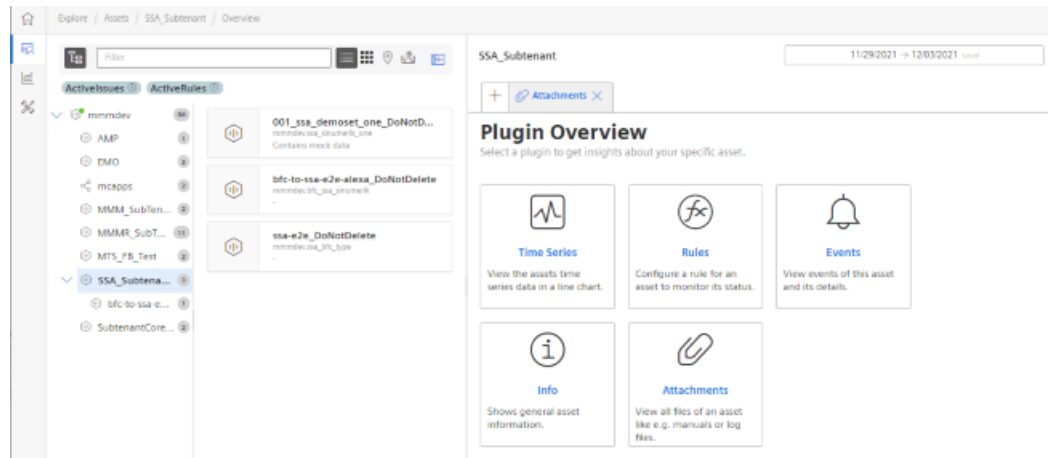
1. To see the loaded files, open the new application "Operations Insight".
- OR -
If you open the "Fleet Manager" application, a message will be displayed prompting you to use the new application. Click on "Take the tour".



2. The new "Operations Insight" application opens.

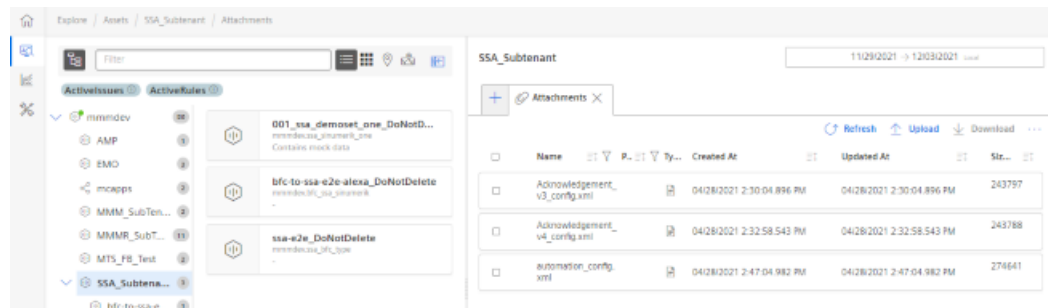


3. Select the asset.



4. Click the "Attachments" tile. All files are displayed.

- If you want to download a file, check the box in front of the desired file. Click the "Download" button.
- If you want to upload a file from your directory, click the "Upload" button. The Explorer opens. Navigate to the directory where the file is located and click the "Open" button.
- If you want to delete a file, check the box in front of the desired file and click the dots button. Click the "Delete" button. A security warning is output. Click the "Delete" button to delete the file.



Note

Loading identical files at different times

MindSphere does not permit multiple instances of the same file name.

The files are loaded with names and time stamps: Filename_timestamp.

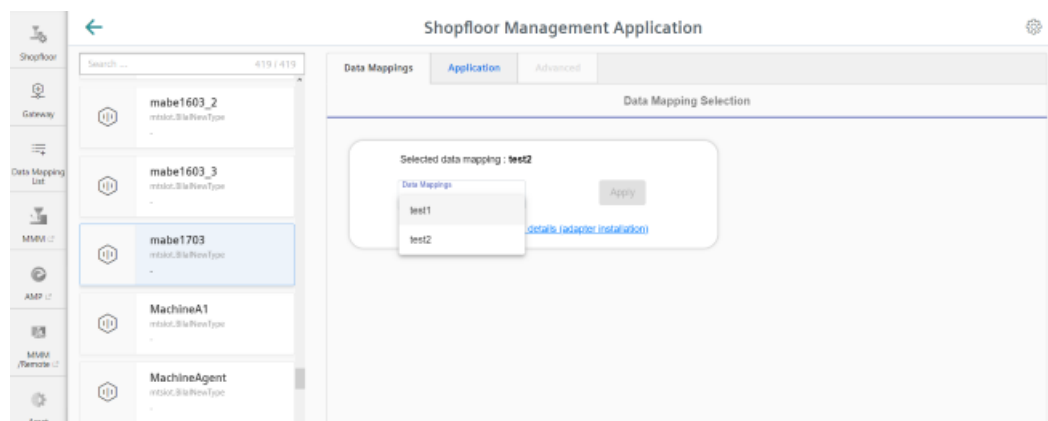
5.9 Machine agent

5.9.1 Installing the machine agent

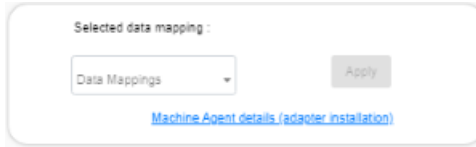
Using machine agents, you have the option of connecting other controllers (not SINUMERIK controllers) with MindSphere.

Procedure

1. In the MindSphere Application "Asset Manager", connect the controller with MindSphere. More information is provided in Chapter: Connecting controller with MindSphere (Page 125)
2. In the launch pad, click the "Shopfloor Management App" MindSphere application.
3. Window "Shopfloor Management Application" > "Shopfloor" > tab "Application" > "Manage MyMachines" opens.
 - Select the required asset in the left-hand side of the window.
To filter the assets, enter a character string in the "Search ..." field.
 - Open the "Data assignment" tab.



4. Select the associated data assignment from the drop-down list and click on "Apply". Link "Machine Agent Details (adapter installation)" is displayed. Click on the link.

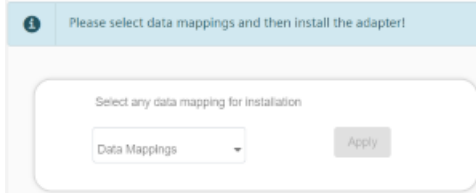


Selected data mapping :

Data Mappings

[Machine Agent details \(adapter installation\)](#)

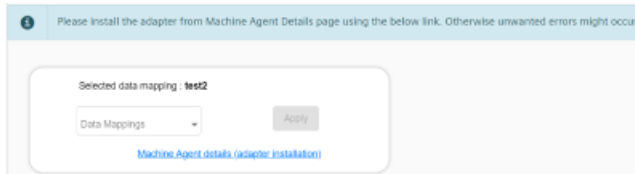
The appropriate notes are displayed if you have not selected a data assignment, or have not installed an adapter:



i Please select data mappings and then install the adapter!

Select any data mapping for installation

Data Mappings



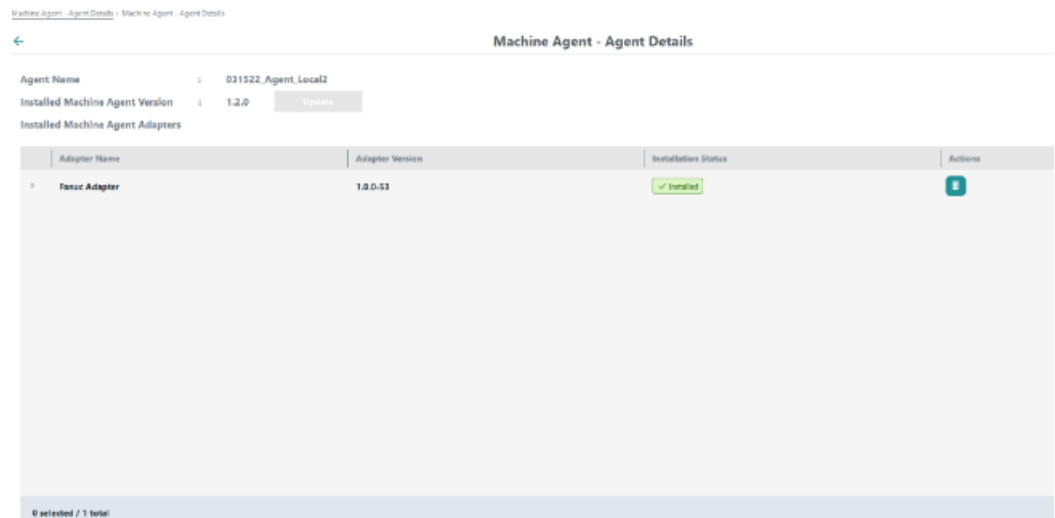
i Please install the adapter from Machine Agent Details page using the below link. Otherwise unwanted errors might occur

Selected data mapping : test2

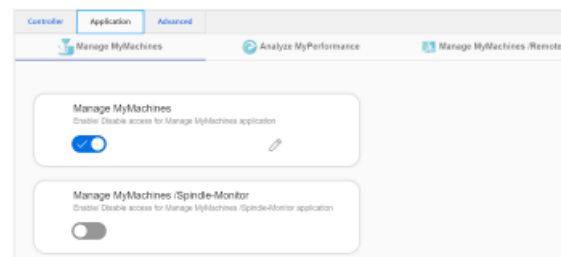
Data Mappings

[Machine Agent details \(adapter installation\)](#)

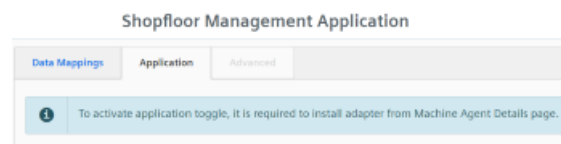
- Window "Machine Agent - Agent Details" opens.
Click on "Install new adapter" to install the corresponding adapter for the asset.
More information is provided in Chapter: Machine Agent Details (Page 137)



- In window "Shopfloor Management Application" > "Shopfloor", open tab "Application".
Move the slider to the right to activate access to "Manage MyMachines".



An application cannot be selected under tab "Application" if you have not selected a data assignment or have not installed an adapter. A note is displayed:



5.9.2 Machine Agent Details

The "Machine Agent Details" application includes an overview of all available agents in the machine agent backend and lists the following parameters:



- Machine name
- MAC address
- Status
- Connection status

The application provides the following functions:

- Querying and if necessary updating the machine agent version of each individual machine
- Remote management of the agent adapter:
 - Overview of the available adapters on the server
 - Configuration, installation and deletion of adapters

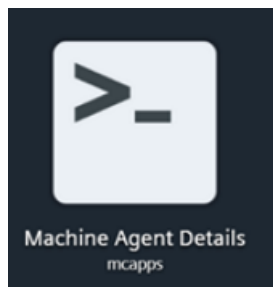
Parameters

Parameter	Description
Machine identity	
Machine name	Shows the machine name. You can enter between 2 and 256 characters.
MAC address	Displays the MAC address of the machine on which the machine agent is installed. The address is unique.
Status	Displays the onboard status: <ul style="list-style-type: none"> • NONE • ONBOARDED • OFFBOARDED • WAITING TO ONBOARD • WAITING TO OFFBOARD • RECONNECT REQUESTED • DELETED
Connection status	<ul style="list-style-type: none"> • Online • Offline The agent is displayed as being "offline" if no data have been uploaded in the last five minutes.
Installed machine agent adapter	
Agent name	Displays the agent name.
Version of the installed machine agent	Displays the version of the installed machine agent.
Update	Updates the machine agent to the latest machine agent version.
Adapter name	Displays the installed adapter names.
Adapter version	Displays the installed adapter version.
Installation status	Displays the installation status: <ul style="list-style-type: none"> • NONE • WAITING_TO_INSTALL • INSTALLED • WAITING_TO_UNINSTALL • INSTALLATION_ERROR • UNINSTALLATION_ERROR
Actions	The adapter on the agent is uninstalled by clicking on the "Delete" icon.

Parameter	Description
	Removing the adapter on the agent.
	Opens the launch pad.
Machine agent adapter	
Adapter name	Displays the name of the available adapter.
Adapter version	Displays the versions of the available adapters.
Actions	Contains the buttons <ul style="list-style-type: none"> Installing Configuring Click on the "Expansion" icon to display the meta data of the adapter in the "pkginfo.json" file.

Procedure

1. In the launch pad, open the "Machine Agent Details" MindSphere application.



2. The home page "Machine Agent - Agent details" opens and displays the machine overview. Click on an underscored agent machine name in the left-hand column.

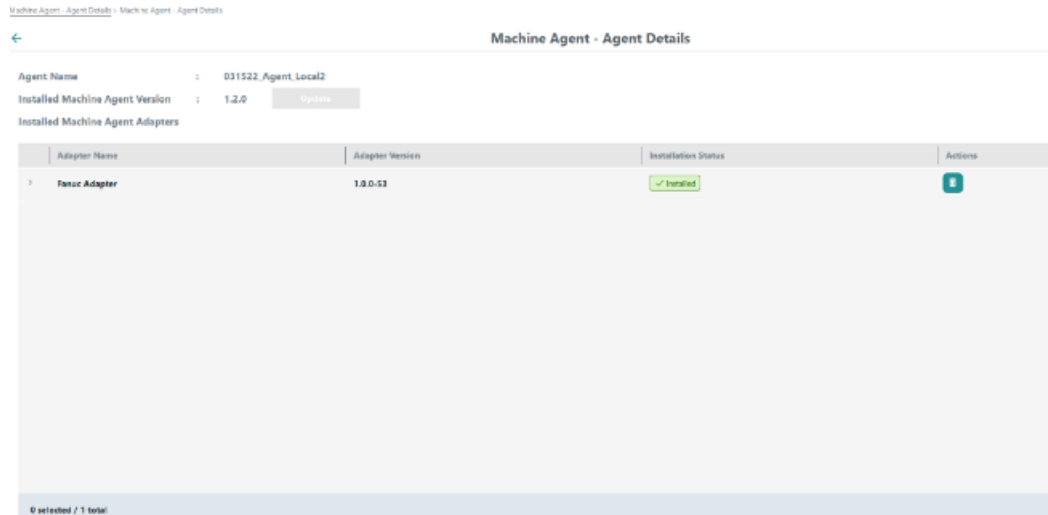
Machine Agent - Agent Details

Machine Agent - Agent Details

Machine Name	MAC Address	Status	Connection State
<u>Dename7ecountless</u>	93-1F-F8-24-3B-46	NONE	Offline
Dename7ecountless	93-1F-F8-24-3B-16	OFFBOARDED	Offline
Heiden1603	85-E1-79-59-2B-8C	ONBOARDING	Offline
Heiden1603_1	54-CB-2B-8C-6A-7F	OFFBOARDED	Offline
Heiden1603_2	8E-20-39-9C-C2-36	ONBOARDING	Offline
<u>Heiden1603_TestAgent_001</u>	93-1F-F8-24-3B-61	OFFBOARDED	Offline
Heiden1603_Test1	88-19-8F-5E-53-32	OFFBOARDED	Offline
make_test_10_03_22_test_1	2A-4C-99-85-04-43	ONBOARDING	Offline
make_test_22_03_22_DeNotDelete	AC-D6-D5-6E-21-F9	OFFBOARDED	Offline
make1603_1	8E-6C-7D-5C-7B-8E	OFFBOARDED	Offline
make1603_2	D0-C7-82-7B-A1-21	ONBOARDING	Offline
make1603_3	5D-6B-2C-64-6B-43	ONBOARDING	Offline
make1703	7D-8E-84-8D-8F-0E	ONBOARDING	Offline

14 < 1 2 3 4 > M

- Window "Installed Machine Agent Adapter" opens and displays information on the selected machine agent adapter.



Button "Update" at the top left in the window is activated if the machine agent version must be updated.

Click on "Update" to update the machine agent.

- The list of machine agent adapters is displayed. Click on the "Delete" icon in the right-hand column "Actions" to uninstall an agent.
- To install a new adapter, click at the lower right in the window on "Install New Adapter". Pop-up "Machine Agent Adapters" opens. It includes the list of requested and not yet installed machine agent adapters available in the backend. Click on "Install" to install the required adapter.
 - OR -
 - Click on "Close" to close the window.



Note

Installation status "WAITING_TO_INSTALL"

Installation status "WAITING_TO_INSTALL" is displayed if you have requested a new adapter. This adapter is no longer displayed in pop-up "Machine Agent Adapters".

- Click on "Configure" to configure the required adapter to connect to the machine. Pop-up "Configuration" opens.

The configuration requirements depend on the adapter type:

- For MTConnect adapters, you must enter the host, the port and the device name.
- For FANUC adapters, you must enter the host and port.
- SINUMERIK adapters do not have to be configured.

If required, enter the parameters for the configuration and click on "Save".

- OR -

Click on "Close" to close the window.

Configuration for MTConnect adapters:

Configuration

```
{
  "host": "http://mtconnect.mazakcorp.com",
  "port": 5717,
  "deviceName": "M12346"
}
```

Configuration for FANUC adapters:

Configuration

```
{
  "host": "141.29.126.250",
  "port": 8193
}
```

- To uninstall an adapter from an asset, on the start page "Machine agent - details on the agents" click on the underscored machine name in the first column. The list of installed adapters is displayed. In the adapter line, click on the "Delete" icon in the right-hand column. The changed status is displayed in column "Installation status".

Note**Uninstalling an adapter**

After uninstalling the adapter, you must restart the machine agent before you can install a new adapter.

5.9.3 Machine Agent Management




The "Machine Agent Management" application contains an overview of all the adapters available in the machine agent backend and lists the following parameters:

- Adapter name
- Adapter version

The application provides the following functions:

- Checks the current version of the machine agent installation bundle
- Downloads the machine agent installation bundle
- Overview of the adapters
- Displays the "pkginfo.json" file with all adapter package information
- New adapter upload
- Deletes the adapters if they are not installed on any agent

Parameters

Parameter	Description
Machine agent installation bundle	Displays the installation bundle version.
Adapter name	Displays the adapter name.
Adapter version	Displays the adapter version.
Actions	The adapter is removed by clicking on the "Delete" icon.
	Opens the file with the package information.
	Removes the adapter. <ul style="list-style-type: none"> • The "Delete" icon is only activated with non-SINUMERIK adapters and deactivated generic adapters. Generic adapters cannot be deleted. • An adapter can only be deleted if it is not installed on an agent.
	Opens the launch pad.

6. Click on "Upload new adapter" to install a new adapter.
The available adapters are displayed in the "tar.gz" file format.
Select the required adapter. Only one adapter can be selected.
While uploading, no additional actions can be performed in this application.
7. An error message is displayed if the selected adapter cannot be uploaded as a result of the size of the content or the version.

Setting up MindConnect Nano for Manage MyMachines

6

6.1 Overview

Note

Using the defense-in-depth concept

To protect industrial plants and systems comprehensively against cyber attacks, measures must be applied simultaneously at all levels. From the operational level up to the field level – from access control to copy protection. Therefore, apply the "Defense-in-depth" protection concept to avoid security risks in your environment before setting up the OPC UA server.

Note that, in particular, the company network must not be connected to the Internet without suitable protective measures.

Further information on the defense-in-depth concept, protective measures and general Industrial Security can be found in the Industrial Security Configuration Manual (<https://support.industry.siemens.com/cs/ww/en/view/108862708>).

Requirement

- The setup is always performed with the SINUMERIK Operate operating software.



Software option

You require the following option in order to use this function: SINUMERIK Integrate for Engineering "Access MyMachine / OPC UA".

- Applications must be activated via the MindSphere "Shopfloor Management Application". More information can be found in this Chapter: Shopfloor Management Application (Page 84).

Introduction

The following steps are required to set up MindConnect Nano:

1. For example, at the SINUMERIK open-loop control, activate the "Access MyMachine / OPC UA" software option.
2. For example, at the SINUMERIK open-loop control, configure the network.
3. In MindSphere, create Aspects.
4. In MindSphere, create Asset type.
5. In MindSphere, create Asset.
6. In MindSphere, assign variable.

6.1 Overview

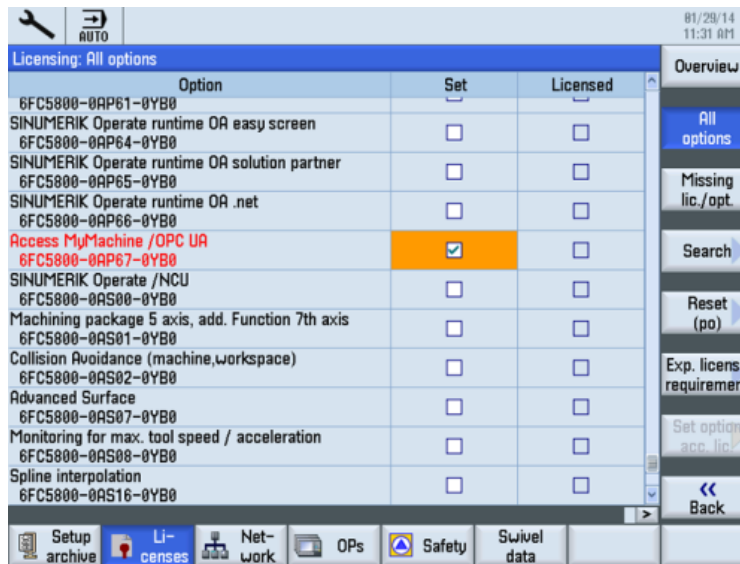
7. In MindSphere Onboarding.
8. In MindSphere, capture data.

6.2 Setting up at the control system

6.2.1 Setting the license

Procedure

1. Open the "Setup" operating area.
2. Press the "Licenses" softkey and activate the "Access MyMachine / OPC UA" option.



3. Restart SINUMERIK Operate to activate the license.

6.2.2 Configuring the network

Requirement

Settings of the OPC UA configuration dialog

Setting	Description	
Connection settings		
Company network:	Activate the check box.	
System network:	Activate the check box.	
TCP port:	TCP port via which the OPC UA communicates. This is added to the firewall exceptions for NCU and PPU. (Standard for the OPC UA communication is the TCP port 4840)	
Message encryption	None:	Deselect the check box.
	128-bit:	Activate the check box.
	256-bit	Activate the check box.

6.2 Setting up at the control system

Setting	Description
Authentication	
Admin user:	Name of the administrator with which you can add or delete other users and assign or delete user rights.
Password:	Administrator password You can change the password at a later point in time using the "ChangeMyPassword" OPC UA method.
Confirm password:	Confirm the entered password.
Allow anonymous access	Activate the check box.
Automatically accepting certificates:	Activate the check box.
Activation	
Activate OPC UA	Activate the check box.

Note

Security risk through no or weak encryption

If no message encryption has been set up to the client, there is a risk of data manipulation. It is therefore strongly recommended that you set up a message encryption to the client.

Use the highest possible encryption standard (256 bit) to ensure secure message transmission.

Note

Assigning secure passwords

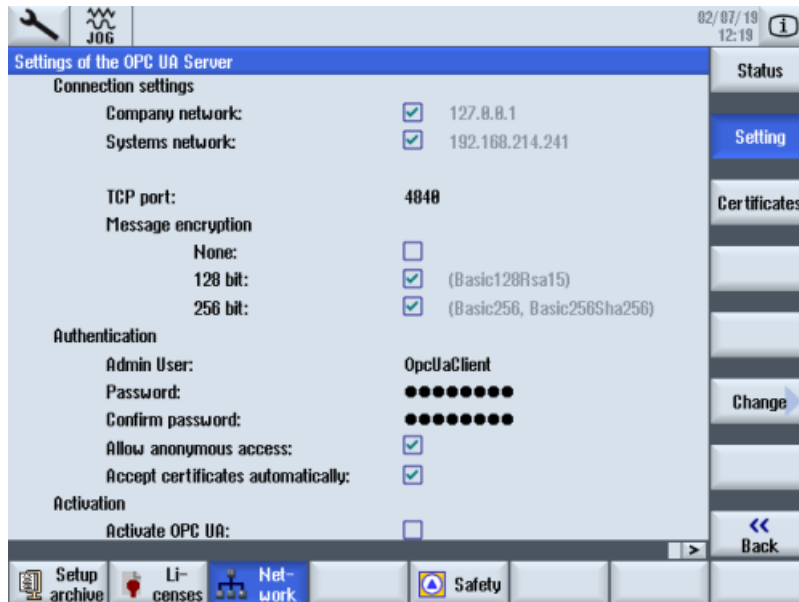
Observe the following rules when creating new passwords:

- Note that when assigning new passwords you should never assign passwords that can be easily guessed, such as simple words, easy to guess key sequences on the keyboard, etc.
- Passwords must always contain a combination of upper- and lower-case letters as well as numbers and special characters. Passwords must comprise at least 8 characters. PINs must comprise an arbitrary sequence of digits.
- Wherever possible and where it is supported by the IT systems and the software, a password must always have a character sequence as complex as possible.

