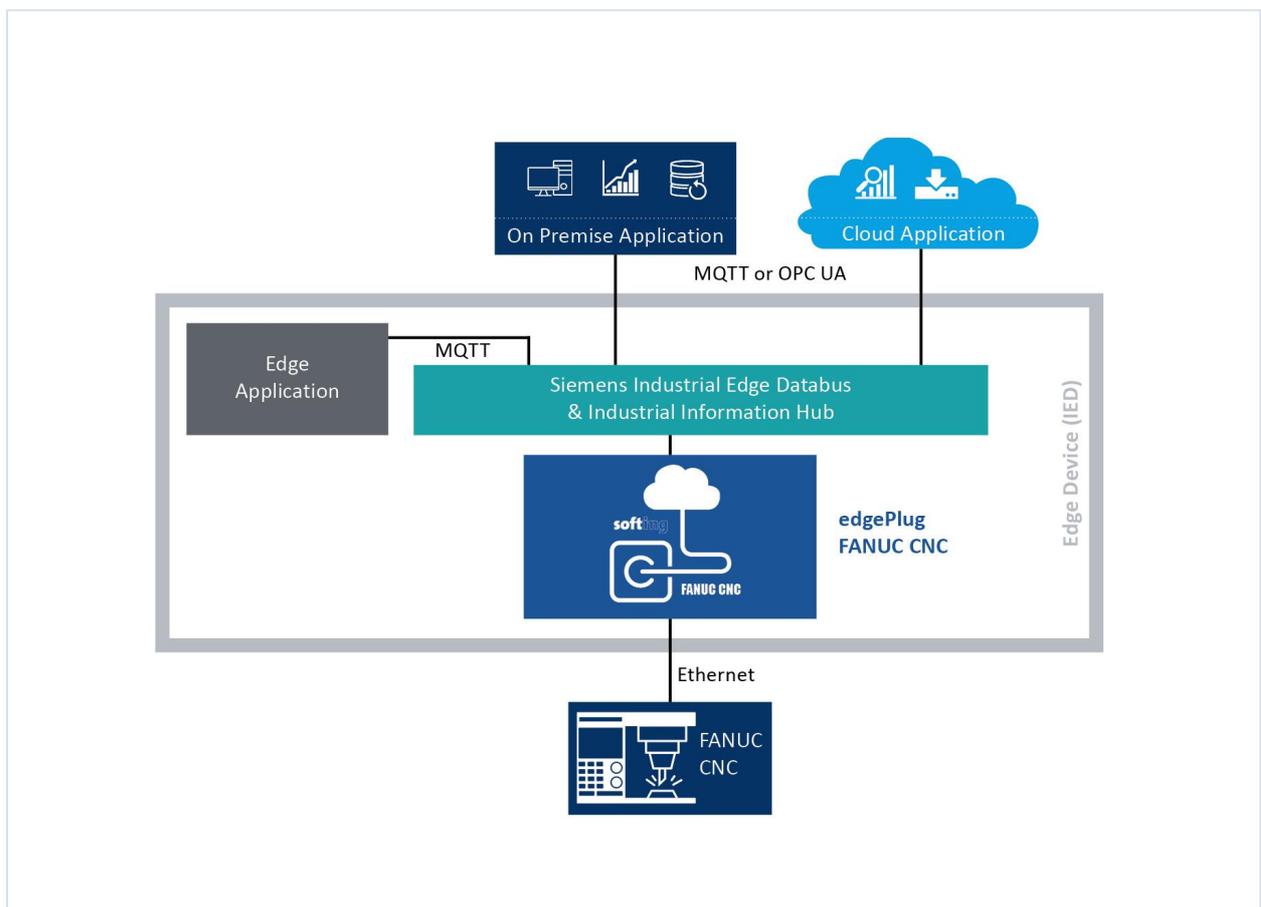


User Guide

edgePlug FANUC CNC



Disclaimer of liability

The information contained in these instructions corresponds to the technical status at the time of printing of it and is passed on with the best of our knowledge. Softing does not warrant that this document is error free. The information in these instructions is in no event a basis for warranty claims or contractual agreements concerning the described products, and may especially not be deemed as warranty concerning the quality and durability pursuant to Sec. 443 German Civil Code. We reserve the right to make any alterations or improvements to these instructions without prior notice. The actual design of products may deviate from the information contained in the instructions if technical alterations and product improvements so require.

FANUC is a registered mark of Siemens AG, Germany.

OpenSource

To comply with international software licensing terms, we offer the source files of open source software used in our products. For details see <https://opensource.softing.com/>

If you are interested in our source modifications and sources used, please contact: info@softing.com

Softing Industrial Automation GmbH

Richard-Reitzner-Allee 6
85540 Haar / Germany
<https://industrial.softing.com>

 + 49 89 4 56 56-340

 info.automation@softing.com
support.automation@softing.com

 <https://industrial.softing.com/services-center/product-support.html>



Scan the QR code to find the latest documentation on the product web page under Downloads.

Table of Contents

Chapter 1	About this guide	7
1.1	Read me first.....	7
1.2	Target audience.....	7
1.3	Typographic conventions.....	7
1.4	Document history.....	8
1.5	Related documentation.....	8
1.6	Document feedback.....	8
Chapter 2	About edgePlug FANUC CNC	9
2.1	Intended use.....	9
2.2	Features and benefits.....	9
2.3	Technical data.....	9
2.4	System requirements.....	9
Chapter 3	Installation	10
3.1	Prerequisites.....	10
3.2	Copying edgePlug FANUC CNC to the IEM.....	10
3.3	Installing edgePlug FANUC CNC to the IED.....	11
3.4	Updating edgePlug FANUC CNC to IED.....	12
3.5	Physical connection to FANUC CNC Controller.....	14
3.5.1	Embedded Ethernet	14
3.5.2	Fast Ethernet	14
3.5.3	Multi-Functions Ethernet	15
3.5.4	Ethernet installation for FANUC CNC	15
Chapter 4	Configuration	17
4.1	Prerequisites.....	17
4.2	Common Configurator.....	17
4.2.1	Data source configuration	17
4.2.2	Data point configuration	19
4.2.3	Databus gateway	20
4.3	Diagnosis	22
Chapter 5	External Databus	23
5.1	Perequisites.....	23
5.2	Configuring External Databus.....	23
5.3	Connecting an MQTT client.....	26
Chapter 6	Annex	28
6.1	Address Space Mapping.....	29
6.1.1	Additional information to column description	35

Chapter 7 **Glossary** **44**

This page is intentionally left blank.

1 About this guide

1.1 Read me first

Please read this guide carefully before using the device to ensure safe and proper use. Softing does not assume any liability for damages due to improper installation or operation of this product.

This document is not warranted to be error-free. The information contained in this document is subject to change without prior notice. To obtain the most current version of this guide, visit the [product website](#).

1.2 Target audience

This guide is intended for experienced operation personnel and network specialists configuring and maintaining field devices in a Siemens network environment. Before installing and operating the edgePlug FANUC CNC make sure that you have read and fully understood the safety requirements and working instructions in this guide.

1.3 Typographic conventions

The following typographic conventions are used throughout Softing customer documentation:

Keys, buttons, menu items, commands and other elements involving user interaction are set in bold font and menu sequences are separated by an arrow

Open **Start** → **Control Panel** → **Programs**

Buttons from the user interface are enclosed in brackets and set to bold typeface

Press **[Start]** to start the application

Coding samples, file extracts and screen output is set in Courier font type

MaxDlsapAddressSupported=23

Filenames and directories are written in italic

Device description files are located in C:
 \<Application
 name>\delivery\software\Device Description
 files



CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



Note

This symbol is used to call attention to notable information that should be followed during installation, use, or servicing of this device.

