

SIEMENS

SINUMERIK

MindSphere application Manage MyMachines, Manage MyMachines /Spindle Monitor

Function Manual

Preface

Fundamental safety instructions **1**

Introduction **2**

Setting up the SINUMERIK control system for Manage MyMachines **3**

Setting up MindConnect Nano for Manage MyMachines **4**

SINUMERIK Integrate Gateway **5**

Displaying acquired data in Manage MyMachines **6**

Appendix **A**

Valid for control:

SINUMERIK 840D sl / 840DE sl

SINUMERIK 828D

Software

Manage MyMachines, version 02.00.01.00

Manage MyMachines /Spindle Monitor, Version 02.00.01.00

01/2020

A5E45212179B AG

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.

Preface

SINUMERIK documentation

The SINUMERIK documentation is organized into the following categories:

- General documentation/catalogs
- User documentation
- Manufacturer/service documentation

Additional information

You can find information on the following topics at the following address (<https://support.industry.siemens.com/cs/de/en/view/108464614>):

- Ordering documentation/overview of documentation
- Additional links to download documents
- Using documentation online (find and search in manuals/information)

If you have any questions regarding the technical documentation (e.g. suggestions, corrections), please send an e-mail to the following address (<mailto:docu.motioncontrol@siemens.com>).

mySupport/Documentation

At the following address (<https://support.industry.siemens.com/My/ww/en/documentation>), you can find information on how to create your own individual documentation based on Siemens' content, and adapt it for your own machine documentation.

Training

At the following address (<http://www.siemens.com/sitrain>), you can find information about SITRAIN (Siemens training on products, systems and solutions for automation and drives).

FAQs

You can find Frequently Asked Questions in the Service&Support pages under Product Support (<https://support.industry.siemens.com/cs/de/en/ps/fag>).

SINUMERIK

You can find information about SINUMERIK at the following address (<http://www.siemens.com/sinumerik>).

Target group

This publication is intended for:

- Project engineers
- Technologists (from machine manufacturers)
- Commissioning engineers (systems/machines)
- Programmers
- Users

Benefits

The function manual describes the functions so that the target group knows them and can select them. It provides the target group with the information required to implement the functions.

Standard scope

This documentation describes the functionality of the standard scope. Extensions or changes made by the machine tool manufacturer are documented by the machine tool manufacturer.

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

Further, for the sake of simplicity, this documentation does not contain all detailed information about all types of the product and cannot cover every conceivable case of installation, operation or maintenance.

Note regarding the General Data Protection Regulation

Siemens respects the principles of data privacy, in particular the data minimization rules (privacy by design). This means the following for this product:

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

Technical Support

Country-specific telephone numbers for technical support are provided on the Internet at the following address (<https://support.industry.siemens.com/sc/ww/en/sc/2090>) in the "Contact" area.

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

Table of contents


	Preface	3
1	Fundamental safety instructions	9
1.1	General safety instructions	9
1.2	Warranty and liability for application examples	10
1.3	Security information	11
2	Introduction	13
2.1	Overview	13
2.2	System requirements	14
3	Setting up the SINUMERIK control system for Manage MyMachines	19
3.1	Activating the data acquisition	19
3.2	Checking and updating the versions	22
3.2.1	Displaying version data	22
3.2.2	Installing a SINUMERIK 828D update	23
3.2.3	Client update under Windows	25
3.2.4	Client update under Linux	29
3.3	SINUMERIK Integrate	33
3.3.1	Activating the SINUMERIK Integrate client	33
3.3.2	Activating use of SINUMERIK Integrate	34
3.4	SINUMERIK 840D sl	35
3.4.1	Configuring the URL and proxy	35
3.4.2	Install the registration key on a SINUMERIK control system	38
3.4.3	Create drive	40
3.5	SINUMERIK 828D	42
3.5.1	Configuring the URL and proxy	42
3.5.2	Install the registration key on a SINUMERIK control system	44
3.6	Adapting SINUMERIK Operate	46
3.6.1	Exchanging a certificate (optional)	46
3.6.2	Activating logs for troubleshooting	49
3.7	Integrating MindSphere	50
3.7.1	Logging in to MindSphere	50
3.7.2	Icons and buttons in MindSphere	53
3.7.3	User administration	54
3.7.4	Asset Manager	55
3.7.4.1	Overview	55
3.7.4.2	Creating an asset type	57
3.7.4.3	Creating an Asset	59
3.7.5	Connecting the SINUMERIK control system with MindSphere	61
3.7.6	Activating the data acquisition	62
3.7.7	Activating Manage MyMachines /Spindle Monitor	64


3.7.8	Configuring a variable	66
3.7.9	File upload.....	74
3.8	Disconnecting the SINUMERIK control system from MindSphere	78
3.8.1	Overview	78
3.8.2	Deactivating use of SINUMERIK Integrate	79
3.8.3	Disconnecting the SINUMERIK control system from MindSphere	79
4	Setting up MindConnect Nano for Manage MyMachines	81
4.1	Overview	81
4.2	Setting up at the control system.....	82
4.2.1	Setting the license	82
4.2.2	Configuring the network	82
4.3	Configuring Manage MyMachine functions in MindSphere.....	85
5	SINUMERIK Integrate Gateway	91
5.1	Shopfloor AppManagement	91
5.2	Activating the variable monitor for Manage MyMachines.....	94
6	Displaying acquired data in Manage MyMachines	95
6.1	Overview	95
6.2	Selecting a language.....	97
6.3	Filtering machines	98
6.4	Machine overview	100
6.5	Dashboard.....	102
6.6	Displaying alarms	110
6.7	Aspects	115
6.8	Export.....	118
6.9	Manage MyMachines /Spindle Monitor	120
6.9.1	Overview	120
6.9.2	Display of the operating data	121
6.9.3	Analysis of the clamping system	121
6.9.4	Display of the occasions	123
6.9.5	Display of the operating modes.....	123
6.9.6	Display of the runtime diagrams.....	124
6.9.7	Display of the tool clamping cycles	125
6.10	Machine location	126
6.11	Events	127
6.12	Displaying uploaded files in the Fleet Manager	129
A	Appendix.....	131
A.1	Determining the address of the spindles (only for 828D)	131
A.2	Determining the address of the spindles (only for 840D sl)	133
A.3	List of abbreviations	135

Glossary	137
Index.....	139

Fundamental safety instructions

1.1 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.

1.2 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.

1.3 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/industrialsecurity> (<https://new.siemens.com/global/en/products/services/cert.html#Subscriptions>).

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.
- Protect the drive against unauthorized changes by activating the "Know-how protection" converter function.

Introduction

2.1 Overview

This document describes

- How to connect MindSphere to the SINUMERIK control
Further information can be found at: Setting up the SINUMERIK control system for Manage MyMachines (Page 19)
- The functionality of the MindSphere Application "Manage MyMachines"
Further information can be found at: Displaying acquired data in Manage MyMachines (Page 95)

MindSphere

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

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

Further information

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

2.2 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, HF 1, 2, 3	NCU 730.3 PN	Linux
2.0.12	4.5 SP5, HF 1, 3, 5	PCU 50.5	Windows 7
2.0.13	4.5 SP6, HF 3, 5, 7, 8, 10, 11, 13 14, 15, 16, 17, 18		
2.0.14	4.5 SP4, HF 4	NCU 730.3 PN	Linux
	4.5 SP6, HF 1, 12	PCU 50.5	Windows 7
	4.5 SP6, HF 2		
3.0.11	4.7 SP2, HF 1, 3, 4	NCU 730.3 PN	Linux
3.0.12	4.7 SP3, HF 1, 2, 3, 4	PCU 50.5	Windows 7
3.0.13	4.7 SP4, HF 1, 4, 6		
3.0.14	4.7 SP5, HF 1		
	4.7 SP6, HF 1, 3, 4, 5, 6, 7		
	4.7 SP7, HF 1, 3, 4		
	4.8 SP1, HF 1, 2, 3		
	4.8 SP2, HF 1, 3		
	4.8 SP3, HF 1		
	4.8 SP4, HF 1, 3, 4, 6, 8		
	4.8 SP5, HF 2, 3, 4		
	4.7 SP4, HF 3, 5	NCU 730.3 PN	Linux
	4.7 SP7, HF 2	PCU 50.5	Windows 7
	4.7 SP7, HF 5		
4.0.0	4.91 HF 1	NCU 730.3 PN	Linux
4.0.1	4.92 HF 2, 3	PCU 50.5	Windows 7

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, HF 1, 2	PPU 261.3	
2.0.13	4.5 SP6, HF 1, 2, 3, 4	PPU 241.4	
2.0.14			
3.0.11	4.7 SP2, HF1		
3.0.12	4.7 SP3, HF1		
3.0.13	4.7 SP4, HF1, 2		
3.0.14	4.7 SP5		
	4.7 SP6, HF1, 2		
	4.7 SP7 HF1, 3		
3.0.11	4.8 SP4, HF 1, 2, 3	PPU 271.4	Linux
3.0.12	4.8 SP5, HF 3		
3.0.13			
3.0.14			

Operating 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

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
- 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 controls connected to MindSphere
The connection of SINUMERIK controls 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.
Further 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 controls.

Further 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 customer facility.

Further 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>).

Delivery form

The updates and further 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.

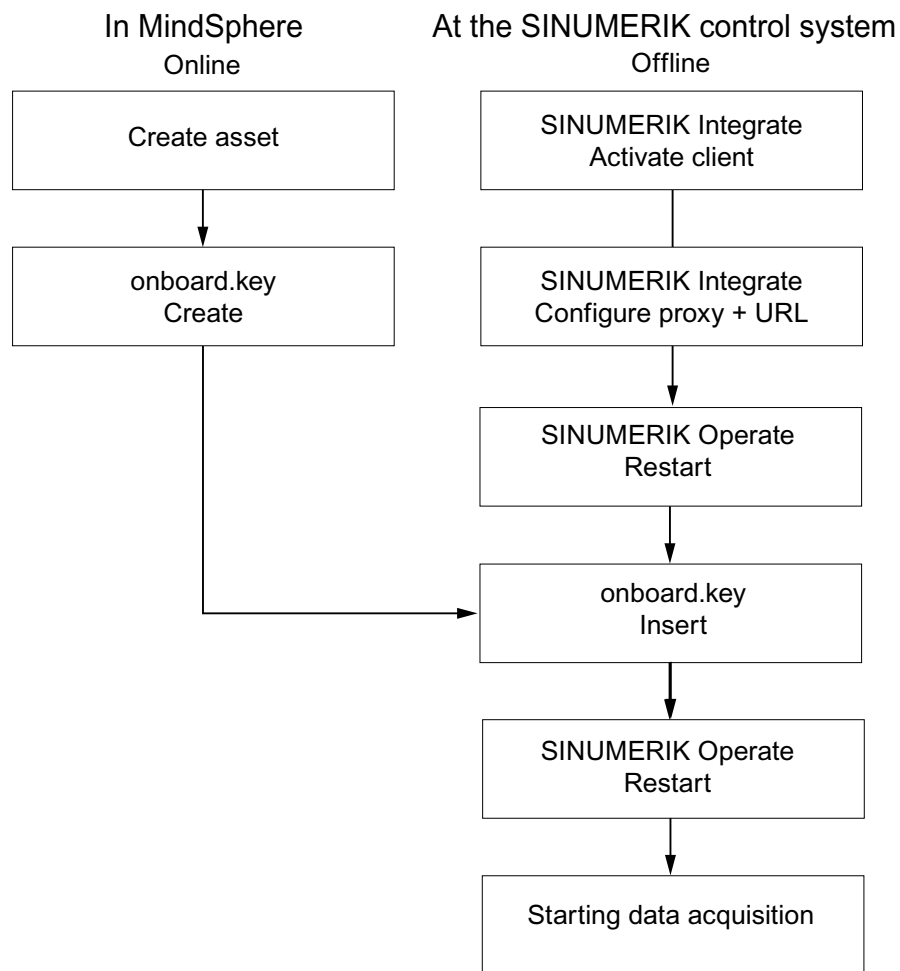
Setting up the SINUMERIK control system for Manage MyMachines

3

3.1 Activating the data acquisition

Overview

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



3.1 Activating the data acquisition

Procedure

In MindSphere:

1. Create the desired assets.
Further information can be found at: Asset Manager (Page 55)
Detailed information can be found at: MindSphere - Asset Manager System Manual
2. Create the "onboard.key".
Further information can be found at: Connecting the SINUMERIK control system with MindSphere (Page 61)

At the SINUMERIK control system:

1. Check the installed versions.
Further information can be found at: Displaying version data (Page 22)
 - 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 25)
2. Activate the SINUMERIK Integrate client.
Further information can be found at: Activating the SINUMERIK Integrate client (Page 33)
3. Enable the use of SINUMERIK Integrate.
Further information can be found at: Activating use of SINUMERIK Integrate (Page 34)
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 35)
 - OR -
 - On the SINUMERIK 828D control system:
Further information can be found at: Configuring the URL and proxy (Page 42)
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 38)
 - OR -
 - On the SINUMERIK 828D
Further information can be found at: Install the registration key on a SINUMERIK control system (Page 44)
7. Restart SINUMERIK Operate.

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.

3.2 Checking and updating the versions

3.2.1 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 14).

The following components with the associated version data are specified:

- SINUMERIK Operate Version
- SINUMERIK Integrate
- System software
- PLC basic program
- PLC user program
- System expansions
- 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.





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

SIEMENS			SINUMERIK OPERATE		06/11/18 10:36 AM	Logbook
Version data						
SINUMERIK Operate						
Version: 04.08.02.00						
InternalVersion: 04.08.02.00.038						
Name	Actual version	Target version				
Basesystem	04.08.02.00		✓			
Applications	04.08.02.00		✓			
3D graphics	04.08.02.00		✓			
Qt	04.08.04.00		✓			
ACE/TAO	6.1.2		✓			
Autostart	04.08.02.00		✓			
Language files	04.05.00.00		✓			
Online help	04.05.00.00		✓			
<div style="text-align: right;"> Details > Save > </div>						
<div style="display: flex; justify-content: space-between;"> Alarm list Mes-sages Alarm log v NC/PLC variab. Version </div>						

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:

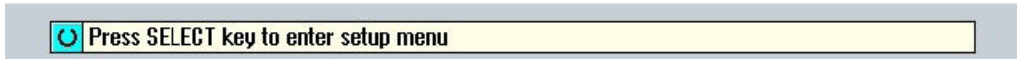
- Client update under Windows (Page 25)
- OR -
- Client update under Linux (Page 29)

3.2.2 Installing a SINUMERIK 828D update

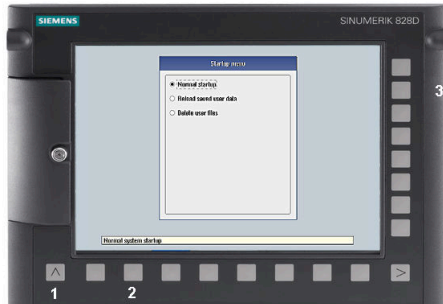
If you are not using a suitable software version on the SINUMERIK 828D control, you must install the required software update/backup.

Procedure

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



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)

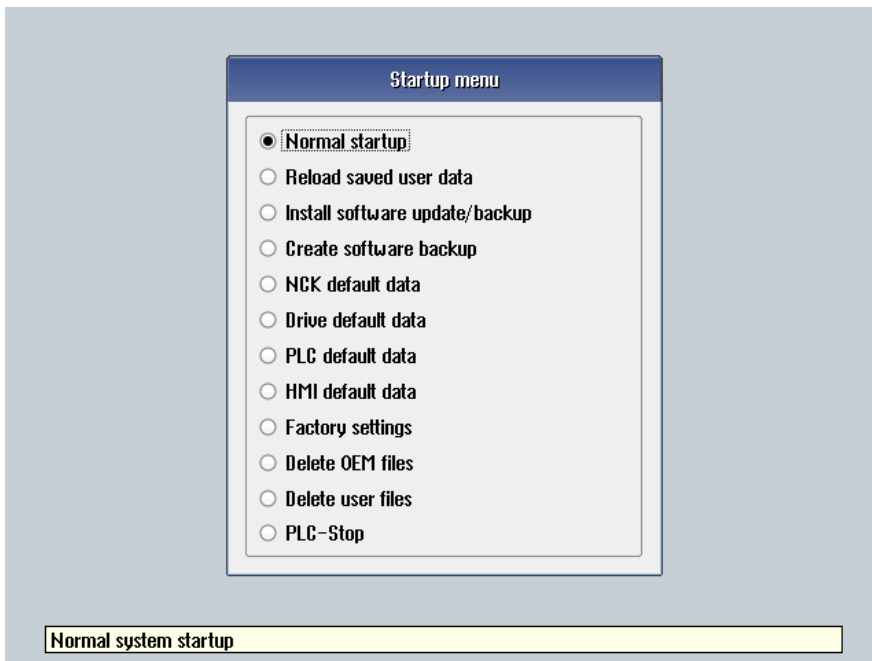


Note

PPU with touch operation

To call the "Startup menu" during startup, there is an additional shortcut key for all PPU's: **"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.

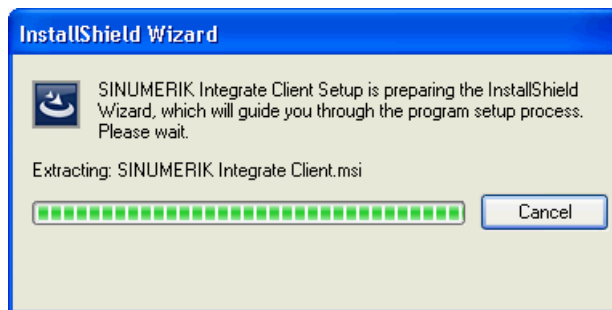
5. The following message is displayed:
"Do you want to install the software update? Either CF card or USB stick must be plugged in".
6. Insert the USB flash drive into the USB interface on the front of the operator panel and click "Yes".
7. Make sure that only individual ".tgz" files are located on the 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

3.2.3 Client update under Windows

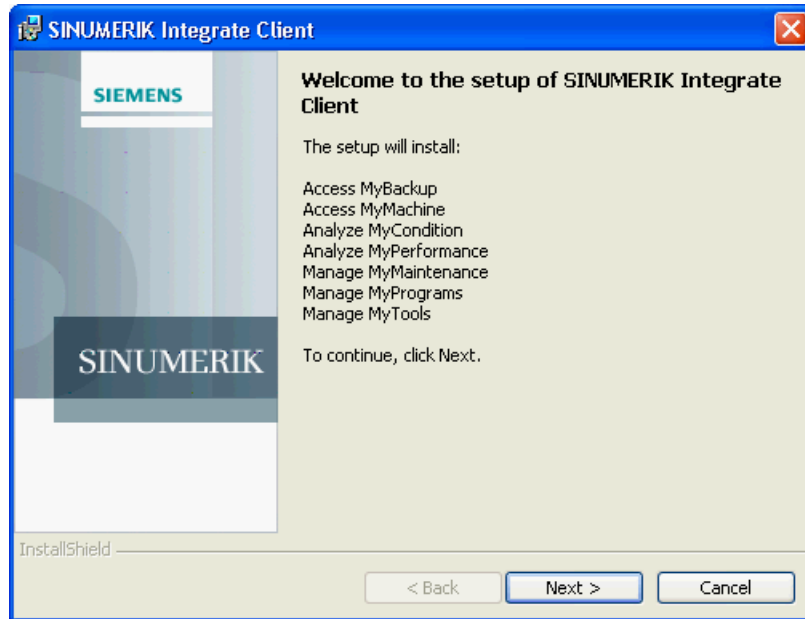
Procedure

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.



3.2 Checking and updating the versions

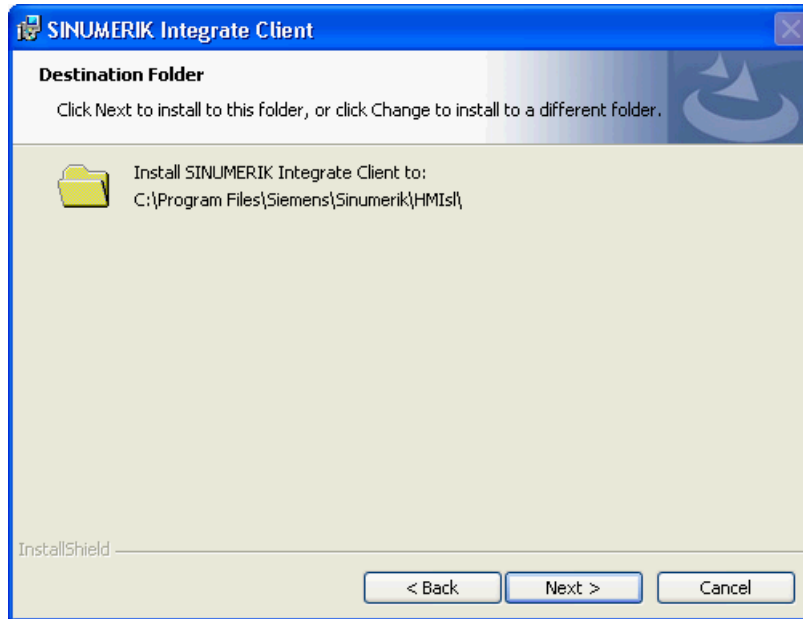
- 4. The welcome screen opens and shows the applications to which the update applies. Click "Next >" to start the installation preparation.