Procedure

1. Open the "Setup" operating area.
2. Press the "Network" softkey.
3. Make the required settings for the connection, authentication and activation.

4. Press the "OK" softkey.



5. Perform a hardware reset on the NCU and PPU target systems.
Restart the operating software on the PCU.

Further information

You can find further information in:
Configuration Manual Access MyMachine / OPC UA.

6.3 Configuring Manage MyMachine functions in MindSphere

Configure the MindConnect Nano Aspects so that these can be displayed on the "dashboard".

Reference

A detailed description of the Asset Manager can be found at the following link: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>), "Asset Manager" System Manual.

Variable/data point

Use the variables/data points with exactly this name:

Name	Data type	Unit	Max. length	Data point address (SINUMERIK example address)
Feed override	Double	%		ns=2;s=/Channel/State/feedRateIpoOvr[u1]
Opmode	Double	%		ns=2;s=/Bag/State/opMode[u1]
Spindleoverride	Double	%		ns=2;s=/Channel/Spindle/speedOvr[u1,1]
NCProgramStatus	Double	%		ns=2;s=/Channel/State/progStatus[u1]
StopCond	Double	%		ns=2;s=/Channel/State/stopCond[u1]
ProtectionLevel	Double	%		ns=2;s=/Nck/Configuration/accessLevel
NrOfAlarms	Double	%		ns=2;s=/Nck/State/numAlarms
NCProgram	String	%	255	ns=2;s=/Channel/ProgramPointer/progName[u1,1]
CurrentAlarms	Double	%		ns=2;s=/current

Note

Unit designation for variables

The variables listed above always require a unit. The unit can either be % or a space.

Procedure

1. In the launch pad, open the "Asset Manager" MindSphere application.
2. In the left-hand side of the window, select "Aspect Types" > "Add Aspect".
The following window is displayed if you have not created any variables yet:

The screenshot shows the "Create aspect" dialog box in the MindSphere interface. The dialog is titled "Create aspect" and is divided into two main sections: "Aspect information" and "variables".

Aspect information:

- Type ID:** A text input field containing "mimmdev". Below it, a note states "Type ID cannot be changed after creation".
- Name:** A text input field with the placeholder text "Name".
- Description:** A larger text input field with the placeholder text "Description". Below it, a note states "255 characters left".
- Choose category:** A section with a blue information icon and the text "The category of an aspect cannot be changed afterwards." Below this are two radio buttons:
 - Dynamic:** Selected (indicated by a blue dot). Below it, the text "The aspect is used for time-series data".
 - Static:** Unselected. Below it, the text "The aspect is used for static data".

variables:

- A red warning banner at the top of the section says "Please add at least one variable!".
- Below the banner is a grid of empty variable slots, each represented by a small square icon.
- In the center of the grid is a gear icon with the text "No variables entered yet" and "Add your first variable to your aspect".
- At the bottom of the grid is a blue button with a plus icon and the text "Add variable".

At the bottom of the dialog are two buttons: "Save" and "Cancel".

More information on creating variables is provided in Chapter: Configuring variables (Page 98).

3. Create the new Aspect "SinumerikBasicConfig" in the "Dynamic" category with the variables listed, **without** specifying the data point address.

Create aspect

Aspect information

Type ID: sinumerik_test
Type ID cannot be changed after creation

Name: test

Description: Description
255 characters left

Choose category:

Dynamic
The aspect is used for time-series data

Static
The aspect is used for static data

variables

- variable names must be unique inside an aspect.
- Once a variable is added to the aspect it cannot be renamed or removed.
- The data type `BIG_STRING` is only available for a dynamic aspect.

[Add variable](#) [Import variables](#) [Download template](#) [Export variables](#) [Delete all new](#)

Name	Unit	Data type	Max. length
FeedRate	UNIT	DOUBLE	100

Save Cancel

4. Create a new Asset Type under "Asset Types" > "BasicAgent" > "MindConnect Nano" with the Aspect Type "<TenantName>.SinumerikBasicConfig" with the Aspect name "CH1_BasicConfig".
Optionally, you can define additional variables in the new Asset Type.

Note

Do not confuse

The following two aspects exist:

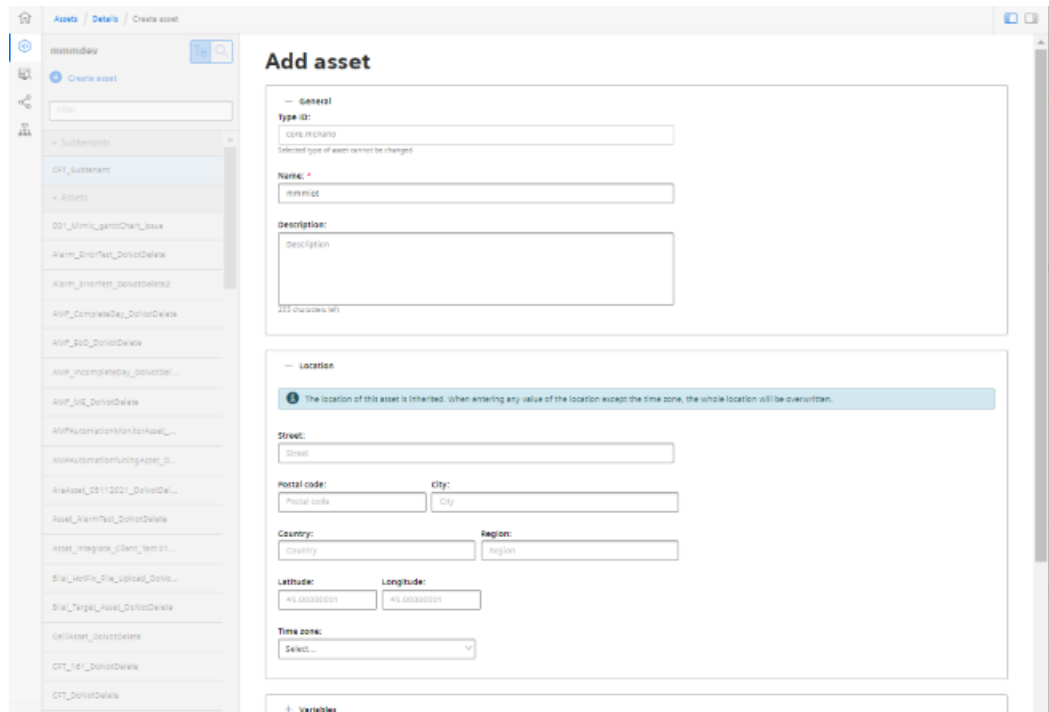
- core.SinumerikBasicConfig
- <tenant_name>.SinumerikBasicConfig

Always work on aspect "<tenant_name>.SinumerikBasicConfig" .

The screenshot shows the 'Create type' interface in MindSphere. The form is titled 'Create type' and is for creating a new asset type. The 'Parent type' is 'core-microapi'. The 'Name' field is 'SinumerikBasicType'. The 'Type ID' is 'sinumerikBasicType'. The 'Description' field is empty. Below the form are sections for 'Image' and 'Variables'. At the bottom, there is a table of 'Aspects' with columns for Name, Aspect, Category, and a status icon.

Name	Aspect	Category	
> connectivityStatus	core.connectivitystatus	Static	initial
> firmwareStatus	core.firmwarestatus	Static	initial
> status	core.agentstatus	Dynamic	initial

5. Create a new Asset based on the Type previously created.



6. To connect to MindConnect Nano, click on "MindConnect Nano" in the asset. Enter the device ID of MindConnect Nano.
7. Configure the MindConnect Nano network settings for the SINUMERIK controller or MindSphere by clicking on the "Gear wheel" icon. Once configuration is complete, click "Download connection key." Transfer the connection key to MindConnect Nano using a USB flash drive.
8. Click "Add new data source" and configure the connection to your OPC UA server.
9. Click "Start edit mode." Add new data points, corresponding to the values in the table above, with the data point address (SINUMERIK example address).
10. To establish a relationship between data points and variables, click "Show links." To link a data point, click "Link variable." Select the appropriate variable in the dialog.

SINUMERIK Integrate Gateway

7.1 Connecting the SINUMERIK Integrate gateway

Precondition

You need administrator rights.

Various settings are configured in SINUMERIK Integrate AMC.

As "Subtenant" user, the functionality of the "SINUMERIK Integrate Gateway" is not available!

NOTICE
<p>Setting up encrypted data transmission</p> <p>To ensure that no attacker can gain access to your secret key, an encrypted connection must be set up between SINUMERIK Integrate and MindSphere.</p> <p>More information on setting up secure communication can be found in the SINUMERIK Integrate Installation Manual, in the chapter "Setting up an encrypted connection".</p>

NOTICE
<p>Data manipulation possible</p> <p>There is a risk that an attacker, within the network between SINUMERIK Integrate and MindSphere, gains access to the file system of the server or service clients. The hacker can then read or manipulate various system components (e.g. database content). As a consequence, the attacker can manipulate tool data, NC programs, machine archives or the system structure itself, for example. This type of attack cannot be prevented by MindSphere.</p> <ul style="list-style-type: none"> As the person responsible for the machine network, it is therefore imperative that you take the appropriate industrial security measures for the production/machine network. <p>Siemens AG does not accept any liability in this regard.</p>

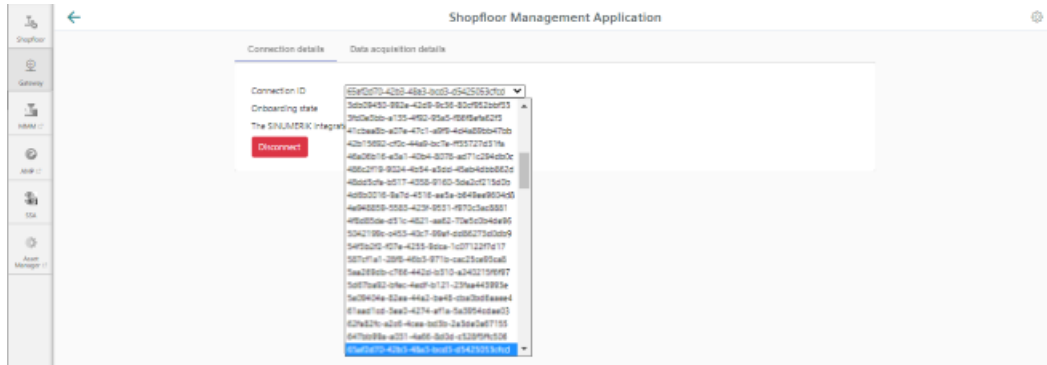
More information

More information on configuring MindSphere can be found in:
Installation Manual "SINUMERIK Integrate MMP, MMT, AMC, AMP, AMM/E, AMD"

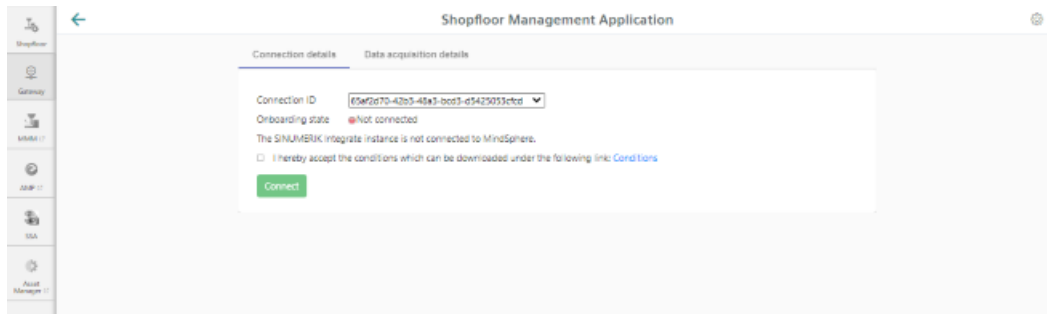
7.1 Connecting the SINUMERIK Integrate gateway

Procedure

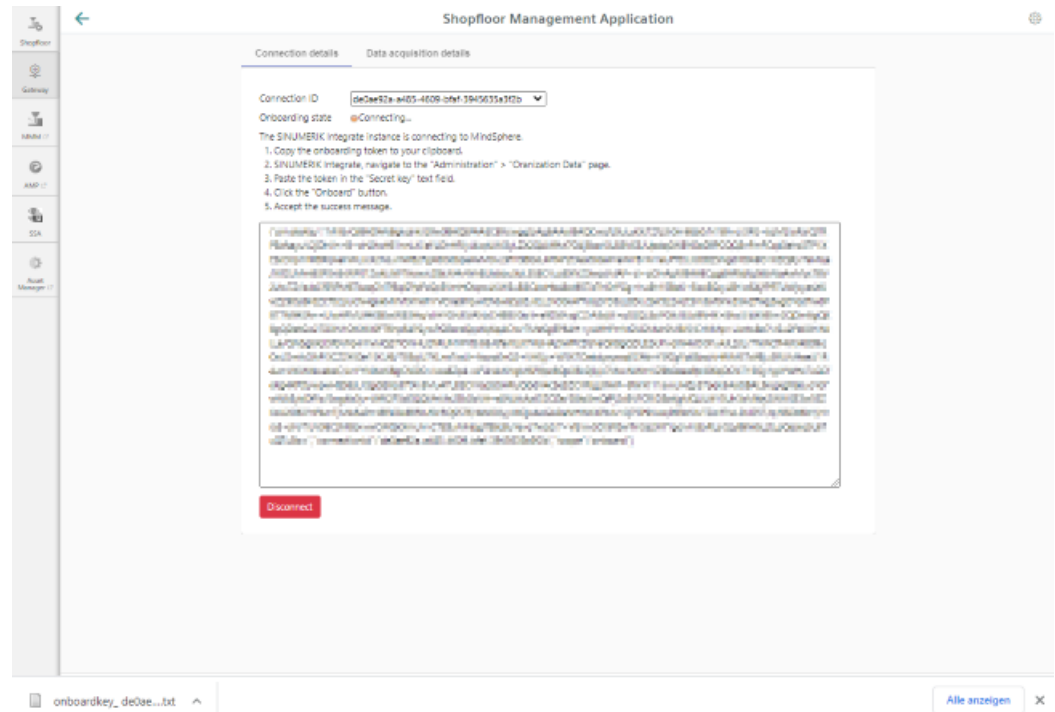
1. In the launch pad, click the "Shopfloor Management App" MindSphere application.
2. The "Shopfloor Management Application" window opens.
 - Click "Gateway" button on the left-hand side of the window.
 - Open the "Connection details" tab
 - Select entry "Create new connection" from the drop-down list.



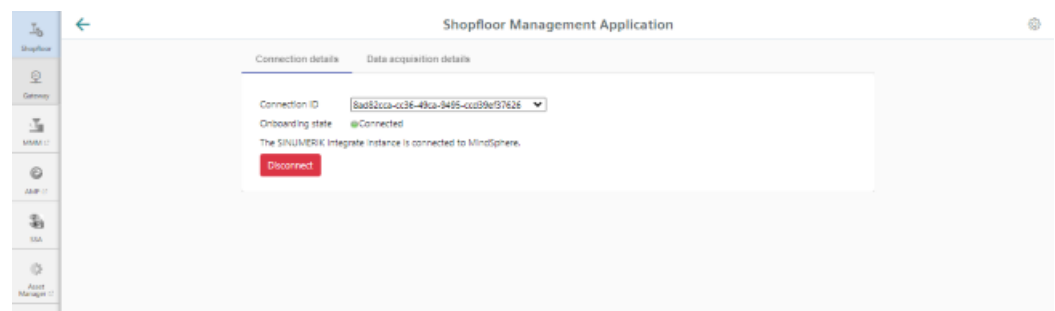
3. Click on the "Conditions" link and read the conditions.
 - Then activate the check box "I hereby accept the conditions which can be downloaded under the following link. Conditions".
 - Click on "Connect" to connect MindSphere with SINUMERIK Integrate Analyze MyCondition.



4. The "onboard.key" is generated and is available for the connection to MindSphere.



5. Configure the "onboard key" in SINUMERIK Integrate Analyze MyCondition. More information is provided in the Function Manual "Analyze MyCondition".
6. From the drop-down menu "Connection ID", select the connection ID that you configured in SINUMERIK Integrate Analyze MyCondition. The connection is then established.



7. Open tab "Data acquisition details". More information is provided in the following Chapter: Activating the variable monitor for Manage MyMachines (Page 159)

Note

SINUMERIK Integrate Gateway

Machines connected to the SINUMERIK Integrate Gateway interface are displayed as being online. To do this, for at least one aspect of the particular machine, data should be uploaded in a time interval of less than five minutes. If this is not the case, then the machine can appear offline.

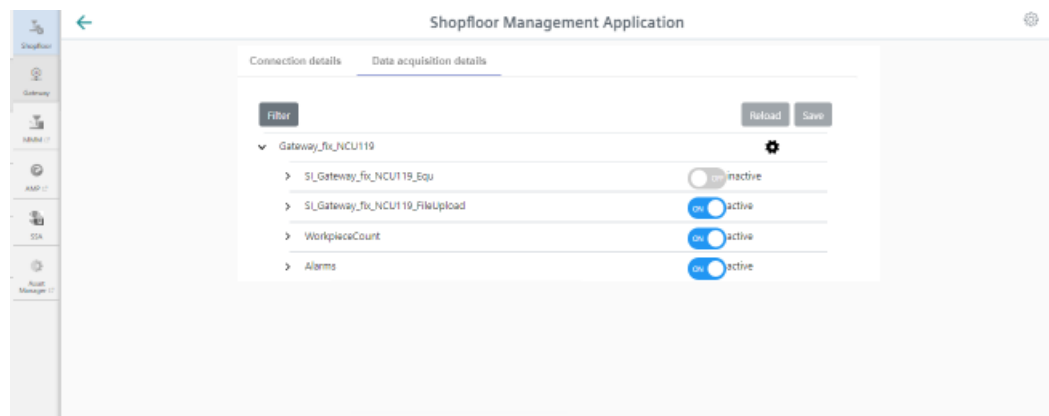
7.2 Activating the variable monitor for Manage MyMachines

Requirement

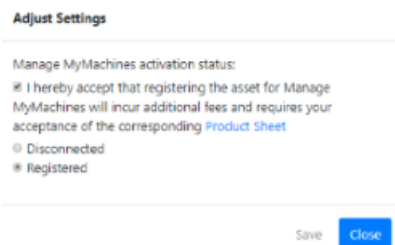
In SINUMERIK Integrate Analyze MyCondition, the check box "Activated on MSP" is selected under tab "Set up functions" > "Variable monitors".

Procedure

1. Open the "Data acquisition details" tab.
 - Click the "Filter" button to specifically filter for "Machine / Assets" and "Variables Monitor / Aspect".
 - Click the "Load New" button if you have moved the slide for a function to "ON".
 - To save your settings, click "Save".

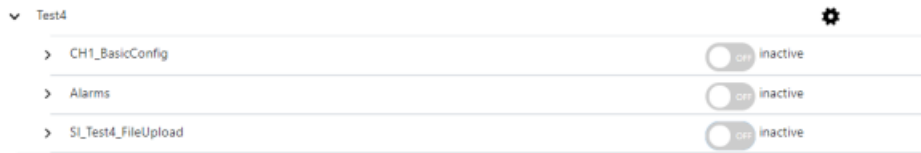


2. Click on the "Gearwheel" icon. You obtain information on the "Manage MyMachines" settings. Select the "I hereby accept ..." check box and then click "Save".



7.2 Activating the variable monitor for Manage MyMachines

- Using the slides, activate and/or deactivate functions to receive the relevant information. If you change a stored data selection, the status "changed" is displayed.



- Click the "Save" button to save the settings.
- OR -
Click "Reload" to restore the default setting.

Working with Manage MyMachines

8.1 Overview

Introduction

"Manage MyMachines" visualizes numerous operating and system-specific data of machine tools or individual machine components for production, service and maintenance. This increases the transparency of the machine tools connected in MindSphere.

The following functions are possible:

- Administration and display of machines distributed around the world
- Visualization of relevant information in the overview page
- Intuitive creation of rules and queries
- Simple installation using the integrated SINUMERIK Integrate client
- Critical machine data can be combined to provide an informative analysis
- You can create your own digital service portfolio based on the MindSphere application

The data that you provide is exclusively variables from the NC, the PLC or from the drives. This data enables conclusions to be drawn with regard to:

- Availability
- Operating times
- Operating state, state duration
- Maintenance, wait times
- Technical state

The corresponding data is either preconfigured or can be defined centrally by the user and configured with appropriate warning limits. It is also possible to identify trends with the aid of measuring series.

The data processing and visualization is performed on the MindSphere platform.

Overview

"Manage MyMachines" visualizes the data that you have transferred and offers the following:

- Overview of the created machines
More information is provided in Chapter: Machine overview (Page 168).
- Overview of the operating data of an asset
More information is provided in Chapter: Dashboard (Page 172)
- Filter and display alarms
More information is provided in Chapter: Displaying machine alarms (Page 182)


8.1 Overview

- Analyses based on Aspects defined by the user and critical machine data
More information is provided in Chapter: Aspects (Page 188)
- Displaying the machine events
More information is provided in Chapter: Events (Page 191)
- Export of data points of an Aspect
More information is provided in Chapter: Exporting (Page 194)
- Display Weiss spindle data
More information is provided in Chapter: Manage MyMachines /Spindle Monitor (Page 216)
- Displaying the machine location
More information is provided in Chapter: Machine location (Page 224)
- Displaying the motor temperature
More information is provided in Chapter: Motor temperature (Page 227)
- Files in MindSphere
More information is provided in Chapter: Files (Page 229)
- Creating the dashboard user interface
More information is provided in Chapter: My Dashboards (Page 196)
- Error analysis - is only displayed if you have purchased the "SSA" application (SINUMERIK Service Assistance).
More information is provided in Chapter: SINUMERIK Service Assistance (Page 122)

8.2 Selecting a language

You have the option of displaying the user interface in various languages. The switchover is immediate.


Parameter

Parameter	Description
	<p>Opens the "User Settings" window in tab "Language", and lists the following languages that can be selected:</p> <ul style="list-style-type: none"> • English • German • Simplified Chinese

Procedure

1. Click in the top right-hand section of the window on the "Settings" icon.
2. Window "User Settings" opens.
3. Select the required language.
The user interface is immediately displayed in this language.

User Settings

 Language

- English
- Deutsch
- 简体中文

4. To close the menu, click on the "Settings" icon again.

8.3 Configuring a machine overview

You have the possibility of adapting the data displayed in the machine overview to address your specific requirements.

In area "Customize Fields", you select up to 20 variables to be displayed, and define the associated names. After saving, this data is displayed in the machine overview for all assets.

Note







User-dependent settings

Customized fields are user-dependent settings; this means that other users are not affected by the changes.

Customized fields utilize browser-based functions. This is the reason that the configurations are not displayed for the following cases:

- After clearing the browser cache
 - When starting Manage MyMachines in the incognito window
-

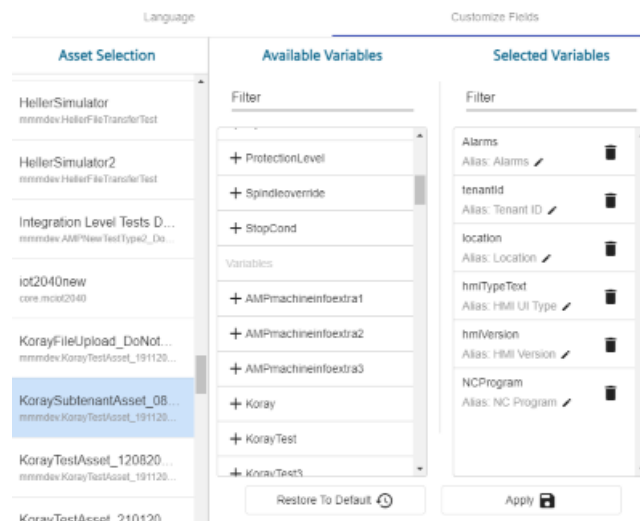
Parameter

Parameter	Description
	Opens window "User Settings" with the following tabs: <ul style="list-style-type: none">• Language• Customize Fields
	Selects the variable for display in the machine overview
	Releases the display names of the variables for processing
	Deletes the variable in the machine overview
	Selection is applied
	Restores the default setting

Procedure

1. Click in the top right-hand section of the window on the "Settings" icon.
2. Window "User Settings" opens.

3. Open tab "Customize Fields".
4. In column "Asset Selection", select an asset for which the required variable was defined. All variables of the asset are displayed in column "Available Variables".
 - To reduce the number of displayed variables, in field "Filter", enter the variable name you are searching for, or parts of it.
 - Click on icon "+" in front of the required variables to add these to column "Selected Variables". You can also drag & drop the variables, and therefore arrange them in any order.
 - Click on icon "Edit" to enter the name for the variable in the machine overview.
 - Click on the "Recycle bin" icon behind the variables to clear these from the display.
 - Click on "Restore to Default" to restore the default settings.
 - Click on "Apply" to accept the changes.