1.4 Document history

Document version	Changes since last version
1.00	<ul style="list-style-type: none">▪ First version
1.10	<ul style="list-style-type: none">▪ Multipath support▪ User defined PMC variables in the Common Configurator (former IIH Configurator)

1.5 Related documentation

The following links direct you to additional [product information](#) and downloads. You will find the user manuals and release notes of the Siemens Industrial Edge system in the Documents section of the Siemens Industrial Edge Hub.

1.6 Document feedback

We would like to encourage you to provide feedback and comments to help us improve the documentation. You can write your comments and suggestions to the PDF file using the editing tool in Adobe Reader and email your feedback to support.automation@softing.com.

If you prefer to write your feedback directly as an email, please include the following information with your comments:

- document name
- document version (as shown on cover page)
- page number

2 About edgePlug FANUC CNC

The edgePlug FANUC CNC is a software application running on an industrial edge device. It has been designed to stream controller or machine data effortlessly over a Siemens Industrial Edge environment. The edgePlug FANUC CNC sends data to the Siemens Connectivity suite.

2.1 Intended use

The edgePlug FANUC CNC integrates smoothly into the Siemens Industrial Edge connectivity and is designed to utilize all services and features of the Siemens connectivity suite. Any other use is deemed non-intended use.

2.2 Features and benefits

- Access to edgePlug FANUC CNC machine tool data for the Siemens Industrial Edge
- No change of CNC program needed
- No data point configuration needed with pre-defined standard namespace
- Tight integration into Siemens Industrial Edge
- Use the Common Configurator to configure the edgePlug connectivity
- Databus Gateway makes the controller data available at the Databus
- Existing applications which use the Databus can consume the data provided by the edgePlug without changes

2.3 Technical data

Supported CNCs	FANUC Oi-F, Oi-F plus, Oi-D FANUC 30i-B, 31i-A, 31i-B, 31i-B5, 32i-B, and 35i-B FANUCPower motion i-A FANUC NC Guide (Simulator)
Tested with	Siemens Industrial Information Hub (IIH) V1.8.0 Siemens Industrial Management (IEM) V1.5.2 Siemens Industrial Edge Device (IED) V1.12 Siemens IPC227E
Minimal Hardware Requirements	400 MB free disk space, 32 MB RAM
Licensing	Over Siemens Industrial Marketplace
Software	Siemens Industrial Edge Application

2.4 System requirements

The edgePlug FANUC CNC is a connector for the Siemens Industrial Information Hub. You must have the Siemens Common Configurator and Databus Gateway installed on a Siemens Industrial Edge Device to use the edgePlug FANUC CNC.

3 Installation

The edgePlug FANUC CNC can be purchased and installed over the Siemens Industrial Edge marketplace.

3.1 Prerequisites

To work with edgePlug FANUC CNC you need a Siemens Industrial Edge Hub Account, a Siemens Industrial Edge Management (IEM) installation and at least one Siemens Industrial Edge device (IED).

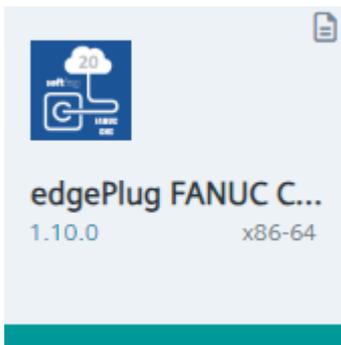


Note

Please also take a look at the **Industrial Edge Management - Getting Started** manual from **Siemens** which explains the installation of the Siemens Industrial Edge environment.

3.2 Copying edgePlug FANUC CNC to the IEM

After you have purchased edgePlug FANUC CNC in the Siemens marketplace the respective application icon should appear in your accounts library. Check the user manual of the IE Hub for further details on how to copy your edgePlug FANUC CNC to IEM .



1. Select the **edgePlug FANUC CNC app** icon.
2. Select the **IEM instances** in the displayed dialog to where the app should be copied.
3. Click **Copy latest version to IEM(s)**.
4. Click **Copy** to confirm the copying process.
The edgePlug FANUC CNC will be installed to the **catalog** of the IEM.

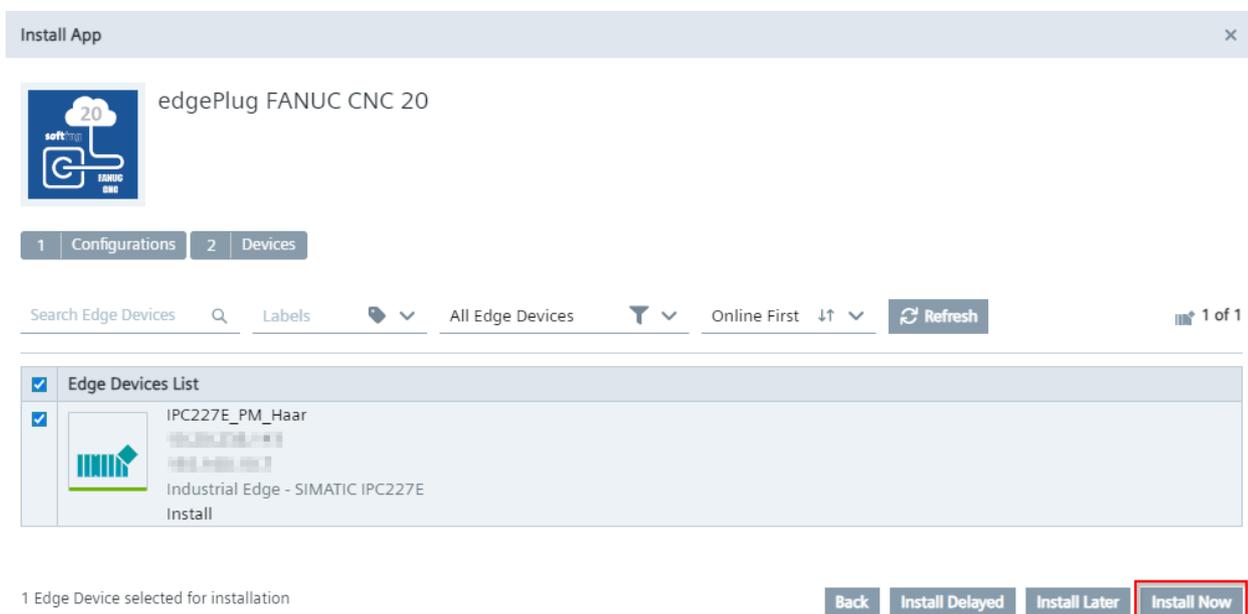
3.3 Installing edgePlug FANUC CNC to the IED

1. Double-click the edgePlug FANUC CNC icon in the catalog of the IEM.
2. Click **[Install]**.



The Install App dialogue will appear.