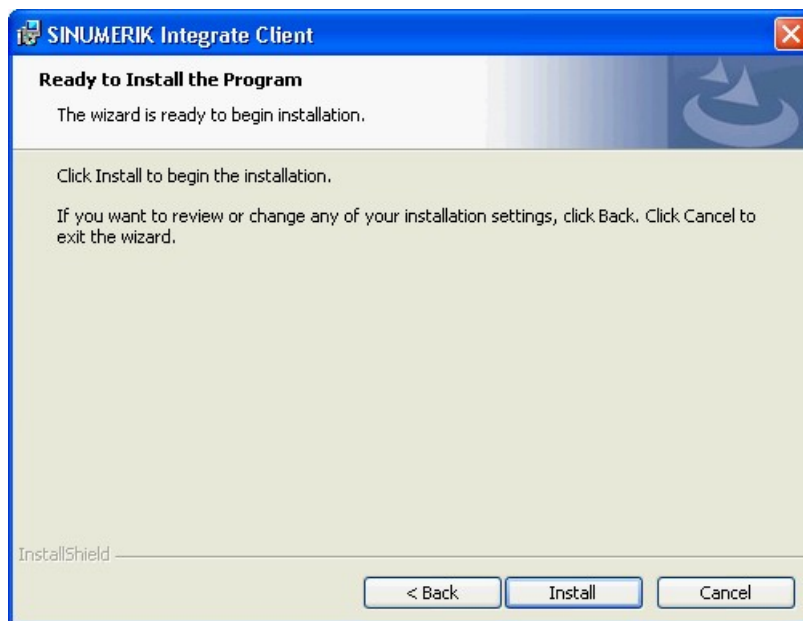
- 5. The "License Agreement" window opens. Read the license agreement.
 - If you want to print the terms, click "Print."
 - Then activate the "I accept the terms in the license agreement" checkbox and click "Next >".
 - OR -
 - Click "< Back" to return to the previous window.



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

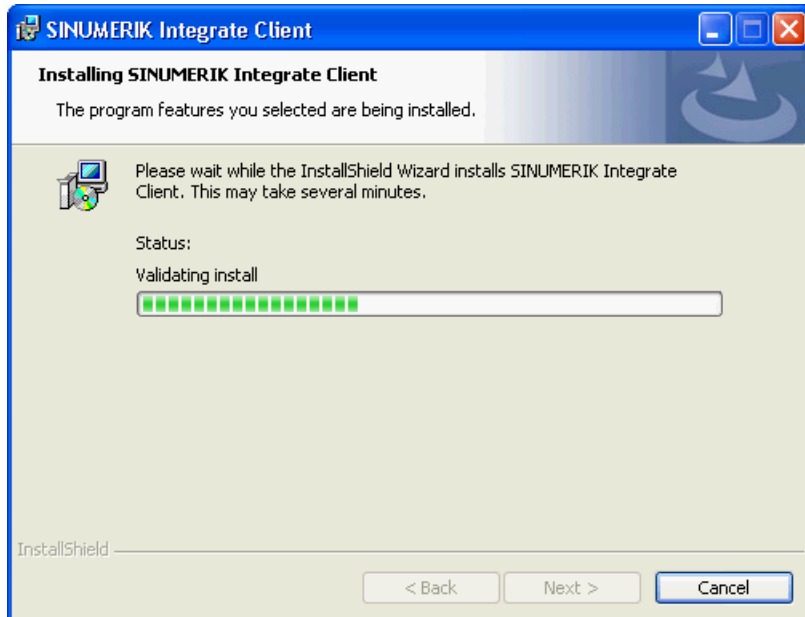


- The Wizard is ready to start the installation. Click "Install" to start the installation.

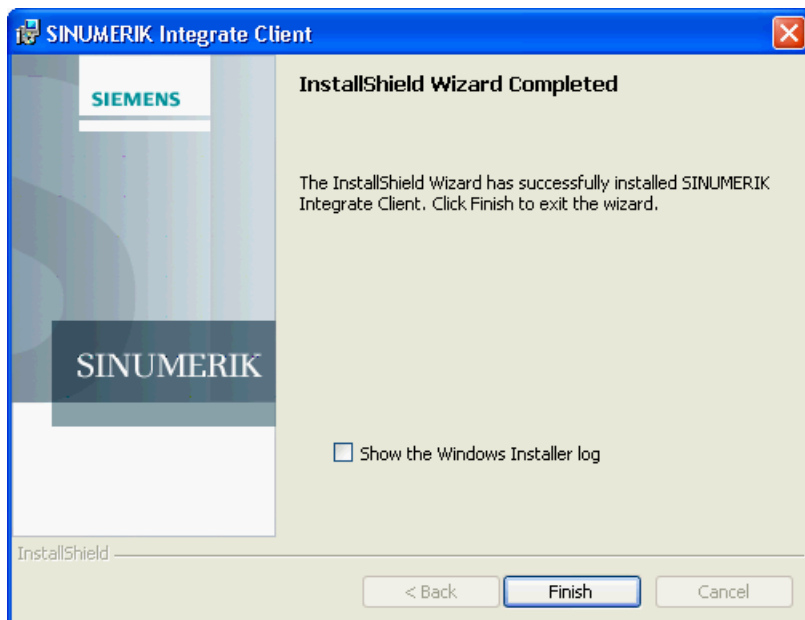


3.2 Checking and updating the versions

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



- 9. Click "Finish" to complete the installation.



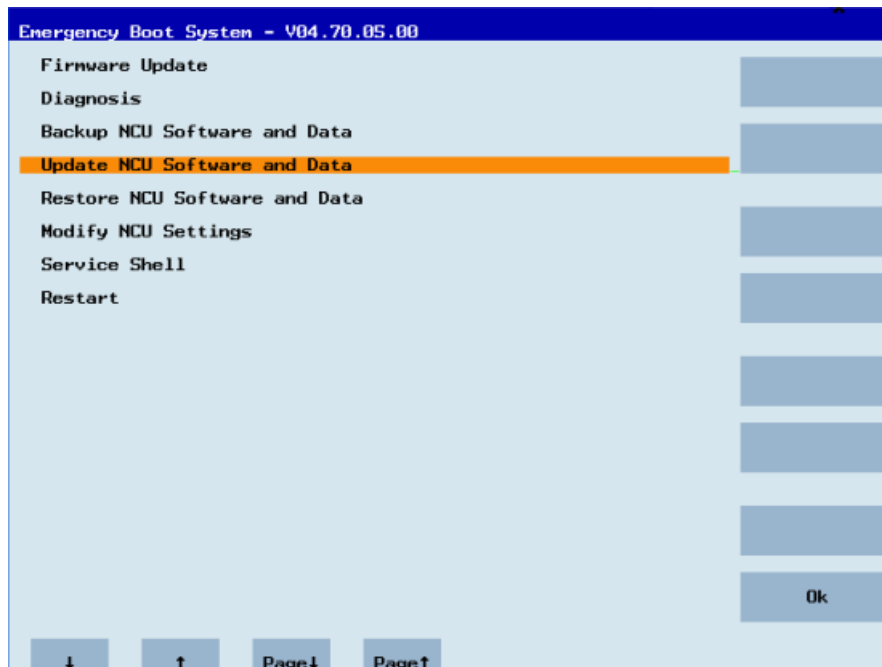
3.2.4 Client update under Linux

Requirement

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

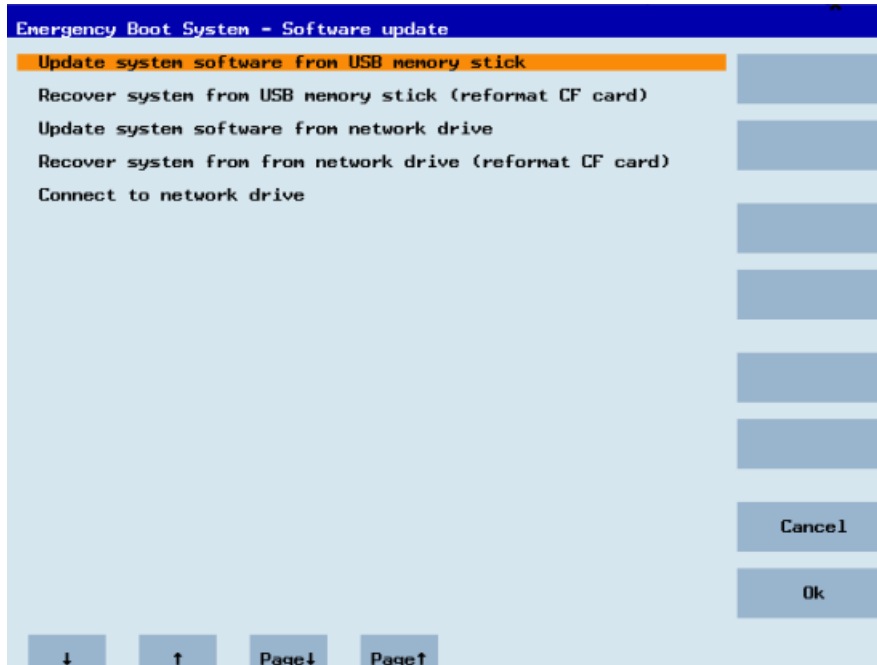
Procedure

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.

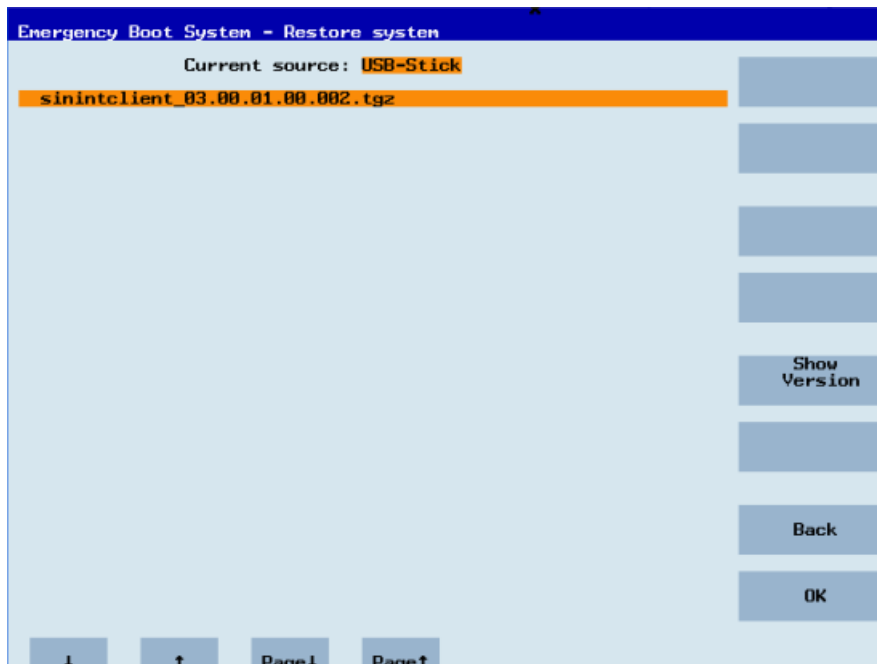


3.2 Checking and updating the versions

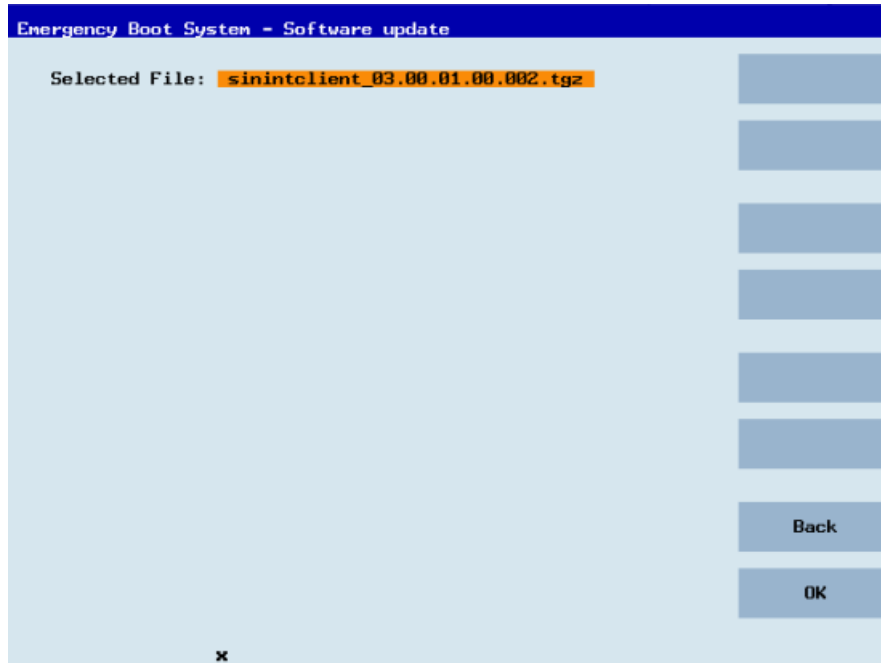
- 5. In the menu, select "Update system software from USB memory stick" with the cursor keys and press the "OK" softkey.



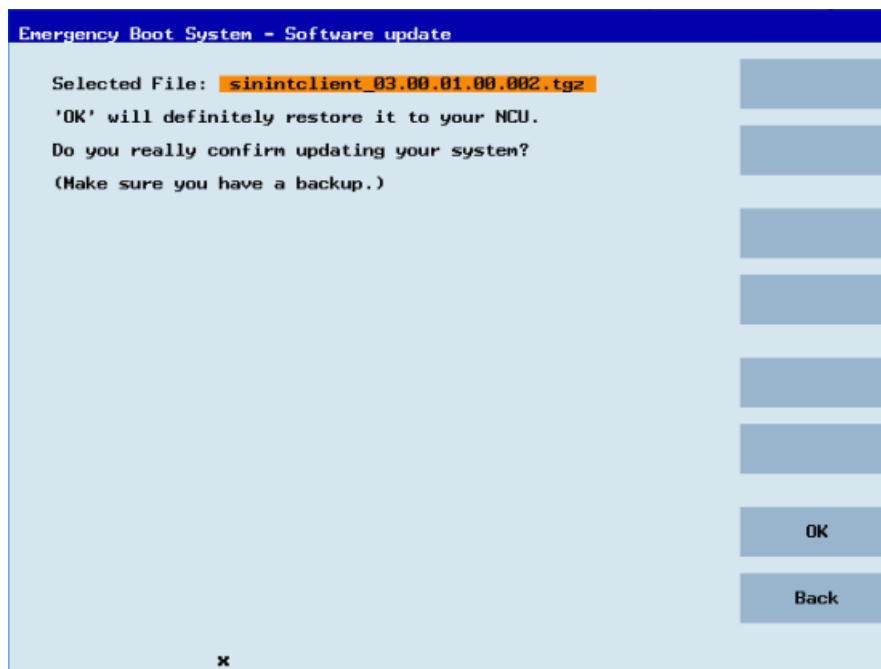
- 6. You receive a list with all tgz files.
Select the current file.
Press the "OK" softkey to confirm your selection.
- OR -
Press the shortcut key <Shift> + <F8> on the operator panel.



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

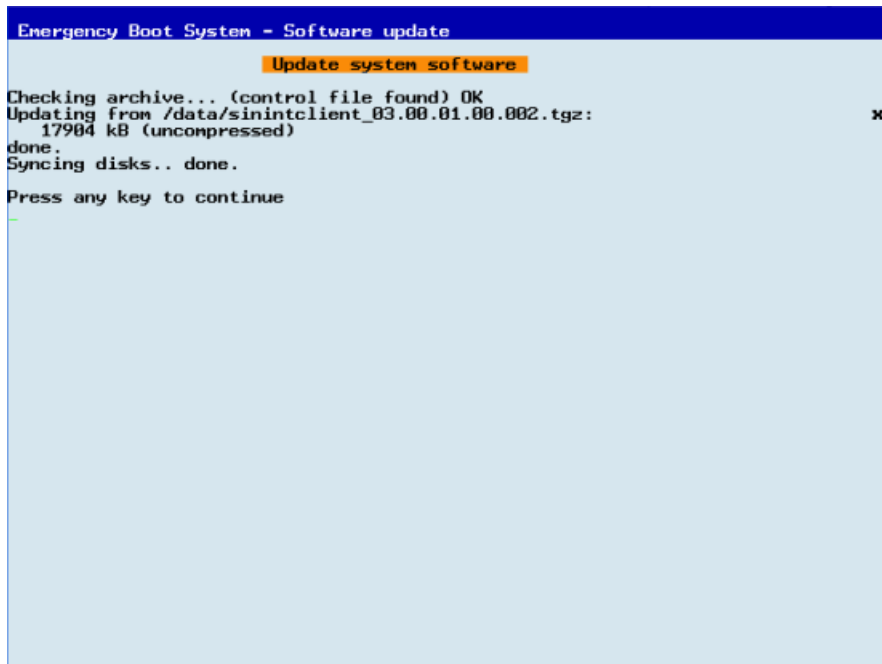


- A confirmation prompt appears.
Press the "OK" softkey to confirm the confirmation prompt.
- OR -
Press the shortcut key <Shift> + <F7> on the operator panel.

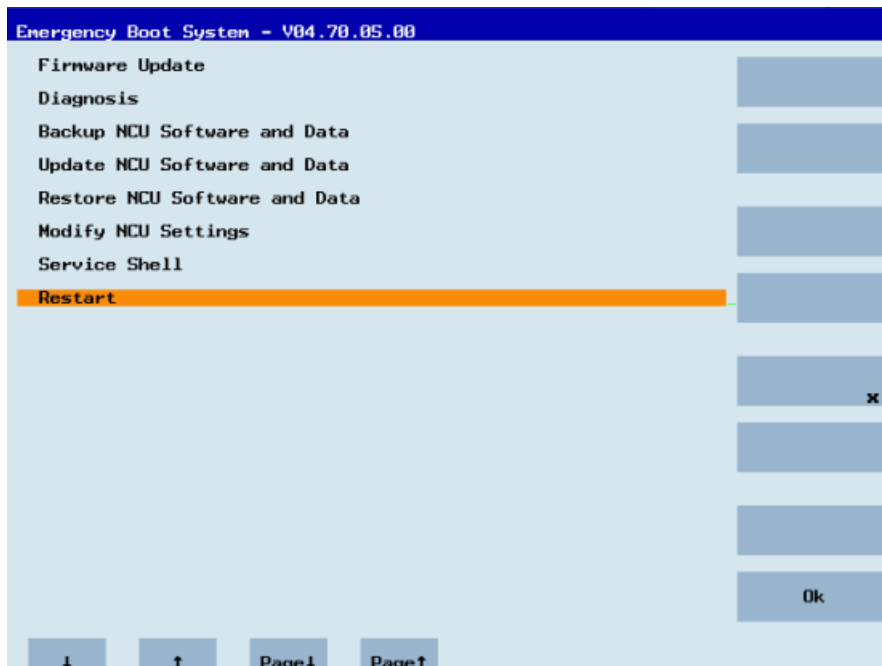


3.2 Checking and updating the versions

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.



3.3 SINUMERIK Integrate

3.3.1 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".

SIEMENS		SINUMERIK OPERATE		29.09.16	10:30	AUTO	
Display machine data							
9006	\$MM_DISPLAY_SWITCH_OFF_INTERVAL	60 min	po				
9009	\$MM_KEYBOARD_STATE	0	po				
9032	\$MM_HMI_MONITOR	"	po				
9056	\$MM_ALARM_ROTATION_CYCLE	0 ms	po				
9057	\$MM_ENABLE_CHANNEL_MSG_FILTER	1	po				
9100	\$MM_CHANGE_LANGUAGE_MODE	1	im				
9102	\$MM_SHOW_TOOLTIP	1	im				
9103	\$MM_TOOLTIP_TIME_DELAY	1 s	im				
9104	\$MM_ANIMATION_TIME_DELAY	10 s	im				
9105	\$MM_HMI_WIDE_SCREEN	0	po				
9106	\$MM_SERVE_EXTCALL_PROGRAMS	1	po			Reset (po)	
9107	\$MM_DRU_DIAG_DO_AND_COMP_NAMES	3H	im				
9108	\$MM_SINUMERIK_INTEGRATE	1	im				
9110	\$MM_ACCESS_HMI_EXIT	1	po			Search	
9111	\$MM_HMI_MEM_LIMIT_USER	0	po				
9112	\$MM_HMI_SKIN	1	po				
9900	\$MM_MD_TEXT_SWITCH	0	im			Filter	
9990	\$MM_SW_OPTIONS	0H	im				
Activating SINUMERIK Integrate products							
				General SD	Channel SD	Axis SD	Display MD

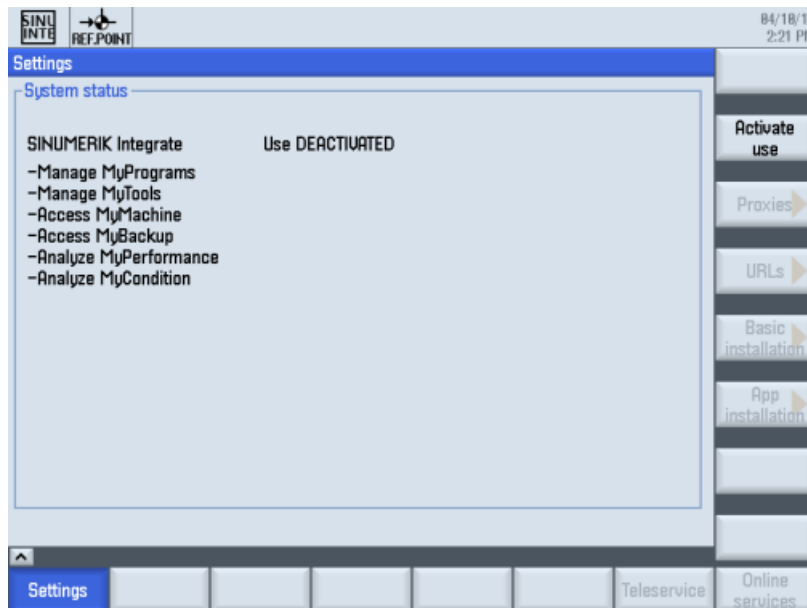
7. Press the <MENU SELECT> key followed by the menu forward key.
8. The "SINUMERIK Integrate" softkey is displayed on the extended horizontal softkey bar.