8.4 Filtering machines

When you open Manage MyMachines, the "Machine Overview" window opens and all of the available machines are listed together with the associated data. You can apply a filter to reduce the number of displayed machines.

If you save a filter as default, the "Machine overview" window is displayed filtered the next time that it is opened.

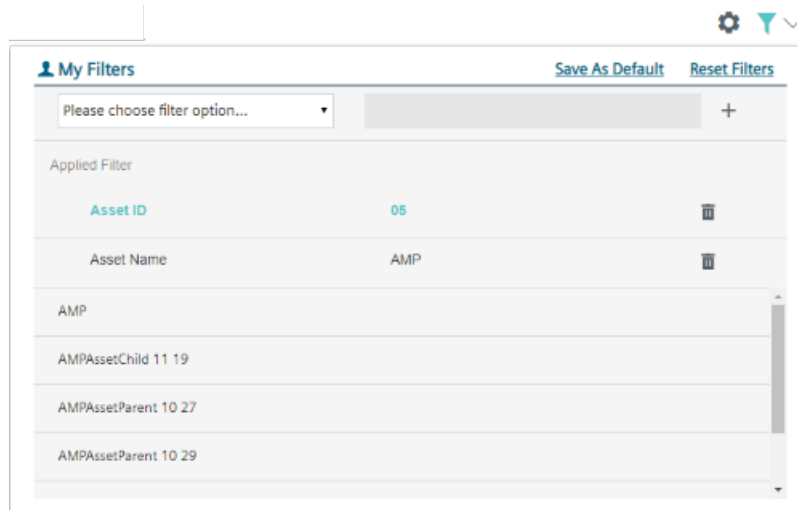
Parameters

Parameter	Description
	Opens the "My Filters" window with the following search and filter options: <ul style="list-style-type: none"> • Hierarchy • Asset ID • Asset name • Asset type • Online status <ul style="list-style-type: none"> – Online – Offline – Unknown • Machine status <ul style="list-style-type: none"> – Production – Techn. Disturbance – Org. Disturbance – No Disturbance • Alarm status <ul style="list-style-type: none"> – Active alarm – No alarms • Variables
	Adds additional criteria to the current filter.
	Removes the selected filter criterion from the current filter.

Procedure

1. Click in the top right-hand section of the window on the "Filter" icon. The "My Filters" window opens.
2. In the "Filter option" drop-down list, select the criterion for which the machines should be filtered.
3. Enter the text being searched for in the input field.
4. Click on icon "+" to add the filter criterion to the current filter. Remove the corresponding filter criterion using the "Delete" icon. The available machines are displayed in alphabetical order under the filter criteria.







5. Click on "Save as Default" to always display the "Machine overview" window filtered. Filter criteria that belong to the standard are shown in blue. Filter criteria that are only being currently used are shown in black.
6. To display all machines, click on the "Reset Filter" function to display all machines.



8.5 Machine overview

When you open the "Manage MyMachines" MindSphere application, the "Machine Overview" window opens and all of the available machines are listed together with the associated data.

Parameter

	Description
Underlined asset name	Displays the machine names By clicking on the underscored machine name, the "Machine Dashboard" window opens and additional machine information is displayed.
	Displays the status of the machine: <ul style="list-style-type: none"> • Online
	<ul style="list-style-type: none"> • Offline
	<ul style="list-style-type: none"> • Unknown
Status of the remote session	
	<ul style="list-style-type: none"> • You have no rights to start the remote session. <ul style="list-style-type: none"> – The rights for Manage MyMachines /Remote were not assigned to the user or were removed. – Manage MyMachines /Remote was not purchased for the tenant - OR - • Manage MyMachines /Remote is not activated. <ul style="list-style-type: none"> – The subscription is not activated or has expired.
	You can start a new remote session.
	You can join an existing remote session.
Machine status	
To the left of the machine information, you will see a bar that displays the machine status, color-coded. When passing over with the mouse, a tooltip is displayed showing some information:	
<ul style="list-style-type: none"> • Unknown status (gray) 	The machine status is not known.
<ul style="list-style-type: none"> • Production (green) 	The operating mode is "AUTO", none of the stop conditions listed below apply, and the following situation exists: <ol style="list-style-type: none"> 1. The feedrate is greater or equal to 70. 2. The program is running or is waiting.

	Description
<ul style="list-style-type: none"> Tech. Disturbance (red) 	<p>The machine status displays "Technical Disturbance".</p> <p>The operating mode is "AUTO", and one of the following stop conditions is active:</p> <ul style="list-style-type: none"> NC not ready Mode group not ready Emergency stop active Alarm with stop function active Wait for position control Wait for Safe Operating Stop No channel ready Fast retraction activated
<ul style="list-style-type: none"> Org. Disturbance (yellow) 	<p>The machine status displays "Organizational Disturbance".</p> <p>No other disturbances or conditions occur than are described under "Tech. Disturbance".</p>
<ul style="list-style-type: none"> No Disturbance (blue) 	<p>The operating mode is not "AUTO".</p>
Information about the machine	
Alarms	<p>Displays the number of active alarms.</p> <p>Window "Machine alarms" opens if you click on the underlined data.</p> <p>More information is provided in Chapter: Displaying machine alarms (Page 182).</p>
HMI-UI type	<p>Displays the operating software:</p> <ul style="list-style-type: none"> HMI-Advanced SINUMERIK Operate HMI Base
Location	Time at the machine location
NC program	Displays the NC program

	Description
Tenant ID	Displays the customer name.
...	<p>Opens an additional window:</p> <ul style="list-style-type: none"> • Alarms: Opens the "Machine Alarms" window. More information is provided in Chapter: Displaying machine alarms (Page 182) • Dashboard: Opens the "Machine Dashboard" window. More information is provided in Chapter: Dashboard (Page 172) • Aspects: Opens the "Machine Aspects" window. More information is provided in Chapter: Aspects (Page 188) • Events: Opens the "Machine Events " window. More information is provided in Chapter: Events (Page 191) • Exporting: Opens the "Export " window. More information is provided in Chapter: Exporting (Page 194) • Spindle monitor: Opens the "Spindle Monitor" window. More information is provided in Chapter: Manage MyMachines /Spindle Monitor (Page 216) • Machine location: Opens the "Machine Location" window and displays where the machine is located on a world map. More information is provided in Chapter: Machine location (Page 224) • Motor temperature: Opens the "Motor Temperature" window. More information is provided in Chapter: Motor temperature (Page 227) • Files: Opens the "Files" window. More information is provided in Chapter: Files (Page 229) • My Dashboards: Opens the "My Dashboards" window. More information is provided in Chapter: My Dashboards (Page 196) • Error analysis: Opens error analysis (is only displayed if you have purchased the "SSA" application (SINUMERIK Service Assistance)). More information is provided in Chapter: SINUMERIK Service Assistance (Page 122)

Note

SINUMERIK Integrate Gateway

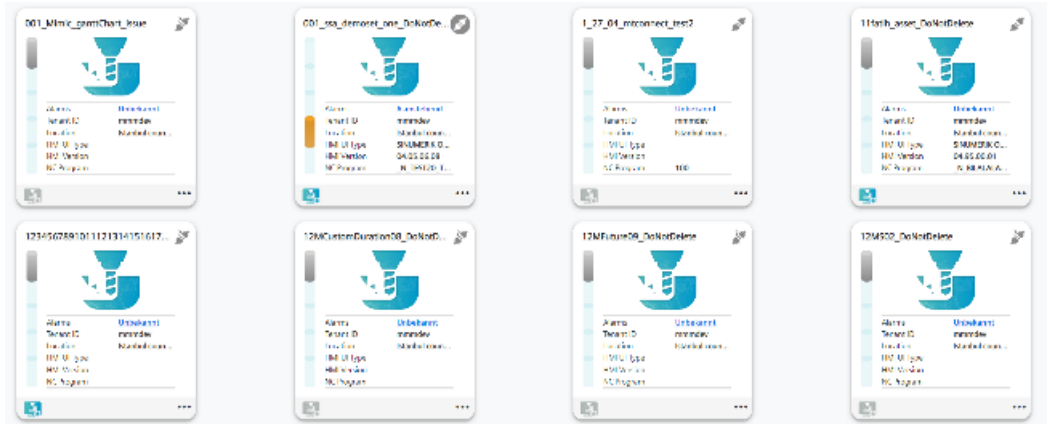
Machines connected to the SINUMERIK Integrate Gateway interface are displayed as being online. To do this, for at least one aspect of the particular machine, data should be uploaded in a time interval of less than five minutes. If this is not the case, then the machine can appear offline.

Procedure

1. In the launch pad, click on the "Manage MyMachines MindSphere" icon.



2. The "Machine Overview" window opens and the available machines are displayed.



3. Click on the required machine.
The "Machine Dashboard" window opens and you can view additional data. More information is provided in Chapter: Dashboard (Page 172).

8.6 Dashboard

8.6.1 Overview

The "Machine Dashboard" view provides a summary of the SINUMERIK basic configuration and machine availability for the selected SINUMERIK control.

The machine status, NC program status as well as the operating mode can be simultaneously displayed.

The "Machine Dashboard" view is updated every 30 seconds.

Precondition




To use the machine dashboard, the following sliders must be activated in the SINUMERIK default settings:

- Manage MyMachines
- Variable recording









To find out how to activate data acquisition, refer to this Chapter: Activating the data acquisition (Page 78).



Parameters


Displaying machine data

Parameter	Description
	Displays the status of the machine: <ul style="list-style-type: none"> • Online - with date and time
	<ul style="list-style-type: none"> • Offline - with date and time
	<ul style="list-style-type: none"> • Unknown
Machine status	To the left of the machine information, you will see a bar that displays the machine status, color-coded. When passing over with the mouse, a tooltip is displayed showing some information: <ul style="list-style-type: none"> • Unknown status (gray) • Production (green) • Tech. Disturbance (red) • Org. Disturbance (yellow) • No Disturbance (blue) More information about machine statuses can be found in this Chapter: Machine overview (Page 168).
Name:	Shows the machine name.
Status	

Parameter	Description	
NC program	Displays the selected NC program.	
NC program status	<p>Displays the last value of the NC program status.</p> <p>You can find more information in the following paragraph "NC program status".</p>	You can display the data as bar chart in the right-hand section of the window.
Operating mode	Displays the last value of the machine tool operating modes.	You can display the data as bar chart in the right-hand section of the window.
Access protection level	<p>The access to functions and data areas is controlled via the access rights.</p> <p>Access levels 0 to 7 are available, where 0 represents the highest level and 7 the lowest level.</p> <p>Access levels 0 to 3 are locked via a password and access levels 4 to 7 via a key switch.</p> <ul style="list-style-type: none"> • 1 = Password - Machine manufacturer: Development • 2 = Password - Machine manufacturer: Commissioning engineer • 3 = Password - End user: Service • 4 = Keyswitch position 3 - Programmer, machine setter • 5 = Keyswitch position 2 - Qualified operator • 6 = Keyswitch position 1 - Trained operator • 7 = Keyswitch position 0 - Trainee operator 	
Stop condition	Displays the "StopCondition" NC variable that describes the cause of the NC program stop in more detail.	
Time of the last value change	Displays the date and time of the last recording.	
Spindle override	Displays the last value of the spindle override in percent.	
Feedrate override	Displays the last value of the feedrate override in percent.	
Information		
Asset hierarchy	Displays the path.	
Machine type	Displays the machine type or the operating software.	
Location	Displays the location.	
SINUMERIK version	Displays the operating software version.	

Parameter	Description
	<p>Opens an additional window:</p> <ul style="list-style-type: none"> • Overview: Opens the "Machine overview" window. More information is provided in Chapter: Machine overview (Page 168) • Alarms: Opens the "Machine Alarms" window. More information is provided in Chapter: Displaying machine alarms (Page 182) • Aspects: Opens the "Machine Aspects" window. More information is provided in Chapter: Aspects (Page 188) • Events: Opens the "Machine Events" window. More information is provided in Chapter: Events (Page 191) • Exporting: Opens the "Export" window. More information is provided in Chapter: Exporting (Page 194) • Spindle monitor: Opens the "Spindle Monitor" window. More information is provided in Chapter: Manage MyMachines /Spindle Monitor (Page 216) • Machine location: Opens the "Machine Location" window and displays where the machine is located on a world map. More information is provided in Chapter: Machine location (Page 224) • Motor temperature: Opens the "Motor Temperature" window. More information is provided in Chapter: Motor temperature (Page 227) • Files: Opens the "Files" window. More information is provided in Chapter: Files (Page 229) • My Dashboards: Opens the "My Dashboards" window. More information is provided in Chapter: My Dashboards (Page 196) • Error analysis: Opens error analysis (is only displayed if you have purchased the "SSA" application (SINUMERIK Service Assistance)). More information is provided in Chapter: SINUMERIK Service Assistance (Page 122)
	Collapses the machine information display.
	Expands the machine information display.
Variables	
Name	Shows the names of the variables
Value	Shows the value of the variables.
	Activates the search for names or the value of a variable.
	<p>Adds a new variable.</p> <p>Enter a name and a value for the new variable (it is not permissible that fields are left empty).</p> <p>If the asset already has five or more configured variables, the "+" icon is deactivated.</p>
	Saves the newly added variable.
	Activates text box "Value" of the selected variable for editing.
	Deletes the selected variable.

Parameter	Description
	Interrupts editing.
	Saves what has been edited.

Display	Description
	Displays the number of active alarms.
Select the time zone	From the drop-down list, select the time difference between the machine location and the location of the user: <ul style="list-style-type: none"> • UTC • Browser
Select the time range	Select the time period in the view from the drop-down list: <ul style="list-style-type: none"> • Last 30 minutes • Last hour • Last 4 hours • Last 8 hours • Last 24 hours • Today • Last 48 hours

Display	Description
Status summary	Displays the machine information as bar chart: <ul style="list-style-type: none"> • Machine status <ul style="list-style-type: none"> – Machine off – Unknown status – Production – Tech. Disturbance – Org. Disturbance – No Disturbance More information is provided in Chapter: Machine status (Page 179)
	<ul style="list-style-type: none"> • NC program status <ul style="list-style-type: none"> – Machine off – Unknown status – Interrupted – Stopped – In operation – In the wait position – Cancelled More information is provided in Chapter: NC program status (Page 180)
	<ul style="list-style-type: none"> • Operating mode <ul style="list-style-type: none"> – Machine off – Unknown status – JOG – MDI – AUTO More information is provided in Chapter: Operating mode (Page 181)
▶	Opens the drop-down list.
▼	Closes the drop-down list.
Pending alarms	Displays the pending alarms. More information is provided in Chapter: Pending alarms (Page 179)

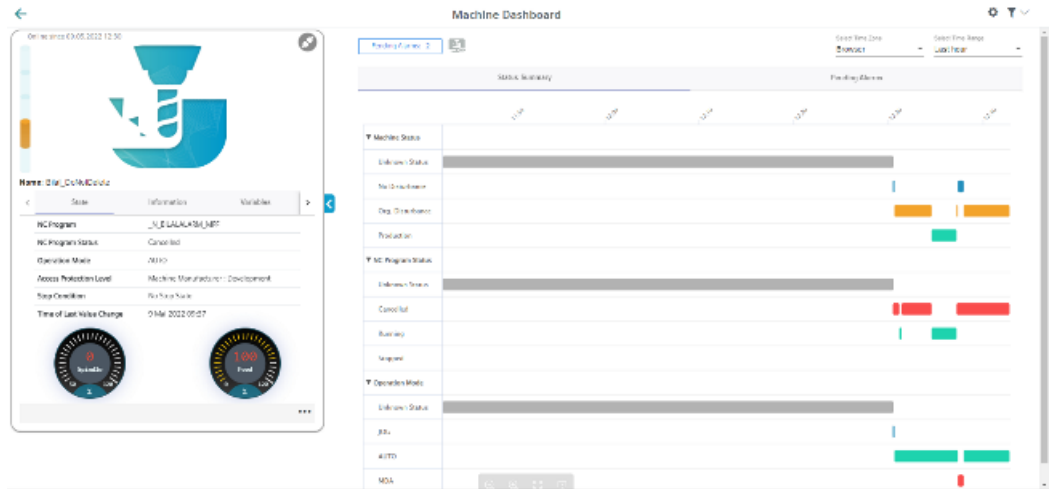
Note

UTC time definition

All variables are displayed with a UTC time stamp.

Procedure

1. Click in the machine overview on the underscored name of the required machine.
2. Window "Machine Dashboard", tab "Status" opens displaying additional machine data. All machine information is displayed in bar charts in the right-hand section of the window. Using the slider bar, you can scroll backwards and forwards in the lateral scroll bar.



3. You obtain more information about the machine if you open tab "Information".



8.6 Dashboard

- 4. You obtain an overview of the variables configured for the machine if you open tab "Variables".
 - Click on the "+" icon to add a new variable.
 - Click on the "Recycle bin" icon to delete a variable.
 - Click on the "Edit" icon to edit the value of a variable.

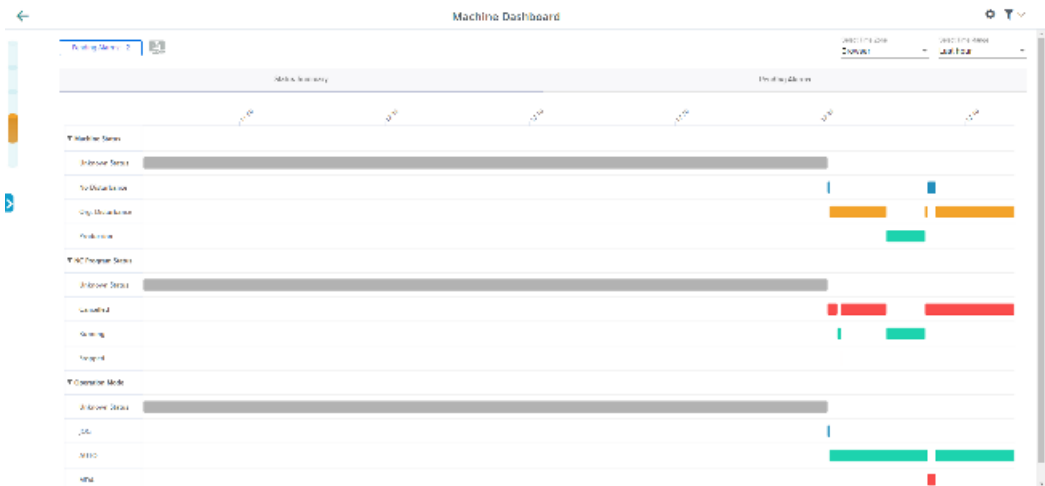


- 5. To collapse the machine description, click on the left-pointing arrow symbol on the right side of the frame.

The bar chart is displayed in the full-screen mode.

If the machine description is collapsed, the color display of the machine status remains at the left-hand edge of the window.

To exit the full-screen mode, click on the right-pointing arrow symbol on the left-hand edge of the window.



Displaying details

You have the option of viewing more data in the following tabs:







- Pending alarms (Page 179)
- Machine status (Page 179)

- NC program status (Page 180)
- Operating mode (Page 181)

8.6.2 Pending alarms

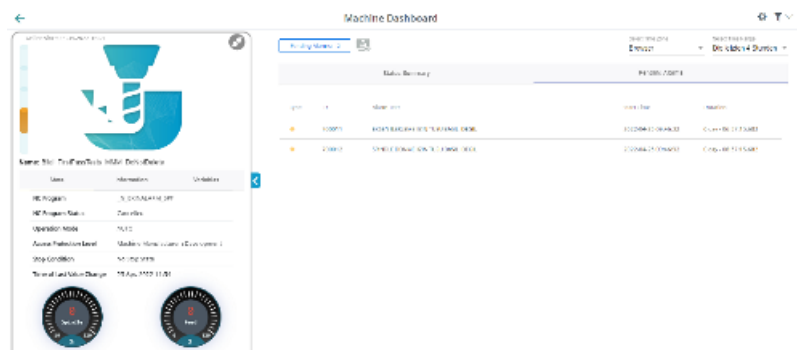
For the selected SINUMERIK control system, the "Machine Dashboard" view > "Pending Alarms" tab provides an overview of the alarms for a defined time interval.

Parameters

Parameter	Description				
Type	Displays the following icons: <table border="1" data-bbox="603 732 1481 832"> <tr> <td></td> <td>Notice</td> </tr> <tr> <td></td> <td>Note</td> </tr> </table>		Notice		Note
	Notice				
	Note				
ID	Displays the alarm identifier.				
Alarm text	Displays an alarm description.				
Start time	Shows the start time with the date YYYY-MM-DD and time hh:mm:ss				
Duration	Displays the alarm duration in days and hours.				

Procedure

1. In the right-hand section of the window, open tab "Pending Alarms".
The details of the pending alarms are displayed.
In the right-hand section of the window, use the slider bar to scroll up and down in the lateral scroll bar.



8.6.3 Machine status

For the selected SINUMERIK control system, the "Machine Dashboard" view > "Machine Status" tab provides an overview of the machine statuses for a selected time interval.

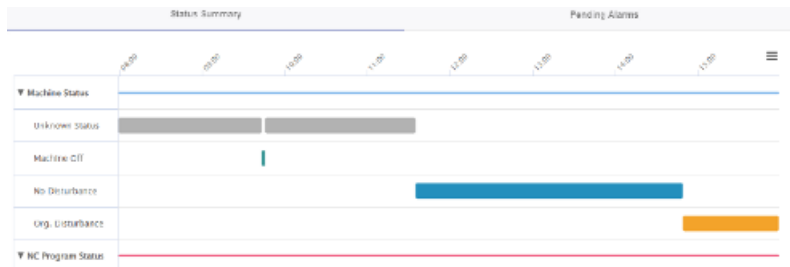
Parameter

Status	Description
Machine off	The machine is switched off.
Unknown status	The machine status is not known.
Production	The machine is presently running.
Tech. Disturbance	Because of a technical disturbance, the machine was stopped or the operator exited the NC program.
Org. Disturbance	Because of an organizational disturbance, the machine was stopped or the operator exited the NC program.
No Disturbance	The machine operates disturbance-free.

Additional information about the machine status is provided in Chapter: Machine overview (Page 168)

Procedure

1. In the right-hand section of the window, click on the down arrow in tab "Machine status".
2. The drop-down list with the machine status data opens. Details on the machine status are displayed in a bar chart.



8.6.4 NC program status

For the selected SINUMERIK control system, the "Machine Dashboard" view > "NC program status" tab provides an overview of the NC program statuses for a defined time interval.

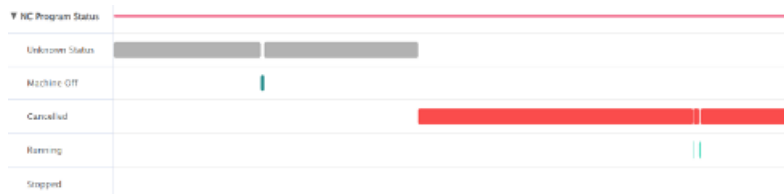
Parameter

Status	Description
Machine off	The NC program is not running as the machine is switched off.
Unknown status	The NC program is not running as the machine status is not known.
Interrupted	The NC program was stopped and is restarted by the operator.
Stopped	The NC program has been stopped and will be exited by the operator.
In operation	The NC program is currently running.

Status	Description
In the wait position	The NC program is waiting. For example, the program is waiting for the execution of an NC program in a different channel or the operator is changing a tool.
Cancelled	The NC program has been cancelled by the operator at the SINUMERIK controller.

Procedure

1. In the right-hand section of the window, click on the down arrow in tab "NC program status".
2. The drop-down list with NC program status data opens.
Details on the NC program status are displayed in a bar chart.



8.6.5 Operating mode

For the selected SINUMERIK control system, the "Machine Dashboard" view > "Operating Mode" tab provides an overview of the operating modes.

Parameters

Status	Description
Machine off	The NC program is not running as the machine is switched off.
Unknown status	The NC program is not running as the machine status is not known.
JOG	The machine is running in the "JOG" operating mode.
MDI	The machine is running in the "MDI" operating mode.
AUTO	The machine is running in the "AUTO" operating mode.