3. Click **[Next]**.
4. Select the device from the list and click **[Install Now]** to install the App on the device.

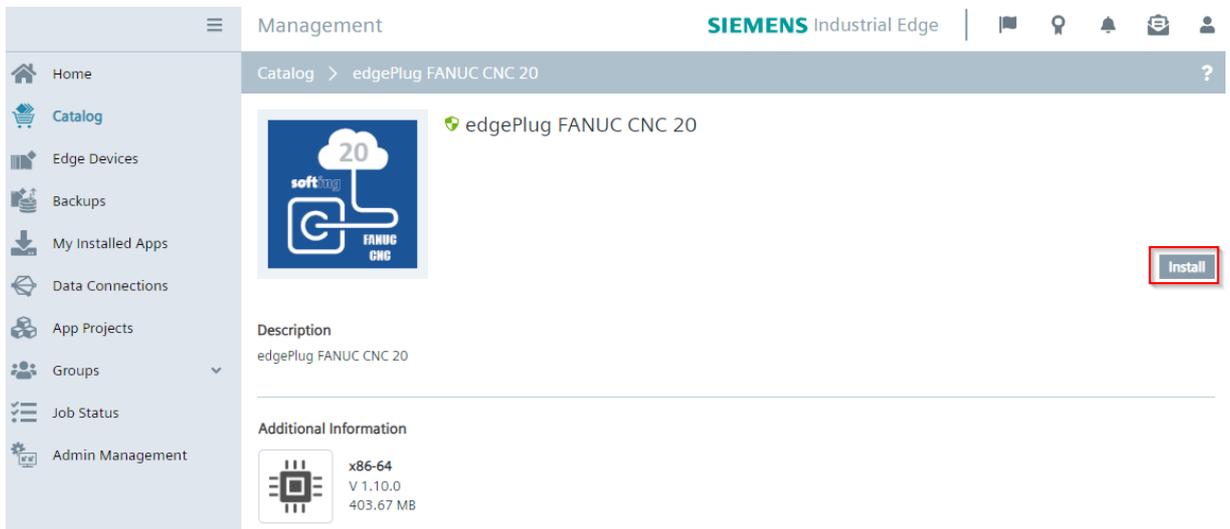


The edgePlug FANUC CNC will be installed to the IED.

3.4 Updating edgePlug FANUC CNC to IED

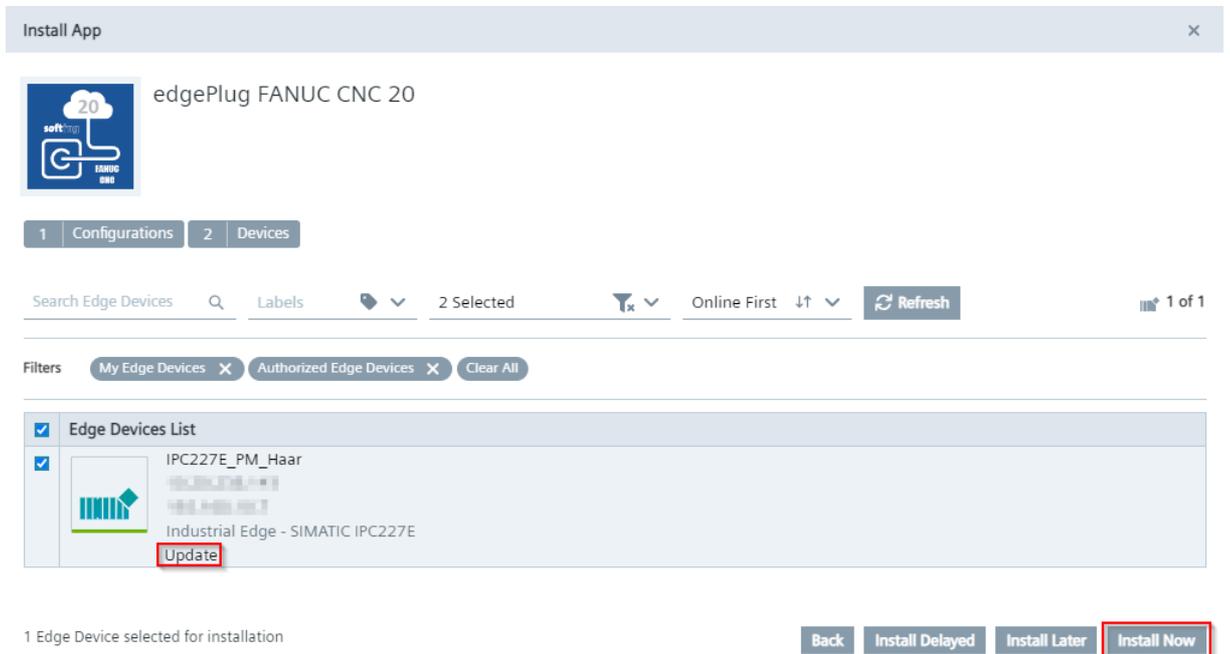
To update edgePlug FANUC CNC to a new version of the product, do the following:

1. Double-click the edgePlug FANUC CNC icon in the catalog of the IEM.
2. Click **[Install]**.

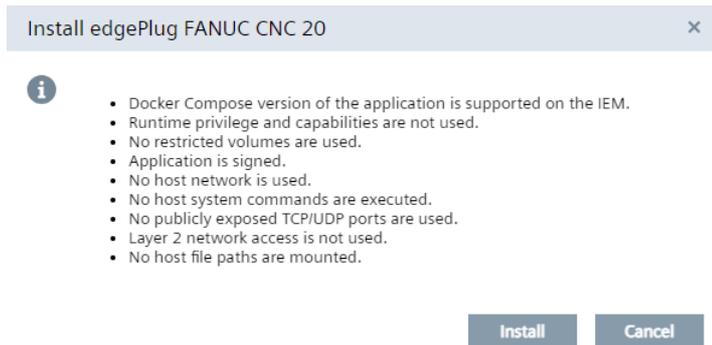


The Install App dialogue will appear.

3. Click **[Update]** and click **[Install now]**.



4. Click **[Install]** on the popup page.



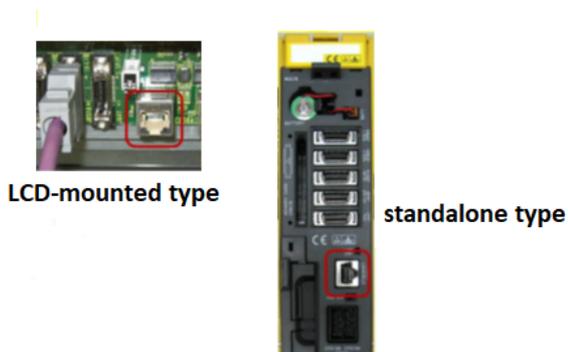
The new version of the edgePlug FANUC CNC will be installed to the IED.

3.5 Physical connection to FANUC CNC Controller

FANUC CNC controllers provide different Ethernet slots (depending on the CNC model).

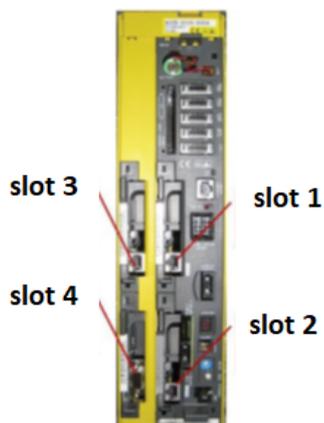
3.5.1 Embedded Ethernet

The embedded Ethernet board is mounted directly on the controller's mainboard. The designation of this slot is CD38A.



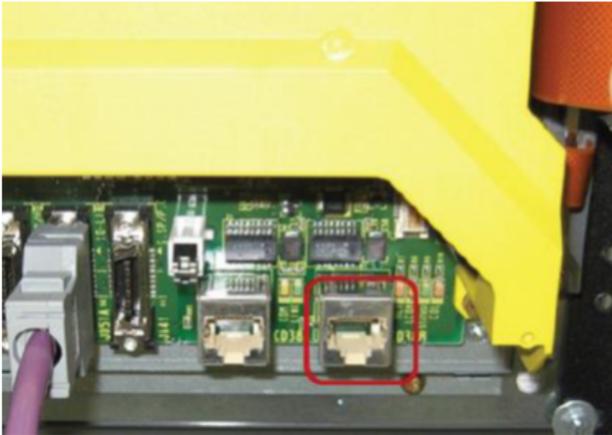
3.5.2 Fast Ethernet

The Fast Ethernet Board is an optional card that is plugged into one of the available slots. This board can also be used to connect the controller to a network.