3.3.2 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.

3.4 SINUMERIK 840D sl

3.4.1 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

Proxy 2

Proxy 3

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:

User name:

Password:

Overwrite here

Workstation:

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

3.4.2 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:\
- The time on the control system has been synchronized with the current time.
- The Internet connection has been checked and is established.

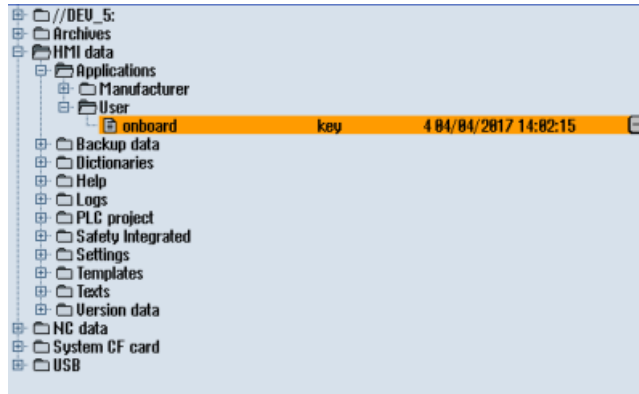
Procedure with SINUMERIK Operate (PCU 50)

1. At the SINUMERIK control system, start the SINUMERIK Operate operating software in the service mode.
2. Insert the USB flash drive with the "onboard.key" file into the PCU.
The USB flash drive is shown in the directory tree.
3. Copy the file "onboard.key" into the following directory: C:\temp\boot_job.
4. 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.
Additional information is provided in Chapter: Create drive (Page 40)
5. Select the "onboard.key" and press the "Copy" softkey.

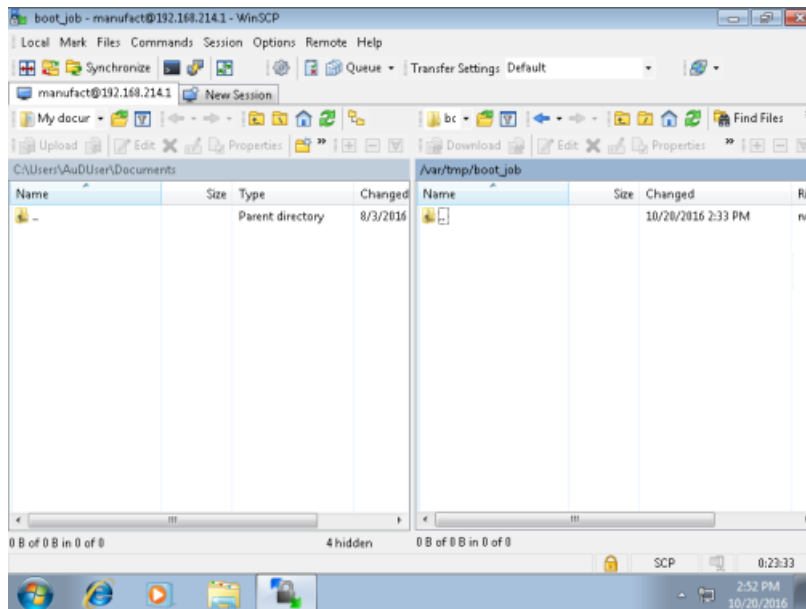
- Navigate in the following directory: HMI data\Applications\User and press the "Paste" softkey.



- Then restart.

Procedure with, e.g. WinSCP (NCU)

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



- Insert the "onboard.key" file into the "boot_job" folder.
Alternatively, you can also insert the "onboard.key" file into the following directory: /user/sinumerik/hmi/appl.
If there is already a "cert.key" file in the /var/tmp/boot_job folder, the control was already connected to MindSphere. If you want to establish a new connection, then delete the existing file and insert the new "onboard.key" file.

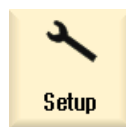
4. Then start the SINUMERIK Operate operating software.
When the connection to the server is successful, the "cert.key" file is created.
5. The onboarding process is completed. The "onboard.key" is no longer displayed in the directory.

3.4.3 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.



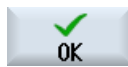
5. To allow input fields to be edited, press the "Change" softkey.



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.



3.5 SINUMERIK 828D

3.5.1 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.

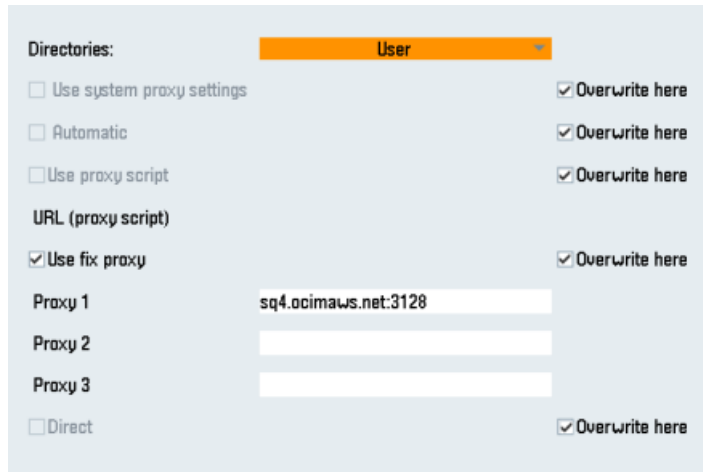
The screenshot shows a settings window with the following fields and options:

- 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 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.

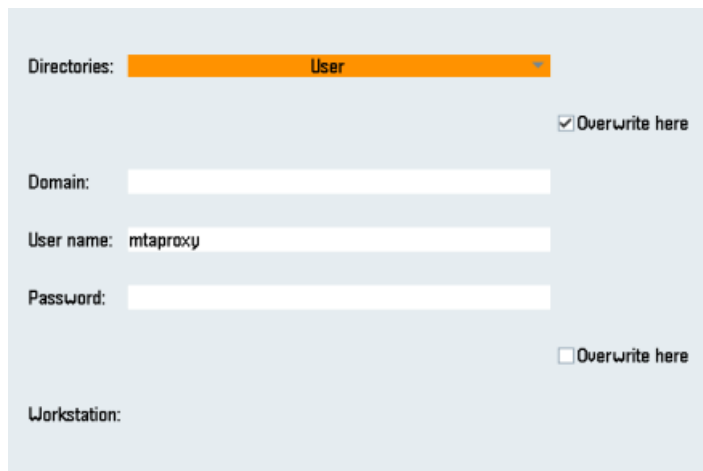
3. Press the "OK" softkey.
A syntax check is performed and the access data is saved.
4. In order to establish a connection from the customer network, you must adapt the proxy settings.
Press the "Proxys >" softkey.
The stored settings are displayed.

3.5 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.

3.5.2 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.

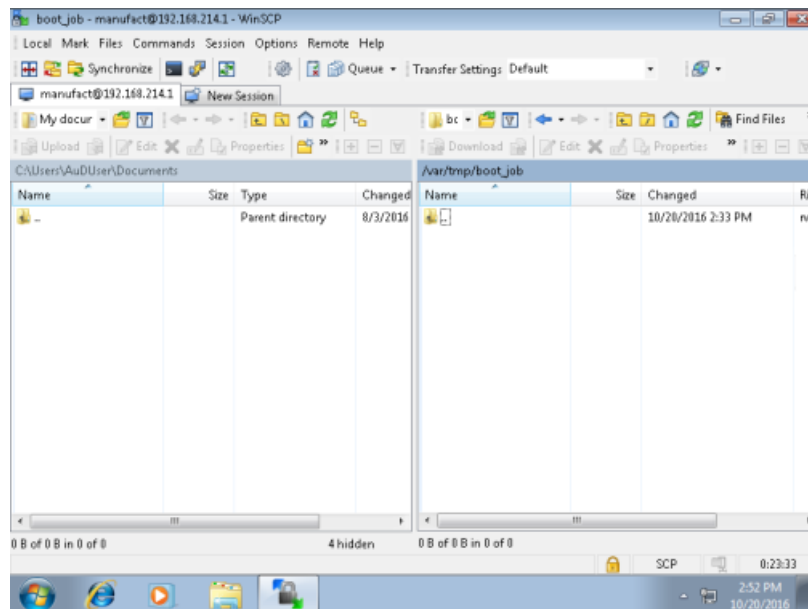
Copy the "onboard.key" to the SINUMERIK control system, e.g. using WinSCP.

Requirement

- The "onboard key" has been generated.
- The "boot_job" folder is created on the SINUMERIK control system, e.g. at C:\
- The time on the control system has been synchronized with the current time.
- 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 the "boot_job" folder.
If there is already a "cert.key" file in the /var/tmp/boot_job folder, the control was already connected to MindSphere. If you want to establish a new connection, then delete the existing file and 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.

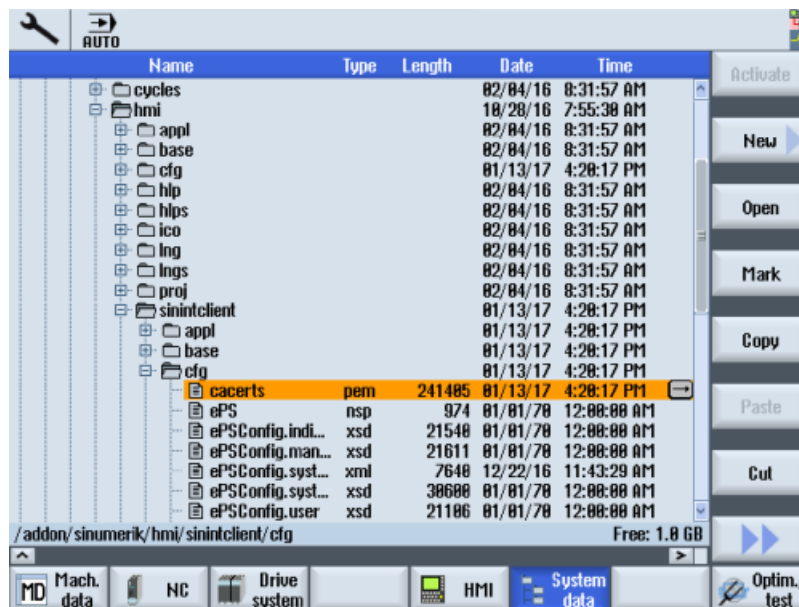
3.6 Adapting SINUMERIK Operate

3.6.1 Exchanging a certificate (optional)

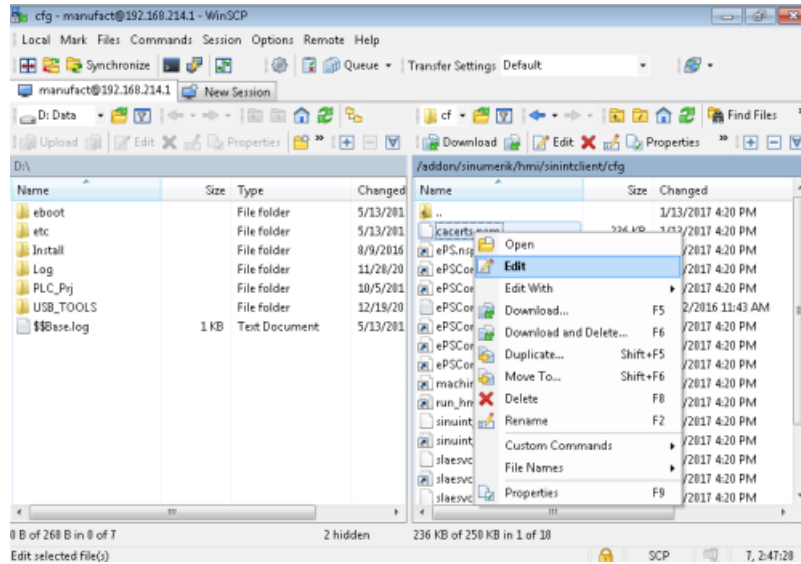
In order to achieve comprehensive security, it is necessary to update the certificate "cacert.pem". The following manual steps are required for this purpose.

SINUMERIK Operate with SINUMERIK Integrate client under Linux

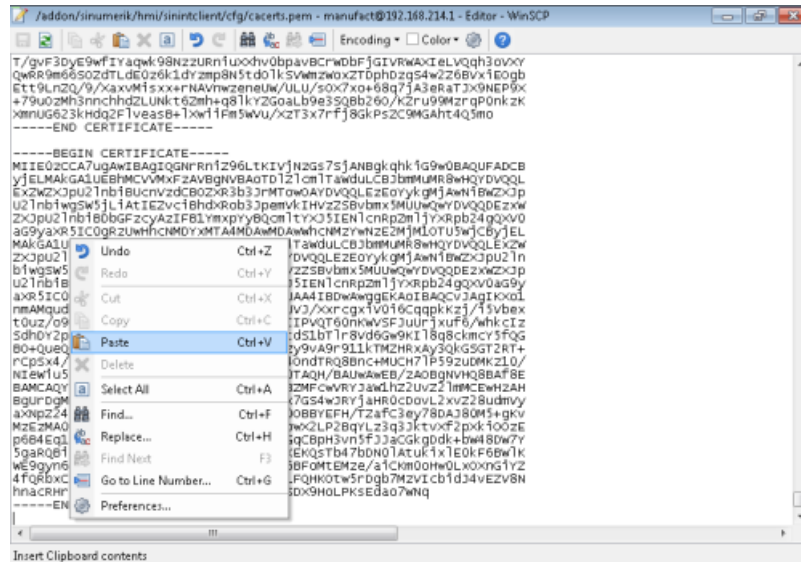
1. Open the directory: card/addon/sinumerik/hmi/sinintclient/cfg
2. Select "cacerts.pem".



- Use WinSCP, for example, to open "cacerts.pem" in the editor.



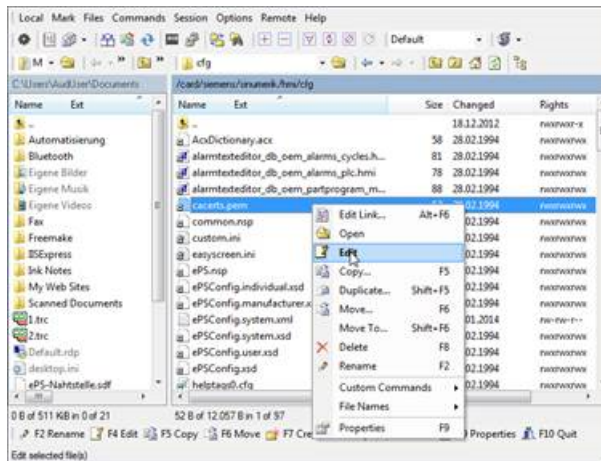
- Insert the content of "Customer Root CA" at the end of "cacerts.pem".



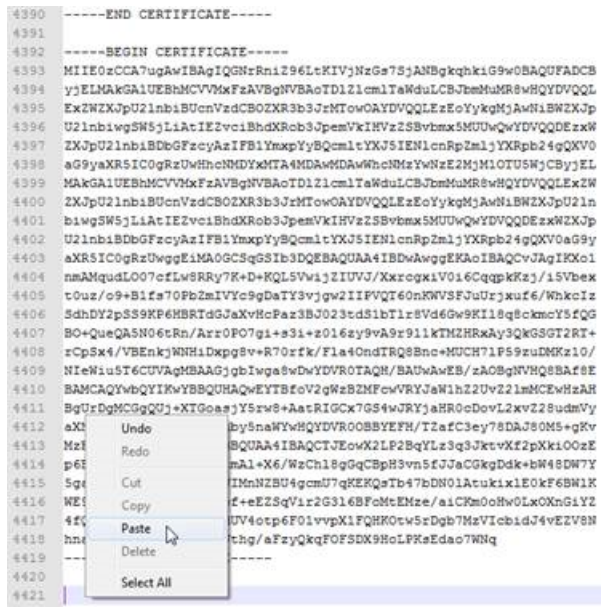
- Close the file to save the certificate.
- Perform a restart.

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\hmi\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\hmi\sinintclient\cfg
6. Perform a restart.

3.6.2 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.

3.7 Integrating MindSphere

3.7.1 Logging in to MindSphere

Requirement

You require a MindAccess user account in MindSphere.

Further 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.

SIEMENS

Sign In

[or create an account](#)

Sign In has changed. If you previously signed in with a username, please use your email. [Need help?](#)

Email

Password [Show](#)

[Forgot your password?](#)

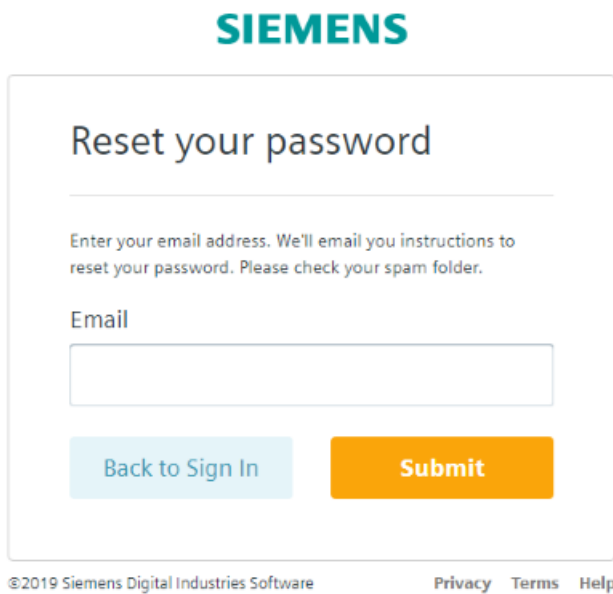
Sign In

©2019 Siemens Digital Industries Software [Privacy](#) [Terms](#) [Help](#)

- OR -

If you have forgotten your password, click "Forgot Password?".
The "Forgot 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.

3.7 Integrating MindSphere


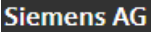


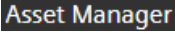


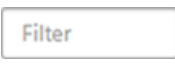










3. The launch pad opens. You can access the individual applications via this user interface.



3.7.2 Icons and buttons in MindSphere

The following symbols and buttons are available.

Icon	Description
	Switches to the MindSphere Launchpad.
	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 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 • 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
	Switches to the hierarchical view of the assets
	Deletes the selection
	Opens a selection of Asset Manager functions, and provides the option of directly accessing the required views. <ul style="list-style-type: none"> • Share asset • Move asset • Fleet Manager • Delete asset

Icon	Description
Fleet Manager	
	<p>Opens a menu with the following information and links to the product:</p> <ul style="list-style-type: none"> • Shows the version <p>Links to additional information:</p> <ul style="list-style-type: none"> • Third-party software • Documentation - Fleet Manager System Manual
	<p>Opens a window with the following information:</p> <p>Logged in as: Shows the email address</p> <p>User settings:</p> <p>The following settings are available:</p> <p>Language</p> <ul style="list-style-type: none"> • English • German <p>When starting</p> <ul style="list-style-type: none"> • Last view: When opening, show the last view • Standard default view: <p>When opening, show the standard default view</p> <p>Reset to the standard default view</p>
	<p>Opens the email program set as default, and sends the valid selection by mail, e.g. link to the actual MindSphere view.</p>
	<p>Opens a dialog box to select the following views:</p> <ul style="list-style-type: none"> • Split view • Asset view • Extension view

3.7.3 User administration

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

The following users are available:

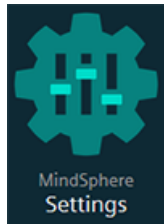
- Standard users
 - mmmalarms.user
 - mmmdashboard.user
 - mmmoverview.user
- Administrator
 - mmmalarms.admin
 - mmmdashboard.admin
 - mmmoverview.admin

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

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

Procedure

1. The launchpad is open.
2. Click the MindSphere application "MindSphere Settings".



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

3. Create or edit the user.
4. Assign the corresponding roles.

3.7.4 Asset Manager

3.7.4.1 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.

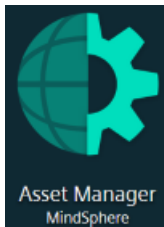
The specific functions and configuration options for the "SINUMERIK" area are discussed in the following.

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.