Procedure

1. In the right-hand section of the window, click on the down arrow in tab "Operation Mode".
2. The drop-down list with the machine status data opens.
Details on the machine status are displayed in a bar chart.



8.7 Displaying machine alarms



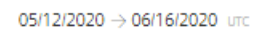
The following data relating to alarms is displayed in the "Machine Alarms" window:

- Occurrence
- Duration
- List:
 - ID - alarm ID
 - Service life
 - Duration
 - End time
- Alarm Filtering
 - Alarm number
 - Alarm range

Further, you can display alarms in various views:

- In a bar chart
- In a pie chart

Button / parameter

Button/parameter	Description
	Displays the pending alarms: <ul style="list-style-type: none"> • != specifies the number • Checkmark = no active alarms • ? = unknown
	You update the data that is located in the time interval by pressing the "Refresh" button.
	Displays the time range and the time zone in which alarms are captured. A calendar opens when if you click on the button. More information is provided in Chapter: Using the calendar function (Page 233).

Occurrence

Alarm display	Description
Occurrence	Displays how often the alarm has occurred in the selected time interval. All alarms have different alarm identifiers - the alarm ID. The alarms are displayed with different colors. How often the alarm has occurred is shown as a percentage in the pie chart. If you move the mouse over the bar of the corresponding alarm, a tooltip is displayed indicating how often the alarm has occurred.
ACTIVE	Displays the number of active alarms.
CLOSED	Displays the number of closed alarms.
TOTAL	Displays the number of all alarms.

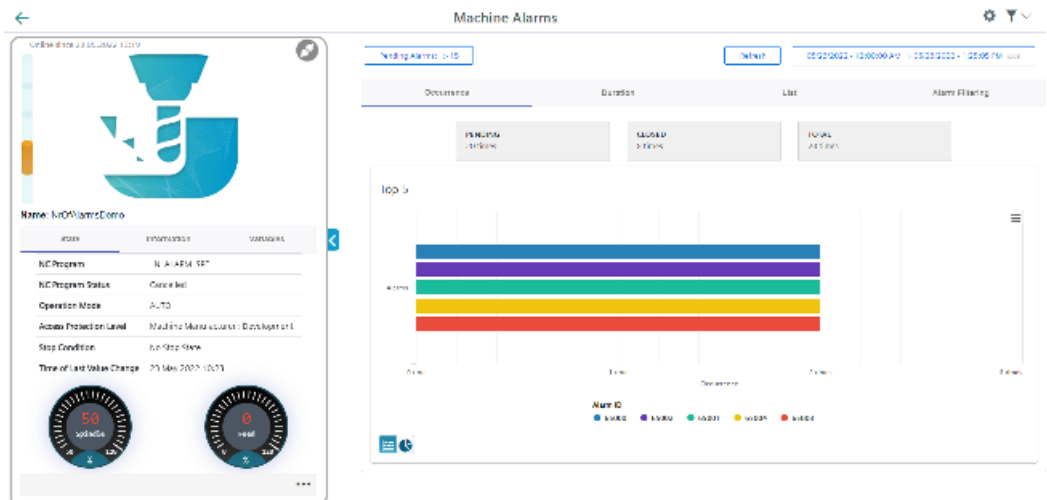
Note

Alarm display

5 alarms that occur most frequently are displayed.

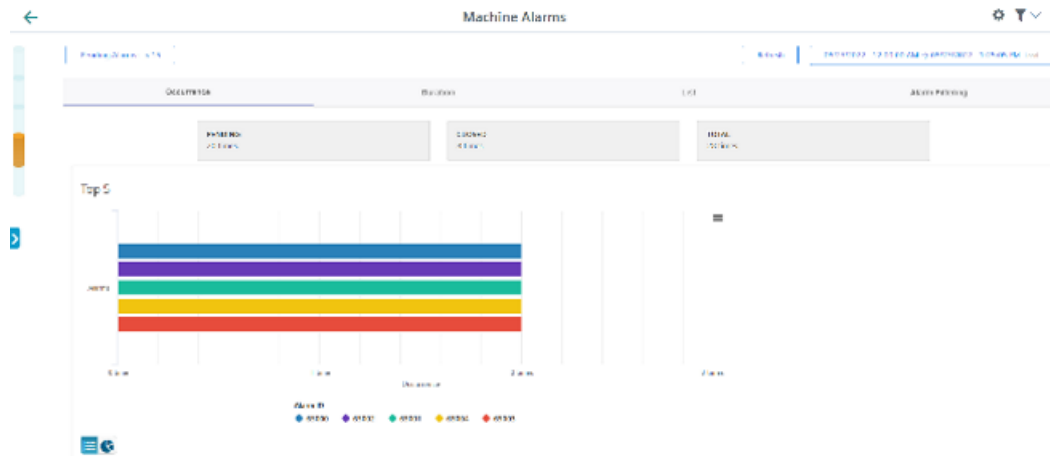
Procedure

1. In the "Information" area, click on the button with dots.
2. Click on "Alarms".
The "Machine alarms" window opens.
3. The machine description is shown in the left-hand section of the window.
4. Select a specific time period using the calendar function.
5. Click on "Apply".
6. Open the "Occurrence" tab.
7. The alarms are shown in a bar chart where you can see how often the alarms have occurred.



8.7 Displaying machine alarms

- To collapse the machine information, click on the left-pointing arrow symbol on the right side of the frame.
The bar chart is displayed in the full-screen mode.



- Click on the "Pie chart" icon to change the display type.

Duration

Alarm display	Description
Duration	Displays the duration of the alarms within the defined time period in a chart. All alarms have different alarm identifiers. The alarms are displayed with different colors. The duration of the alarm is specified as a percentage. The alarm identifier - the alarm ID - is displayed below the diagram. If you move the mouse over the bar of the corresponding alarm, a tooltip is displayed, indicating the duration in days, hours, minutes and seconds.
PENDING	Displays the duration of active alarms in days and time.
CLOSED	Displays the duration of closed alarms in days and time.
TOTAL	Displays the total duration of all alarms in days and time.

Procedure

- Select a certain time period using the calendar function.
- Click on "Apply".
- Open tab "Duration".

4. The alarms are displayed in a bar chart where you can see the duration of the alarms.



5. Click on the "Pie chart" icon to change the display type.

List

Parameter	Description
ID	Displays the alarm identifier.
Start time	Shows the start time with the date (YYYY-MM-DD) and time (hh:mm:ss)
Duration	Displays the duration in days and time (hh:mm:ss)
End time	Shows the start time with the date (YYYY-MM-DD) and time (hh:mm:ss)
>	You can obtain more alarm information using the icon: <ul style="list-style-type: none"> Alarm text Machine type Sender Type
Buttons in the lower section of the window	
Item per page	From the drop-down list, select how many alarms should be displayed on one page: <ul style="list-style-type: none"> 5 10 25 100
x - y of xy	Displays how many pages there are, with the corresponding number of alarms per page.
<	The first page is displayed.
<	The previous page is displayed.
>	The next page is displayed.
>	The last page is displayed.

8.7 Displaying machine alarms

Procedure

1. Select a certain time period using the calendar function.
2. Open tab "List".
3. The alarms are listed in a structured table form.

Occurrence		Duration	List	Alarm Filtering
ID	Start Time	Duration	End Time	
>	8084 2020-06-16 12:54:52	0 day - 00:06:00 hour	-	
>	8084 2020-06-16 11:54:56	0 day - 01:05:56 hour	-	
>	8084 2020-06-16 10:55:00	0 day - 02:05:52 hours	-	
>	8084 2020-06-16 09:55:03	0 day - 03:05:49 hours	-	
>	8084 2020-06-16 08:55:07	0 day - 04:05:45 hours	-	
>	8084 2020-06-16 07:55:11	0 day - 05:05:41 hours	-	
>	8084 2020-06-16 06:55:15	0 day - 06:05:37 hours	-	
>	8084 2020-06-16 05:55:19	0 day - 07:05:33 hours	-	
>	8084 2020-06-16 04:55:23	0 day - 08:05:29 hours	-	
>	8084 2020-06-16 03:55:26	0 day - 09:05:26 hours	-	

Items per page: 10 1 - 10 of 122 |< < > >|

4. Select an alarm from the list and click on icon ">".
5. A menu opens and you can see more information about the alarm.

Occurrence		Duration	List	Alarm Filtering
ID	Start Time	Duration	End Time	
>	8084 2020-06-16 12:54:52	0 day - 00:06:00 hour	-	

Alarm Text: Period 1 of the test license active remaining time 166 h



Machine Type: core.basics/numerikasset

Sender: /NCK

Type: NC_CANCEL

Alarm Filtering

Alarm display	Description
Type	Select the alarm number or the alarm range from the drop-down list. In the overview you can alphabetically sort the alarm type (either in ascending or descending alphabetical order).
Alarm number/area	Enter the alarm number or the alarm range in the input field. In the overview, you can numerically sort the alarms (either in ascending or descending numerical order).


Alarm display	Description
	Selected alarms are no longer saved in MindSphere. The alarms are displayed in the overview.
	Individually removing alarms or alarm ranges from the overview.

Procedure



1. Open tab "Alarm Filtering".
2. Select "Alarm Number" or "Alarm Range" from the drop-down list.
3. Enter the required alarms in the input field and click on the "Do not save" icon.

Occurrence
Duration
List
Alarm Filtering

Alarm Range ▾



Filtered Alarms

Type	Alarm Number / Range	
Alarm Number	60008	
Alarm Range	600010 - 600015	

8.8 Aspects

User-defined aspects combine your selected data for a meaningful analysis.

All aspects are displayed in an overview. You can influence the view by applying different filter criteria.

For the individual parameters of an asset, you can create queries manually or controlled by variables.

Precondition

To activate data acquisition, the slider must be activated in the asset.

More information is provided in Chapter: Activating the data acquisition (Page 78)

The configuration of the variables must be activated in the MindSphere Application "Shopfloor Management Application".

More information is provided in Chapter: Overview (Page 98).

Parameters and buttons

The following aspects are displayed as default setting. You also have the option of configuring your own aspects.

You can display variable data as diagram (diagram variables) or in a tabular form (table variables).


In the tabular view you can sort the data either alphabetically or numerically (either in ascending or descending order).

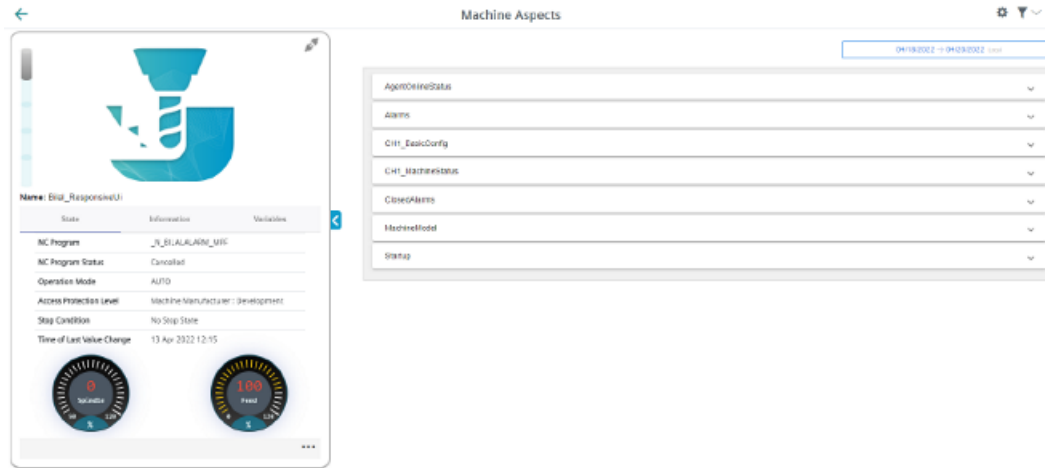
Parameter	Description
SpindleMonitorConfig	The following data is displayed: <ul style="list-style-type: none"> • Time stamp with the date and time • Variable - OnlineStatus • Value <ul style="list-style-type: none"> – false – true • Quality code
AgentOnlineStatus	The following data is displayed: <ul style="list-style-type: none"> • Time stamp with the date and time • Variable - OnlineStatus • Value <ul style="list-style-type: none"> – false – true • Quality code

Parameter	Description
Alarms	The following data is displayed: <ul style="list-style-type: none"> • Time stamp with the date and time • Variable • Value • Quality code
CH1_BasicConfig	SINUMERIK basic configuration The following data is displayed: <ul style="list-style-type: none"> • Feed override • NCProgramStatus • NrOfAlarms • Opmode • ProtectionLevel • Spindle override • StopCond
CH1_MachineStatus	Time of the machine status in the selected time period. The machine status is displayed numerically:
	0 Unknown status
	1 Production
	2 Technical Disturbance
	3 Organizational Disturbance
4 No Disturbance	
MachineModel	The following data is displayed: <ul style="list-style-type: none"> • Time stamp with the date and time • Variable • Value • Quality code
Startup	The following data is displayed: <ul style="list-style-type: none"> • Time stamp with the date and time • Variable • Value • Quality code

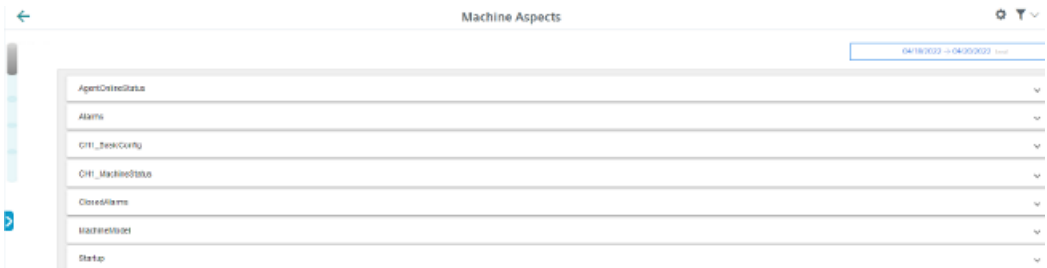
Button	Description
05/12/2020 → 06/16/2020 UTC	Displays the time range and the time zone used. Opens the calendar function.
▼	Opens the detailed view of the data.
▲	Closes the detailed view of the data.

Procedure

1. In the "Information" area, click on the button with dots.
2. Click on "Aspects".
The "Machine Aspects" window opens.
3. The machine description is shown in the left-hand section of the window.
4. In the right-hand section of the window, select the time range using the calendar function.
More information is provided in Chapter: Using the calendar function (Page 233)
5. To see the data recording, right-click on button .



6. To collapse the machine description, click on the left-pointing arrow symbol on the right side of the frame.
The bar chart is displayed in the full-screen mode.



8.9 Events

All events of a machine are displayed in the "Machine Events" overview. You can influence the view by applying different filter criteria. You also have the opportunity of confirming events.






Under the list, you can find all details of the selected event.

Machine events in the Fleet Manager





With machine events, you log all machine incidents. In the Fleet Manager you can create purely manual events as well as events for the regular acquisition of measured quantities with measuring series.

You can find **More information** in the documentation for the Fleet Manager: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Parameter

Parameter	Description
 05/12/2020 → 06/16/2020 utc	Displays the time range and the time zone used. Opens the calendar function. More information: Using the calendar function (Page 233)
 MindSphereStandardEvent	Shows the event type used. Opens the list to select the event type. The list can be filtered according to the following criteria: <ul style="list-style-type: none"> • Relevant • All • Text filter in the search field
 acknowledge	Sets the confirmation for the selected event to "True".
 Refresh	Refreshes the displayed list.
	Opens a window to select the displayed columns. The following selection is offered: <ul style="list-style-type: none"> • Severity Level • Asset name • Time stamp • Description • Source • Confirmation • Relation • Event type • Code

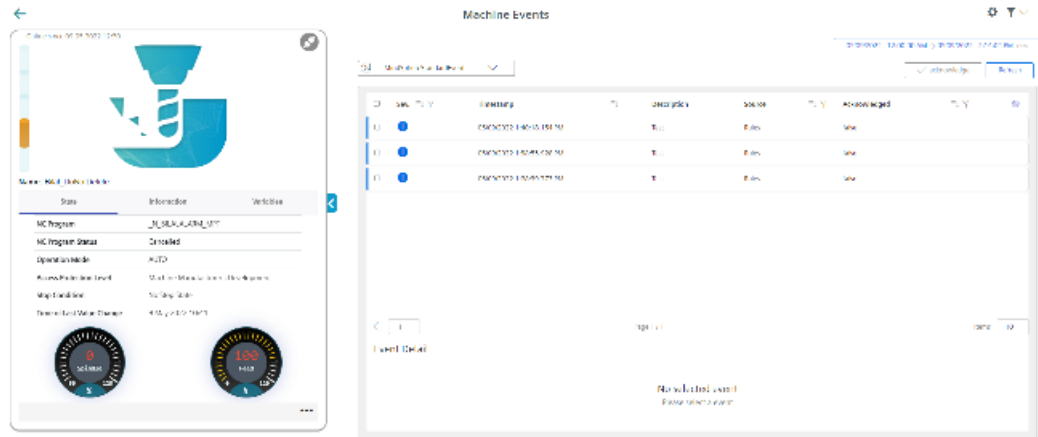
Filtering and sorting

Filter	Description
Severity Level 	The following filters are listed: <ul style="list-style-type: none"> • Urgent • Important • Information • Customized
Confirmation 	The following choices are offered: <ul style="list-style-type: none"> • True • False
	A text filter is listed for all other columns.
Sorting 	Sorts the list according to the selected column, ascending or descending order.

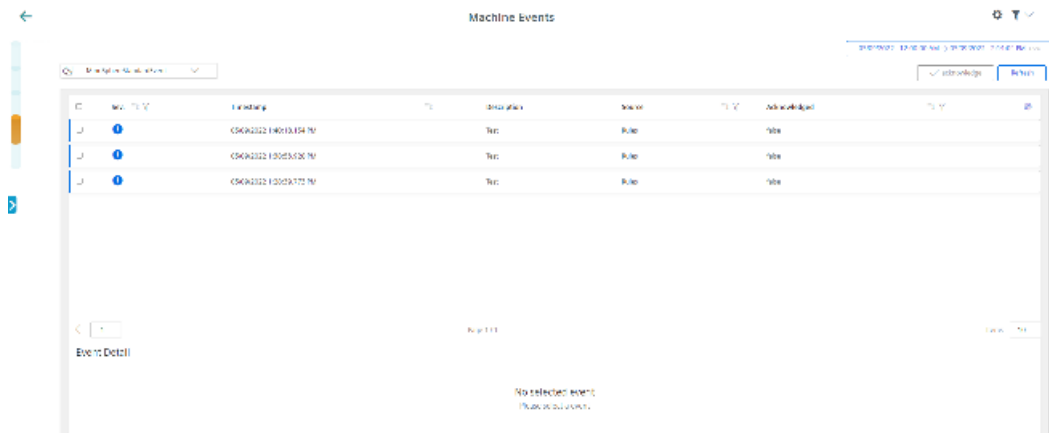
Procedure

1. Select the required machine in "Manage MyMachines".
2. Click on the button with dots and select function "Events".
Window "Machine Events" opens.
3. If relevant, select the required time range.
4. Reduce the number of displayed events by setting specific filters:
 - Select the event type.
 - Activate the corresponding option of the filter criteria.
5. Click on the icon "Sort" in the column header to sort the list by column.

6. To select an event, activate the checkbox in front of the event. Multiple selection is possible. To select all events, activate the checkbox in the table header.



7. To collapse the machine description, click on the left-pointing arrow symbol on the right side of the frame. The machine events are displayed in the full-screen mode.



8.10 Exporting

You have the option of exporting the data points of an aspect.

You can export data of a specific time period and select between 2 export methods.


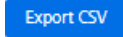
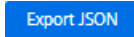
Note

Configuring the target directory for the download

Ensure that a target directory for the download has been configured in your browser.

The exported data is stored in several files depending on the data volume.

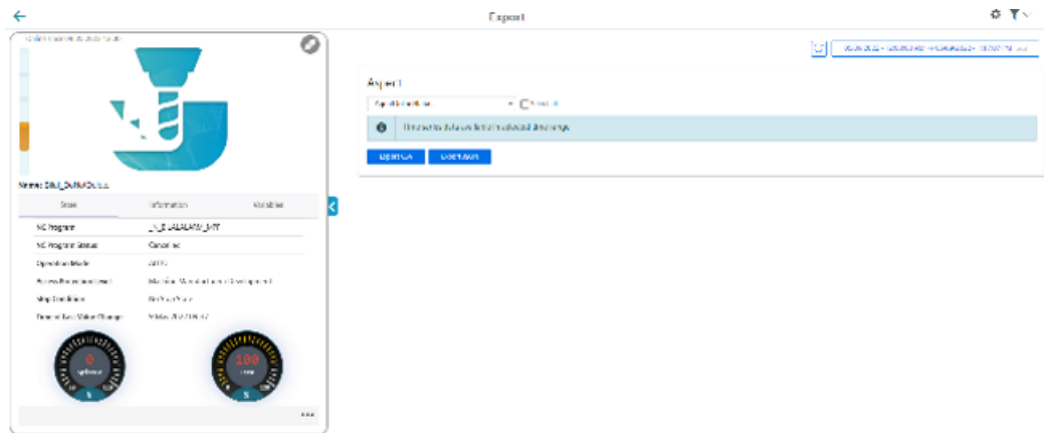
Parameter

Parameter	Description
	Activates the automatic data refresh. When doing this, every 30 s the end of the time range is set to the current time and the data is refreshed. To stop the refresh operation, press the button again.
05/12/2020 → 06/16/2020 UTC	Displays the time range and the time zone used. Opens the calendar function. More information: Using the calendar function (Page 233)
Aspect	Selects an individual aspect. All available aspects are listed in a drop-down list.
Select all	Selects all available aspects.
	Data export in the CSV format.
	Data export in the JSON format.

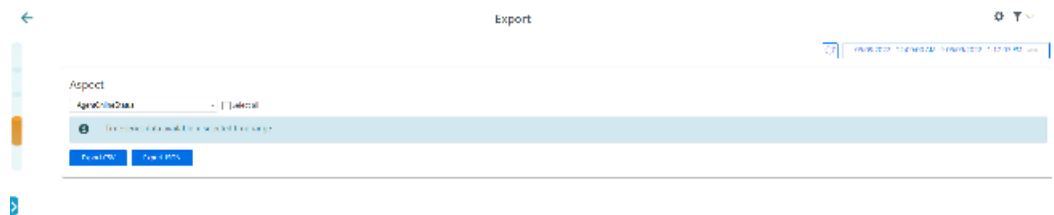
Procedure

1. Select the required machine in "Manage MyMachines".
2. Click on the button with dots and select function "Export".
3. Select the required time range.
4. From the drop-down list, select the required aspect.
To select all of the available aspects, activate the checkbox next to the list.
The export buttons are only activated if data is available for the aspect in the selected time range.

5. Click the button of the desired export.
The export is started.
The exported data is stored in several files depending on the data volume.



6. To collapse the machine description, click on the left-pointing arrow symbol on the right side of the frame.
The export is displayed in the full-screen mode.













7. The file is displayed in the lower left-hand section of the window, and you can make the following selection:
 - Open
 - Always open files of this type
 - Display in the folder (in the Downloads directory)











8.11 My Dashboards

8.11.1 Overview

"My Dashboards" provides you with the opportunity of configuring new charts and using them for other assets in your tenant.