3.5.3 Multi-Functions Ethernet

The Multi-Functions Ethernet is only available for 3xi-B CNCs.

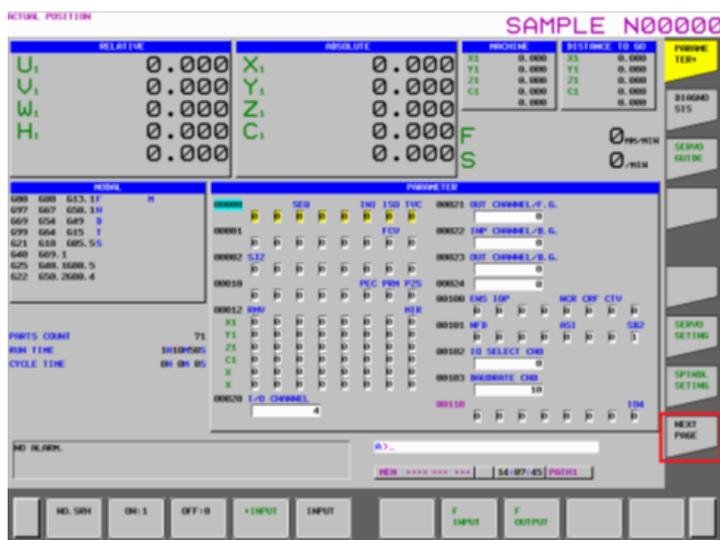


3.5.4 Ethernet installation for FANUC CNC

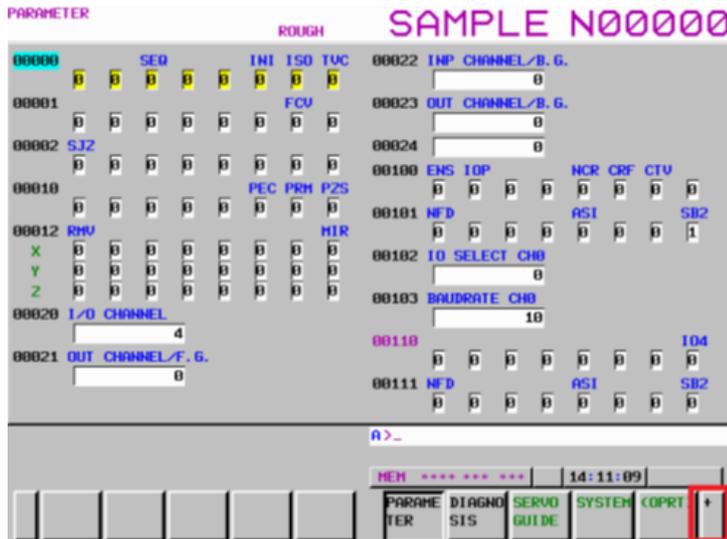
1. Press **[SYSTEM]** on the MDI.



2. Press **[NEXT PAGE]** if you have a 15-inch screen or larger.



3. Press **[+]** on a 10.4 inch screen or smaller.



4. Keep pressing [NEXT] until the Ethernet settings appear in the menu.
5. Choose the Ethernet board you want to use.

Example:

EMBED
PORT

4 Configuration

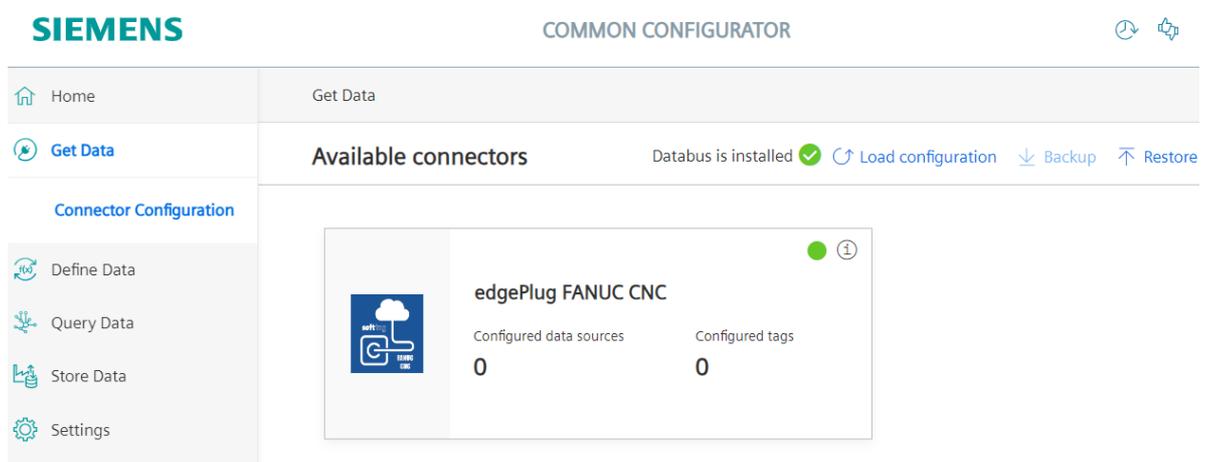
4.1 Prerequisites

The IED along with the installed edgePlug FANUC CNC is connected over Ethernet to a FANUC CNC Siemens controller.

4.2 Common Configurator

Common Configurator is the user interface for the Industrial Information Hub.

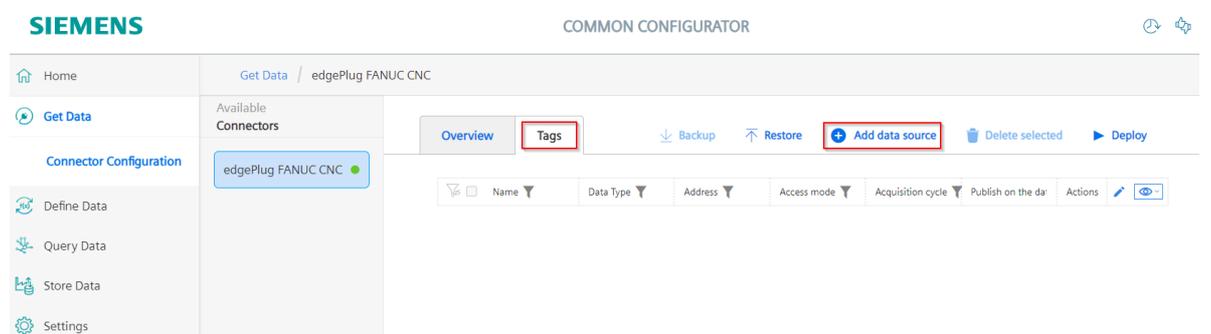
1. Click the **Apps** page in the user interface of the IED to run the **Common Configurator**. The browser will open a new tab displaying the configurator.
2. See the **Connector Configuration** page for a list of installed and running connectors.