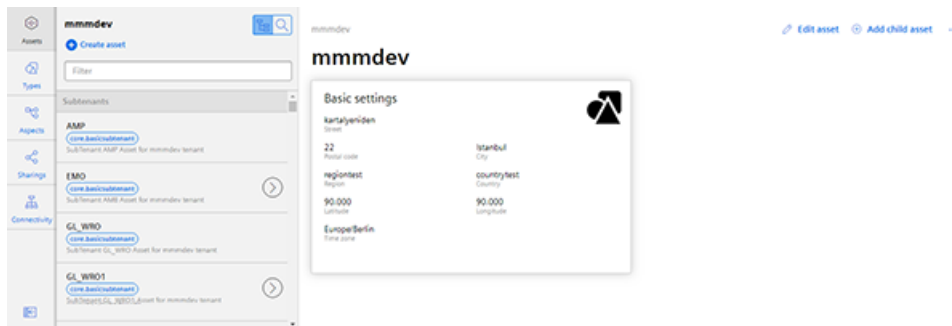
Opening the Asset Manager

1. Click on the "MindSphere Asset Manager" icon.



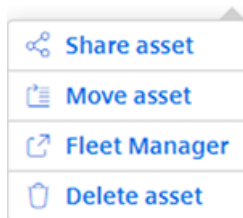
2. The "Asset Manager" window opens and you have the following options:

- Edit assets
- Add subordinate assets
- Creating assets
Further information can be found in the following section: Creating an Asset (Page 59).
- Creating and editing asset types
Further information can be found in the following section: Creating an asset type (Page 57)
- Creating and editing aspects



3. When you click on the three dots in the top right-hand section of the window, the following options are offered:

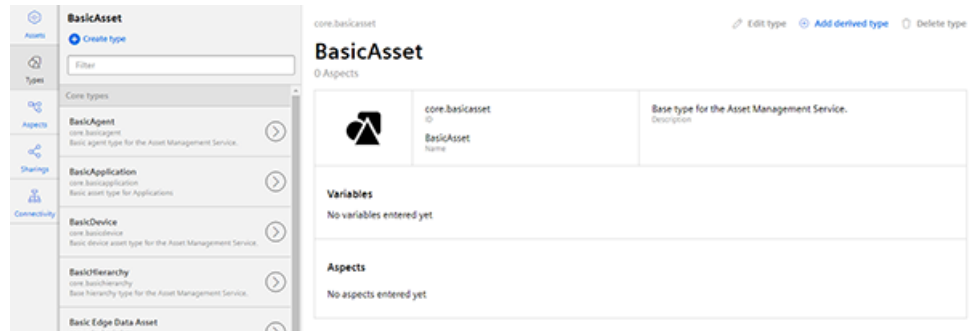
- Moving an asset
- Deleting an asset



3.7.4.2 Creating an asset type

Procedure

1. In the left window pane, click the "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.

3.7 Integrating MindSphere

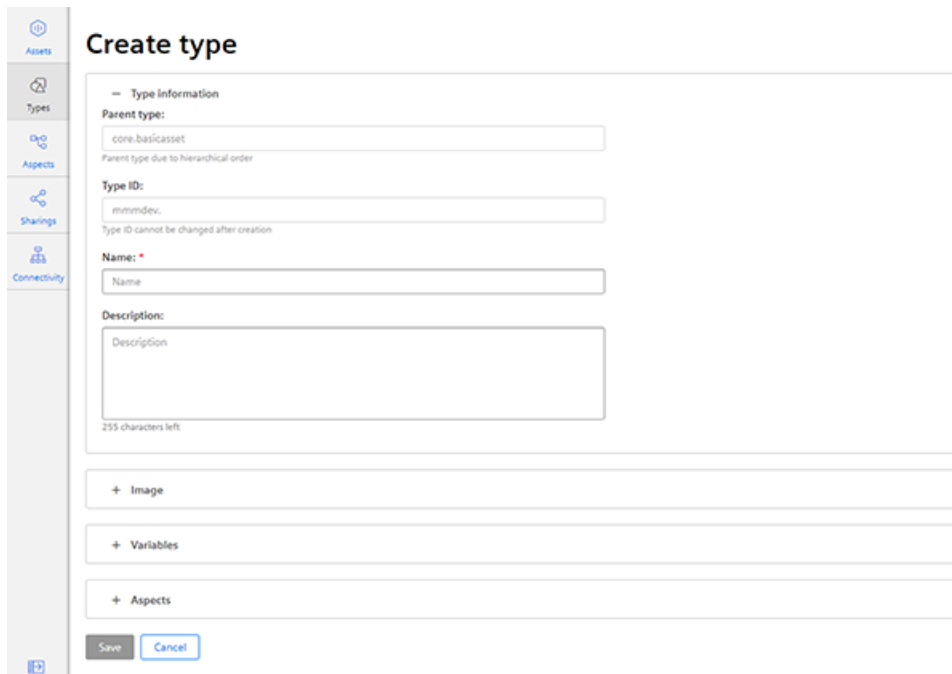
- Now select "BasicSinumerikAsset" in the middle pane and click the small arrow (navigate to the child element).
The "BasicSinumerikAsset" window opens.
- In the center window pane, click "+ Create type" to create a new asset type.
The "Create type" window opens.
 - Enter a name for the new asset type.
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.



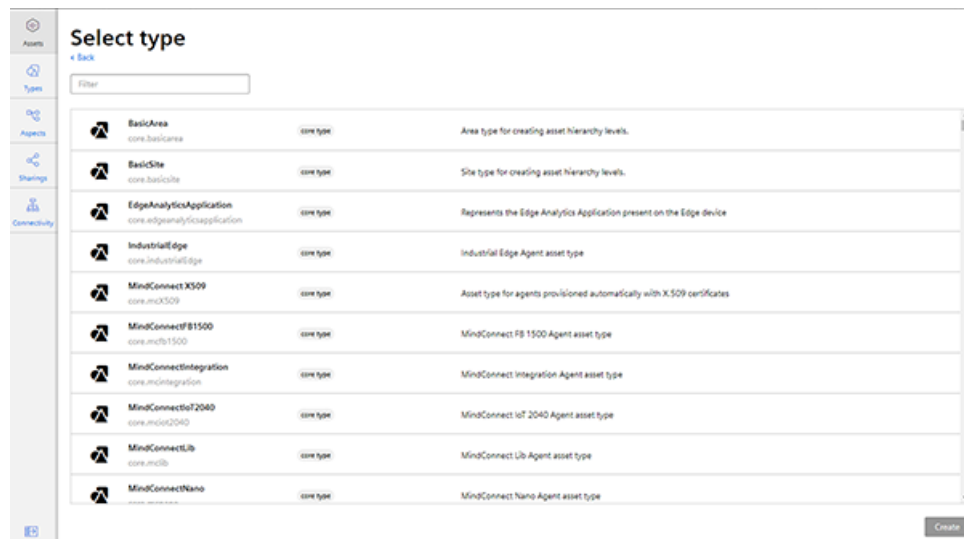
View asset type

- Open the "Types" window.
- In the center window pane, select "BasicDevice" > "BasicSinumerikAsset".
- In the text box "Filter", enter the name.
The corresponding data is displayed in the right-hand window area

3.7.4.3 Creating an Asset

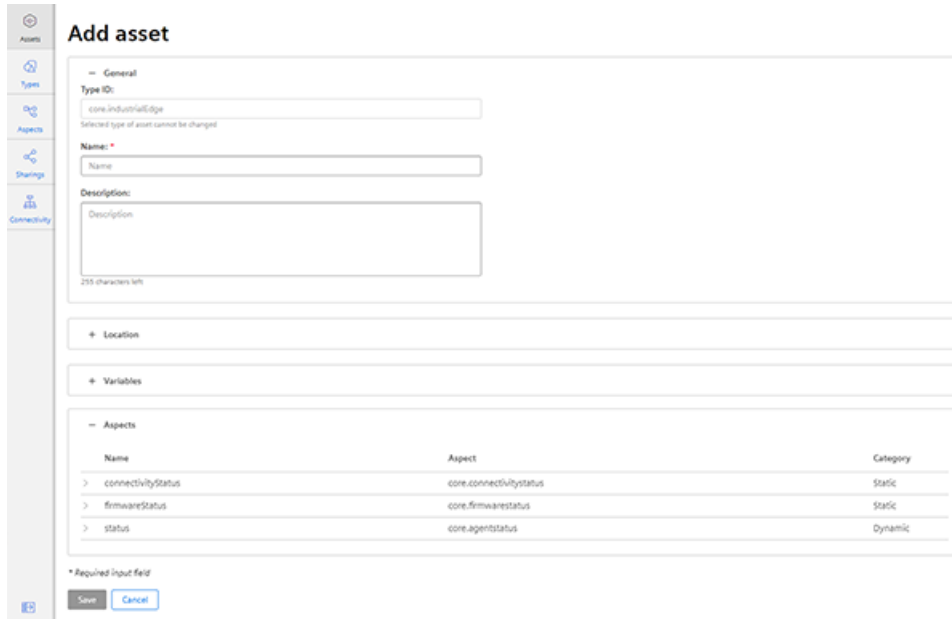
Procedure

1. In the left window pane, click "Assets".
2. In the center window pane, click "+ Add 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.

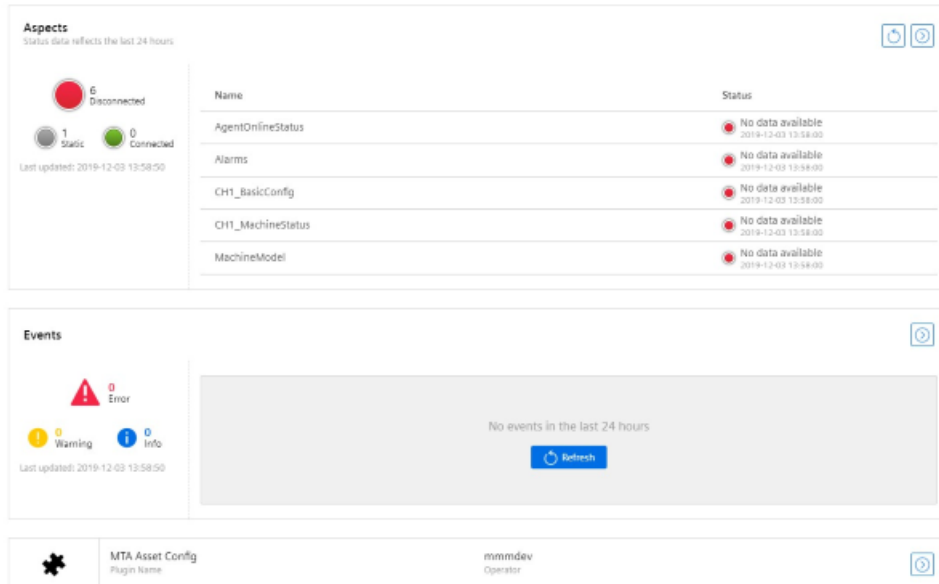


3.7 Integrating MindSphere

4. The "New 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.



3.7.5 Connecting the SINUMERIK control system with MindSphere

Using the MindSphere application "Asset Manager", connect the SINUMERIK control systems with MindSphere.

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

Requirement

- You require the "MindAccess User" role in MindSphere to do this.
- The configuration must have been saved.

Procedure

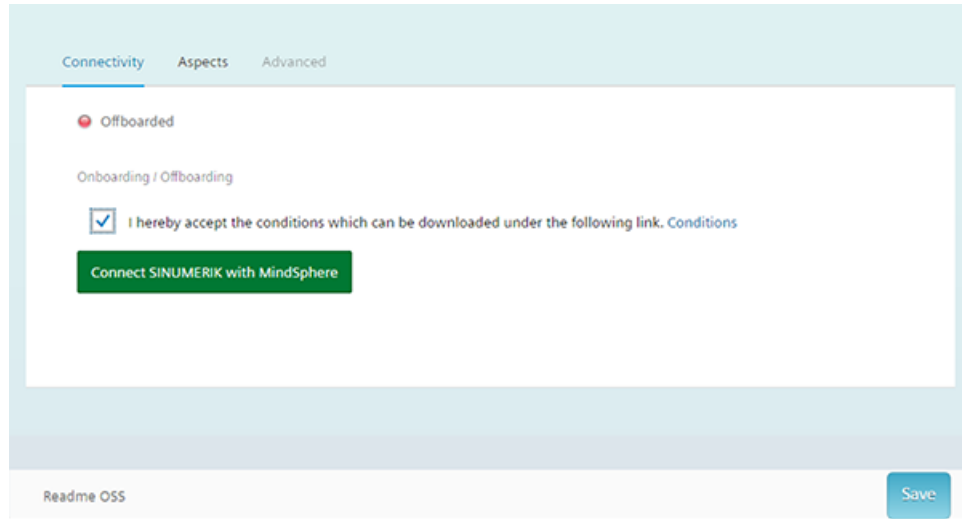
1. Click the "Asset Manager" MindSphere application, and select an asset in the left-hand section of the window.
2. Click the "MTA Asset Config" icon in the right-hand section of the window.



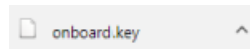
3. The "Onboarding / Offboarding" window opens, and you can see the connection status in the "Connectivity" tab, e.g. "Offboarded".
4. Select the "I hereby accept the conditions, which can be downloaded under the following link. Conditions" check box.
 - Click the "Conditions" link.
The "MindSphere Terms & 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.

3.7 Integrating MindSphere

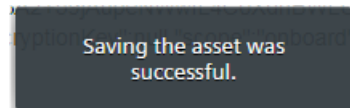
5. Click the "Connect SINUMERIK with MindSphere" button to connect the asset with MindSphere.



6. The "onboard.key" is generated and shown below the status bar. Please note that you neither change the name nor content of the file.



7. Click the "Save" button to accept the entries and save a consistent version of the configuration. Wait for confirmation that the asset was successfully saved.



8. Then copy the "onboard.key" to the control system.

3.7.6 Activating the data acquisition

The "Asset Manager" MindSphere application allows you to configure the assets.

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

- Manage MyMachines
Activation/deactivation of access to the "Manage MyMachines" application
- Variable Recording
Visualization of the standard aspects

The activation activates pre-configured datasets.

You have the capability of configuring your own variable sets. Additional information on this topic is provided in Chapter: Configuring a variable (Page 66).

The following preconfigured variable sets exist for assets with SINUMERIK control:

- SINUMERIK basic configuration
- Machine availability
- Advanced recording

Note

Activating pre-configured variable sets

- Select the check box for the terms and conditions
 - Set the "Manage MyMachine" slider under "Manage MyMachine" to "ON"
 - Set the "Variable Recording" slider under "Manage MyMachine" to "ON"
-

Note

First channel

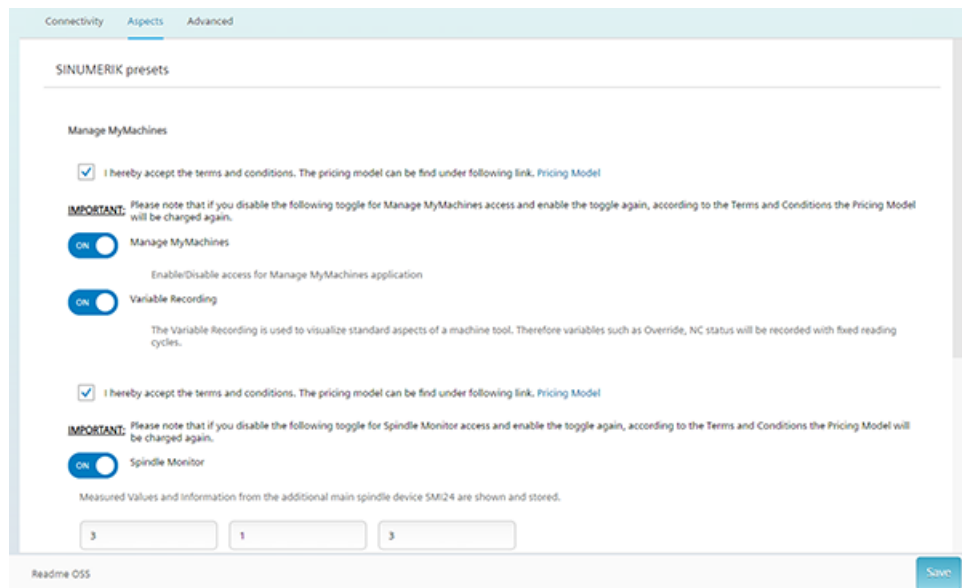
The preconfigured "SINUMERIK basic configuration" and "Machine availability" data only refers to data from the first NC channel.

Parameters of the pre-configured SINUMERIK datasets

Standard aspects	Description
SINUMERIK basic configuration	The basic SINUMERIK 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_Basic-Config".
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 • Uploaded files • File upload

Procedure

1. Click "Asset Manager" and select the required asset in the left-hand side of the window.
2. Click the "MTA Asset Config" icon.
The "Onboarding / Offboarding" window opens.
3. Click the "Aspects" tab.
The "SINUMERIK presets" window opens.
 - Select the check box for the license conditions under "Manage MyMachines".
 - Set the slider for "Manage MyMachines" to "ON" to activate Manage MyMachines usage for this asset and to enable the "Generic configuration" sliders.
 - Set the slider for "Variable Recording" to "ON" to obtain the data for "Manage MyMachines" on the "Aspects" tab and in the MMM dashboard.
 - Click "Save" to save the settings.



Price module

Fees are incurred each time you set the slider to "ON".

- To view the fees, click on the "Price Model" link.
- Information about the pricing model is displayed.

3.7.7 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.

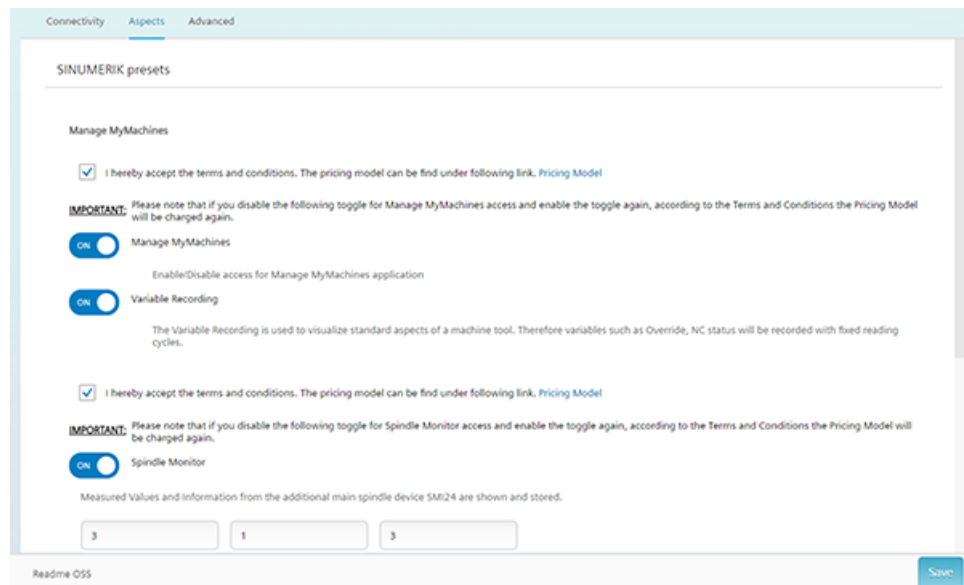
Additional information on this topic is provided in Chapter: Manage MyMachines /Spindle Monitor (Page 120).

Requirement

- The "Manage MyMachines" application is activated.
- You have purchased the "Manage MyMachines /Spindle Monitor" application.
- The Weiss spindle is equipped with an SMI24 module.

Procedure

1. Click "Asset Manager" and select the required asset in the left-hand side of the window.
2. Click the "MTA Asset Config" icon.
The "Onboarding / Offboarding" window opens.
3. Click the "Aspects" tab.
The "SINUMERIK presets" window opens.
 - Set the slider for "Spindle Monitor" to "ON" to activate the display of the Weiss spindle data.
 - Enter the address of the SMI24 Sensor Module, which comprises the slave index, drive index, and bus index.
You will find further information in Chapter: Determining the address of the spindles (only for 840D sl) (Page 133)
 - Click "Save" to save the settings.



Pricing model

Fees are incurred each time you set the slider to "ON".

- To view the fees, click on the "Price Model" link.
- Information about the pricing model is displayed.

3.7.8 Configuring a variable

The following variables may be configured individually:

- Categories (These variables are subject to the appropriate costs.)
 - Time-based / cyclic trigger
 - Trigger based on variable values
 - Alarm-based trigger
- File upload
 - You will find further information on the file upload in Chapter: File upload (Page 74).
 - Directory path
 - When modified
 - Cyclic

Requirement



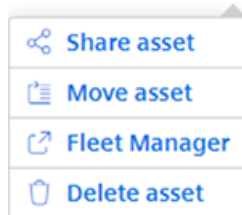
Software option

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

Procedure

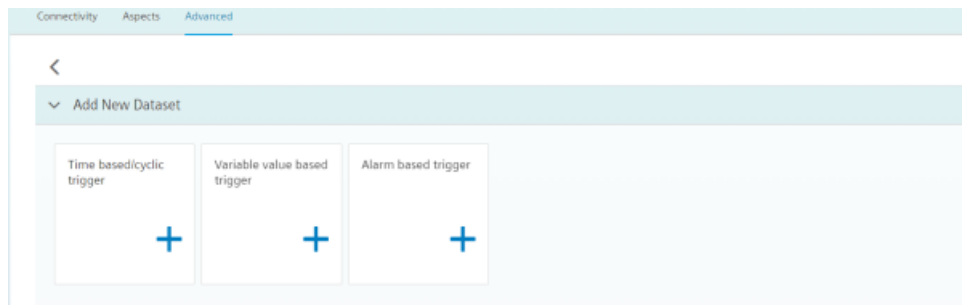
1. In the launchpad, click "Asset Manager" and select the required asset in the left-hand section of the window.
2. Click the "MTA Asset Config" icon.
3. Open the "Advanced" tab.
4. In the "Upload Variable" area, click on "Add variable" button.
5. Enter a name for the variable in the input field.