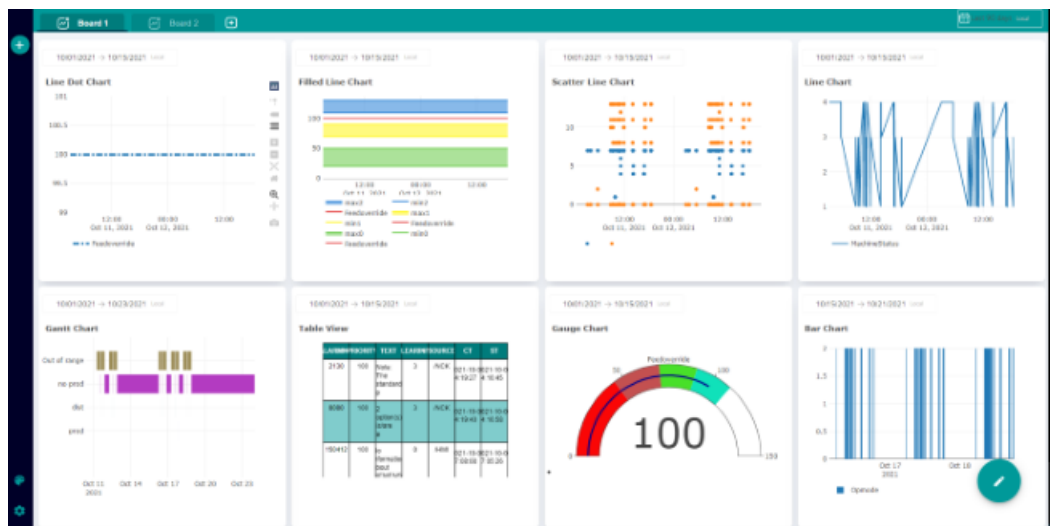
Parameters and icons

Parameter	Description
 Board 1	Opens the tab with your configured dashboard. You can save up to seven tabs. More information is provided in Chapter: Editing tabs (Page 212)
	Generates an additional tab. More information is provided in Chapters: <ul style="list-style-type: none"> Editing tabs (Page 212) Working with templates (Page 209)
	Is displayed when opening and updating a window.
	Opens the "Dashboard Settings" template menu. This icon only appears in menu "My Dashboards". The icon is deactivated if you are in the edit mode. More information is provided in Chapter: Working with templates (Page 209)
	The "Pen" icon activates the edit menu: <ul style="list-style-type: none"> Editing charts (Page 205) Editing tabs (Page 212)
	The "Floppy disk" icon opens the dialog box to save as template.
	Opens the color menu with the following options: <ul style="list-style-type: none"> Dashy Light Theme Dashy Dark Theme
	Opens the menu for graphical diagram design and tab editing: <ul style="list-style-type: none"> Grid Options More information on grid options is provided in Chapter: Generating charts (Page 198) Tabs More information on the tabs is provided in Chapter: Editing tabs (Page 212)
	The "+" icon opens the menu to create a chart.
	The "Line Charts" icon opens all available line charts.

Parameter	Description
	Opens the menu for creating a line chart.
	Opens the menu for creating a line dot chart.
	Opens the menu for creating a scatter line chart.
	Opens the menu for creating a filled line chart.
	Opens the menu for creating a bar chart.
	The "Indicator Charts" icon opens all available indicator charts.
	Opens the menu for creating an indicator chart.
	Opens the menu for creating a gauge chart.
	Opens the menu for creating a table overview.
	Opens the menu for creating a Gantt chart.

Procedure

1. In the machine overview, select an asset and click on the button with dots at the lower right on the asset. The drop-down list with the menu selection opens.
2. To open the "My Dashboards" window, select the "My Dashboards" entry.



You have the following options to continue editing:

- Generating charts (Page 198)
- Editing charts (Page 205)
- Setting the dashboard display (Page 206)





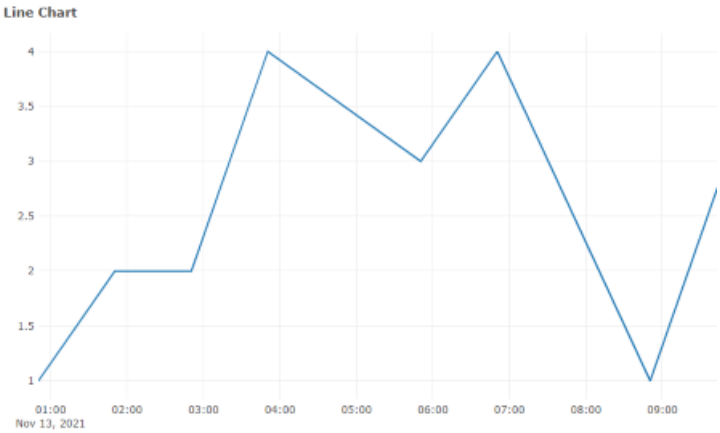
8.11 My Dashboards


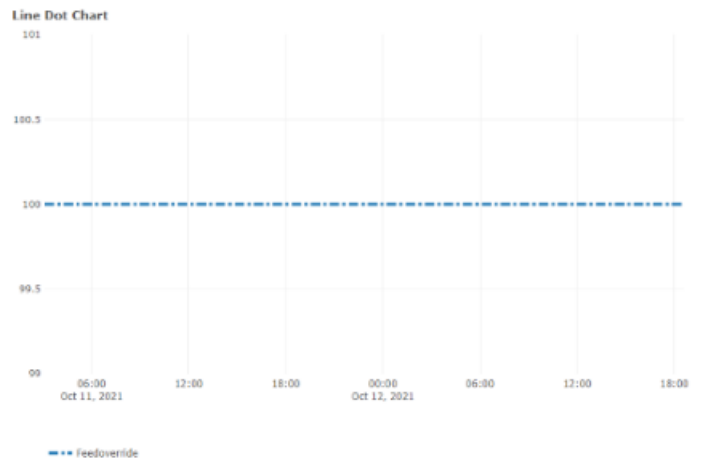

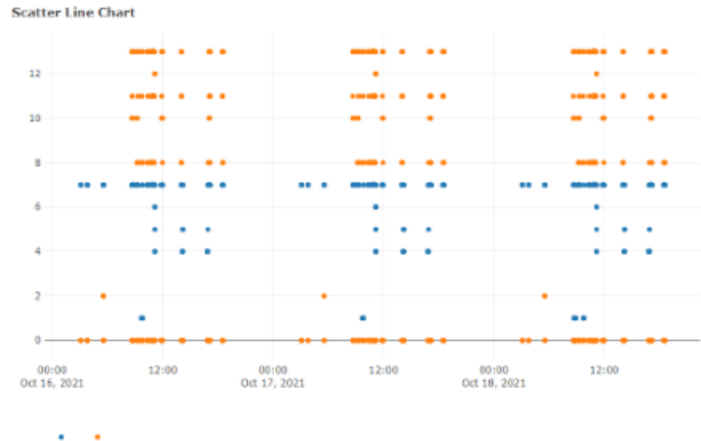
- Working with templates (Page 209)
- Editing tabs (Page 212)




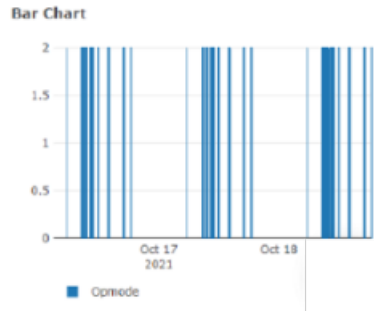


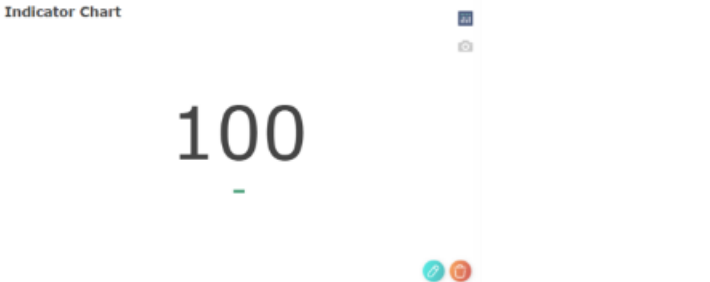
8.11.2 Generating charts


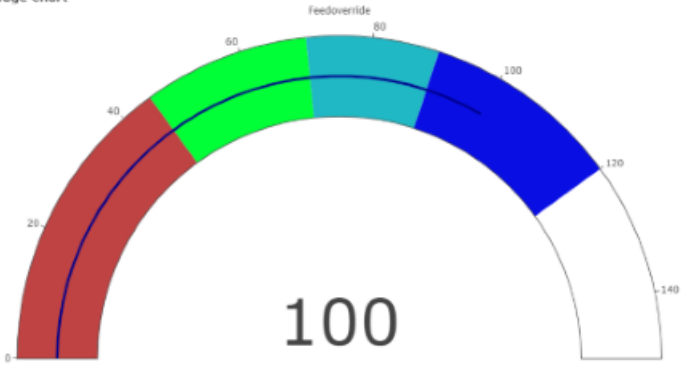

Using the "My Dashboards" function, you can create and edit line, bar, indicator and Gantt charts as well as table overviews.




Icons and buttons

Parameter	Description	
	The "+" icon opens the menu to create a chart.	
	The "Gear wheel" icon opens the menu for graphic chart layout and tab editing: <ul style="list-style-type: none"> • Grid Options More information on grid options is provided in Chapter: Editing charts (Page 205) • Tabs More information on the tabs is provided in Chapter: Editing tabs (Page 212) 	
Chart type		
	Line charts	The "Line Charts" icon opens all available line charts.
		Line chart Opens the menu for creating a line chart.
<div style="border: 1px solid black; padding: 5px;"> <p>Line Chart</p>  <p>Nov 13, 2021</p> <p>MachineStatus</p> </div>		

Parameter	Description	
	Line dot chart	Opens the menu for creating a line dot chart.
 <p>The visualization is a line dot chart titled "Line Dot Chart". The y-axis ranges from 99 to 101 with increments of 0.5. The x-axis shows time from 06:00 on Oct 11, 2021, to 18:00 on Oct 12, 2021. A single data series named "Feedoverride" is plotted as a blue dashed line, which remains constant at the value of 100 throughout the entire time period.</p>		
	Scatter line chart	Opens the menu for creating a scatter line chart.
 <p>The visualization is a scatter line chart titled "Scatter Line Chart". The y-axis ranges from 0 to 12 with increments of 2. The x-axis shows time from 00:00 on Oct 16, 2021, to 12:00 on Oct 18, 2021. There are two data series: one represented by orange dots and another by blue dots. The orange dots are clustered at y=0, y=2, y=8, y=10, and y=12. The blue dots are clustered at y=4, y=6, and y=7. The data points are scattered across the time period, with some series showing more frequent updates than others.</p>		

Parameter	Description	
	Filled line chart	Opens the menu for creating a filled line chart.
		
	Bar chart	Opens the menu for creating a bar chart.
		
	Indicator Charts	The "Indicator Charts" icon opens all available indicator charts.
	Indicator chart	Opens the menu for creating an indicator chart.
		

Parameter	Description																																																																														
	Gauge chart	Opens the menu for creating a gauge chart.																																																																													
<p>Gauge Chart</p> 																																																																															
	Table view	Opens the menu for creating a table overview.																																																																													
<p>Table View</p> <table border="1" data-bbox="576 853 1243 1274"> <thead> <tr> <th>ALARMNO</th> <th>PRIORITY</th> <th>TEXT</th> <th>CLEARINFO</th> <th>SOURCE</th> <th>CT</th> <th>ST</th> </tr> </thead> <tbody> <tr> <td>2130</td> <td>100</td> <td>Note: The standard p</td> <td>3</td> <td>INCK</td> <td>2021-10-06 14:19:27</td> <td>2021-10-06 14:16:45</td> </tr> <tr> <td>8080</td> <td>100</td> <td>2 option(s) wire a</td> <td>3</td> <td>INCK</td> <td>2021-10-06 14:19:40</td> <td>2021-10-06 14:16:58</td> </tr> <tr> <td>150412</td> <td>100</td> <td>No information about SIEMENS warranty available.</td> <td>0</td> <td>AMB</td> <td>2021-10-06 17:06:06</td> <td>2021-10-06 17:05:26</td> </tr> <tr> <td>8080</td> <td>100</td> <td>2 option(s) wire a</td> <td>3</td> <td>INCK</td> <td>2021-10-06 15:19:39</td> <td>2021-10-06 15:16:57</td> </tr> <tr> <td>2130</td> <td>100</td> <td>Note: The standard p</td> <td>3</td> <td>INCK</td> <td>2021-10-06 15:30:46</td> <td>2021-10-06 15:28:04</td> </tr> <tr> <td>8080</td> <td>100</td> <td>2 option(s) wire a</td> <td>3</td> <td>INCK</td> <td>2021-10-06 16:18:34</td> <td>2021-10-06 16:16:52</td> </tr> <tr> <td>2130</td> <td>100</td> <td>Note: The standard p</td> <td>3</td> <td>INCK</td> <td>2021-10-06 16:42:21</td> <td>2021-10-06 16:39:39</td> </tr> <tr> <td>8080</td> <td>100</td> <td>2 option(s) wire a</td> <td>3</td> <td>INCK</td> <td>2021-10-06 17:19:30</td> <td>2021-10-06 17:16:48</td> </tr> <tr> <td>2130</td> <td>100</td> <td>Note: The standard p</td> <td>3</td> <td>INCK</td> <td>2021-10-06 17:53:56</td> <td>2021-10-06 17:51:14</td> </tr> <tr> <td>8080</td> <td>100</td> <td>2 option(s) wire a</td> <td>3</td> <td>INCK</td> <td>2021-10-06 18:16:25</td> <td>2021-10-06 18:16:43</td> </tr> </tbody> </table>			ALARMNO	PRIORITY	TEXT	CLEARINFO	SOURCE	CT	ST	2130	100	Note: The standard p	3	INCK	2021-10-06 14:19:27	2021-10-06 14:16:45	8080	100	2 option(s) wire a	3	INCK	2021-10-06 14:19:40	2021-10-06 14:16:58	150412	100	No information about SIEMENS warranty available.	0	AMB	2021-10-06 17:06:06	2021-10-06 17:05:26	8080	100	2 option(s) wire a	3	INCK	2021-10-06 15:19:39	2021-10-06 15:16:57	2130	100	Note: The standard p	3	INCK	2021-10-06 15:30:46	2021-10-06 15:28:04	8080	100	2 option(s) wire a	3	INCK	2021-10-06 16:18:34	2021-10-06 16:16:52	2130	100	Note: The standard p	3	INCK	2021-10-06 16:42:21	2021-10-06 16:39:39	8080	100	2 option(s) wire a	3	INCK	2021-10-06 17:19:30	2021-10-06 17:16:48	2130	100	Note: The standard p	3	INCK	2021-10-06 17:53:56	2021-10-06 17:51:14	8080	100	2 option(s) wire a	3	INCK	2021-10-06 18:16:25	2021-10-06 18:16:43
ALARMNO	PRIORITY	TEXT	CLEARINFO	SOURCE	CT	ST																																																																									
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8080	100	2 option(s) wire a	3	INCK	2021-10-06 15:19:39	2021-10-06 15:16:57																																																																									
2130	100	Note: The standard p	3	INCK	2021-10-06 15:30:46	2021-10-06 15:28:04																																																																									
8080	100	2 option(s) wire a	3	INCK	2021-10-06 16:18:34	2021-10-06 16:16:52																																																																									
2130	100	Note: The standard p	3	INCK	2021-10-06 16:42:21	2021-10-06 16:39:39																																																																									
8080	100	2 option(s) wire a	3	INCK	2021-10-06 17:19:30	2021-10-06 17:16:48																																																																									
2130	100	Note: The standard p	3	INCK	2021-10-06 17:53:56	2021-10-06 17:51:14																																																																									
8080	100	2 option(s) wire a	3	INCK	2021-10-06 18:16:25	2021-10-06 18:16:43																																																																									
	Gantt chart	Opens the menu for creating a Gantt chart.																																																																													
<p>Gantt Chart</p> 																																																																															
Parameters and functions																																																																															

Parameter	Description
New Chart	
Asset	Displays the asset selected in the machine overview. More information is provided in Chapters: Machine overview (Page 168) Asset Manager (Page 71)
Aspect	Opens the drop-down list with the predefined aspects. More information is provided in Chapter:Aspects (Page 188)
Variables	Opens the drop-down list with the predefined variables. More information is provided in Chapter: Configuring variables (Page 98)
Add ...	Confirms and supplements the selected aspects and variables.
Create a New KPI	Opens the menu for creating a new KPI: <ul style="list-style-type: none"> • KPI name • Operators: <ul style="list-style-type: none"> - + - - - ÷ - x • Variable or value • Create Number of variables per KPI: For Line Charts, Line Dot Charts, Scatter Line Charts and Bar Charts, you can select seven KPI variables for each chart. For Filled Line Charts, Indicator Charts, Gauge Charts, Gantt Charts and Table Views, you can select one KPI variable for each chart.
	Deletes the selected parameter. The respective check box must be deactivated.
	Adds a new value range or task to filled line charts, gauge charts and Gantt charts.
	Deletes the value ranges or tasks in filled line charts, gauge charts and Gantt charts.
Date Time Range	
05/12/2020 → 06/16/2020 UTC	Opens the calendar function to define a time period. You can select a time period of up to 90 days. More information on the calendar is provided in Chapter: Using the calendar function (Page 233)
Chart name (optional)	Provides the option of entering a chart name.

Procedure

1. In the "My Dashboards" window, click on the "+" icon in the upper left-hand part of the window.
2. Additional editing icons are displayed.
Click the desired chart type to create a new chart.

3. The window to select aspects and variables opens.
The name of the asset that you selected is automatically displayed in the "Asset" field.
 - Select the required entry from the "Aspect" drop-down list.
 - Select the required options from the "Variables" drop-down list.
 - Click on "Add".

The screenshot shows the 'New Chart' dialog box with the following configuration:

- Asset: LM_DemoAsset
- Aspect: CH1_BasicConfig
- Variables: NCPProgramStatus, NrOfAlarms

The 'Add' button is highlighted, indicating the selection process.

4. The selection is displayed.
Activate the required check box and click the "Next" button.

The screenshot shows the 'New Chart' dialog box with the following configuration:

- Asset: LM_DemoAsset
- Aspect: CH1_BasicConfig
- Variables: NCPProgramStatus, NrOfAlarms

The 'Add' button is highlighted, and the 'Next' button is also highlighted, indicating the selection process.

5. The following window opens for the "Filled Line Chart":
 - Click the "+" icon to create a new value range.
 - Click in the Color input field to select a color.
 - Click on "Next".



The following window opens for the "Gauge Chart":

- Click the "+" icon to create a new value range.
- Click in the Color input field to select a color.
- Click on "Next".



The following window opens for the "Gantt Chart":

- Enter a value and a machine name.
- Click the "+" icon to enter another value and machine name.
- Click on "Next".

The screenshot shows a 'New Chart' window with a close button (X) in the top right. On the left, there is a green '+' icon. Below it, there are two task entries:

- Task 1:** Value: 1, Name: Machine 1. There is a trash icon to the right of the name.
- Task 2:** Value: 5, Name: Machine 2. There is a trash icon to the right of the name.

At the bottom, there is a 'Back' button on the left and a 'Next' button on the right.

6. The "Date Time Range" window opens.

- To open the calendar, click on the time range display.
- Select a time period, and then click on "OK".
- You can optionally enter a chart name in the "Chart Name" text box.




To return to the "My Dashboards" window, click on "Save" in the lower right part of the window.


The screenshot shows the 'New Chart' window with a close button (X) in the top right. The 'Date Time Range' section is active, showing a date range of 11/01/2021 → 11/30/2021. Below this is an optional 'Chart Name' text box. At the bottom, there is a 'Back' button on the left and a 'Save' button on the right.

8.11.3 Editing charts

You can edit the individual charts and change parameters.

Parameters and icons

Icon	Description
	The "Pen" icon activates the edit menu.
	The "Tool" icon opens the menu for graphic chart layout and tab editing: <ul style="list-style-type: none"> • Grid Options • Tabs More information on the tabs is provided in Chapter: Editing tabs (Page 212)
	Opens the chart menu to select additional aspects and variables.

Icon	Description
	Deletes the chart.
Grid Options	
Grid Options	Displays the parameters for the grid: <ul style="list-style-type: none"> • Grid Type <ul style="list-style-type: none"> – Fit – Fixed – HorizontalFixed – ScrollHorizontal – ScrollVertical – VerticalFixed • Number of rows • Number of columns You can define up to 4 rows and 12 columns.

Procedure

To activate the edit mode in the "My Dashboards" window, click on the "Pen" icon in the lower right part of the window.

Changing aspects and variables

1. In the chart, click on the "Pen" icon at the lower right.
The chart menu opens.
2. Open the "Aspect" and "Variables" drop-down lists and change the required parameters.
To confirm your selection, click "Next".
More information is provided in Chapter: Generating charts (Page 198)

Changing the time range

- Click on the display of the time range at the top left in the chart and enter another time range.
- More information on the calendar is provided in Chapter: Using the calendar function (Page 233)

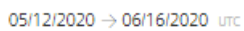











Deleting a chart

To delete the chart, click on the "Recycle bin" icon at the bottom right in the chart.

8.11.4 Setting the dashboard display

You can change the position, the size and the display area of the charts on the dashboard display.

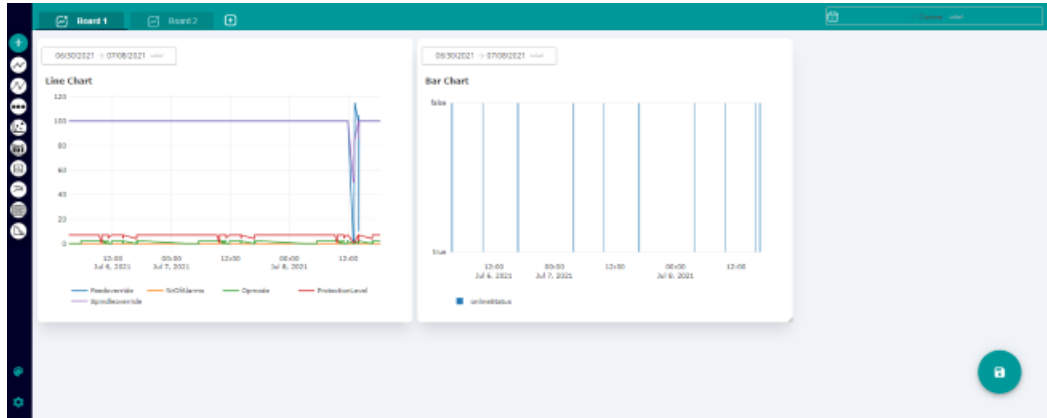
Icons and buttons

Parameter	Description
	Displays the time range and the time zone used. Opens the calendar function. More information is provided in Chapter: Using the calendar function (Page 233)
Aggregated	Displays the aggregated data
Live	Displays the refreshed data starting at the time of activation.
	Creates a snapshot in the "png" format.
	Activates the "Zoom" function.
	Activates the "Shift" of the display area function.
	Zooms into the display area.
	Zooms out of the display area.
	Resets the complete display area
	Resets the axis view
	Switches over to a dotted line.
	Displays the data when moving the mouse over the selected point in the diagram.
	Compares the data when moving the mouse over the selected point in the diagram.
	Connects to the plotly.com web page More information about third-party web pages is provided in Chapter: About this documentation (Page 8).

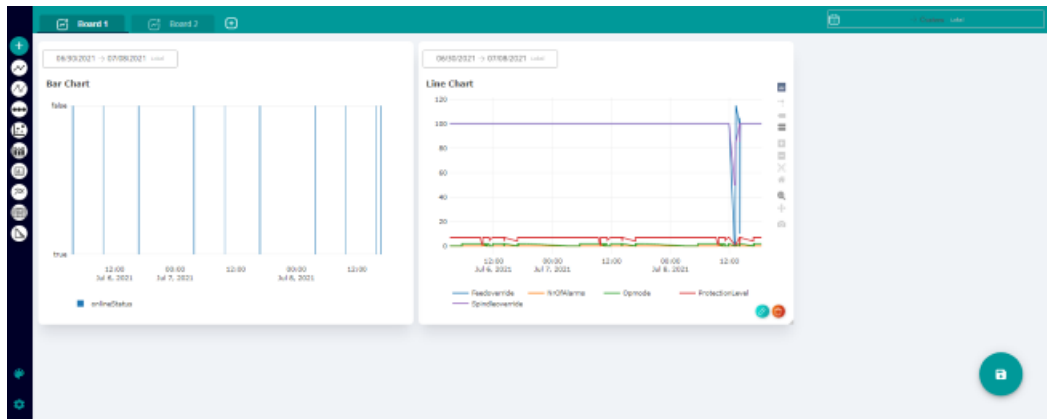
Procedure

Rearranging charts

1. Click on the chart that you wish to reposition on "My Dashboards".



2. Drag & drop it at the required position. You can arrange all charts in any sequence.



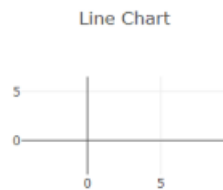
Changing the size of a chart

1. Click on the zoom magnifying glass icon in the chart menu bar.
2. Move the mouse to one edge of the chart until the mouse pointer changes to an arrow with two points.
3. Stretch the window to the required size

Changing the display area

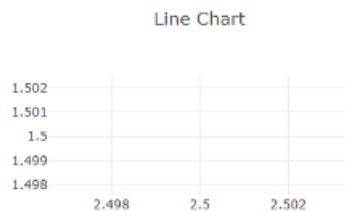
- To display the menu bar, move the mouse cursor over the chart.
 - Click on "+" icon to zoom into the display area.
 - OR -
 - Press and hold the left mouse button, and use the mouse to zoom into the required display area.