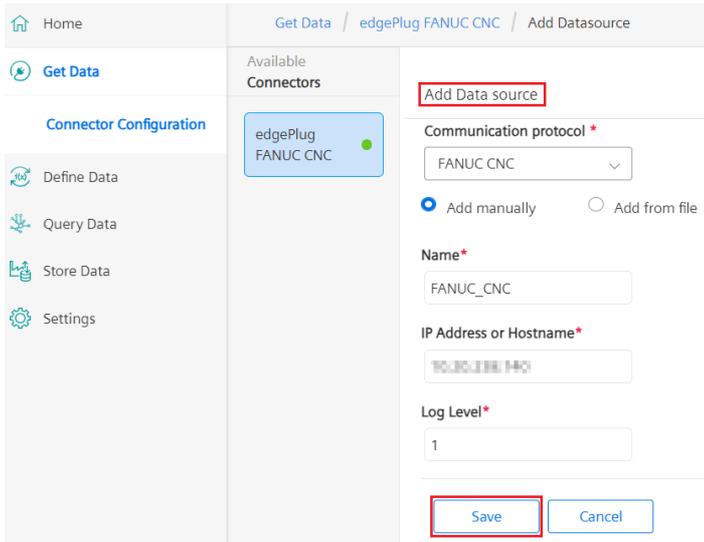
3. Select the **edgePlug FANUC CNC**.

4.2.1 Data source configuration

1. Open the **Tags** tab of the edgePlug FANUC CNC.
2. Click **Add Data Source**.

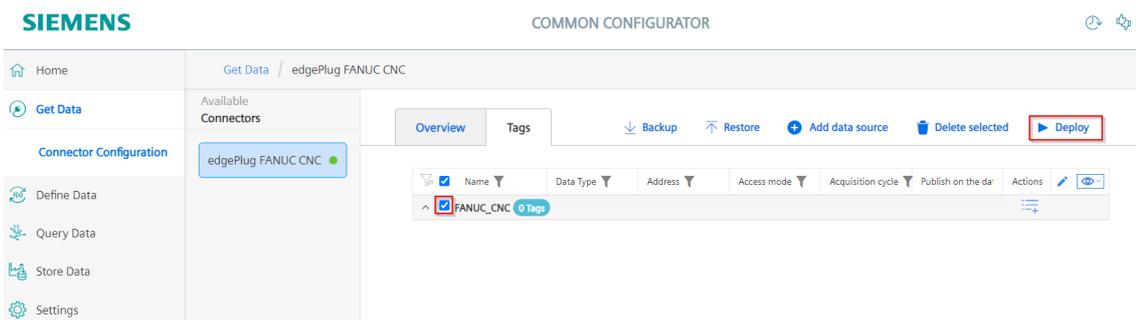


3. See the **Connector Configuration** page for a list of installed and running connectors.
4. Enter the Data Source connection parameters into the **Add Data Source** dialog fields.
5. Click **[Save]**.



Field	Description
Communication protocol	FANUC CNC
Name	Name of the connection used within the IE applications
IP Address or hostname	The IP address or hostname of the FANUC CNC
Log level	The level of generated logs 0 = Only Error logs 1 = Error and Warning logs 2 = Error, Warning and Information logs 3 = Error, Warning, Information and Debug logs

6. Select the data source and press **[Deploy]** to write the configuration to the edgePlug FANUC CNC.
 The address space mapped variables are imported. For further information on the variables see annex [Address Space Mapping](#)²⁹.



7. Close and reopen the Common Configurator to see the configured data sources and tags.

SIEMENS COMMON CONFIGURATOR

Home | Get Data

Get Data | Available connectors | Databus is installed ✓ | **Load configuration** | Backup | Restore

Connector Configuration

- Define Data
- Query Data
- Store Data
- Settings

edgePlug FANUC CNC

Configured data sources: 1 | Configured tags: 0



Note

If the configured data sources and tags are not shown, press **[Load Configuration]**.

4.2.2 Data point configuration

1. Click on the icon in the **Action** column for the data source you created in the Section [Data source configuration](#) ¹⁷.
2. Click **Add Tag**.

SIEMENS COMMON CONFIGURATOR

Start page | Get Data / edgePlug FANUC CNC

Aggregate data | Connector configuration

Available Connectors: Demo Driver, edgePlug FANUC CNC

Overview | Tags

Name	Data Type	Address	Access Mode	Acquisition cycle	Publish to IE Databus	Actions
~ FANUC-SIM						49 Tags
~ CNC 1						0 Tags

Actions: Add tag, Edit data source, Delete data source

3. Enter the tag parameters in dialog fields.
4. Click **[Save]**.

SIEMENS COMMON CONFIGURATOR

Start page | Get Data / edgePlug FANUC CNC / Add Tag

Aggregate data | Connector configuration

Available Connectors: Demo Driver, edgePlug FANUC CNC

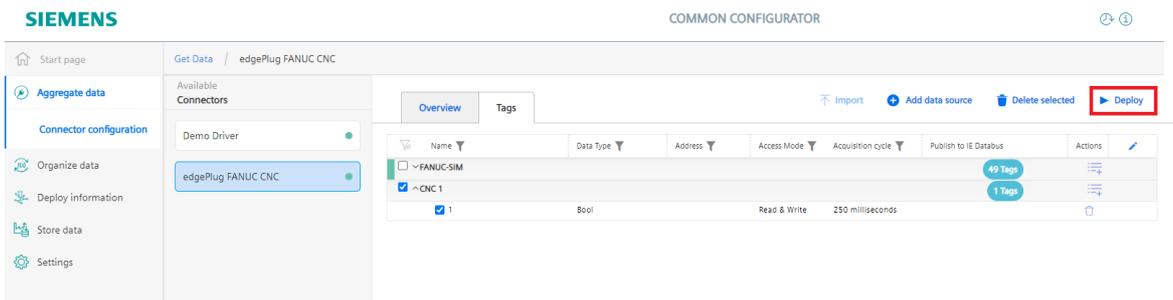
Add tag dialog:

Name*
 Data Type*
 Address
 Access Mode*
 Acquisition cycle

Save | Cancel

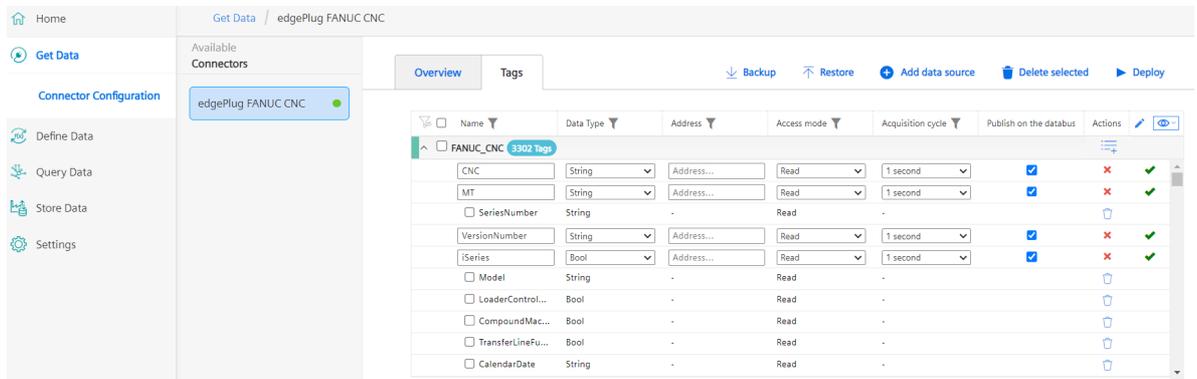
Field	Description
Name	Name of the connection used within the IE applications
Data Type	Data type of the created tag
Address	Address for the tag
Access Mode	Read Write Read & Write
Acquisition Cycle	Time interval to read tag values

5. Select the tag and press **[Deploy]** to make the tags you want available on the Databus.



4.2.3 Databus gateway

1. Select the data points you want to make available on the Databus.
2. Double-click each data point you want to make available. The selected data point will appear with framed dropdown list followed by a checkbox and the icons and .



3. Tick the checkbox **Publish on the databus.**
4. Choose an **Acquisition cycle** from the list.
5. Click the green apply icon at the end of the line. The data point configuration is confirmed. The icons and will disappear and instead of the blue checkbox the icon will appear.