6. Click on the arrow icon >.



7. Click on the "Add configuration" button to add a new data set.
The following selection is available:

- Time-based / cyclic trigger
- Trigger based on variable values
- Alarm-based trigger



Time-based / cyclic trigger

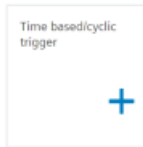
Parameter	Description	
Aspect name	Enter a name to designate a common group of variables. The name must be unique and not exceed 255 characters. The following characters are not permitted: Return, °, \$, §, €, \, >, <, ß ä ö ü Ä Ö Ü	
Name	In the variable set, enter a name of the variable to be sensed. Example: Jerk_MA_MX The variable name must contain at least 3 characters. The first character must not be a number or an underscore. Do not use square brackets in the notation of a variable! Do not use any umlauts (special German characters), e.g. "ä", "ö", "ü"!	
Address	Enter the address or the path of the variable. Examples:	
	Axis data:	/Nck/MachineAxis/AATRAVELCOUNT[1] /Nck/MachineAxis/AATRAVELDIST[2]
	Channel data:	/Channel/ChannelDiagnose/CuttingTime[u1] /Channel/ChannelDiagnose/OperatingTime[u1]
	Machine operating mode:	/Bag/State/opMode[u1]

3.7 Integrating MindSphere

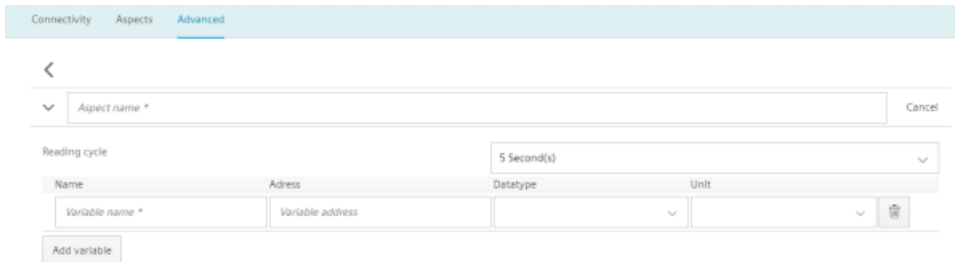
Parameter	Description
Data type	From the drop-down list select the data type of the variable: <ul style="list-style-type: none"> • DOUBLE • BOOLEAN • STRING Note: If values exceed the floating-point number accuracy, they are displayed with faulty decimal places.
Unit	Select the physical unit of the variable from the drop-down list. Example: m/s ³
A reading cycle	The sampling rate of the data acquisition is specified with this value. From the drop-down list select the time period. Example: 5 seconds

Procedure

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



2. Enter a name in the "Aspect name" input field and click the ">" arrow to the left of the input field.
 Further input fields and drop-down lists open.



3. Enter the variables in the text boxes.
 - Click the "Add variable" button to add a new variable.
 If necessary, repeat this step.

Note

Limiting the number of variables

A read cycle time selection of 5 seconds allows the creation of a maximum of 5 variables. Otherwise, up to 50 variables can be created.

- Click the "Delete" icon to delete individual variables.
- Click on the "Cancel" button to reset the entries.

4. Click the "Save" button to accept the entries.
 - A confirmation prompt is displayed along with the costs.
 - Click the "Accept settings" button to save the values and, at the same time, to accept the costs for the additional variables.
 - OR -
 - Click the "Cancel" button to not accept the values.

Note**Changing saved variable sets**

After saving, you can only change the following properties of the variable set:

- Address of a variable
- Query cycle of the variable set

If you want to change further properties, you must delete the variable set and create a new one. The previously acquired data is lost!

5. Click the "Exit" button to close the property window without saving the entries.
You return to the overview of the assets.

Trigger based on variable values

Any variables for which a communication mechanism exists can be linked logically with the variable trigger.

For this you have the following options:

Parameter	Description
When the variable	
Data acquisition name	Enter a previously created variable.
Variable address	Shows the address of the variable.
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 • Corresponds to • Not equal to
Variable value	Enter a value.
With the following configuration	
Debounce time	Enter the debounce time
min	Select the duration of the debounce time from the drop-down list. Minimum: 30 s Maximum: 24 h

3.7 Integrating MindSphere

Parameter	Description		
Hysteresis	<p>Select the check box if you want to include hysteresis.</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			
Record the subsequent value	Select the value from the drop-down list.		
Variable address	Shows the address of the variable.		
Data type	<p>From the drop-down list select the data type of the variable:</p> <ul style="list-style-type: none"> • DOUBLE • BOOLEAN • STRING 		
With the following configuration			
Recording for	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"> <p>Duration</p> <p>Enter the duration</p> <p>Minimum: 30 s</p> <p>Maximum: 24 h</p> </td> <td style="width: 40%;"> <p>Time unit</p> <p>Select the time unit from the drop-down list.</p> </td> </tr> </table>	<p>Duration</p> <p>Enter the duration</p> <p>Minimum: 30 s</p> <p>Maximum: 24 h</p>	<p>Time unit</p> <p>Select the time unit from the drop-down list.</p>
<p>Duration</p> <p>Enter the duration</p> <p>Minimum: 30 s</p> <p>Maximum: 24 h</p>	<p>Time unit</p> <p>Select the time unit from the drop-down list.</p>		
Within the cycle time	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"> <p>Cycle</p> <p>Enter a cycle</p> <p>Minimum: 30 s</p> <p>Maximum: 24 h</p> </td> <td style="width: 40%;"> <p>Time unit</p> <p>Select the time unit from the drop-down list.</p> </td> </tr> </table>	<p>Cycle</p> <p>Enter a cycle</p> <p>Minimum: 30 s</p> <p>Maximum: 24 h</p>	<p>Time unit</p> <p>Select the time unit from the drop-down list.</p>
<p>Cycle</p> <p>Enter a cycle</p> <p>Minimum: 30 s</p> <p>Maximum: 24 h</p>	<p>Time unit</p> <p>Select the time unit from the drop-down list.</p>		

Procedure

1. Click on the "Trigger based on variable values" function to define dependencies.



2. Select a variable and open further input fields and drop-down lists with the arrow.
3. Enter the dependencies.
Click the "Save" button to save the variable trigger.

▼ When the variable Cancel

Name of Data Acquisition *

Variable Address * DOUBLE ▼ Greater than ▼ Variable Value

With the following configuration

Debounce Time * min ▼

Hysteresis Hysteresis Relative Absolute

▼ Then

Record following value ▼ Variable Address * DOUBLE ▼

With the following configuration

Recording for Duration sec ▼

Within cycle time Cycle sec ▼

Alarm-based trigger

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

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, in groups, or in series. It is also possible to remove individual alarms or groups from a selection. You can link conditions that themselves do not activate a trigger.

Parameter	Description
Alarm name	Enter a descriptive name for the alarm.
Alarm acknowledgement filter	
INCLUDED	

3.7 Integrating MindSphere

Parameter	Description
Alarm codes:	<p>Enter the alarm numbers or the alarm IDs that activate the trigger.</p> <p>The alarms are entered in the following notation:</p> <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 <p>The alarm list must not exceed 200 characters.</p>
Alarm intervals: Left / Right:	<p>Enter the alarm limits:</p> <ul style="list-style-type: none"> • Left: Enter the lowest alarm ID, e.g. 0 • Right: Enter the highest alarm ID, e.g. 99999 <p>All alarms between 0 and 99999 are included.</p>
EXCLUDED	
Alarm codes:	<p>Enter the alarm numbers that do not activate the trigger.</p> <p>The alarms are entered in the following notation:</p> <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 <p>The list of alarm numbers must not exceed 200 characters.</p>
Alarm intervals: Left / Right:	<p>Enter the alarm limits:</p> <ul style="list-style-type: none"> • Left: Enter the lowest alarm ID, e.g. 0 • Right: Enter the highest alarm ID, e.g. 99999 <p>All alarms between 0 and 99999 are included.</p>
New alarm filter	
INCLUDED	All fields, the same as under "Alarm Acknowledge Filter" - "INCLUDED"
EXCLUDED	All fields, the same as under "Alarm Acknowledge Filter" - "EXCLUDED"

Procedure

1. Click the "Alarm based trigger" function to define alarm properties, e.g. when an alarm should be displayed.



2. Enter a name for the alarm and specify the properties. Click the "Save" button to save the alarm based trigger.

Connectivity Aspects Advanced

< Alarm Configurations Add Rule

Alarm Name Cancel

Alarm Acknowledge Filter

INCLUDED:

Alarm Numbers: +

Alarm Intervals: Left: Right: +

EXCLUDED:

Alarm Numbers: +

Alarm Intervals: Left: Right: +

New Alarm Filter

INCLUDED:

Alarm Numbers: +

Alarm Intervals: Left: Right: +

EXCLUDED:

Alarm Numbers: +

Alarm Intervals: Left: Right: +

Readme OSS

Further information

You can find **further information** about NC variables in the:
SINUMERIK 840D sl List Manual

3.7.9 File upload

With the "File Upload" function, you send the files from the SINUMERIK controller to MindSphere and from MindSphere to the SINUMERIK controller.

Requirement

The "Manage MyMachines" function is activated under SINUMERIK presets.

Further information on this can be found in Chapter: Activating the data acquisition (Page 62)

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. There, the hacker can read or manipulate various system components (e.g. the content of databases). As a consequence, the attacker can change tool data, NC programs, machine archives or the system structure itself, for example. This type of attack cannot be prevented by MindSphere.

- As a consequence, as the person responsible for the machine network, it is imperative that you take the appropriate industrial security measures for the production/machine network.

Siemens AG does not accept any liability in this regard.

Overview

- Use the following filename extensions for the "File Upload" function:
 - .xml
 - .txt
 - .log
 - .png
 - .jpg
 - .ohs
 - .pms
 - .ems
 - .mds
 - .pdf

File size maximum 100 MB.

The "File Upload" function provides 2 variants:

- Change-dependent file upload
The upload is carried out after a file is changed on the SINUMERIK controller. The change date of the files is checked cyclically, i.e. hourly, on the SINUMERIK controller.
- Cyclic file upload
The upload is carried out in a defined time cycle. The cyclic file upload does not check files for changes.
The cyclic file upload permits the file upload:
 - of individual files
 - of multiple files
 - of entire folders

The cycle is defined by the user interface. The following cycles are available:

- 1 hour
- 2 hours
- 4 hours
- 6 hours
- 8 hours
- 12 hours
- 24 hours
- 1 week
- 1 month

Directory paths

When the directory path has been created, the file upload of the last 5 files in this directory to MindSphere takes place.

The following directories are available for the file upload:

- <temp>\
You have the option of creating several subdirectories in this directory.
- /var/user/
- C:\temp\datatransfer
On the PCU WIN NT
- var\tmp\datatransfer
On the PCU WIN XP
- var\tmp\datatransfer
For Linux
- /user/sinumerik/hmi/data/version/

SINUMERIK Operate also supports the following directories:

- D:\backups\
- D:\Description\

3.7 Integrating MindSphere

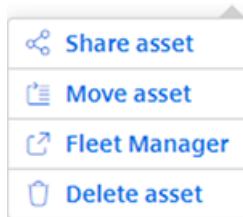
HMI Advanced also supports the following directories:

- F:\mmc2
- F:\dh\
- F:\privatesyncdata\

To add additional directory paths or data extensions to the file upload, the environment variables for `isbconfigmapper`, `file_validation_config` must be changed.

Procedure

1. Open the Asset Manager.
2. Select the appropriate asset.
3. Open the "Advanced" tab. file
You can see the number of loaded files/number of possible files to the top right in the "File Upload" area.



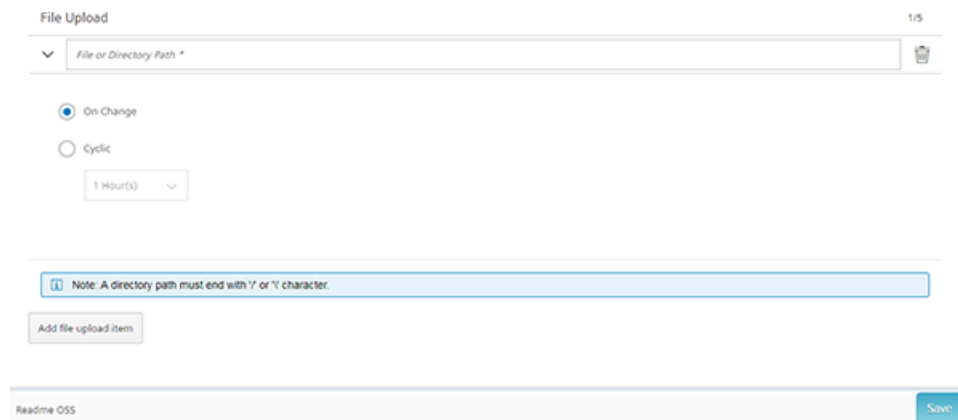
4. Click on the "Add file upload item" button.
To load several files simultaneously, click on this button for each file upload.

Note

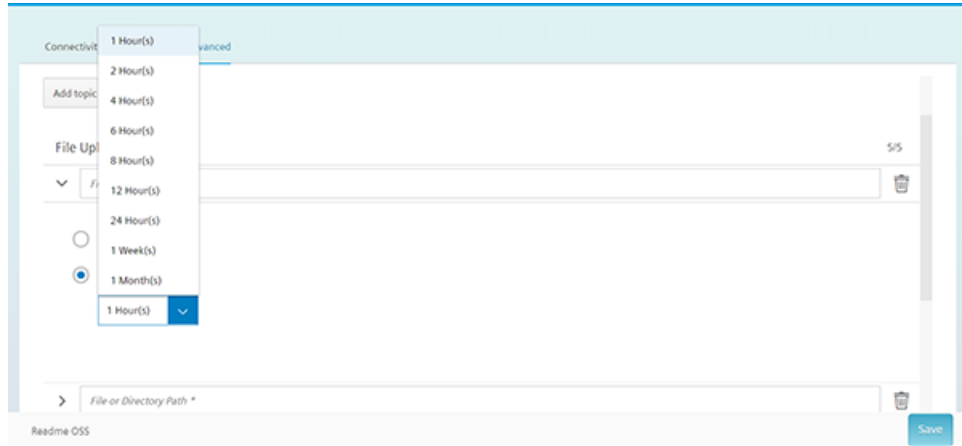
The "Add file" button is not enabled

When the possible number of files to be loaded has been reached, the button is disabled.
Reduce the number of files to be loaded to the possible number.

5. Click on the small arrow to the right next to the "File or Directory Path" text box.
The arrow then points downward and the selection for the type of file upload is opened.



6. Select the corresponding option button.
 - If the file upload is to be carried out cyclically, click on the small arrow toward the bottom. The selection of the cycles is opened.
 - Select the corresponding cycle.

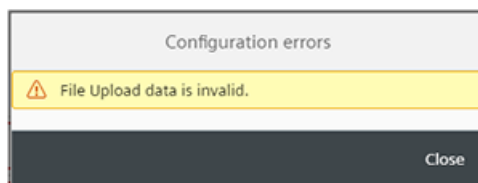


7. Enter the file path for each desired file.
8. Click the "Save" button.
9. You can view the uploaded files in the Fleet Manager.
You will find more information on this in Chapter: Displaying uploaded files in the Fleet Manager (Page 129).

Validating data

The data entered for the data upload are checked internally for correctness.

If any entries are incorrect, the following error message is displayed.



In this case, check and correct the entries.

Delete file

To delete a file, click on the "Recycle bin" icon.

3.8 Disconnecting the SINUMERIK control system from MindSphere

3.8.1 Overview

Introduction

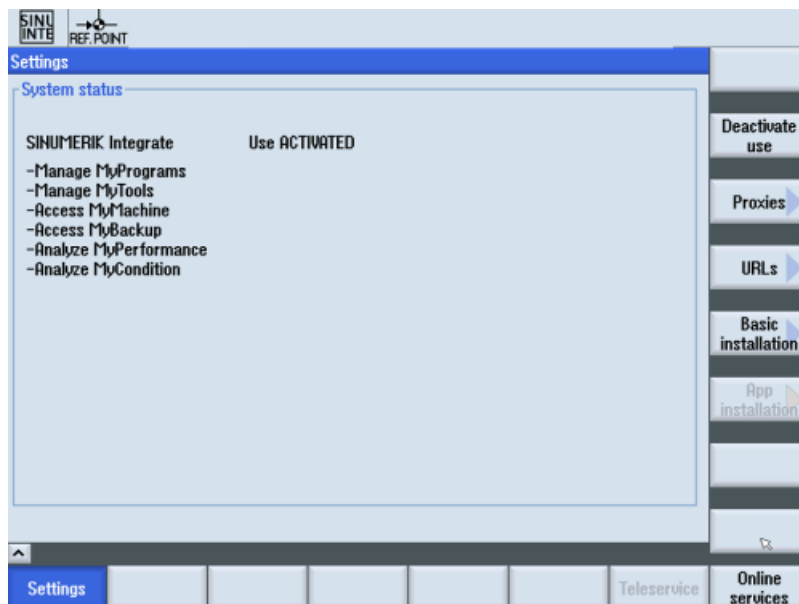
Proceed as follows if you no longer wish to use the MindSphere application on your SINUMERIK control system:

1. Lock SINUMERIK Integrate: Deactivating use of SINUMERIK Integrate (Page 79)
2. In the "Asset Manager", disconnect the machine tool system from MindSphere: Disconnecting the SINUMERIK control system from MindSphere (Page 79)

3.8.2 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.

3.8.3 Disconnecting the SINUMERIK control system from MindSphere

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

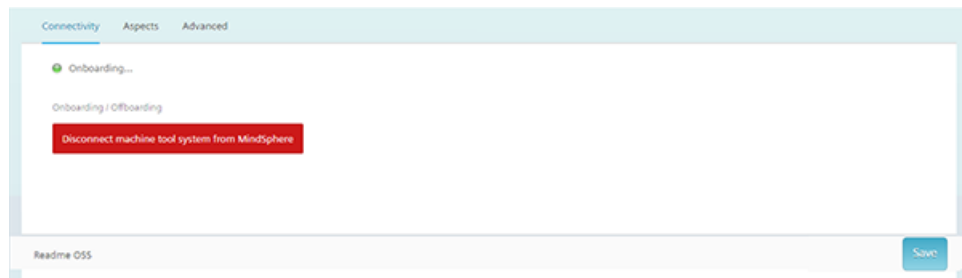
Further information on roles within MindSphere and on configuring assets is provided in: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Requirement

You require the "MindAccess User" role in MindSphere to do this.

Procedure

1. Click the "Asset Manager" MindSphere application, and select an asset in the left-hand section of the window.
2. Click the "MTA Asset Config" icon in the right-hand section of the window.
3. 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
-

Setting up MindConnect Nano for Manage MyMachines

4

4.1 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".

Introduction

The following steps are required to set up MindConnect Nano:

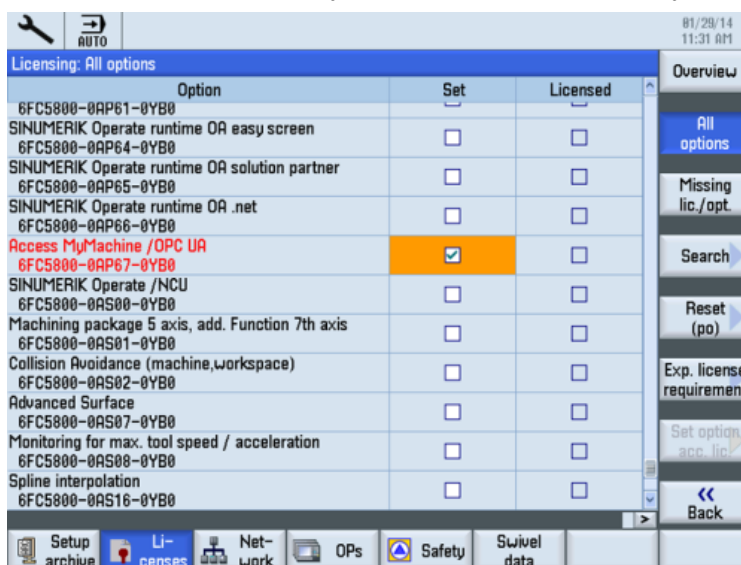
1. For example, at the SINUMERIK control system, activate the "Access MyMachine / OPC UA" software option.
2. For example, at the SINUMERIK control system, configure the network.
3. In MindSphere, create Aspects.
4. In MindSphere, create Asset type.
5. In MindSphere, create Asset.
6. In MindSphere, assign variable.
7. In MindSphere Onboarding.
8. In MindSphere, capture data.

4.2 Setting up at the control system

4.2.1 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.

4.2.2 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.
Authentication		

Setting	Description
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**

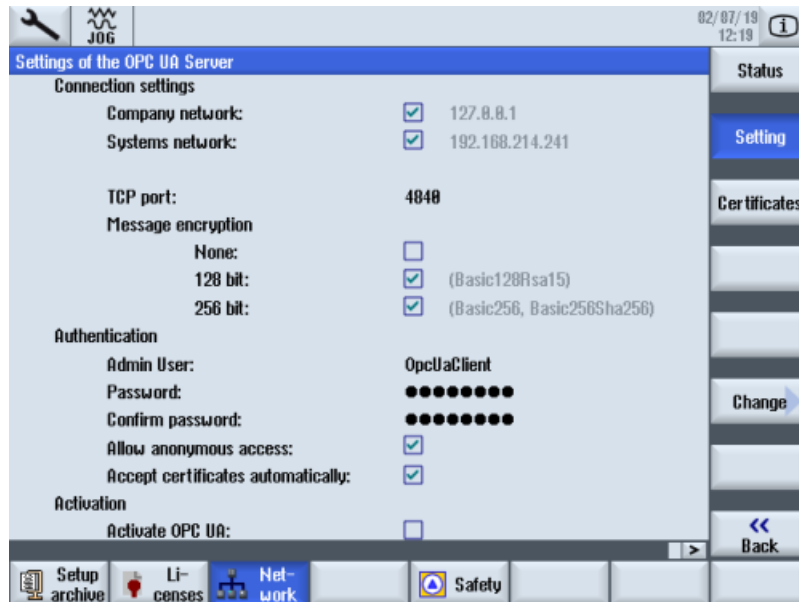
Observe the following rules when creating new passwords:

- 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.