06.05.2021 → 07.05.2021 Lokal Aggregated Live



- Click on "-" in the bar to zoom out of the display area.
- OR -
- Press and hold the left mouse button, and use the mouse to zoom out of the required display area.

06.05.2021 → 07.05.2021 Lokal Aggregated Live



8.11.5 Working with templates









You have the option of creating 10 templates.

The selected template and the default template are shown in different colors to clearly distinguish between them.

Requirements

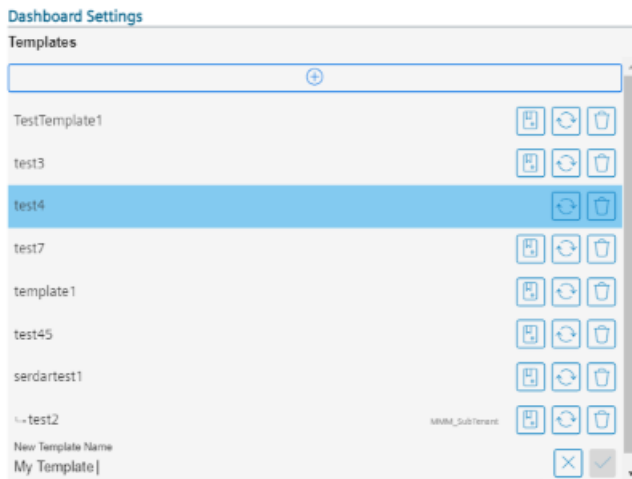
As "Tenant" user, you can also access templates of a "Subtenant".

Icons and buttons

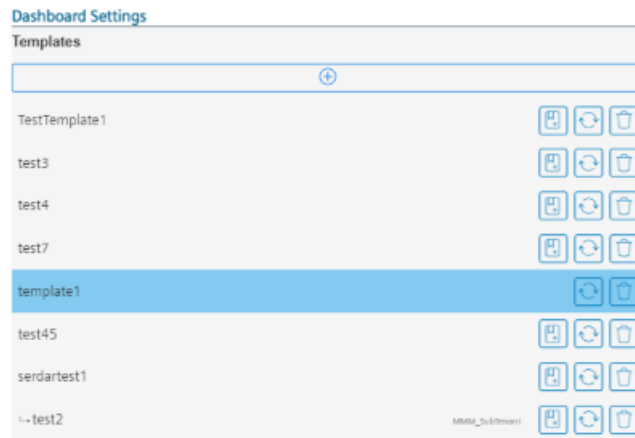
Icon	Description
	The "Dashboard Settings" icon opens the template menu. The icon is deactivated if you are in the edit mode.
	The "Floppy disk" icon opens the dialog box to save as template.
	Opens a text box for the name of the new template.
	Confirms the template name.
	Deletes the template name.
	The "Floppy disk" icon defines the default template for the "Tenant" user.
	The "Arrows" icon completes the template with your current settings.
	The "Recycle bin" icon deletes the template.

Procedure

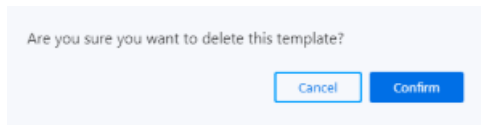
- Click the "Dashboard Settings" icon in the upper right-hand part of the window.
 - OR -
 - Click the "Floppy disk" icon in the lower right-hand part of the window.
- Window "Dashboard Settings" > "Templates" with the template list of the user opens.
 - Click on the "+" icon in the upper part of the window to create a new template with the current chart settings.
 - In the lower part of the window in text box "New Template Name", enter a name and click on the "Checkmark" icon.
 - All other users of this tenant can now see and use your template.
 - OR -
 - To delete the template name, click on the "X" icon.



3. If you wish to use a template as default template, select a template from the list and click on the "Floppy disk" icon.
The template is saved as default template and the "Floppy disk" icon is no longer displayed for this template.
You can only define ONE default template.
The default template is displayed in the "My Dashboards" window.



4. If you wish to update a template with your new configuration, click the "Arrows" icon.
5. If you wish to delete a template, select the template and click on the "Recycle bin" icon.
You receive a confirmation prompt: "Are you sure you want to delete this template?".
 - Click "Confirm" to delete to the template.
 - OR -
 - Click "Cancel" to cancel the operation.



Note

Deleting the default template

If you delete your default template, then the default template is also no longer available to another tenant. A blank page is displayed.

8.11 My Dashboards

6. Message "You will no longer receive updates on changes to the template" is displayed if you have selected a template, and you change the chart or board.
 - Click "Confirm" to confirm the message.
 - OR -
 - Click the "Cancel" button to cancel the operation.

You will no longer receive updates on changes to the template.



7. Message "Do you want to continue to override your current chart configurations?" is displayed if you have configured charts without a template, and you click on a template from "Dashboard Settings".
 - Click "Confirm" to overwrite your configured charts.
 - OR -
 - Click "Cancel" to cancel the operation.

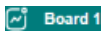


Do you want to continue to override your current chart configurations?



8.11.6 Editing tabs

You have the option of creating additional tabs and deleting tabs.
 You can create up to seven tabs.

Icons and buttons

Parameter	Description
 Board 1	Opens the tab with your configured dashboard. You can save up to seven tabs. More information is provided in Chapters: Generating charts (Page 198) Editing charts (Page 205) Setting the dashboard display (Page 206) Working with templates (Page 209)
	Creates a new tab.
Tabs	Opens the menu with your list of tabs.
Dashboard name	Displays the particular tab.
	Opens the dialog box to delete the tab.

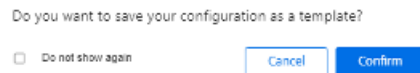
Procedure

Creating a tab

1. To create a new tab, in the upper window bar click on the "+" icon to the right of the Board tab.

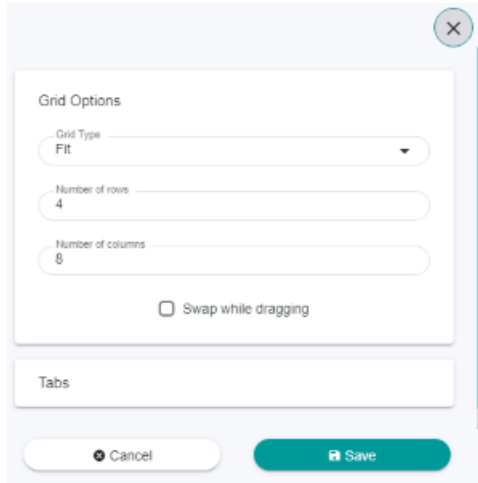


2. Message "Do you want to save your configuration as a template" is displayed.
 - Click on "Confirm" to save the settings as template.
The "Dashboard Settings" menu with the template menu opens.
More information is provided in Chapter: Working with templates (Page 209).
 - OR -
 - Click on "Cancel" to cancel the operation.

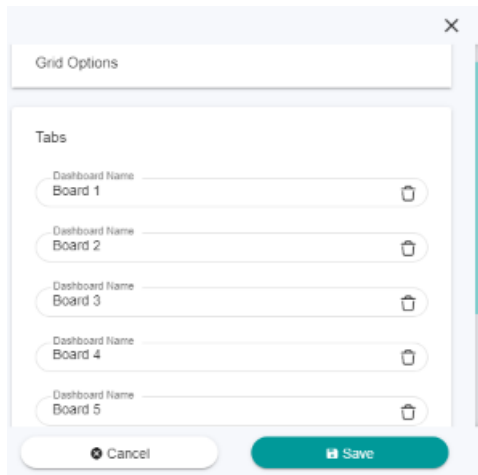


Deleting a tab

1. In "My Dashboards", click the "Gear wheel" icon in the lower left window section. The "Grid Options" edit window opens. Click on "Tabs".



2. The menu with your list of tabs opens.
 - Select the tab that you wish to delete and then click on the "Recycle bin" icon to the right of the tab.



3. The dialog box to delete the tab opens.
 - Click on "Yes" to delete the tab.
 - OR -
 - Click on "No" to cancel the operation.

Dashboard Deletion

Do you want to delete this Dashboard?

No

4. Click on the "Save" button to save the setting.

Renaming a tab

1. In "My Dashboards", click the "Gear wheel" icon in the lower left window section.
2. The edit window opens.
 - Click on "Tabs".
 - The menu with your list of tabs opens. Select the tab that you wish to rename and then enter a new tab name.
 - Click on the "Save" button to save the setting.
 - OR -
 - Click "Cancel" to cancel the operation.

8.12 Manage MyMachines /Spindle Monitor

8.12.1 Overview

You can display the following data of the Weiss spindle:

- Display of the operating data (Page 218)
- Analysis of the clamping system (Page 219)
- Display of the occasions (Page 220)
- Display of the spindle operating diagram (Page 221)
- Display of the operating time (Page 222)
- Display of the tool clamping cycles (Page 222)

Precondition

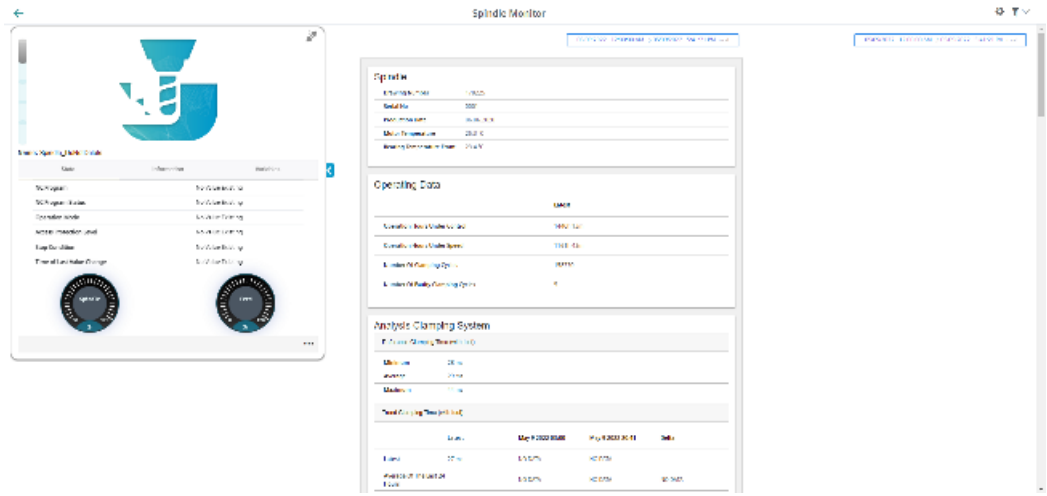
The "Spindle Monitor" function is activated under SINUMERIK defaults.

Further information on this can be found in Chapter: Activating Manage MyMachines /Spindle Monitor (Page 87)

Procedure

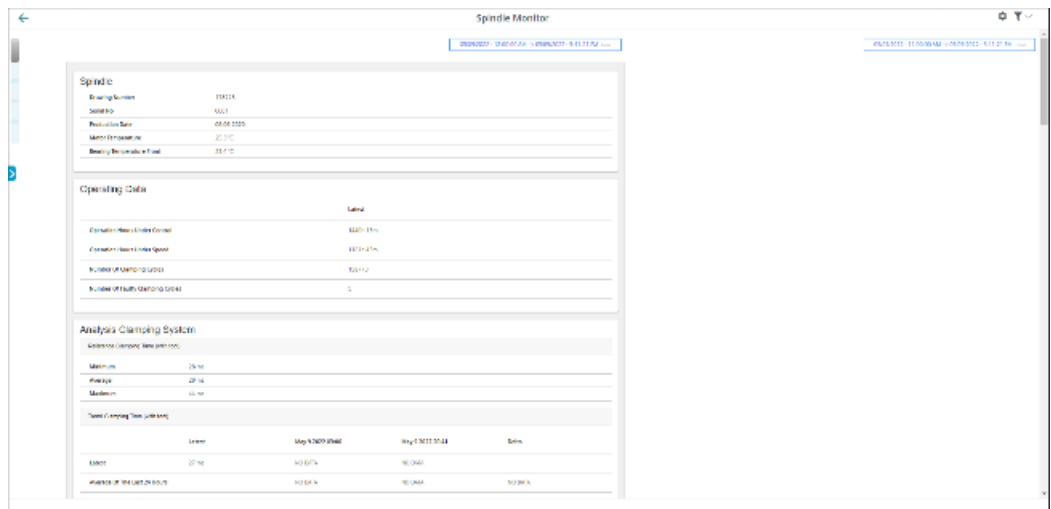
1. In the "Machine Description" area, click on the button with dots.
The list of the other pages is displayed.
2. Select "Spindle monitor".
The "Spindle monitor" page opens.

3. The machine description is shown in the left-hand section of the window. You can see the spindle data in the right-hand section of the window.



4. To collapse the machine description, click on the left-pointing arrow symbol on the right side of the frame.

The spindle monitor is displayed in the full-screen mode.



8.12.2 Displaying spindle data

Weiss spindle data

Display	Description
Drawing Number	The drawing number is comprised of at least 6 digits. The number can also contain the following combinations of letters and digits. The drawing number defines the technical design of the spindle.
Serial No	The serial number is a consecutive number comprised of 4 digits. The drawing number and the serial number precisely define a built spindle.

8.12 Manage MyMachines /Spindle Monitor

Display	Description
Date of manufacture	The production date shows the date of manufacture of the spindle.
Motor Temperature	The motor temperature shows the last measured value of the motor winding temperature in °C before the transfer to MindSphere.
Additional temperature, "Bearing Temperature Front " in this example	The second temperature display stands for an additional measured temperature. The additional temperature is only displayed if a corresponding temperature sensor is installed in the respective spindle. It shows the last measured value before the transfer to MindSphere.

Spindle

Drawing Number	178225
Serial No	0001
Production Date	06.06.2020
Motor Temperature	25.3 °C
Bearing Temperature Front	23.4 °C

8.12.3 Display of the operating data

The following operating data is displayed for the Weiss spindle.

Display	Description
Operation Hours Under Control	Shows the operating period of the spindle under control in hours and minutes.
Operation Hours Under Speed	Shows the operating period of the spindle under speed in hours and minutes.
Number Of Clamping Cycles	Shows the total number of clamping cycle operations. "Clamping state released" → "Clamped with tool" or "Clamped without tool"
Number of incorrect clamping cycles	Shows the accumulated number of the following procedures: Incorrect execution: No completed cycle "Clamping state released" → "Clamped with/without tool" → "Clamping state released"

Operating Data	Latest	Mar 29 2022 09:57	Mar 29 2022 09:55	Delta
Operation Hours Under Control	1446h 13m	1446h 13m	1440h 13m	NO DATA
Operation Hours Under Speed	1161h 43m	1161h 43m	1161h 43m	NO DATA
Number of clamping cycles	158770	158770	158770	NO DATA
Number Of Faulty Clamping cycles	5	5	5	NO DATA

8.12.4 Analysis of the clamping system

The following analysis data is displayed for the Weiss spindle.

Display	Description	
Reference Clamping Time (with tool)	Shows the values of the first 100 clamping procedures that were measured during the commissioning phase of the spindle by the SMI24.	
	Minimum	The shortest determined reference clamping time from the first to the last measured time, with a maximum of 100. Clamping procedure: Clamping state "Released" → "Clamped with tool"
	Average	The average, determined reference clamping time from the first to the last measured, with a maximum of 100. Clamping procedure: Clamping state "Released" → "Clamped with tool"
	Maximum	The longest determined reference clamping time from the first to the last measured, with a maximum of 100. Clamping procedure: Clamping state "Released" → "Clamped with tool"
Trend Clamping Time (with tool)	Shows the values that were measured in the corresponding time periods by the SMI24.	
	Latest	The last determined reference clamping time
	Average Of The Last 24 Hours	The average reference clamping time determined over the last 24 hours from the clamping procedures that took place during that time: Clamping state "Released" → "Clamped with tool"
	Average Of The Last 240 Hours	The average reference clamping time determined over the last 240 hours from the clamping procedures that took place during that time: Clamping state "Released" → "Clamped with tool"
	Average Of The Last 2400 Hours	The average reference clamping time determined over the last 2400 hours from the clamping procedures that took place during that time: Clamping state "Released" → "Clamped with tool"
Number Clamping Operations Tolerance	Shows the time within a clamping procedure between the clamping state "Tool released" and "Clamped without tool"	
	Number of clamping cycles within the clamping time tolerance (without tool)	Accumulated number of clamping cycles without tool, which were within the clamping time tolerance
	Number of clamping cycles outside the clamping time tolerance (without tool)	Accumulated number of clamping cycles without tool, which were outside the clamping time tolerance
	Reference clamping time (without tool)	Factory specification of the time for the clamping operation without tool
	Actual clamping time (without tool)	Measured time for the last performed clamping operation without tool

8.12 Manage MyMachines /Spindle Monitor

Analysis Clamping System				
Reference Clamping Time (with tool)				
Minimum	28 ms			
Average	29 ms			
Maximum	44 ms			
Trend Clamping Time (with tool)				
	Latest	Mar 29 2022 09:37	Mar 29 2022 09:55	Delta
Latest	27 ms	27 ms	27 ms	
Average Of The Last 24 Hours		28 ms	28 ms	-0 ms
Average Of The Last 240 Hours		28 ms	28 ms	-0 ms
Average Of The Last 2400 Hours		28 ms	28 ms	0 ms
Number Clamping Operations Tolerance				
	Latest	Mar 29 2022 09:37	Mar 29 2022 09:55	Delta
Number of clamping cycles within clamping time tolerance (w/o tool)	9991	9991	9991	0
Number of clamping cycles outside clamping time tolerance (w/o tool)	0	0	0	0
Clamping reference time (w/o tool)	180000			
Clamping actual time (w/o tool)	44625			

8.12.5 Display of the occasions

The following occasions are displayed for the Weiss spindle.

Display	Description
Upper limit violation type	<ul style="list-style-type: none"> • PTC motor temperature • Alarm motor temperature • Incorrect motor temperature • Alarm KTY2 temperature • Incorrect KTY2 temperature
Occurrence	Display of the accumulated number of upper limit violations
Total duration	Display of the accumulated time during which a violation of the limit value existed
Last point in time	Display of the time stamp of the exceedance of the limit value: date, time
Δ Occurrence	Display of the accumulated number of the upper limit violations during a predefined time period
Δ Total duration	Display of the accumulated time during which upper limit violations existed during a predefined time period

Occasions

Exceedance Type	Occurrence	Total Duration	Last Time	Δ Occurrence Mar 29 2022 09:37 Mar 29 2022 09:55	Δ Total Duration Mar 29 2022 09:37 Mar 29 2022 09:55
PTC Motor Temperature	0	0 s	01.01.1970	0	0 s
Warning Motor Temperature	80	4450 s	20.01.2018	0	0 s
Faulty Motor Temperature	28	3680 s	20.01.2018	0	0 s
Warning KTY2 Temperature	0	0 s	01.01.1970	0	0 s
Faulty KTY2 Temperature	0	0 s	01.01.1970	0	0 s

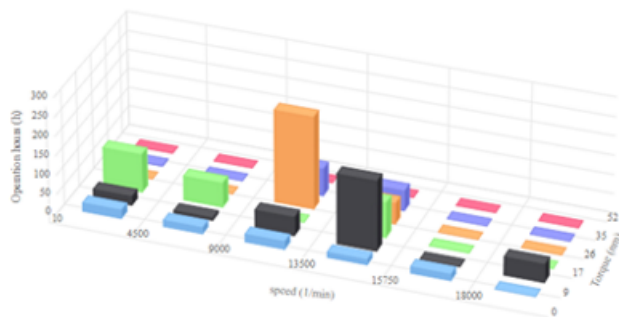
8.12.6 Display of the spindle operating diagram

The heights of the individual bars correspond to the percentage time shares, the dwell time, relative to the operating hours under speed.

The widths of the bars correspond to the evaluated speed or torque range.

Position the cursor on the respective bar to also display the number of accumulated operating hours under speed.

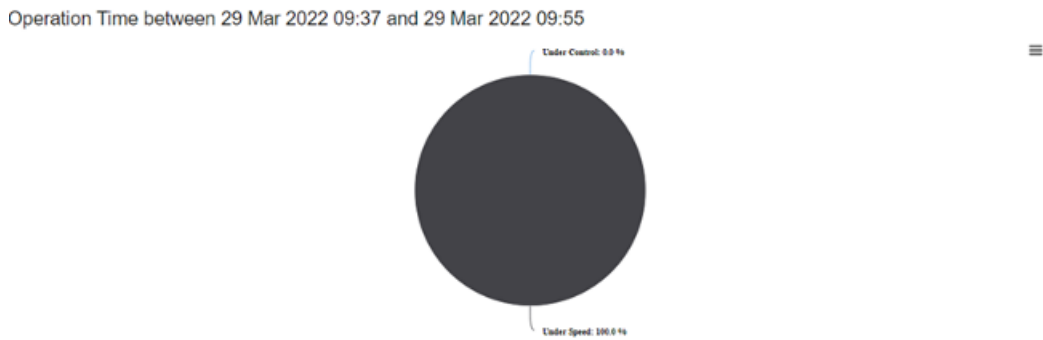
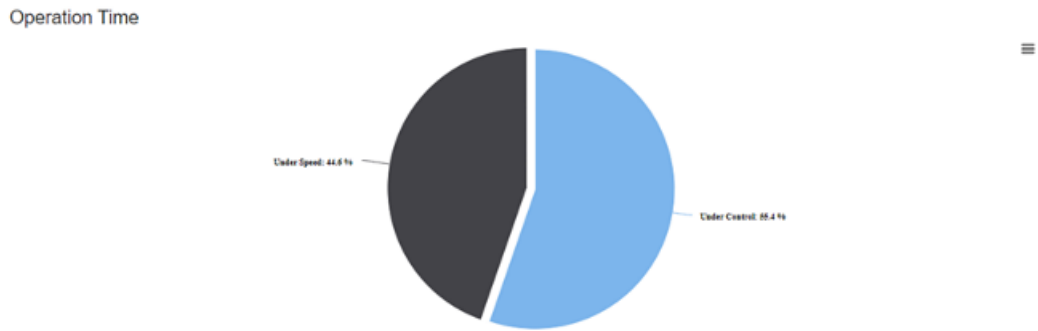
Spindle Operation Chart



Log Scale Linear Scale

8.12.7 Display of the operating time

The runtime diagram shows the ratio of measured runtime under control and the measured runtime under speed.
 If the operating time of the spindle under speed was exactly as long as it was under control, the time shares are displayed with 50% respectively.



8.12.8 Display of the tool clamping cycles

The following tool clamping cycles are displayed in the bar diagram for the Weiss spindle:

Display	Description
Total clamping cycles	The height of the bar "Total clamping cycles" shows the number of all cycles "Clamping state released" → "Clamped with tool"
Total erroneous clamping cycles	The height of the bar "Total erroneous clamping cycles" shows the number of clamping cycles that fulfilled the following criteria: Incorrect execution No completed cycle "Clamping state released" → "Clamped with/without tool" → "Clamping state released"












8.13 Machine location

In the "Machine Location" view, you can view the locations of your assets in different environments:

- Global - assets are shown on a world map
- Street - assets are shown on a street map
- Shopfloor - assets are shown in the machine hall

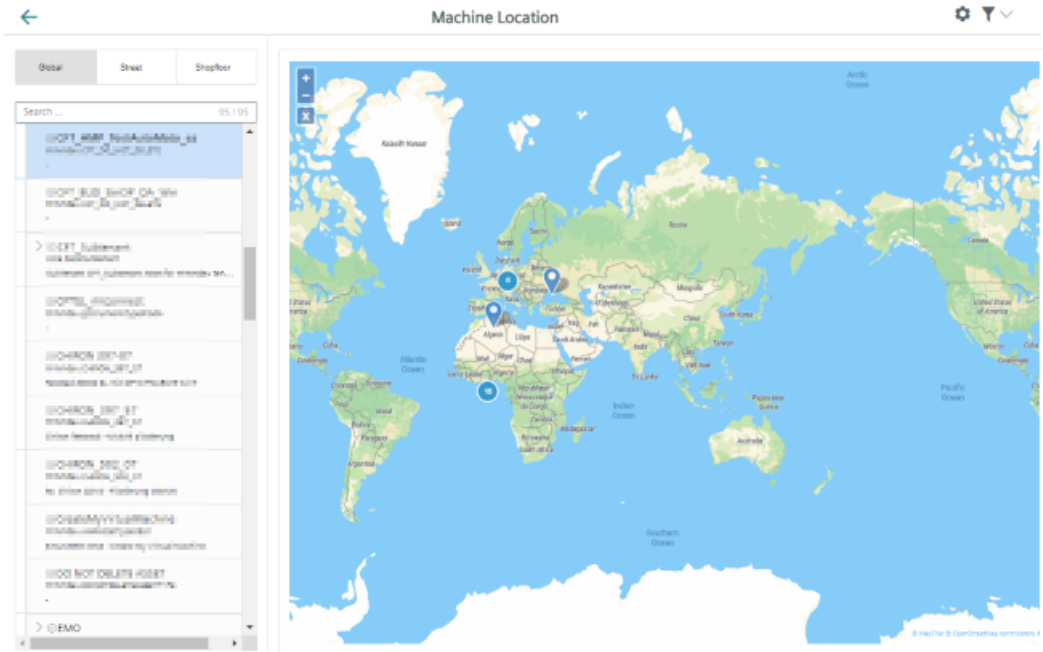
Parameter

Tabs/buttons	Description
Global	Displays the machine locations on a map of the world
Street	Displays the machine location with precise address.
Shopfloor	Displays the machine location on the shopfloor.
Search ...	Enter the name of the asset in the input field. You obtain a selection of your assets after entering just a few letters.
Tab "Global" / "Street" / "Shopfloor"	
	You can zoom in or out of the map view using "+" and "-".
Tab "Shopfloor"	
	Adapting to the view.
	Returning to the previous level.
	You can edit the hall layout if the machine location changes in the machine hall.
	Save changes
	Do not apply changes
	Opens the Explorer to open and upload the required hall plan.
	Additional options
	Deletes the saved hall plan.