Name	Data Type	Address	Access mode	Acquisition cycle	Publish on the databus	Actions
<input checked="" type="checkbox"/> CNC	String	-	Read	1 second	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> MT	String	-	Read	1 second	<input checked="" type="checkbox"/>	
<input type="checkbox"/> SeriesNumber	String	-	Read	-	<input type="checkbox"/>	
<input checked="" type="checkbox"/> VersionNumber	String	-	Read	1 second	<input checked="" type="checkbox"/>	
<input type="checkbox"/> iSeries	Bool	Address...	Read	1 second	<input type="checkbox"/>	
<input type="checkbox"/> Model	String	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> LoaderControl...	Bool	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> CompoundMac...	Bool	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> TransferLineFu...	Bool	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> CalendarDate	String	-	Read	-	<input type="checkbox"/>	

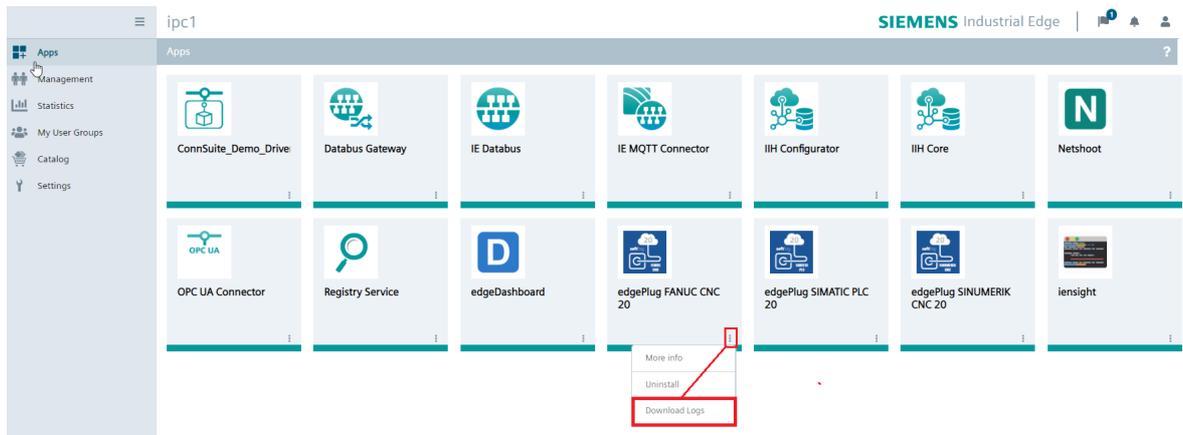
6. Select the variables that are to be deployed.
7. Press **[Deploy]**.
This will reconfigure and restart the **Databus Gateway** and will make the data points available on the Databus.

Name	Data Type	Address	Access mode	Acquisition cycle	Publish on the databus	Actions
<input checked="" type="checkbox"/> CNC	String	-	Read	1 second	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> MT	String	-	Read	1 second	<input checked="" type="checkbox"/>	
<input type="checkbox"/> SeriesNumber	String	-	Read	-	<input type="checkbox"/>	
<input checked="" type="checkbox"/> VersionNumber	String	-	Read	1 second	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> iSeries	Bool	-	Read	1 second	<input checked="" type="checkbox"/>	
<input type="checkbox"/> Model	String	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> LoaderControl...	Bool	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> CompoundMac...	Bool	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> TransferLineFu...	Bool	-	Read	-	<input type="checkbox"/>	
<input type="checkbox"/> CalendarDate	String	-	Read	-	<input type="checkbox"/>	

4.3 Diagnosis

The Softing Support Team will assist you in troubleshooting your edgePlug FANUC CNC.

1. Open the **Common Configurator** and set the Log Level of one of the configured data sources to 3 and deploy it.
This will give you a complete set of diagnostic data.
2. Contact Softing support and email our team the diagnostics of your edgePlug FANUC CNC.
3. Open the **Apps page**.
4. Click the 3 dots of the edgePlug FANUC CNC and select the **Download Logs** menu.
The Log file is downloaded to the Downloads folder of your PC.



5 External Databus

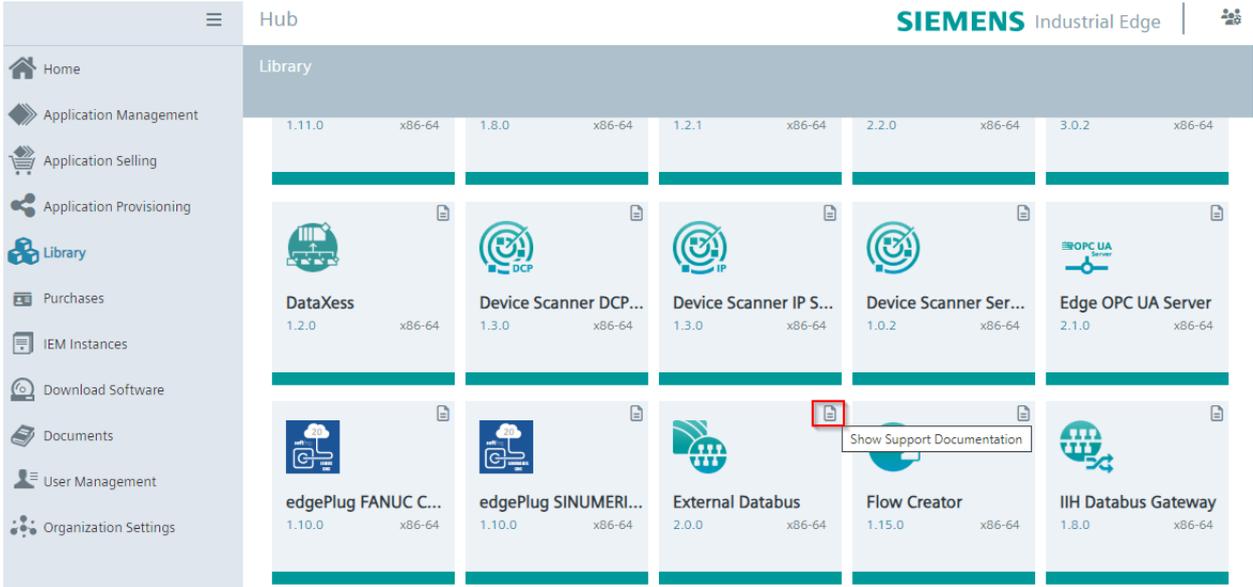
To access the data points on the Databus provided by the edgePlug, use the External Databus.

5.1 Prerequisites

The External Databus app must be installed and running on the Industrial Edge Device.

5.2 Configuring External Databus

Download the User Manual of the External Databus by pressing the icon **Show Support Documentation**.



The User Manual describes how to configure the External Databus.

- 1. Click on the icon in the catalog of the IEM.
- 2. Select a user



- 3. Select a topic.

External Databus Configurator for ipc1 ✔





User View Topic View Certificate Bridge Configure Settings Deploy

Topics +	Users +	Permission +	Action
Search Topic ▼	Search Username ▼	Search Permission ▼	
ie/# 🗑️	softing	Publish and Subscribe	🗑️

- Select the required security mechanism.

External Databus Configurator for ipc1 ✔





User View Topic View Certificate Bridge Configure Settings Deploy

End to end security

Certificate * 📁

Private Key * 📁

Certificate Authority * 📁

Unsecure

- Define the direction of communication between External Databus and Databus for each topic.