Additional information

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

4.3 Configuring Manage MyMachine functions in MindSphere

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

Reference

A detailed description of the Asset Manager can be found at the following link: MindSphere documentation (<https://documentation.mindsphere.io/index.html#/kiosk/de>), "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]
NCPProgramStatus	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
NCPProgram	String	%	255	ns=2;s=/Channel/ProgramPointer/progName[u1,1]
CurrentAlarms	Double	%		ns=2;s=/current

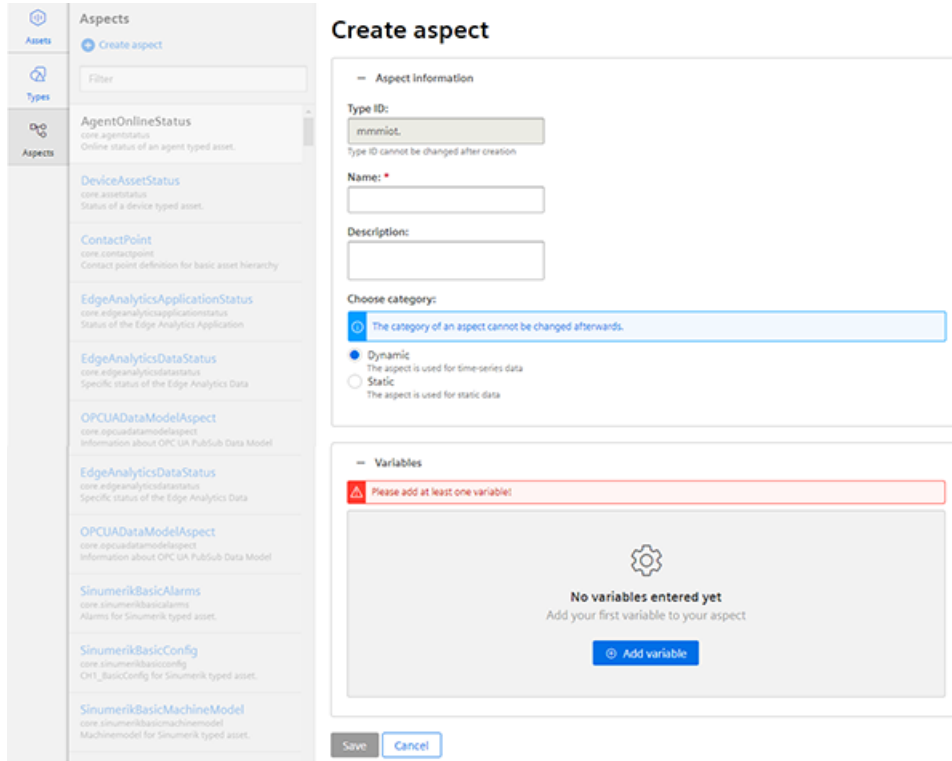
Note

Unit designation for variables

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

Procedure

1. In MindSphere, open "Asset Manager" and in the left window pane select "Aspects" . The following window is displayed if you have not yet created any variables:



Additional information on creating variables is provided in Chapter: Configuring a variable (Page 66).

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

— Aspect information

Type ID:
mimmdev.Test
Type ID cannot be changed after creation

Name: *
Test

Description:
Test

Choose category:

The category of an aspect cannot be changed afterwards.

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

Name	Data type	Unit	Max. length
FeedRate	DOUBLE	%	

Save Cancel

4.3 Configuring Manage MyMachine functions in MindSphere

3. Create a new Type under "Types" > "Basic Agent" > "MindConnect Nano" with the Aspect type "<TenantName>.SinumerikBasicConfig" with the Aspect name "CH1_BasicConfig". You have the option of continuing to define variables in the new Type.

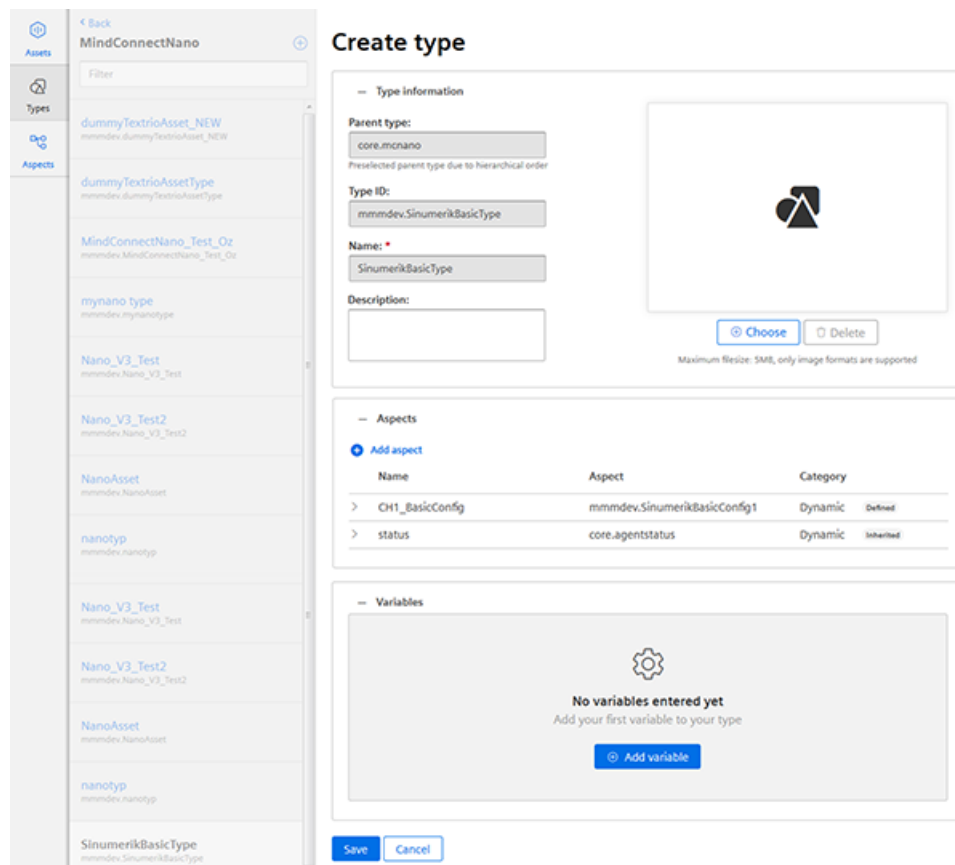
Note

Do not confuse

The following two aspects exist:

- core.SinumerikBasicConfig
- <tenant_name>.SinumerikBasicConfig

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



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

Add asset

General

Name: *

Descriptions:

Type ID: mmmiot.asd
Selected type of asset cannot be changed

Time zone: Select...

Please classify your asset:

The classification of an asset cannot be changed afterwards.

Performance
Use this option to represent your assets in the field with timeseries resolution of milliseconds

Simulation
Use this option to represent simulation data of an asset with timeseries resolution up to microseconds

Location

Street:

Postal code: City:

Country: Region:

Latitude: Longitude:

45.00000001 45.00000001

Variables

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

* Required input field

Save Cancel

5. To connect to MindConnect Nano, click on "MindConnect Nano" in the asset. Enter the device ID of MindConnect Nano.
6. Configure the MindConnect Nano network settings for the SINUMERIK controller or MindSphere by clicking on the gear icon. Once configuration is complete, click "Download connection key." Transfer the connection key to MindConnect Nano via a USB stick.
7. Click "Add new data source" and configure the connection to your OPC UA server.
8. Click "Start edit mode."
Add new data points, corresponding to the values in the table above, with the data point address (SINUMERIK example address).
9. 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

5.1 Shopfloor AppManagement

Requirement

You need administrator rights.

Various settings are configured in SINUMERIK Integrate AMC.

NOTICE

Setting up encrypted data transmission

To ensure that no attacker can gain access to your secret key, an encrypted connection must be set up between SINUMERIK Integrate and MindSphere.

You can find further information on setting up secure communication in the SINUMERIK Integrate Installation Manual, in the Chapter "Setting up an encrypted connection".

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. There, the hacker can read or manipulate various system components (e.g. the content of databases). As a consequence, the attacker can change tool data, NC programs, machine archives or the system structure itself, for example. This type of attack cannot be prevented by MindSphere.

- As the person responsible for the machine network, take measures to ensure the industrial security of the production/machine network.

Siemens AG does not accept any liability in this regard.

Further information

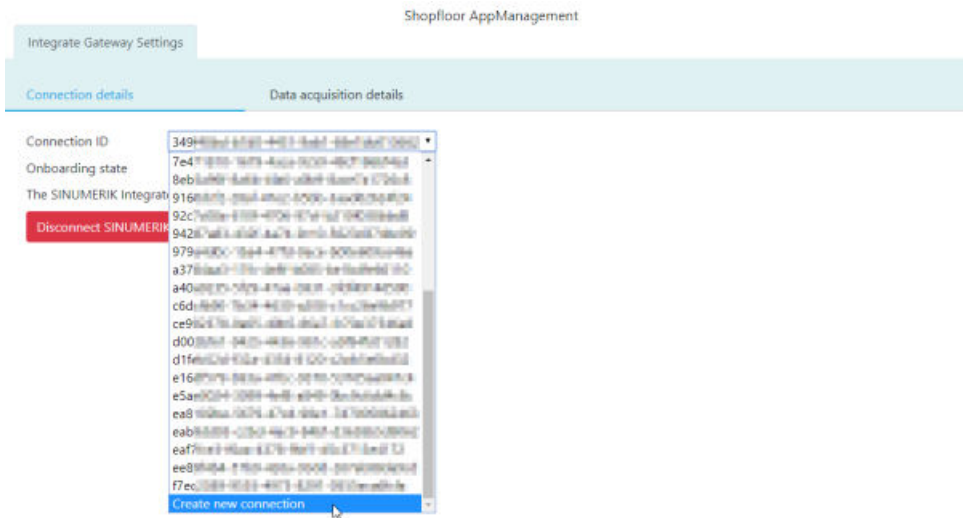
You can find additional information on configuring MindSphere in:
Installation Manual "SINUMERIK Integrate MMP, MMT, AMC, AMP, AMM/E, AMD"

Procedure

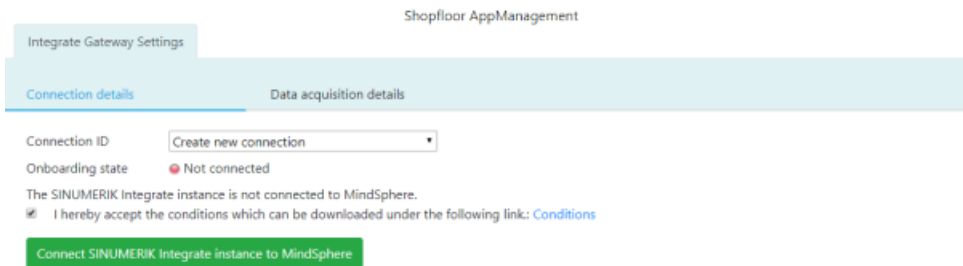
- 1. Click on the "Shopfloor AppManagement" icon.



- 2. The "Shopfloor AppManagement" > "Integrate Gateway Settings" window opens.
 - Open the "Connection details" tab
 - Choose "Create new connection".



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



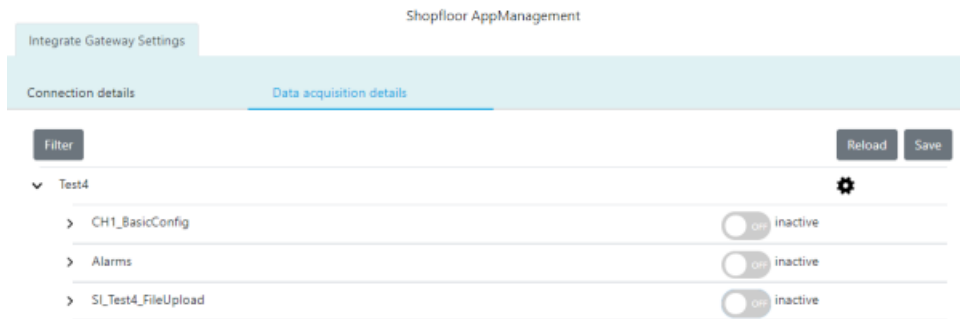
5.2 Activating the variable monitor for Manage MyMachines

Requirement

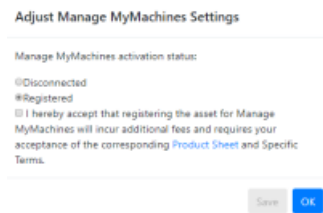
In SINUMERIK Integrate Analyze MyCondition, the check box "Activated on MSP" is selected under tab "Set up functions" > "Variable monitors".

Procedure

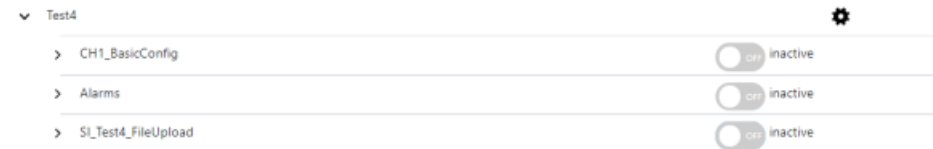
1. Open the "Data acquisition details" tab.
 - Click the "Filter" button to specifically filter for "Machine / Assets" and "Variables Monitor / Aspect".
 - Click the "Load New" button if you have moved the slide for a function to "ON".
 - To save your settings, click "Save".



2. Click the gear wheel icon to get information about the Manage MyMachines settings. Select the "I hereby accept ..." check box and then click "Save".



3. 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.



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

Displaying acquired data in Manage MyMachines

6.1 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
Additional information is provided in Chapter: Machine overview (Page 100).
- Overview of the operating data of an asset
Additional information is provided in Chapter: Dashboard (Page 102)
- Filter and display alarms
Additional information is provided in Chapter: Displaying alarms (Page 110)


6.1 Overview

- Analyses based on Aspects defined by the user and critical machine data
Additional information is provided in Chapter: Aspects (Page 115)
- Export of data points of an Aspect
Additional information is provided in Chapter: Export (Page 118)
- Display Weiss spindle data
Additional information is provided in Chapter: Manage MyMachines /Spindle Monitor (Page 120)
- Display the machine on a world map
Additional information is provided in Chapter: Machine location (Page 126).
- Display/logging of previously defined machine events
Additional information is provided in Chapter: Events (Page 127)

6.2 Selecting a language

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


Parameter

Parameter	Description
	Opens the "User Settings" menu, and lists the following languages for selection: <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. The "User Settings" menu 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.

6.3 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.

Parameter

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
	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 standard" 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.




The screenshot shows the 'My Filters' section of the Manage MyMachines interface. At the top right, there are icons for settings (gear) and a dropdown arrow. Below these are the labels 'My Filters', 'Save As Default', and 'Reset Filters'. A dropdown menu is set to 'Please choose filter option...' with a plus sign to its right. The main area contains a table of applied filters:

Applied Filter		
Asset ID	05	
Asset Name	AMP	
AMP		
AMPAssetChild 11 19		
AMPAssetParent 10 27		
AMPAssetParent 10 29		

6.4 Machine overview

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

Parameter

Parameter	Description
	Displays the machine names By clicking on the underscored machine name, the "Machine dashboard" window is opened and additional machine data 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
	In addition to the machine information, you will see a bar that displays the machine status, color-coded. The following information is displayed: <ul style="list-style-type: none"> • Unknown status (gray) • Production (green) • Technical fault (red) • Organizational fault (yellow) • No fault (blue) When passing over with the mouse, a tooltip is displayed showing various information.
Tenant identifier	Displays the customer name.
HMI-UI type	Displays the operating software: <ul style="list-style-type: none"> • HMI-Advanced • SINUMERIK Operate • HMI Base
SW version	Displays the operating software version.
Device type	Displays the device type: <ul style="list-style-type: none"> • Industrial PC • PCU 50 • NCU

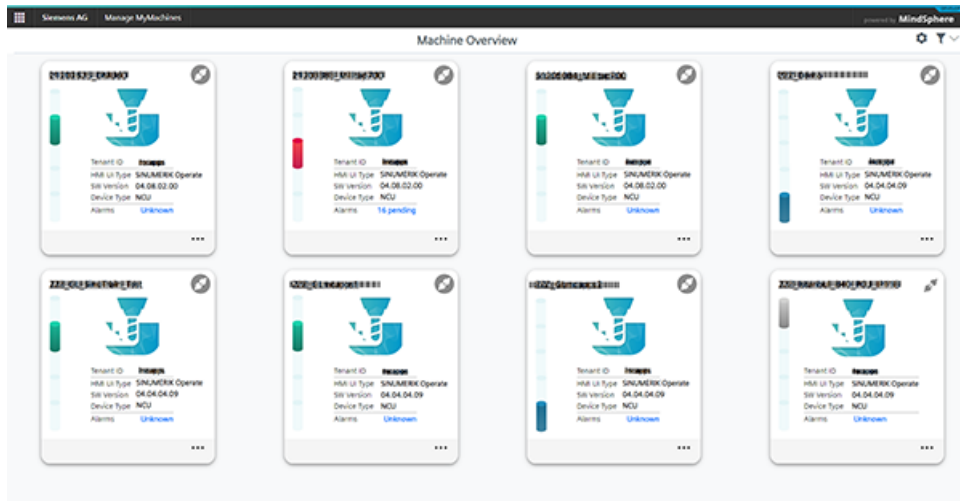
Parameter	Description
Alarms	Displays the number of alarms.
...	<p>Opens an additional window:</p> <ul style="list-style-type: none"> Alarms: Opens the "Machine Alarms" window. Additional information is provided in Chapter: Displaying alarms (Page 110) Dashboard Opens the "Machine Dashboard" window. Additional information is provided in Chapter: Dashboard (Page 102) Aspects: Opens the "Machine Aspects" window. Additional information is provided in Chapter: Aspects (Page 115) Export: Opens "Fleet Manager" and tab "Export". Additional information is provided in Chapter: Export (Page 118) Spindle monitoring: Opens the "Spindle Monitor" window. Additional information is provided in Chapter: Manage MyMachines /Spindle Monitor (Page 120) Map: Opens a map of the world and shows where the machine is located. Additional information is provided in Chapter: Machine location (Page 126)

Procedure

1. In the launchpad, click on the "Manage MyMachines" 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. Additional information is provided in Chapter: Dashboard (Page 102).

6.5 Dashboard

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

The "MMM dashboard" view is updated every 30 seconds.

Requirement

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

- Manage MyMachines
- Variable recording




To see how you activate data acquisition, read in Chapter: Activating the data acquisition (Page 62).

Note

No data display

If no data is displayed, switch the slider "OFF" and back "ON" again to reload.

Parameter

Selection/display	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
	<p>In addition to the machine information, you will see a bar that displays the machine status, color-coded. The following information is displayed:</p> <ul style="list-style-type: none"> • Unknown status (gray) • Production (green) • Technical fault (red) • Organizational fault (yellow) • No fault (blue) <p>When passing over with the mouse, a tooltip is displayed showing various information.</p>

Selection/display	Description
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 period	Select the time period in the view from the drop-down list: <ul style="list-style-type: none"> • Last 30 minutes • Last hour • Last four hours • Last eight hours • Last 24 hours • Today • Last 48 hours

Displaying machine data

Parameter	Description	
Machine description		
Name	Displays the machine names	
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	
...	Opens an additional window: <ul style="list-style-type: none"> • Overview: Opens the "Machine Overview" window. • Alarms: Opens the "Machine Alarms" window. • Aspects: Opens the "Machine Aspects" window. • Export: Opens the "Fleet Manager" and the "Export" tab. • Spindle monitoring: Opens the "Machine Spindle Monitoring" window. • Map: Opens a map of the world and shows where the machine is located. 	
Connection status	Displays the connection status between the SINUMERIK Integrate client and MindSphere: <ul style="list-style-type: none"> • Online • Offline 	
Feed override	Displays the last value of the feedrate override as a percentage.	
NC program	Displays the selected NC program.	
NC program status	Displays the last value of the NC program status. You can find additional information in the following paragraph "NC program status".	You can display the data as bar chart or pie chart in the right-hand section of the window.
Active alarms	Displays the number of active alarms. You can find additional information in the following paragraph "Active alarms".	You can display the active alarms in the right-hand section of the window.
Operating mode	Displays the last value of the machine tool operating modes: You can find additional information in the following paragraph "Operating mode".	You can display the chronological history as a bar chart or pie chart in the right-hand section of the window.

6.5 Dashboard

Parameter	Description	
Access protection level	<p>The access to functions and data areas is controlled via the access rights. Access levels 0 to 7 are available, where 0 represents the highest level and 7 the lowest level. Access levels 0 to 3 are locked via a password and access levels 4 to 7 via a keyswitch.</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 	
Spindle override	Displays the last value of the spindle override in percent.	
Stop condition	Displays the "StopCondition" NC variable which describes the cause of the NC program stop in more detail.	
Machine status	<p>Displays the last value of the machine status. You can find additional information in the following paragraph "Machine status".</p>	<p>You can display the chronological history as a bar chart or pie chart in the right-hand section of the window.</p>
Time of the last value	Displays the date and time of the last recording.	
∨	Opens a menu with additional information	
∧	Closes the menu.	

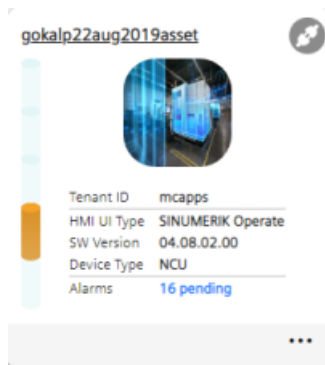
Note

UTC time definition

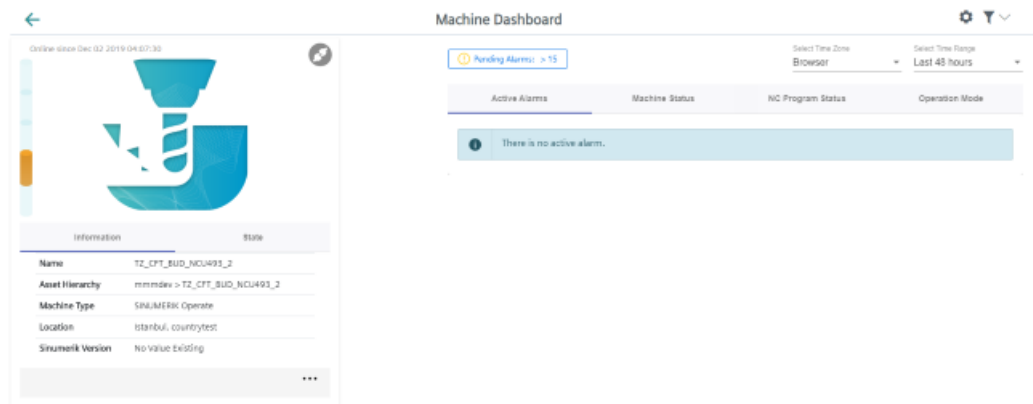
All variables are displayed with a UTC time stamp.