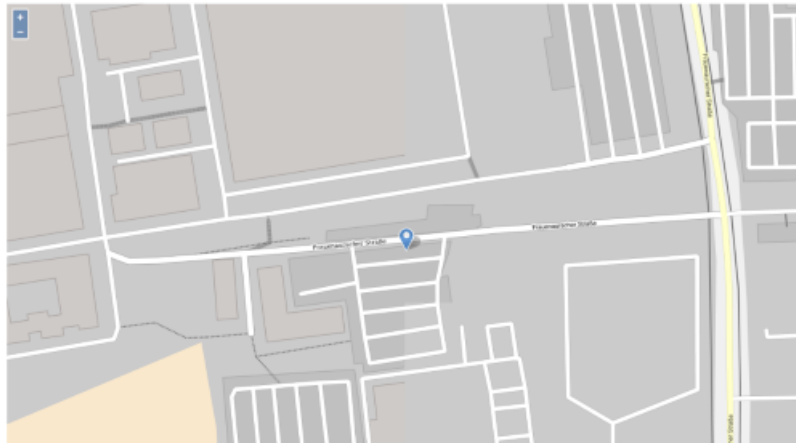
Procedure

1. In the machine overview, select the required machine and click on the button with dots.
2. Click on "Machine Location".
3. The "Machine Location" window opens.
The selected machine is displayed in a map of the world.

4. Zoom in or out of the map using the "+" or "-" buttons.
- OR -
Zoom using the mouse wheel.



5. Click on "Street".
The machine location is displayed on a street map.



8.13 Machine location

6. Click on "Shopfloor".
The location of the machine on the shopfloor is shown.
 - Click on "Upload".
The Explorer opens. Navigate in the directory to select a hall plan.
 - You can edit the hall layout if the machine location changes in the machine hall.
Click on "Edit".



7. Message "Level diagram not found" is displayed if a hall layout has not been assigned to a machine.
 - Click on "Back" if you do not wish to create a hall layout.
 - Click on "Upload" to save a hall layout.

8.14 Motor temperature

"Motor temperatures" is a user-defined view to monitor the motor temperatures of a machine. The temperature characteristics of all configured axes are displayed in an overview. A separate chart is displayed for each axis. You can influence the view based on different criteria.

Precondition

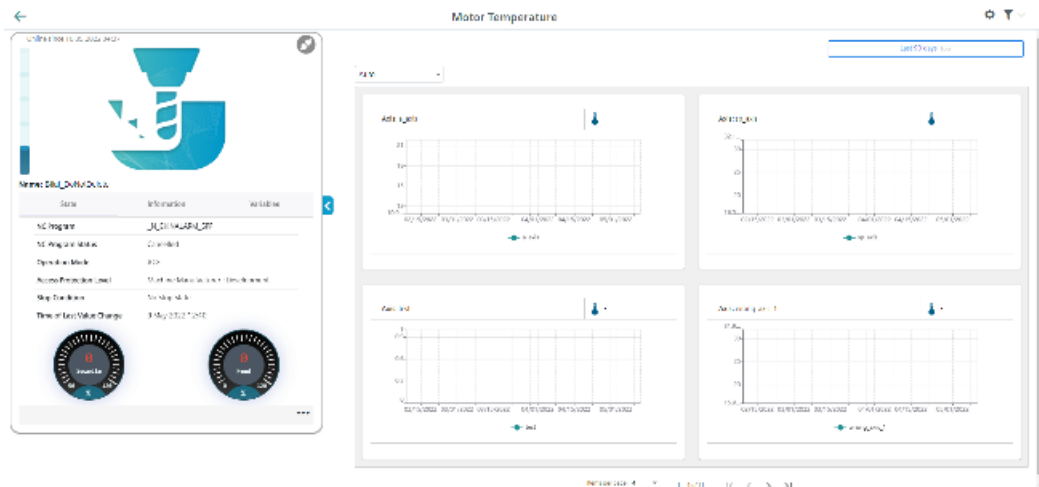
- To activate data acquisition, the "Variable Recording" slider must be activated in the asset. **More information** is provided in Chapter: Activating the data acquisition (Page 78)
- The motor temperature variable must be configured. **More information** is provided in Chapter: Configuring variables (Page 98).
- The name of the motor temperature variable must start with "mmm_mt" so that the data sets are displayed on the "Motor Temperature" page.

Parameters

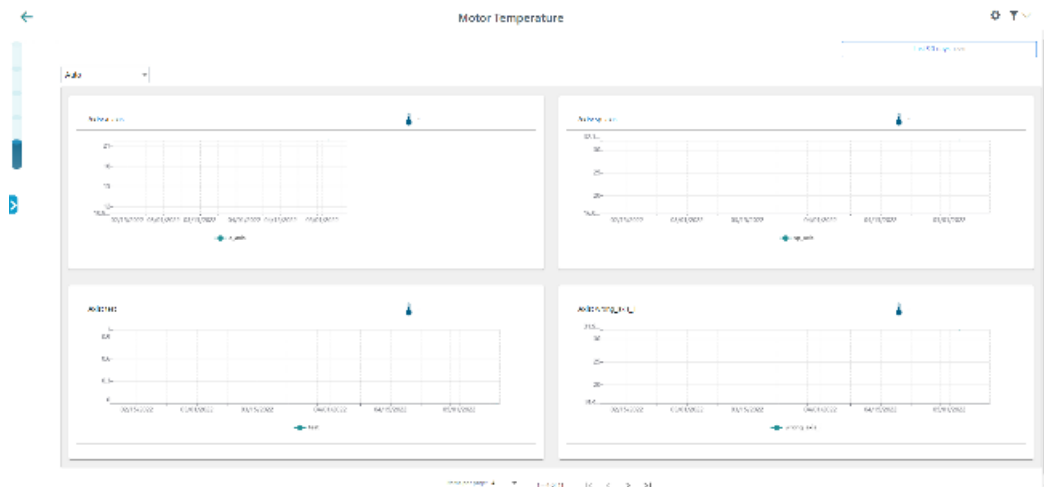
Button	Description
05/12/2020 → 06/16/2020 utc	Displays the time range and the time zone used. Opens the calendar function.
Item per page	From the drop-down list, select how many charts should be displayed on one page: <ul style="list-style-type: none"> • 4 • 8 • 20 • 40
x - y of z	Indicates which charts are displayed from a total number.
Mode	The following modes can be selected: <ul style="list-style-type: none"> • Aggregate mode: Displays the first and last values, sorted by time stamp for each unit. • Raw mode: Displays the last 256 values. If there are more data points in the selected time range, this is indicated by a dotted line. • Auto mode: Switches automatically between both modes depending on the time range.
<	Scrolls to the first page.
<	Scrolls to the previous page.
>	Scrolls to the next page.
>	Scrolls to the last page.

Procedure

1. In the "Machine Description" area, click on the button with dots.
2. Select "Motor Temperature".
3. The machine description is shown in the left-hand section of the window.
4. In the right-hand section of the window, select the time range using the calendar function.
More information is provided in Chapter: Using the calendar function (Page 233)
5. The underlying data are displayed when you move the mouse over the chart.
 - The charts show a line chart of the aggregated or raw time series data for the motor temperature aspect variables during a specific date/time range.
 - You can select Aggregate, Raw, or Auto mode.



6. To collapse the machine description, click on the left-pointing arrow symbol on the right side of the frame.
The motor temperature is displayed in the full-screen mode.



8.15 Files

You have the option of saving files for an asset in MindSphere. Manage MyMachines provides the following functions:

- Listing files
- Upload
- Download
- Deleting





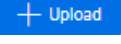

Note

Configuring the target directory for the download

Ensure that a target directory for the download has been configured in your browser.

The exported data is stored in several files depending on the data volume.

Parameter

Parameter	Description
	Switch to select the time: <ul style="list-style-type: none"> • Activated - all files are displayed • Deactivated - only files of the selected time range are displayed
	Displays the time range and the time zone used. Opens the calendar function. More information: Using the calendar function (Page 233)
	Opens a window with switches to select the displayed columns: <ul style="list-style-type: none"> • Name • Path • Type • Size • Date of creation • Date of change • Description
	After a confirmation prompt, deletes the selected file in MindSphere.
	Loads a file to MindSphere.
	Creates a local copy of the file.

Procedure

1. Select the required machine in "Manage MyMachines".
2. Click on the button with dots and select function "Files".

8.16 Error analysis

You have the option of displaying an error analysis on the machine dashboard.

Precondition

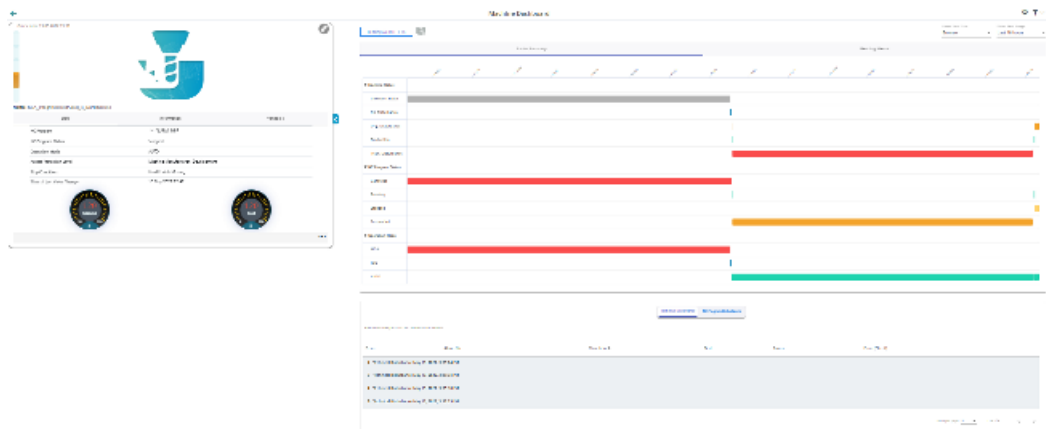
- You have activated the error analysis functionality "SINUMERIK Service Assistance /Failure Analysis" in the "Shopfloor Management Application" application.
- You have activated the "SINUMERIK Service Assistance Functionality". More information is provided in Chapter: SINUMERIK Service Assistance (Page 122)
- The aspects of the particular asset must be configured so that the error analysis function can be used. The configuration is realized automatically in the code.

Parameters

Parameter	Description
Disturbance type	
Tech. Disturbance	Displays a technical disturbance.
NC Program Disturbance	Displays an NC program disturbance.
Alarms	
From	Displays the instant in time.
Alarm number	Displays the alarm number
Deletion information	Displays the deletion information.
Alarm text	Displays the alarm text.
Source	Displays the source.
Of (client)	Displays the clients.

Procedure

1. Click on the button with dots in the "Machine description" area.
2. Select "Error analysis".
The error analysis is displayed in the lower right-hand window.

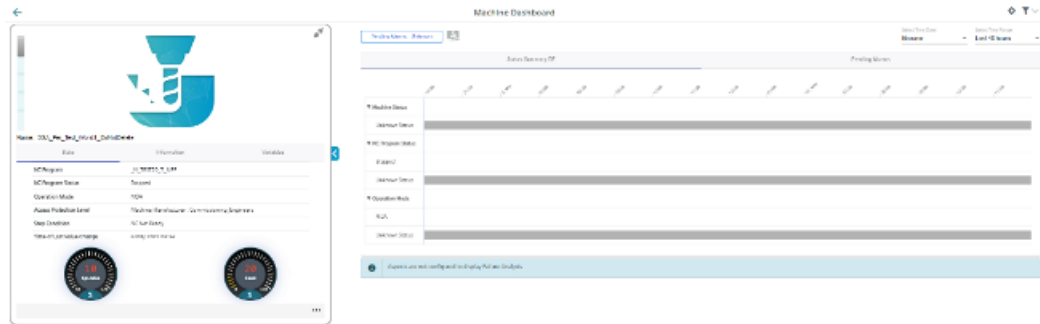


Error messages

- If you have activated the error analysis functionality in the Shopfloor-Management application, but not in the SINUMERIK Service Assistance application, then instead of the error analysis, the following error message is displayed in the lower right-hand half of the screen: "You need to enable Machine Error Analysis on the Activation Page in SINUMERIK Service Assistance to use Failure Analysis"
More information is provided in Chapter: SINUMERIK Service Assistance (Page 122)



- If you have not correctly configured the aspects required for the error analysis, instead of the error analysis, the following error message is displayed in the lower right-hand half of the screen: "Aspects are not configured to use Failure Analysis."



More information is provided in Chapter: Aspects (Page 188)

8.17 Using the calendar function

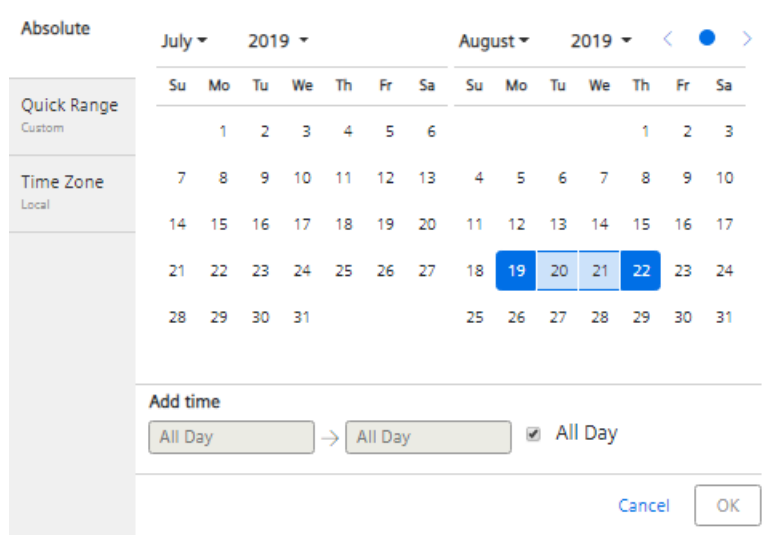
Some Manage MyMachines pages offer the option of adapting the display to address your specific requirements by allowing you to set the time range and time zone using the calendar function.

Button / parameter

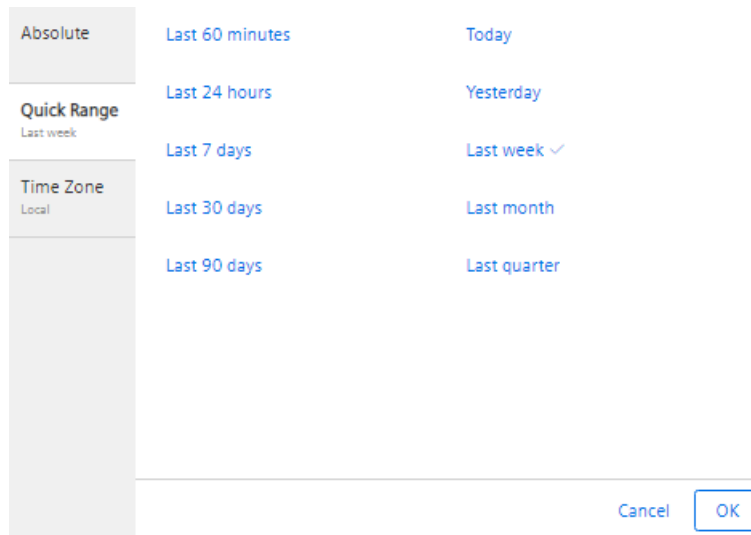
Button/parameter	Description
05/12/2020 → 06/16/2020 UTC	Displays the time range and the time zone used. Opens the calendar function.
Absolute	Manually entering a fixed time range
Relative	Selecting a relative time range: <ul style="list-style-type: none"> • Last 60 minutes • Last 24 hours • Last 7 days • Last 30 days • Last 90 days • Today • Yesterday • Last week • Last month • Last quarter
Time zone	Selecting the time zone used <ul style="list-style-type: none"> • Local: Local time at the machine location • UTC: World time

Procedure

1. Click in the top right-hand section of the window on the time range display. The calendar window opens.
2. To use a fixed time range:
 - Open the "Absolute" tab.
 - Click on the required start date.
 - Click on the required end date.
 - Enter a precise time in format hh:mm:ss.
 - OR -
 - Activate the checkbox "All Day".



3. To use a relative time range:
 - Open the "Relative" tab.
 - Click on the required time range.



4. Open the "Time zone" tab, and select the required time zone.
5. Click on "OK".
The calendar window is closed. The new time range and the time zone used are displayed on the button.




8.18 Remote sessions with Manage MyMachines

You can also start or enter remote sessions via Manage MyMachines.

Precondition

- You have purchased Manage MyMachines and Manage MyMachines /Remote for the particular tenant.
- You are logged in as user and have Manage MyMachines and Manage MyMachines /Remote rights.
- Access to Manage MyMachines and Manage MyMachines /Remote for the required asset is activated.
More information can be found in Chapter: Activating/deactivating Manage MyMachines (Page 86).

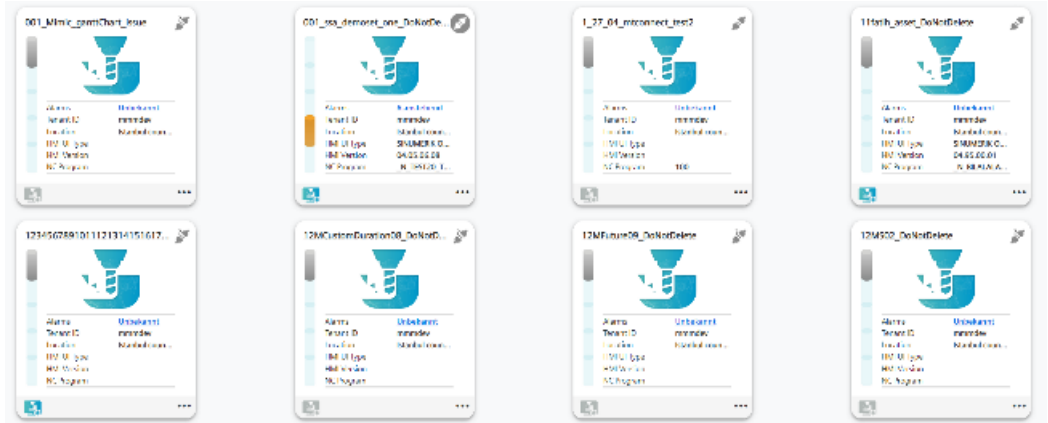
Parameters



Icon	Description
	<ul style="list-style-type: none">• You have no rights to start the remote session.<ul style="list-style-type: none">– The rights for Manage MyMachines /Remote were not assigned to the user or were removed.– Manage MyMachines /Remote was not purchased for the tenant- OR -• Manage MyMachines /Remote is not activated.<ul style="list-style-type: none">– The subscription is not activated or has expired.
	You can start a new remote session.
	You can join an existing remote session.

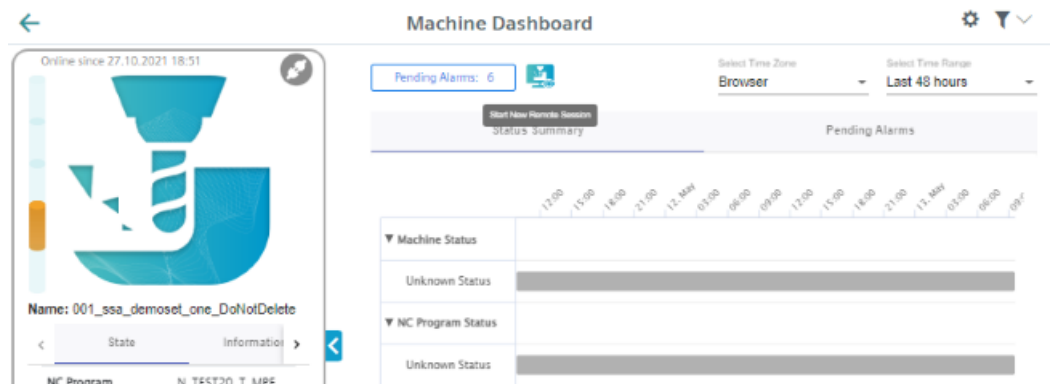
8.18.1 Start new remote session

Procedure

1. In the launch pad, click on the "Manage MyMachines MindSphere" icon.
2. The "Machine Overview" window opens and the available machines are displayed.

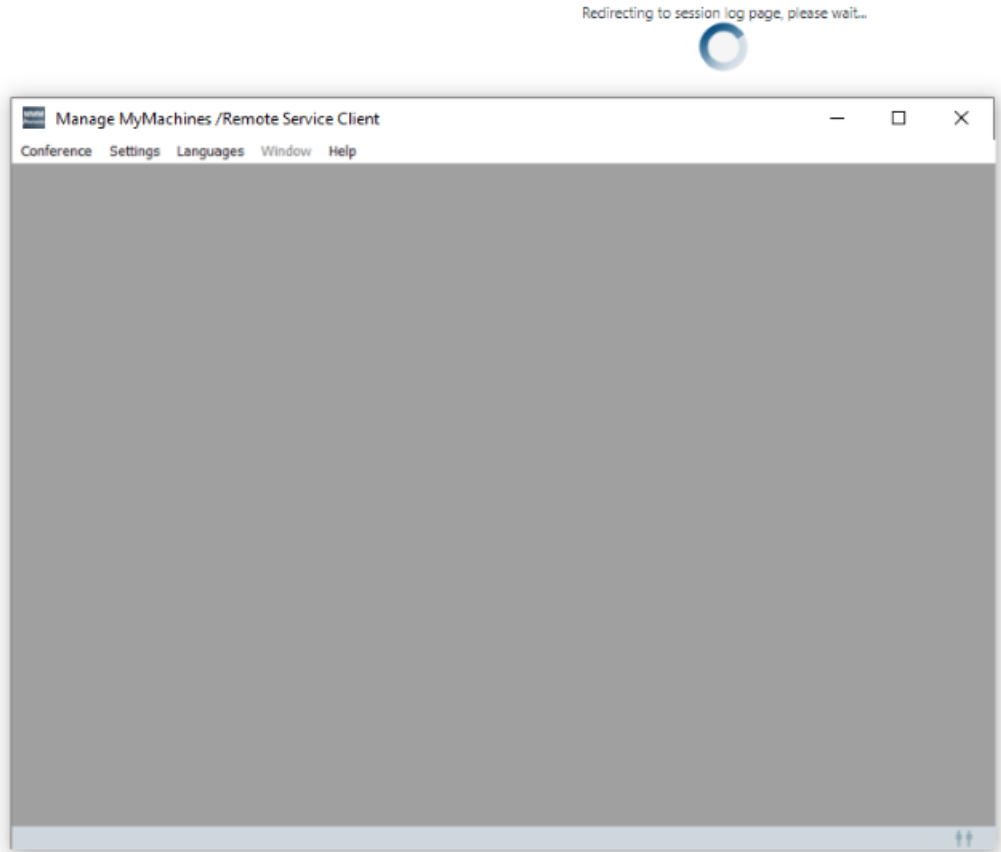


3. Click on the blue "MMM /R" icon "Start new remote session"  of the required asset.
- OR -
Click on the underscored name of the required machine.
The "Machine Dashboard" window opens.
Click on the blue "MMM /R" icon next to the "Pending Alarms" display.
- OR -
Click on the  icon of the required machine and click on "Dashboard".
The "Machine Dashboard" window opens.
Click on the blue "MMM /R" icon next to the "Pending Alarms" display.