External Databus Configurator for ipc1 ✔





User View Topic View Certificate Bridge Configure Settings Deploy

i Any changes to this configuration will trigger a restart of the server. All clients must reconnect in order to maintain communication with External Databus.

None

Enable custom bridge

Username * Password *

softing

Connect

Add Row

Topics	Direction	QoS	Actions
ie/#	External Databus ↔ Databus	0	✎ 🗑️

- Select the preferred **Data Persistency** option for your project.

External Databus Configurator for ipc1 

User View Topic View Certificate Bridge Configure Settings

Deploy

Data Persistency 

Disable and delete data storage 

Enable 

Schedule the data backup by selecting the time intervals (in every)*

1 hour (Recommended)

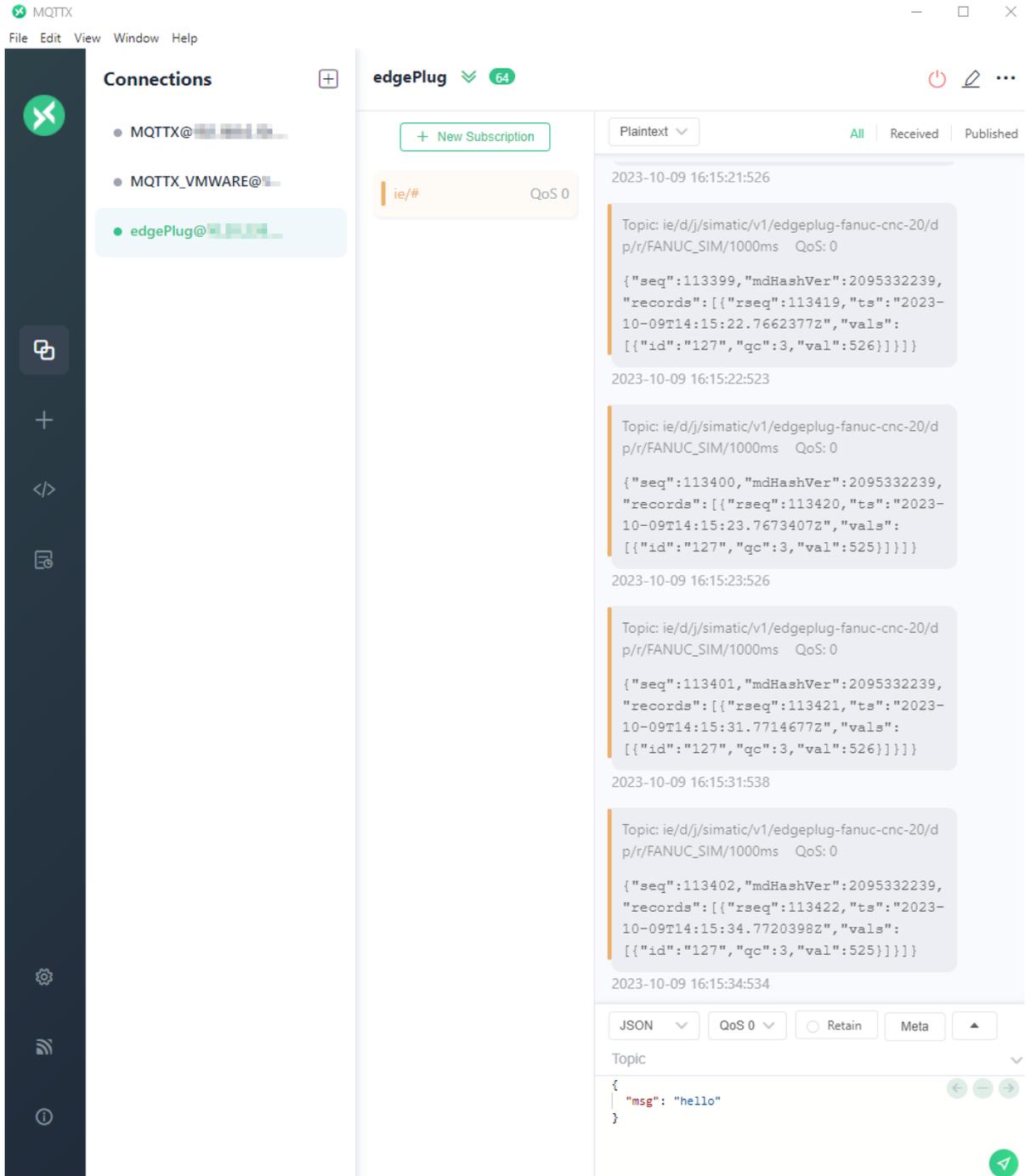


7. Deploy the configuration into the device.

5.3 Connecting an MQTT client

- The URL for the connection is: *mqtt://<IP Address of the IED>:9883*
- Use the configured user (softing) with its password.
- You must subscribe to the „ie/#“ topic tree.

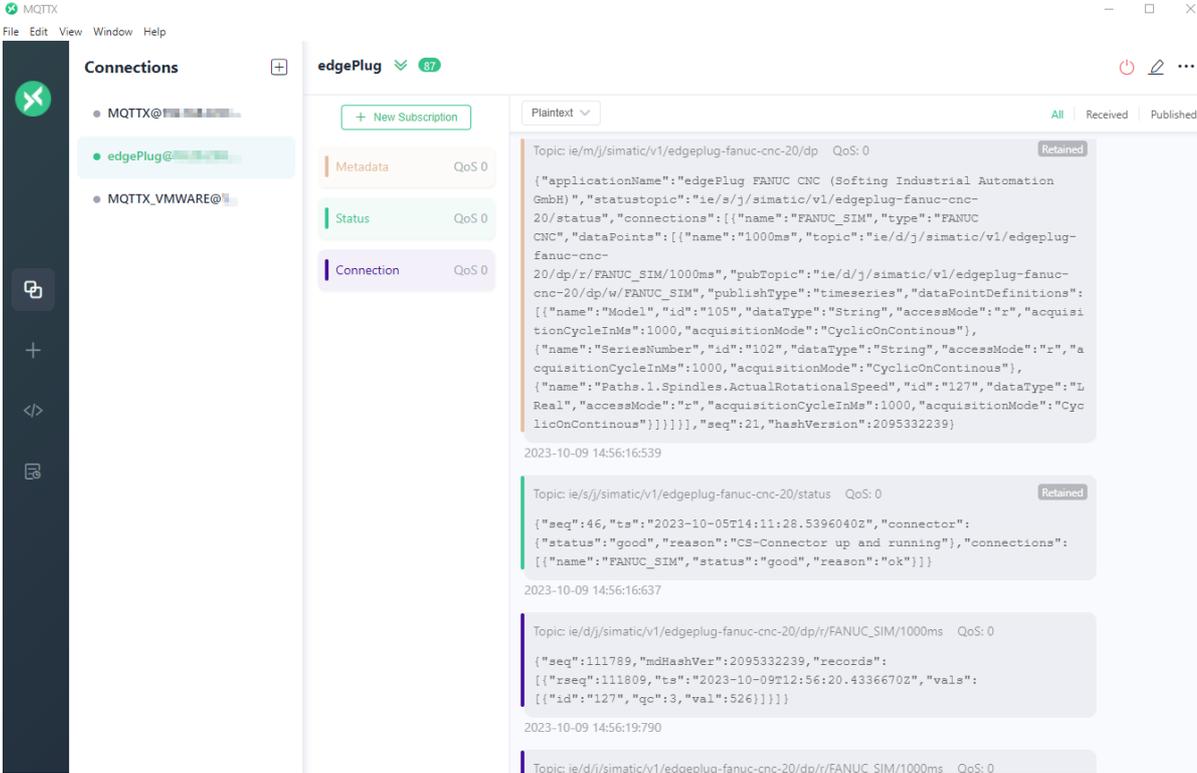
You will receive MQTT messages on the following topics.