Procedure

1. Click in the machine overview on the underscored name of the required machine.



2. The "Machine Dashboard" window opens, displaying additional machine data. In the right-hand section of the window, use the slider bar to scroll up and down.





Displaying details

You can also view the following values more closely:

- Active alarms
- Machine status
- NC program status
- Operating mode

Active alarms

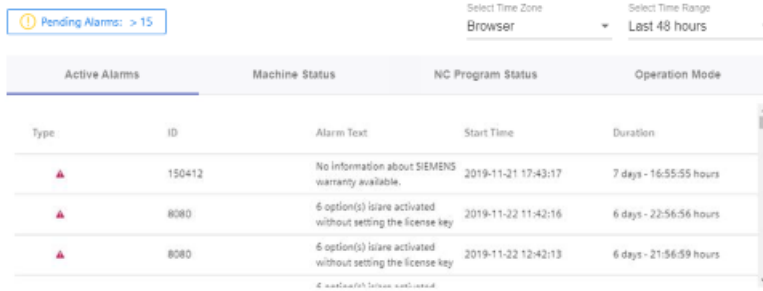
Parameter	Description
Type	Displays the following icons:
	 Notice
	 Note
ID	Displays the alarm identifier.
Alarm text	Displays an alarm description.

6.5 Dashboard

Parameter	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.
Customer	Displays the customer name.

Procedure

1. In the right window area, open the tab "Active alarms".
The details on the active alarms are displayed.

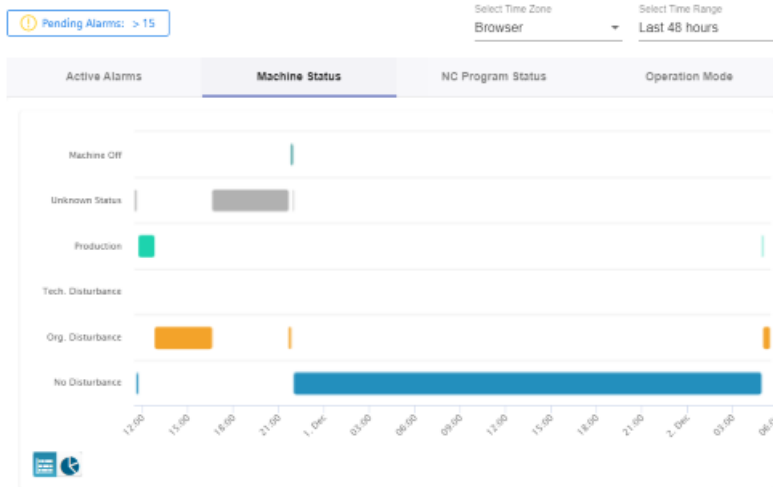


Machine status

Parameter	Description
Machine status	Displays the values of the selected time period: <ul style="list-style-type: none"> • Machine off • Unknown status • Production • Technical fault • Organizational fault • No fault

Procedure

1. In the right window area, open the tab "Machine status".
The details on the machine status are displayed in a block diagram.



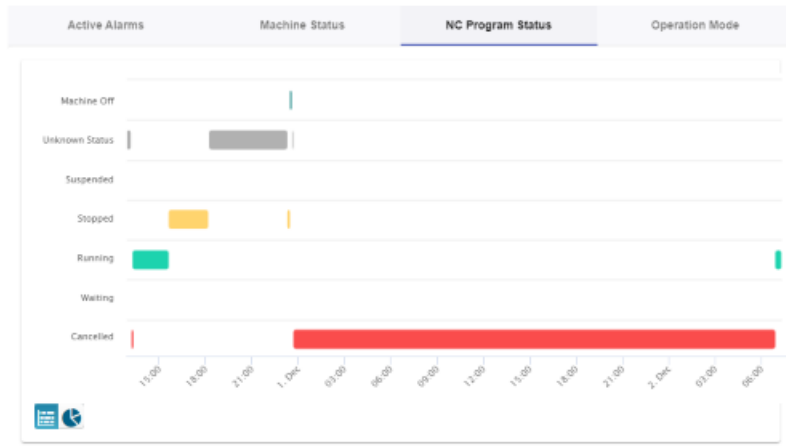
2. Click on the "Pie chart" icon to change the display type.

NC program status

Parameter	Description	
NC program status	Displays the values of the selected time period:	
	<ul style="list-style-type: none"> Machine off 	The NC program is not running as the SINUMERIK controller is switched off.
	<ul style="list-style-type: none"> Unknown status 	The NC program is not running and the status is unknown.
	<ul style="list-style-type: none"> Stopped 	The NC program has been interrupted and will be restarted by the operator.
	<ul style="list-style-type: none"> Stopped 	The NC program has been stopped and will be exited by the operator.
	<ul style="list-style-type: none"> In operation 	The NC program is currently running.
	<ul style="list-style-type: none"> Waiting 	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.
	<ul style="list-style-type: none"> Cancelled 	The NC program has been cancelled by the operator at the SINUMERIK controller.

Procedure

1. In the right window area, open the tab "NC program status".
The details on the NC program status are displayed in a block diagram.



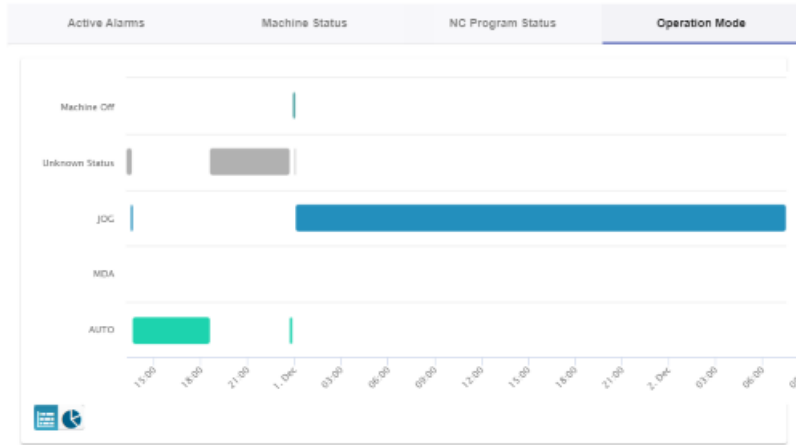
2. Click on the "Pie chart" icon to change the display type.

Operating mode

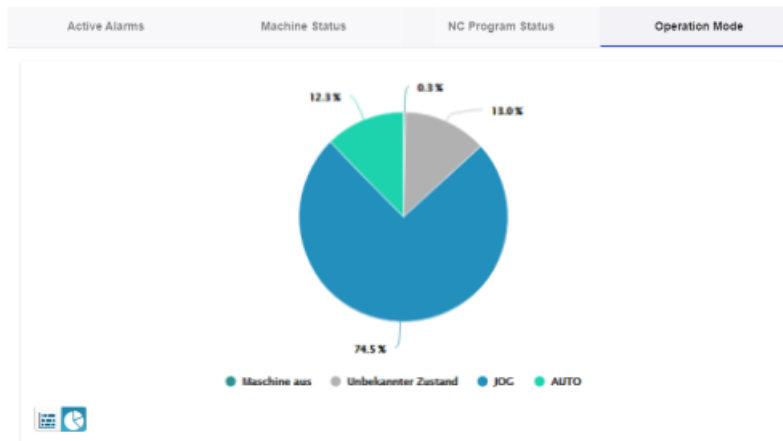
Parameter	Description
Operating mode	Displays the last value of the machine tool operating modes: <ul style="list-style-type: none"> • Machine off • Unknown status • JOG • MDA • AUTO

Procedure

1. In the right window area, open the tab "Operating mode".
The details on the operating mode are displayed in a block diagram.



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



6.6 Displaying alarms



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

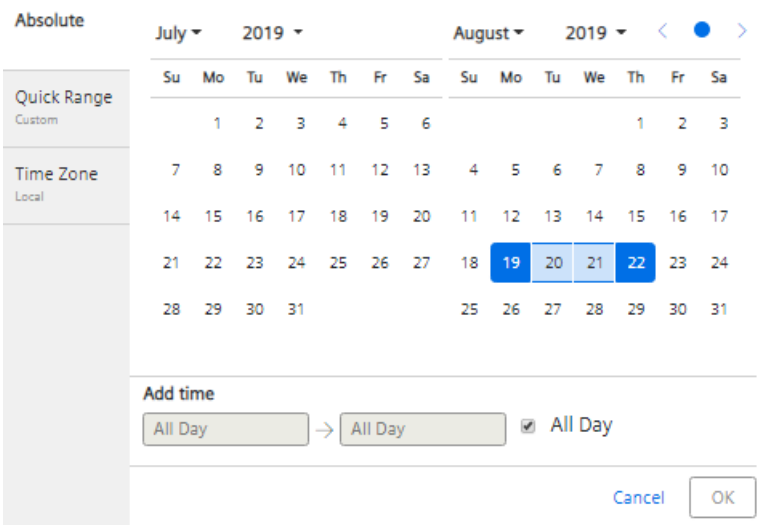
- Occurrence
- Duration
- List:
 - Alarm identifier
 - Service life
 - Duration
 - End time

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
	You update the data that is located in the time period by pressing the "Refresh" button.
08/19/2019 → 08/23/2019 UTC	Displays the time range and the time zone in which alarms are captured. A calendar opens when if you click on the button.
Calendar settings:	
<ul style="list-style-type: none"> • Absolute: 	Fixed time period <ul style="list-style-type: none"> • In the calendar, select the required time period with start date and end date. • Enter a precise time <ul style="list-style-type: none"> - OR - Activate option checkbox "All day".

Button/parameter	Description
<ul style="list-style-type: none"> Quick Range 	<p>Manual entry:</p> <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
<ul style="list-style-type: none"> Time zone 	<ul style="list-style-type: none"> Local: Specifies the local time at the machine location UTC: Specifies the universal time (Greenwich mean time) 

Occurrence

Alarm display	Description
Occurrence	<p>Indicates the frequency of the alarms within a defined time period in a chart.</p> <p>All alarms have different alarm identifiers.</p> <p>The alarms are displayed with different colors.</p> <p>The frequency with which an alarm occurs is specified as a percentage.</p> <p>If you move the mouse over the bar of the corresponding alarm, a tooltip is displayed indicating how often the alarm has occurred.</p>
ACTIVE	Displays the number of active alarms.
CLOSED	Displays the number of closed alarms.
TOTAL	Displays the total number of alarms.

6.6 Displaying alarms

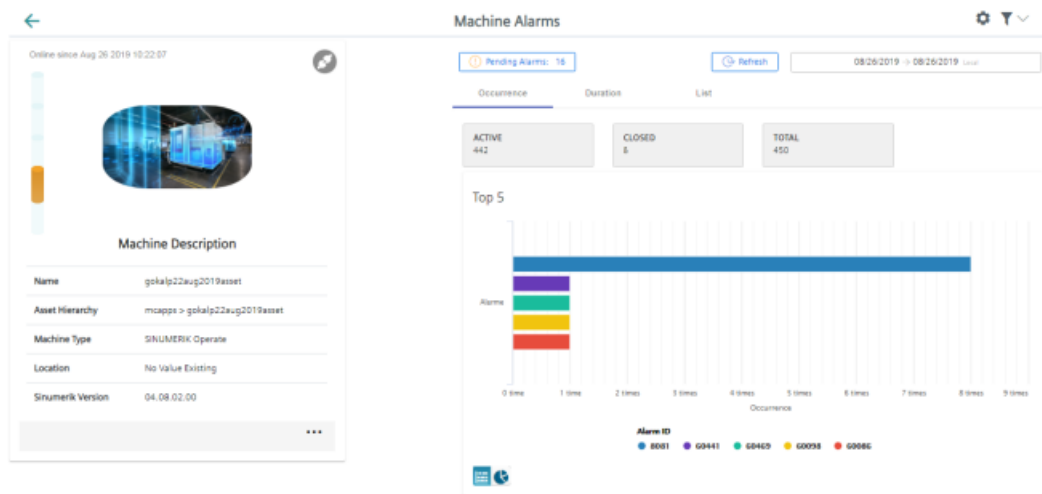
Note

Alarm display

Only the 5 alarms that occur most frequently are displayed.

Procedure

1. Select a certain time period using the calendar function.
2. Click on "Apply".
3. Click on "Occurrence".
4. The alarms are shown in a bar chart where you can see how often the alarms have occurred.



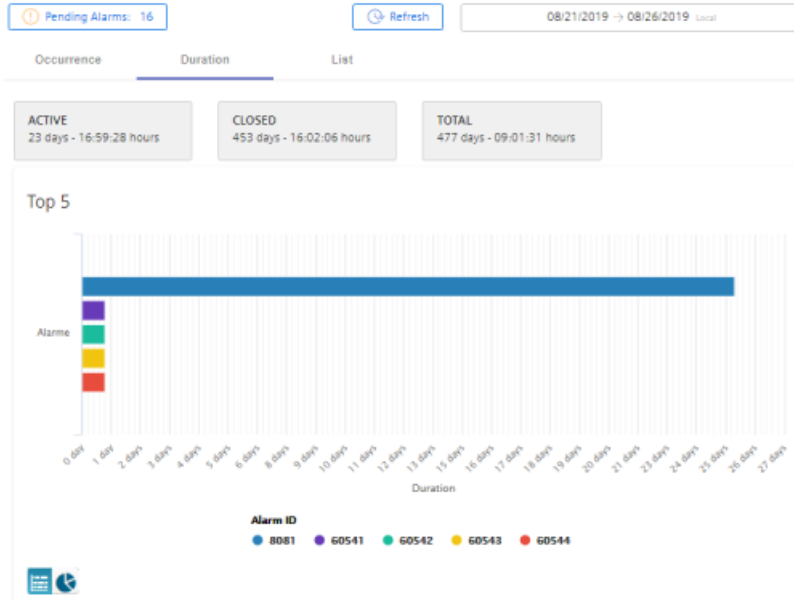
5. Click on the "Pie chart" icon to change the display type.

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 is shown below the chart. 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.
ACTIVE	Displays the duration of active alarms in days and hours.
CLOSED	Displays the duration of closed alarms in days and hours.
TOTAL	Displays the duration of all alarms in days and hours.

Procedure

1. Select a certain time period using the calendar function.
2. Click on "Apply".
3. Click on "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
Identifier	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 additional 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

6.6 Displaying alarms

Parameter	Description
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.

Procedure

1. Select a certain time period using the calendar function.
2. Click on "Apply".
3. Click on "List".
4. The alarms are listed in a table.

Pending Alarms: 16 Refresh 08/10/2019 → 08/10/2019 Local

Occurrence		Duration	List
ID	Start Time	Duration	End Time
>	8080	2019-08-10 23:55:21	10 days - 13:39:46 hours 2019-08-21 13:35:08
>	8080	2019-08-10 22:55:26	10 days - 14:39:41 hours 2019-08-21 13:35:08
>	8080	2019-08-10 21:55:31	10 days - 15:39:36 hours 2019-08-21 13:35:08
>	8080	2019-08-10 20:55:36	10 days - 16:39:31 hours 2019-08-21 13:35:08
>	8080	2019-08-10 19:55:40	10 days - 17:39:27 hours 2019-08-21 13:35:08
>	8080	2019-08-10 18:55:45	10 days - 18:39:22 hours 2019-08-21 13:35:08
>	8080	2019-08-10 17:55:50	10 days - 19:39:17 hours 2019-08-21 13:35:08
>	8080	2019-08-10 16:55:55	10 days - 20:39:12 hours 2019-08-21 13:35:08
>	8080	2019-08-10 15:56:00	10 days - 21:39:07 hours 2019-08-21 13:35:08
>	8080	2019-08-10 14:56:04	10 days - 22:39:03 hours 2019-08-21 13:35:08

Items per page: 10 1 - 10 of 92 |< < > >|

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

Occurrence		Duration	List
ID	Start Time	Duration	End Time
>	8081	2019-08-23 15:20:14	2 days - 18:51:40 hours 2019-08-26 10:11:54

Alarm Text: 3 option(s) is/are activated that are not licensed by the license key

Machine Type: core.basicsnumerikasset

Sender: /NCK

Type: NC_CANCEL

6.7 Aspects

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

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

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

Requirement

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

Additional information is provided in Chapter: Activating the data acquisition (Page 62)

Parameters


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

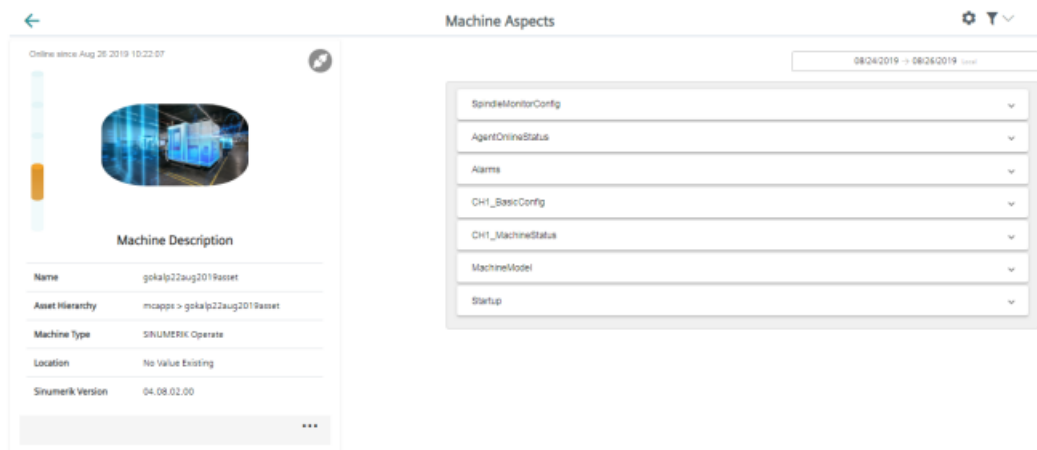
Parameter	Description
SpindleMonitorConfig	You can select the display type: <ul style="list-style-type: none"> • Diagram variables • Table variables
AgentOnlineStatus	The following data is displayed: <ul style="list-style-type: none"> • Time stamp with the date and time • Variable - OnlineStatus • Value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

6.7 Aspects

Parameter	Description												
CH1_BasicConfig	<p>SINUMERIK basic configuration</p> <p>You can select the display type:</p> <ul style="list-style-type: none"> • Diagram variables • Table variables <p>The following data is displayed:</p> <ul style="list-style-type: none"> • Feed override • NCProgramStatus • NrOfAlarms • Opmode • ProtectionLevel • Spindle override • StopCond 												
CH1_MachineStatus	<p>Time of the machine status in the selected time period.</p> <p>You can select the display type:</p> <ul style="list-style-type: none"> • Diagram variables • Table variables <p>The machine status is displayed numerically:</p> <table border="1"> <tr> <td>0</td> <td>Unknown status</td> </tr> <tr> <td>1</td> <td>Production</td> </tr> <tr> <td>2</td> <td>Technical fault</td> </tr> <tr> <td>3</td> <td>Organizational fault</td> </tr> <tr> <td>4</td> <td>No fault</td> </tr> <tr> <td>-1</td> <td>Machine off</td> </tr> </table>	0	Unknown status	1	Production	2	Technical fault	3	Organizational fault	4	No fault	-1	Machine off
0	Unknown status												
1	Production												
2	Technical fault												
3	Organizational fault												
4	No fault												
-1	Machine off												
MachineModel	<p>You can select the display type:</p> <ul style="list-style-type: none"> • Diagram variables • Table variables <p>The following data is displayed:</p> <ul style="list-style-type: none"> • Time stamp with the date and time • Variable • Value • Quality code 												
Startup	<p>You can select the display type:</p> <ul style="list-style-type: none"> • Diagram variables • Table variables <p>The following data is displayed:</p> <ul style="list-style-type: none"> • Time stamp with the date and time • Variable • Value • Quality code 												

Procedure

1. In the "Machine Description" area, click on the button with dots.
The list of the other pages is displayed.
2. Select "Aspects".
The "Machine Aspects" page opens.
3. The machine description is shown in the left-hand window area.
4. In the right-hand section of the window, select the required time period using the calendar function.
5. To see the data recording, right-click on button .



6.8 Export

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

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



Note

Configuring the target directory for the download

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

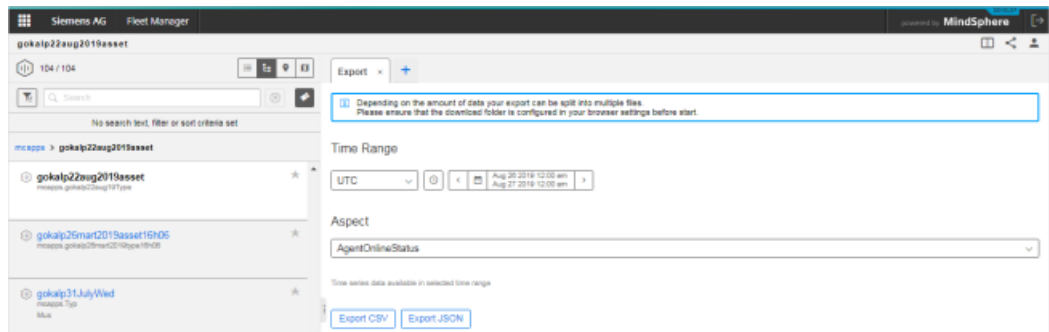
Make sure that a target directory for the download has been configured in your browser.