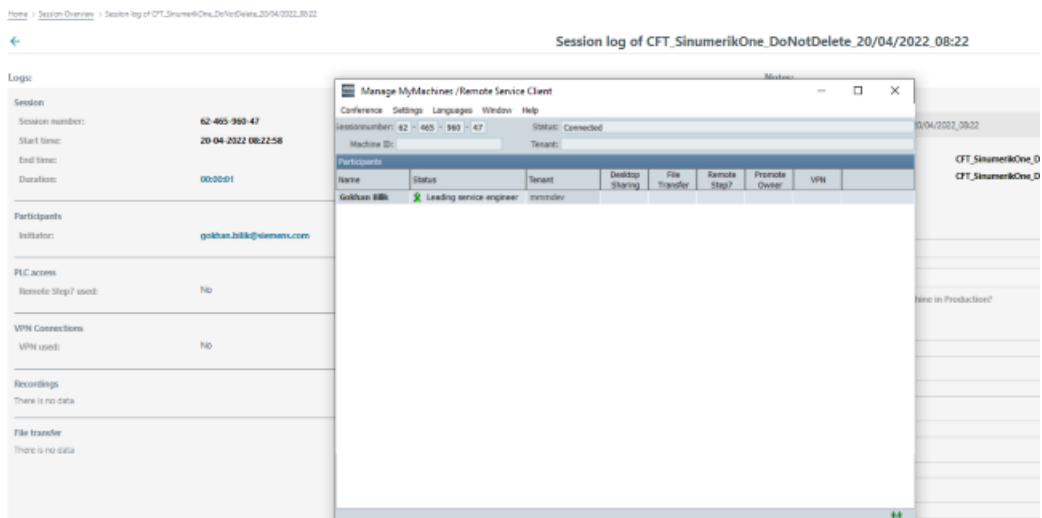


8.18 Remote sessions with Manage MyMachines

- 4. The "Manage MyMachines /Remote Service Client" session window opens.



- 5. A new remote session is started and the log details for the selected asset are displayed.



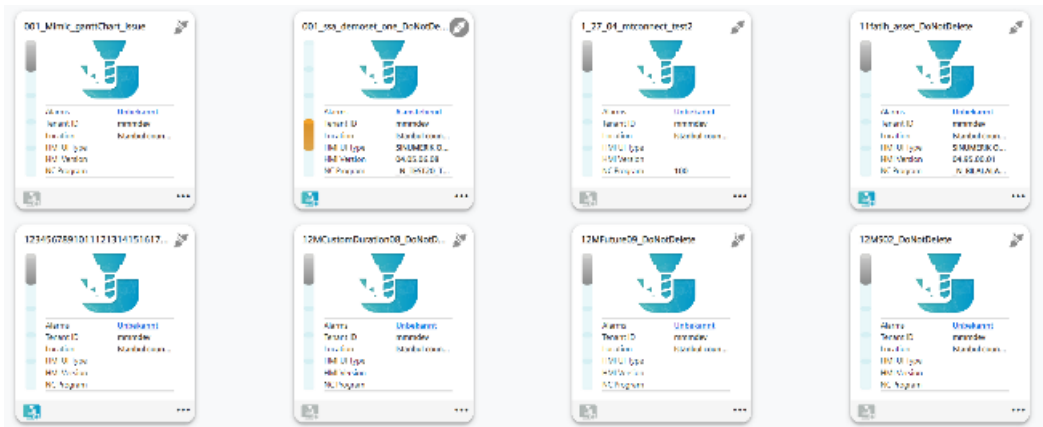
8.18.2 Joining a remote session

Precondition



- The session is active.
- The service engineer and machine operator have already joined the session.
The following warning message is output if there are no active owners in the session:
"Terminated: There is no owner SE or MO yet".
- It is not permissible that a desktop is continually shared and/or files transferred.
The following warning message is output if the desktop is shared and/or files transferred.
"Aborted: Joining is not allowed during ongoing desktop sharing or file transfer".

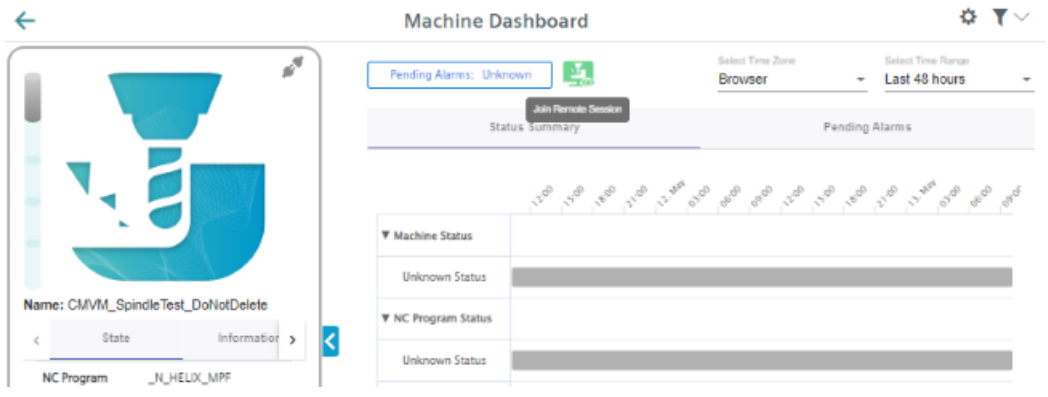
Procedure

1. In the launch pad, click on the "Manage MyMachines MindSphere" icon.
2. The "Machine Overview" window opens and the available machines are displayed.

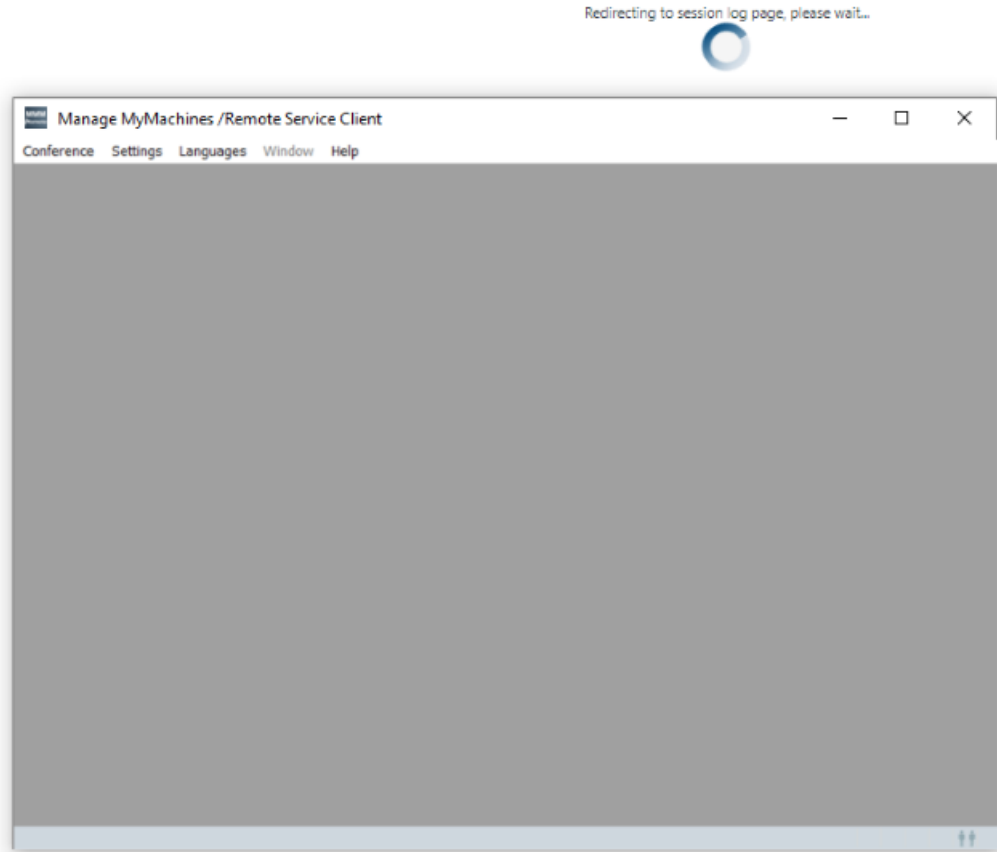


8.18 Remote sessions with Manage MyMachines

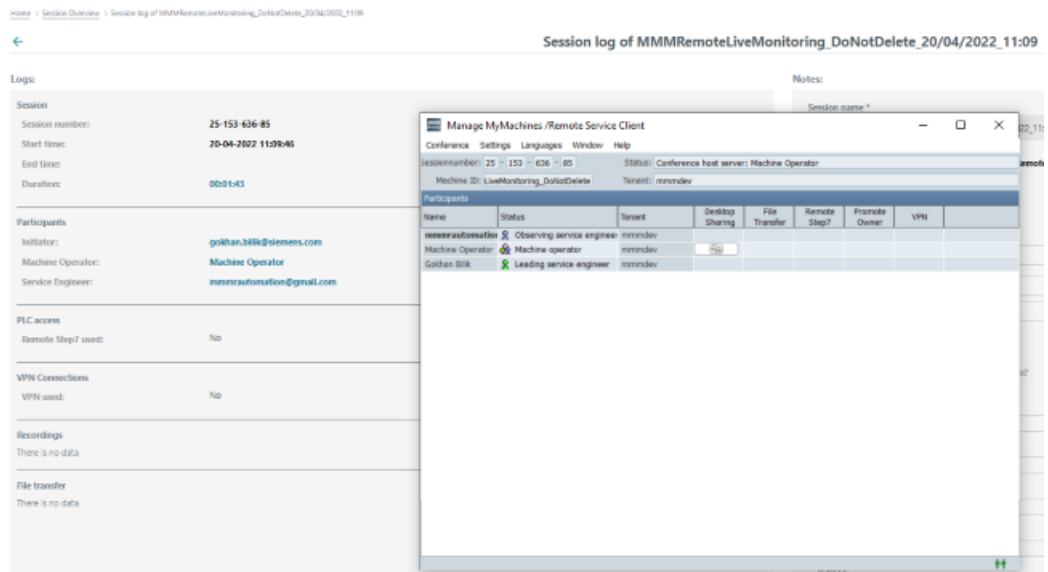
- 3. Click on the blue "MMM /R" icon "Join remote session"  of the required asset.
 - OR -
 - Click on the underscored name of the required machine.
 - The "Machine Dashboard" window opens.
 - Click on the green "MMM /R" icon next to the "Pending Alarms" display.
 - OR -
 - Click on the  icon of the required machine and click on "Dashboard".
 - The "Machine Dashboard" window opens.
 - Click on the green "MMM /R" icon next to the "Pending Alarms" display.



- The "Manage MyMachines /Remote Service Client" session window opens.



- You join the remote session and the log details for the selected asset are displayed.



Disconnecting the SINUMERIK control system from MindSphere

9

9.1 Overview

Introduction

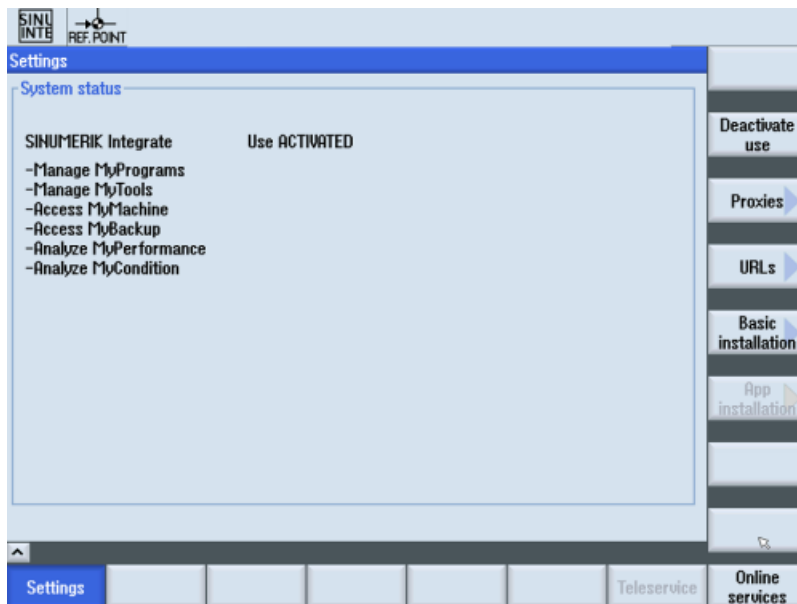
If you no longer wish to use the MindSphere application on your SINUMERIK control system, proceed as follows:

1. Lock SINUMERIK Integrate: Deactivating use of SINUMERIK Integrate (Page 244)
2. In the "Asset Manager", disconnect the machine tool system from MindSphere: Disconnecting the SINUMERIK control system from MindSphere (Page 245)

9.2 Deactivating use of SINUMERIK Integrate

Procedure

1. Press the "SINUMERIK Integrate" softkey.
The "SINUMERIK Integrate" welcome window opens.
2. Press the "Settings" softkey.
The "Settings" window opens displaying the system status "Use ACTIVATED".
 - Press the "Deactivate use" softkey.



3. You obtain the confirmation prompt "Do you really want to deactivate the use of the SINUMERIK Integrate applications?".
 - Press the "OK" softkey to confirm the prompt.
The use of SINUMERIK Integrate applications is deactivated.

9.3 Disconnecting the SINUMERIK control system from MindSphere

Using the MindSphere application "Asset Manager", disconnect the SINUMERIK control from MindSphere.

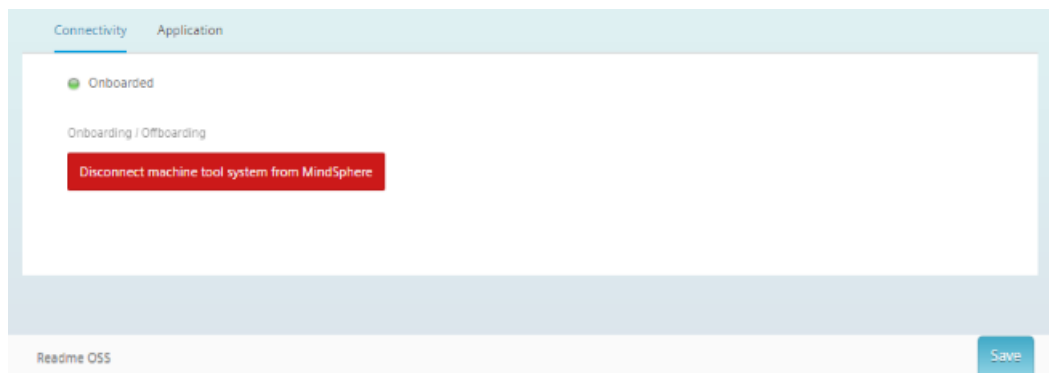
More information on roles within MindSphere and on configuring assets is provided in: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Requirement

In MindSphere, you require role "mtaassetconfig" as standard user or administrator.

Procedure

1. In the Launchpad, open the "Asset Manager" MindSphere application.
2. Select the required asset in the left-hand side of the window.
3. In the right-hand side of the window under "Connectivity", click on the arrow next to "MTA Asset Config".
4. Under the "Connectivity" tab, you can see the connection status, e.g. "Onboarding...".
 - Click the "Disconnect machine tool system from MindSphere" button to disconnect the asset from MindSphere.
 - Click "Save" to save the setting.



Note

After MindSphere and the machine tool have been disconnected, we recommend deleting the following files from your SINUMERIK control system:

- All files in the "boot_job" folder
- All files in the "cache" folder
- All files in the "service_job" folder

You will find the files:

- If you use PCU/IPC under: C:\temp
- If you use NCU under: /var/tmp

Appendix

A.1 Determining the address of the spindles (only for 828D)

The address of a spindle with Sensor Module SMI24 is defined during commissioning. It depends on the position of the spindle in the SINAMICS topology and on the identifiers used.

You can subsequently determine the address in SINUMERIK Operate.

Determining machine axes of type Spindle

1. In SINUMERIK Operate, select operating area "Startup"
The "Machine Configuration" list opens.
2. Look for the rows whose machine axes are of type Spindle and note down their drive numbers and identifiers.

SIEMENS SINUMERIK OPERATE 04/17/19 4:03 PM						
Machine configuration						
Machine axis Index	Name	Type	Drive No.	Identifier	Motor Type	Channel
1	MX1	Linear				CHAN1
2	MY1	Linear				CHAN1
3	MZ1	Linear				CHAN1
4	MSP1	Spindle	1	SPINDLE	ARM1	CHAN1
5	MSP2	Spindle	5	SERVO 4	ARM1	CHAN1

Current access level: Manufacturer

MD Mach. data NC Drive system PLC HMI System data Optim./test

Check whether Sensor Module SMI24 is connected

1. Press softkey "Masch. Data" and "Drive Parameters" to show the drive parameters.
2. Press the "Select Drive" softkey and select the drive that you noted down.
3. Press the "Search" softkey and enter "p4100" as the search form.
If parameter "p4100" is found, this means that a SMI24 is connected to the drive that you selected.
4. If parameter "p4100" is not found, check the parameter of the next spindle.

Group	All	Filters						
r3925[0]	Identification final display	21H M						
p3940[0]	Motor/controller data calculation	[0] No calculation M						
p3981	Acknowledge drive object faults	0 M						
p3985	Master control mode selection	[0] Change master contro... M						
r3986	Number of parameters	1333 M						
r3996[0]	Parameter write inhibit status:Progress calculations	0 M						
r3996[1]	Parameter write inhibit status:Cause	0 M						
r3998[0]	First drive commissioning	2 M						
p4100	Spindle supplementary temperature sensor type	[2] KTY84 M						
p4102[0]	Spindle supplementary temperature fault threshold/alarm thresh.:Alarm...	60.0 °C M						
p4102[1]	Spindle supplementary temperature fault threshold/alarm thresh.:Fault ...	70.0 °C M						
p4103	Spindle supplementary temperature delay time	0.000 s M						
r4104	Spindle supplementary temperature status	0H M						
r4105	Spindle supplementary temperature actual value	29.3 °C M						
r4107	Spindle supplementary temperature sensor use	[2] Bearing temperature f... M						
Spindle supplementary temperature sensor type								
Search term no longer found.								
^	General MD	Channel MD	Axis MD	User views	Control Unit parameter	Infeed parameter	Drive parameter	>

Determining the address of the SM124

You can read off the position of the spindle in the SINAMICS topology on the title bar of the drive parameter. The information is displayed as follows:

<number of machine axis>:<name of machine axis>/<bus number>.<slave number>:<DO number>/<identifier of machine axis>

- Note down the "Bus number" and "Slave number" of the spindle.
In the following example, the "Bus number = 3" and the "Slave number = 3":

AX4:MSP1/3.3:3/SPINDLE

- In the "SINUMERIK presets" window of the Asset Manager, you require both of these values as well as the drive number from the "Machine Configuration" list.

A.2 Determining the address of the spindles (only for 840D sl)

The address of a spindle with Sensor Module SMI24 is defined during commissioning. It depends on the position of the spindle in the SINAMICS topology and on the identifiers used.

You can subsequently determine the address in SINUMERIK Operate.

Determining machine axes of type Spindle

1. In SINUMERIK Operate, select operating area "Startup"
The "Machine Configuration" list opens.
2. Look for the rows whose machine axes are of type Spindle and note down their drive numbers and identifiers.

Machine axis Index	Name	Type	Drive No.	Identifier	Motor Type	Channel
1	X1	Linear				CHAN1
2	Y1	Linear				CHAN1
3	Z1	Linear				CHAN1
4	SP1	Spindle	4	SERVO_3.3:3	ARM1	CHAN1
5	SP2	Spindle	5	SERVO_3.3:4	ARM1	CHAN1

Check whether Sensor Module SMI24 is connected

1. Press softkey "Masch. Data" and "Drive Parameters" to show the drive parameters.
2. Press the "Select Drive" softkey and select the drive that you noted down.
3. Press the "Search" softkey and enter "p4100" as the search form.
If parameter "p4100" is found, this means that a SMI24 is connected to the drive that you selected.
4. If parameter "p4100" is not found, check the parameter of the next spindle.

SIEMENS		SINUMERIK OPERATE 04/17/19 3:48 PM		W	JOG
Drive parameters				AX4:SP1/SERVO_3.3:3	
r3927[0]	Motor data identification induction motor data det...	0H			
r3928[0]	Motor data identification synchronous motor data ...	0H			
p3940[0]	Motor/controller data calculation	[0] No calculation			
r3979	BICO counter drive object	24CH			
p3981	Acknowledge drive object faults	0			
p3985	Master control mode selection	[0] Change mast...			
r3986	Number of parameters	1357			
r3996[0]	Parameter write inhibit status:Progress calculations	0			
r3996[1]	Parameter write inhibit status:Cause	0			
r3998[0]	First drive commissioning	2			
p4100	Spindle supplementary temperature sensor type	[2] KTY84			
p4102[0]	Spindle supplementary temperature fault threshol...	55.0 °C			
p4102[1]	Spindle supplementary temperature fault threshol...	60.0 °C			
p4103	Spindle supplementary temperature delay time	0.000 s			
r4104	Spindle supplementary temperature status	0H			
r4105	Spindle supplementary temperature actual value	21.3 °C			
r4107	Spindle supplementary temperature sensor use	[2] Bearing tem...			
p4600[0]	Motor temperature sensor 1 sensor type	[0] No sensor			
p4601[0]	Motor temperature sensor 2 sensor type	[0] No sensor			
p4602[0]	Motor temperature sensor 3 sensor type	[0] No sensor			
p4603[0]	Motor temperature sensor 4 sensor type	[0] No sensor			
Spindle supplementary temperature sensor type					
^					
General MD	Channel MD	Axis MD	User views	Control Unit parameter	Infeed parameter
					Drive parameter

Determining the address of the SMI24

You can read off the position of the spindle in the SINAMICS topology on the title bar of the drive parameter. The information is displayed as follows:

<number of machine axis>:<name of machine axis>/<identifier of machine axis>

The <identifier of machine axis> comprises

<string>_<bus number>.<slave number>:<DO number>

1. Note down the "Bus number" and "Slave number" of the spindle.
In the following example, the "Bus number = 3" and the "Slave number = 3":

AX4:SP1/SERVO_3.3:3

2. In the "SINUMERIK presets" window of the Asset Manager, you require both of these values as well as the drive number from the "Machine Configuration" list.

A.3 List of abbreviations

Admin	Administrator (user role)
AMC	Analyze MyCondition
AMP	Analyze MyPerformance
CNC	Computerized Numerical Control
COM	Communication
DIR	Directory
FAQ	Frequently Asked Questions
h	Hour
HTTP	Hypertext Transfer Protocol
HTTPS	HyperText Transfer Protocol Secure
IB	Commissioning engineer (user role)
ID	Identification number
IE	Internet Explorer
IFC	Interface Client
IoT	Internet of Things
IPC	Industrial PC
KPI	Key Performance Indicator
MB	Megabyte
MLFB	Machine-Readable Product Code
MMM	Manage MyMachines
MSTT	Machine control panel
NC	Numerical Control
NCU	Numerical Control Unit, NC hardware unit
OEE	Overall Equipment Efficiency
OEM	Original Equipment Manufacturer
OP	Operation Panel
OSS	Open Source Software
PC	Personal Computer
PCU	PC Unit, computing unit
PLC	Programmable Logic Control: PLC
SI	SINUMERIK Integrate
SK	Softkey
SW	Software
URL	Uniform Resource Locator
UTC	Universal Time Coordinated, coordinated global time

Glossary

Aspects

Aspects or variable sets are a group of the same data points / variables and describe the context of the imported data, e.g. wear.

Asset

For MindSphere, an asset is each connected element that provides data. This can be a machine or an individual component. In conjunction with this documentation, an "asset" is a machine tool with SINUMERIK 840D sl.

Asset Manager

The "Asset Manager" is a MindSphere application. The assets of a machine are created and configured in the "Asset Manager". The application is also used for the management of customers, users and shop floors.

Data points or variables

For "Manage MyMachines", data points or variables are all the values that can be acquired from the NC, the PLC and from the drives, e.g. sampling rate, temperature, jerk. They must be defined and configured in the asset configuration as data points. The data is combined into aspects. The captured values are then displayed as time series in "Manage MyMachines" under "Aspects". There are also preconfigured data sets, such as the SINUMERIK basic configuration and the machine availability. Details can be found in the relevant sections.

MindSphere - Industrial IoT ecosystem from Siemens

MindSphere – the open cloud platform from Siemens – is the core component of a high-performance IoT operating system. It offers data analysis, comprehensive connectivity, tools for developers, applications and services. MindSphere supports you in the analysis and utilization of your data in order to obtain new insights. In this way, you can optimize your resources for maximum availability.

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