Parameters

Parameter	Description
Interval	
UTC/browser	Selecting the time difference.
	Most current time range and automatic refresh
 Aug 26 2019 12:00 am Aug 27 2019 12:00 am	Selecting the required time period using the calendar function. - AND / OR - Select the desired period from the drop-down list: Manually: <ul style="list-style-type: none"> • Last hour • Last 24 hours • Last 7 days • Last 30 days • Last 90 days • Today • Yesterday • Last week • Last month • Last quarter All data is exported in UTC.
Aspect	The following data can be selected: <ul style="list-style-type: none"> • AgentOnlineStatus • Alarms • CHi_BasicConfig • CH1_MachineStatus • SpindleMonitorConfig • Startup
Export CSV	Data export in the CSV format.
Export JSON	Data export in the JSON format.

Procedure

1. In Manage MyMachines, click on the "Export" function.
2. The Fleet Manager is opened
The required asset is selected in the left-hand section of the window.
3. Select the desired period.
4. Select the desired aspect from the drop-down list.
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. The file is displayed in the lower section of the window, and you can make the following selection
 - Open
 - Always open a file of this type
 - Display in the folder (in the Downloads directory)

6.9 Manage MyMachines /Spindle Monitor

6.9.1 Overview

You can display the following data of the Weiss spindle:

- Display of the operating data (Page 121)
- Analysis of the clamping system (Page 121)
- Display of the occasions (Page 123)
- Display of the operating modes (Page 123)
- Display of the runtime diagrams (Page 124)
- Display of the tool clamping cycles (Page 125)

Requirement

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

Further information on this can be found in Chapter: Activating Manage MyMachines /Spindle Monitor (Page 64)

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.
Production Date	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" 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.

The screenshot shows a window titled "Spindle" with a light blue border. Inside, there is a table of data:

Spindle	
Drawing Number	175884B
Serial No	0001
Production Date	20.10.2016
Motor Temperature	21.6 °C
Bearing temperature front	21.4 °C

6.9.2 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 Faulty 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	Jan 07 2019 23:00	Jan 15 2019 22:59	Delta
Operation Hours Under Control	765h 16m	2h 48m	132h 17m	129h 29m
Operation Hours Under Speed	765h 17m	2h 48m	132h 17m	129h 28m
Number Of Clamping Cycles	818	818	818	0
Number Of Faulty Clamping Cycles	79	79	79	0

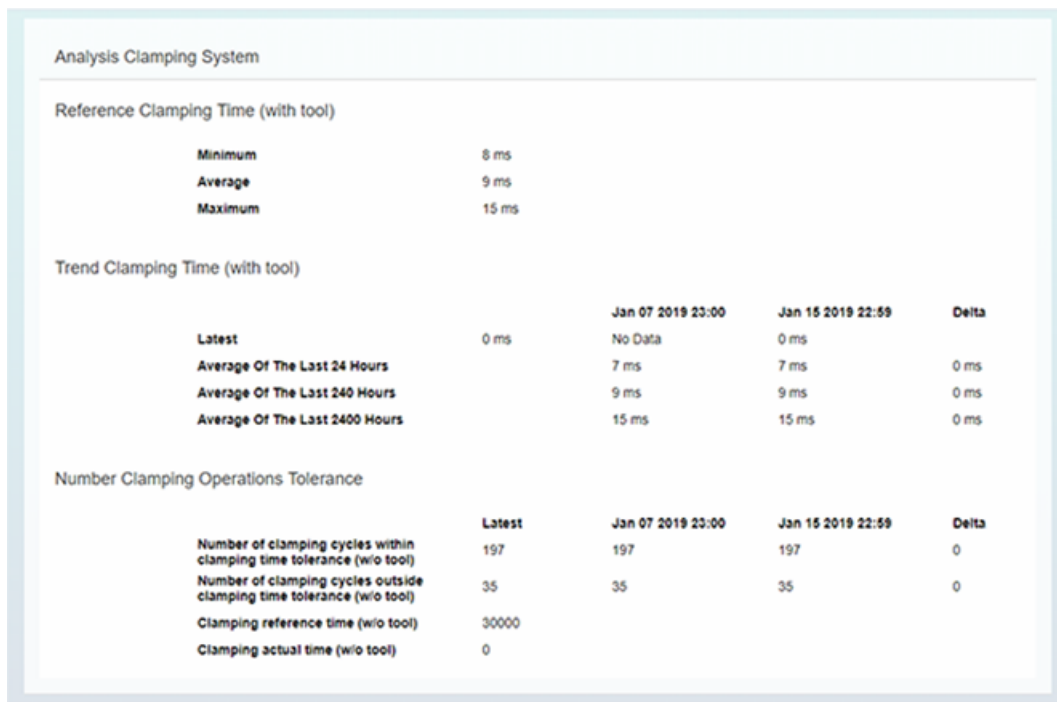
6.9.3 Analysis of the clamping system

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"

6.9 Manage MyMachines /Spindle Monitor

Display	Description	
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 clamping time tolerance (w/o tool)	Accumulated number of clamping operations without tool that were within the specified time
	Number of clamping cycles outside clamping time tolerance (w/o tool)	Accumulated number of clamping operations without tool that were outside the specified time
	Clamping reference time (w/o tool)	Factory specification of the time for the clamping operation without tool
	Clamping actual time (w/o tool)	Measured time for the last performed clamping operation without tool



6.9.4 Display of the occasions

The following occasions are displayed for the Weiss spindle.

Display	Description
Number of exceedances	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 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

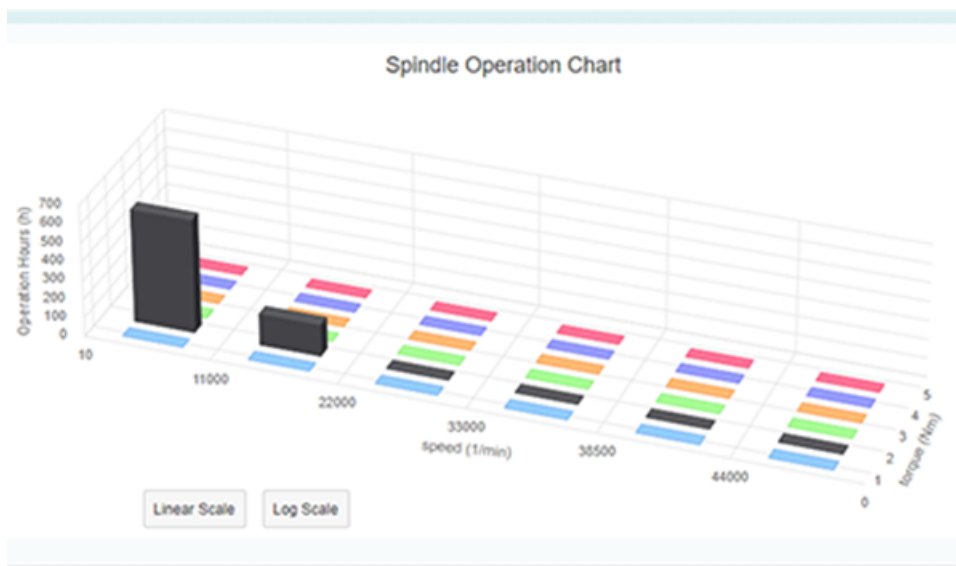
Exceedance Type	Occurrence	Total Duration	Last Time	Δ Occurrence		Δ Total Duration	
				Jan 07 2019 23:00 Jan 15 2019 22:59	Jan 07 2019 23:00 Jan 15 2019 22:59		
PTC Motor Temperature	0	0 s	-	0	0 s	0 s	0 s
Warning Motor Temperature	3	487 s	25.01.2019	0	0 s	0 s	0 s
Fault Motor Temperature	0	0 s	-	0	0 s	0 s	0 s
Warning KTY2 Temperature	3	396 s	25.01.2019	0	0 s	0 s	0 s
Fault KTY2 Temperature	0	0 s	-	0	0 s	0 s	0 s

6.9.5 Display of the operating modes

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.

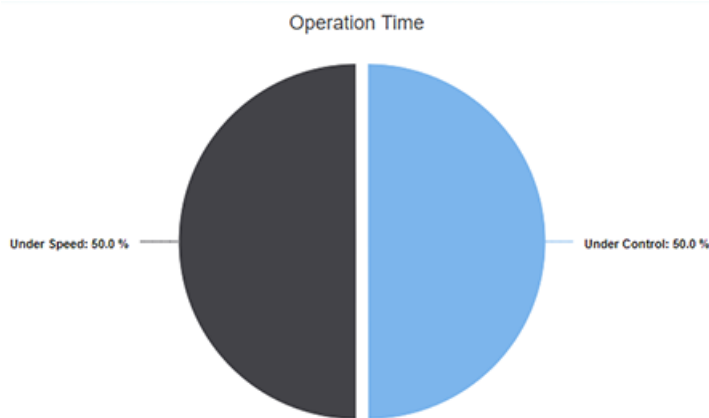
Position the cursor on the respective bar to also display the number of accumulated operating hours under speed.

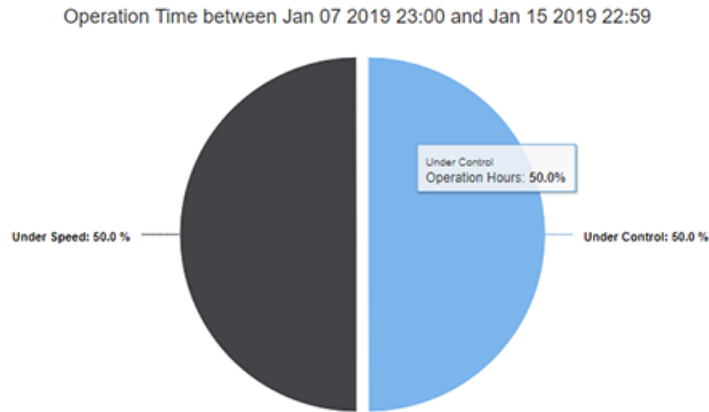


6.9.6 Display of the runtime diagrams

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.





6.9.7 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"



6.10 Machine location

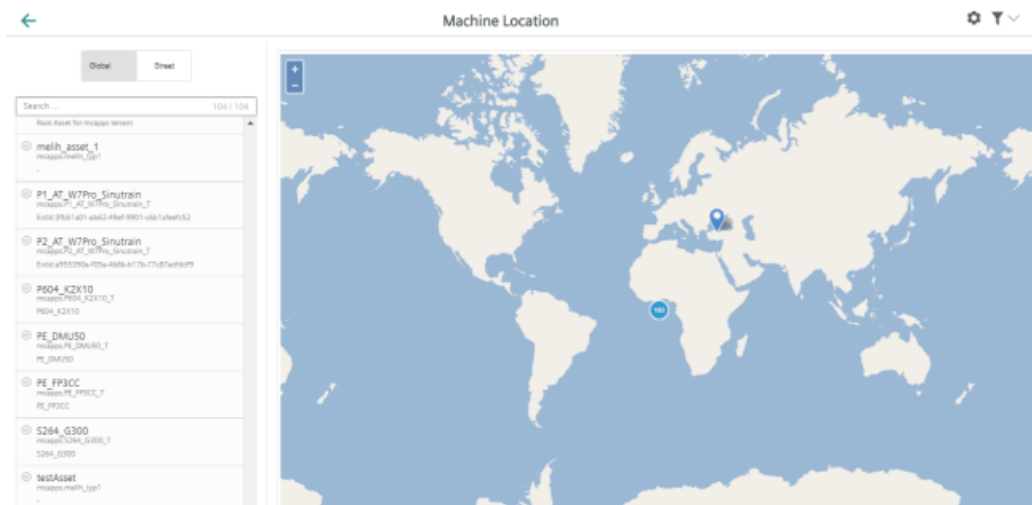
You can view the locations of your assets on a map of the world in the "Machine Location" view.

Parameter

Parameter	Description
global	Displays the machine locations on a map of the world
Street	Enter the address.
Search ...	Enter the name of the asset in the input field. You obtain a selection of your assets after entering just a few letters.
	You can zoom in or out of the map view using the "+" and "-" buttons.

Procedure

1. In the "Machine Description" area, click on the button with dots.
The list of the other pages is displayed.
2. Click on "Map".
3. The "Machine Location" window opens.
The selected machine is displayed in a map of the world.
4. Zoom in or zoom out of the map view using the "+" or "-" buttons.



6.11 Events

With events you log all machine incidents based on your predefined rules.

You can create purely manual event as well as events for the regular acquisition of measured quantities with measuring series.

All events are displayed in an overview and you can influence the view through different filter criteria.

You can also assign a specific status to the event.

You can monitor the variables based on your predefined rules. If an alarm is triggered on SINUMERIK, you will receive an e-mail. To configure this function, you must set up the following:

- Define the alarm-based triggers
- Define the rules for affected alarms with the correct e-mail address

Note

e-mail transfer

It is not guaranteed that e-mail transfer is uninterrupted, secure and error-free.

It is not guaranteed that the e-mail reaches its destination within a certain time frame.

A maximum of one email is sent per minute per rule.

Further information

You can find additional information on events at: MindSphere documentation (<https://siemens.mindsphere.io/en/docs/mindaccess.html>)

Requirement

Events are already available.

Filter & sort

The following filter and sorting options are available.

Filter option	Further sorting
Status	The following selection is offered: <ul style="list-style-type: none">• Open• In progress• Closed
Priority	The following selection is offered: <ul style="list-style-type: none">• Urgent• Important• Information
Sorting	The following selection is offered: <ul style="list-style-type: none">• None (latest events)• Oldest events

Procedure

1. The required asset has been selected in the left-hand side of the window.
2. Click "+".
The available extensions are displayed.
3. Click the "Events" function.
The data is displayed.
4. Reduce the display through specific filtering.
Click the "Filter & sort +" button to limit the display of the events.
The "Filter & sort" window opens.
 - Activate the corresponding criteria option button:
 - Click the "Close" button to close the window.
5. Activate the checkbox of an event and mark the event accordingly:
 - Click the "In progress" button if the machining has not been completed.
 - Click the "Closed" button if the machining has been completed.

6.12 Displaying uploaded files in the Fleet Manager

The files that you uploaded with the "File Upload" function are displayed in the Fleet Manager.

Requirement

You have uploaded files.

You will find further information on how to set up "File Upload" in Chapter: File upload (Page 74).

NOTICE

Data manipulation possible

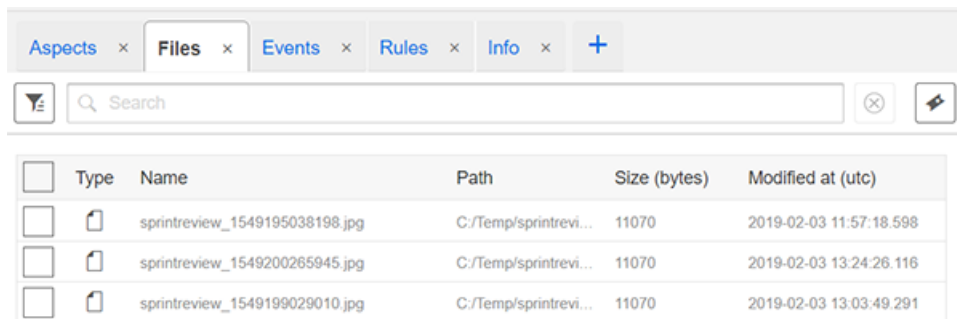
There is a risk that an attacker, within the network between SINUMERIK Integrate and MindSphere, gains access to the file system of the server or service clients. There, the hacker can read or manipulate various system components (e.g. the content of databases). As a consequence, the attacker can change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

- As the person responsible for the machine network, take measures to ensure the industrial security of the production/machine network.

Siemens AG does not accept any liability in this regard.

Procedure

1. To view the loaded files, open the "Fleet Manager".
2. Select the asset.
3. Open the "Files" tab.
The files are displayed.
 - Select the files that you wish to download.
Click "Download" to download the files.
 - Select the files that you wish to delete and click "Delete". A security warning is output.
 - Click the "Upload" button.
Navigate to the directory in which the files that you wish to upload are located.



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.

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.

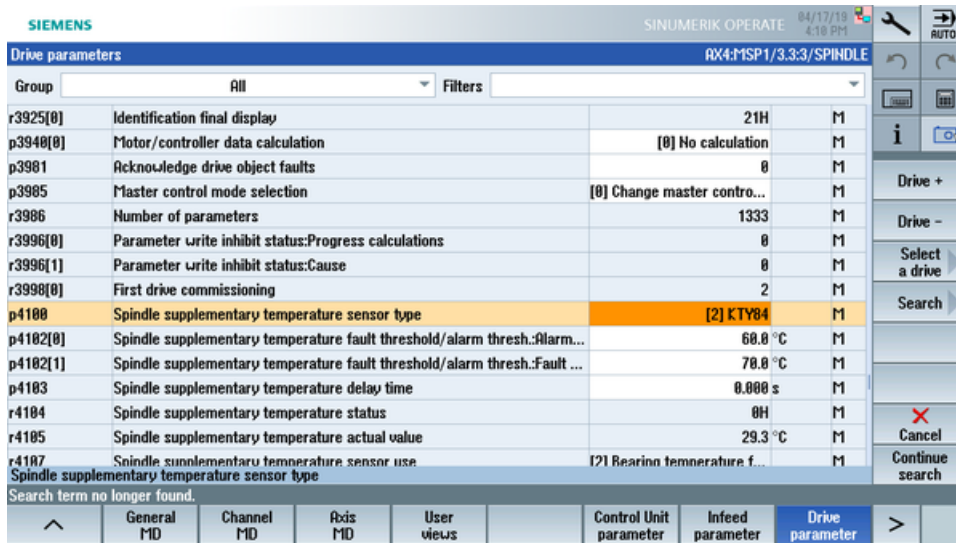
Machine configuration						
Machine axis Index	Name	Type	Drive No.	Identifier	Motor Type	Channel
1	MX1	Linear				CHAN1
2	MY1	Linear				CHAN1
3	MZ1	Linear				CHAN1
4	MSP1	Spindle	1	SPINDLE	ARM1	CHAN1
5	MSP2	Spindle	5	SERVO 4	ARM1	CHAN1

Current access level: Manufacturer

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.

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



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

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:MSP1/3.3:3/SPINDLE

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.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.

SIEMENS							SINUMERIK OPERATE		04/17/19	3:39 PM	Wrench icon	WIFI icon	JOG icon
Machine configuration													
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							

Change language

Reset (po)

Pass-word

Details

Current access level: Manufacturer

MD Mach. data | NC | Drive system | 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.

General MD	Channel MD	Axis MD	User views	Control Unit parameter	Infeed parameter	Drive parameter
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						

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.

Index

A

Activating

- Data acquisition, 20
- Data acquisition Manage MyMachines, 64
- Data acquisition Spindle Monitor, 65
- Data acquisition variable recording, 64
- SINUMERIK Integrate client, 33
- Using SINUMERIK Integrate, 34

Alarm

- Duration, 112
- List, 114
- Occurrence, 111
- Overview, 110

Aspects, 115

Asset

- Asset type, 57
- Create, 59

Asset Manager

- Functions, 55

C

Commissioning overview, 19

Configuring

- MindConnect Nano, 81
- Variable, 66

Configuring a variable, 66

Configuring the proxy

- SINUMERIK 828D, 42
- SINUMERIK 840D sl, 35

Configuring the URL

- SINUMERIK 828D, 42
- SINUMERIK 840D sl, 35

Connecting the SINUMERIK Integrate Gateway with MindSphere, 92, 94

Create drive

- SINUMERIK 840D sl, 40

D

Data acquisition

- Activate variable recording, 64
- Activating, 20
- Activating Manage MyMachines, 64
- Activating Spindle Monitor, 65

Data export, 118

Displaying version data, 22

E

ePSConfig.user.xml, 49

Events, 127

Exchanging a certificate

- Linux, 46
- Windows, 48

Export, 118

F

File upload

- Delete file, directory, 77
- Error message, 77
- Setup, 76
- Show files, 130

I

Installing a software update, 24

M

Machines

- Alarms, 110
- Dashboard, 102
- Filtering, 98
- Location, 126
- Overview, 101

Manage MyMachines

- Open, 101
- Select a language, 97

MindConnect Nano

- Configuring, 81
- Configuring the network, 83

MindSphere

- Configuring a variable, 66
- Connecting the SINUMERIK control system, 61
- Disconnecting the SINUMERIK control system, 80
- Login, 50

O

onboard.key

- SINUMERIK 828D - WinSCP (NCU), 45
- SINUMERIK 840D sl - NCU, 38
- SINUMERIK 840D sl - PCU 50, 38
- SINUMERIK 840D sl - WinSCP (NCU), 39

S

Shopfloor AppManagement, 92, 94

SINUMERIK 828D

- Configuring the URL and proxy, 42
- Installing a software update, 24

SINUMERIK 840D sl

- Configuring the URL and proxy, 35
- Create drive, 40

SINUMERIK Integrate

- Activating client, 33
- Activating use, 34
- Lock use, 79

SINUMERIK Integrate Client update

- For SINUMERIK Operate under Linux, 29
- For SINUMERIK Operate under Windows, 25
- Installing, 25

Switching over the language, 97

U

Update - SINUMERIK Integrate

- SINUMERIK Operate under Linux, 29
- SINUMERIK Operate under Windows, 25

User settings, 97