You can split the received information into several topic as shown below.

- *ie/s/j/simatic/v1/edgeplug-FANUC-cnc-20/status*
Status messages of the Databus Gateway regarding the edgePlug connector

- *ie/m/j/simatic/v1/edgeplug-FANUC-cnc-20/dp*
Metadata of the Databus Gateway for the edgePlug connector. This includes information about subscribed data points
- *ie/d/j/simatic/v1/edgeplug-FANUC-cnc-20/dp/r/<ConnectionName>*
Change notifications for the values of the subscribed data points



6 Annex

6.1 Address Space Mapping

The following table includes the address space mapping variables.

Structure Type						Data Type	Focas 2 Function	Description
CalendarDate						String	cnc_gettimer	Date data from the calendar timer device of the CNC unit.
CalendarTime						String	cnc_gettimer	Time data from the calendar timer device of the CNC unit.
CNC						String	cnc_sysinfo	Kind of CNC Type
CompoundMachingFunction						Boolean	cnc_sysinfo	Compound matching function
iSeries						Boolean	cnc_sysinfo	i Series CNC
LoaderControlFunction						Boolean	cnc_sysinfo	Loader control function
MaxAxes						UInt16	cnc_sysinfo_ex	Maximum controlled axes number per all CNC system.
MaxSpindles						UInt16	cnc_sysinfo_ex	Maximum spindle number per all CNC system.
Model						String	cnc_sysinfo	Model information
MT						String	cnc_sysinfo	Kind of Machining Center / Lathe
NumAxes						UInt16	cnc_sysinfo_ex	Controlled axes number per all CNC system.
NumSpindles						UInt16	cnc_sysinfo_ex	Spindle number per all CNC system.

Structure Type						Data Type	Focas 2 Function	Description
Operator								
	Messages							
		<Message>						
			Number			Int16	cnc_rdopmsg3	Returns the number of operator's message
			Text			String	cnc_rdopmsg3	Returns the operator's message.
			Type			Int16	cnc_rdopmsg3	Returns the kind of operator's message.
Paths								
	<Path>							
		Alarms						
			<Alarm>					
				AxisName		String	cnc_rdaxisdata	Axis name of the respective alarm
				AxisNumber		UInt16	cnc_rdalmsg2	Axis number of the respective alarm
				Number		Int16	cnc_rdalmsg2	Alarm number
				Text		String	cnc_rdalmsg2	Alarm text
				TypeNumber		Int16	cnc_rdalmsg2	Alarm type.

Structure Type						Data Type	Focas 2 Function	Description
				TypeText		String	cnc_rdalmmmsg2	Text that describes the TypeNumber of the alarm type.
		Attribute				String	cnc_sysinfo_ex	Path attribute
		Axes						
			<Axis>					
				Name		String	cnc_rdaxisdata	Axis name
				Position				
					Absolute	Double	cnc_rdaxisdata	Axis absolute position value.
					Distance	Double	cnc_rdaxisdata	Axis distance to go value.
					Machine	Double	cnc_rdaxisdata	Axis machine position value.
					Relative	Double	cnc_rdaxisdata	Axis relative position value.
		NumAxes				UInt16	cnc_sysinfo_ex	Control axes per path
		Group				String	cnc_sysinfo_ex	Kind of system group
		Macros					cnc_rdmacror2; cnc_rdmacroinfo	Reads the custom macro variables
		Program						
			MainNumber			UInt32	cnc_rdprgnum	Program number of the program which is being currently selected in CNC.
			Name			String	cnc_exeprgname	The program name being executed

Structure Type						Data Type	Focas 2 Function	Description
			Number			UInt32	cnc_exeprgname	The program number being executed
			Path			String	cnc_exeprgname 2	Full path name of the program which is being currently executed
			SequenceNumber			UInt32	cnc_rdseqnum	Sequence number under execution
		Servo						
			<Servo>					
				Load		Double	cnc_rdsvmeter	Load meter data
				Name		String	cnc_rdsvmeter	Axis Name where load meter data is being read from
		Spindles						
			<Spindle>					
				Load		Double	cnc_rdspload	Load information of serial spindle
				MotorSpeed		Double	cnc_rdspmeter	Spindle Motor Speed
				Name		String	cnc_rdspmeter	Spindle Name
			ActualFeedRate			Double	cnc_rdspeed	Actual feed rate of the spindle
			ActualRotationalSpeed			Double	cnc_rdspeed	Actual rotational speed of the spindle

Structure Type						Data Type	Focas 2 Function	Description
			NumSpindles			UInt16	cnc_sysinfo_ex	Spindle number per path
		Status						
			3DInterference Mode			Int16	cnc_stainfo2	Status of 3D interference mode
			Alarm			Int16	cnc_stainfo2	Status of alarm ³⁵
			Automatic			Int16	cnc_stainfo2	AUTOMATIC/MANUAL mode selection
			Edit			Int16	cnc_stainfo2	Status of program editing
			Emergency			Int16	cnc_stainfo2	Status of emergency
			Hdck			Int16	cnc_stainfo2	Status of manual handle re-trace
			Motion			Int16	cnc_stainfo2	Status of axis movement, dwell
			MSTB			Int16	cnc_stainfo2	Status of M,S,T,B function
			Option			Int16	cnc_stainfo2	Status of option
			Restart			Int16	cnc_stainfo2	Status of auto running restart after program editing
			Run			Int16	cnc_stainfo2	Status of automatic operation
			TMmode			Int16	cnc_stainfo2	T/M mode selection (only with compound machining function)
			Warning			Int16	cnc_stainfo2	Status of warning

Structure Type						Data Type	Focas 2 Function	Description
		System				String	cnc_sysinfo_ex	Kind of system
PMC							pmc_rdpmcrng	Reads the PMC data of the uploaded PMC address/range.
SeriesNumber						String	cnc_sysinfo	Series number of CNC
TransferLineFunction						Boolean	cnc_sysinfo	With or without transfer line function
VersionNumber						String	cnc_sysinfo	Version number of CNC

6.1.1 Additional information to column description

Kind of CNC type

Value	Description
'15'	Series 15/15i
'16'	Series 16/16i
'18'	Series 18/18i
'21'	Series 21/21i
'30'	Series 30i
'31'	Series 31i
'32'	Series 32i
'35'	Series 35i
'0'	Series 0i
'PD'	Power Mate i-D
'PH'	Power Mate i-H
'PM'	Power Motion i

Compound matching function

Value	Description
0	Without compound matching function
1	With compound matching function

i Series CNC

Value	Description
0	Not an i Series CNC
1	i Series CNC

Loader control function

Value	Description
0	Without loader control function
1	With loader control function

Kind of Machining Center / Lathe

Value	Description
' M'	Machining center
' T'	Lathe
'MM'	M series with 2 path control
'TT'	T series with 2/3 path control
'MT'	T series with compound machining function
' P'	Punch press
' L'	Laser
' W'	Wire cut

Alarm type: Text that describes the the Alarm type.

Value	Description
0	Parameter switch on
1	Power off parameter set
2	I/O error
3	Foreground P/S
4	Overtravel,External data
5	Overheat alarm
6	Servo alarm
7	Data I/O error
8	Macro alarm
9	Spindle alarm
10	Other alarm(DS)
11	Alarm concerning Malfunction prevent functions
12	Background P/S
13	Synchronized error
14	(reserved)
15	External alarm message
16	(reserved)
17	(reserved)
18	(reserved)

Value	Description
19	PMC error
20-31	(not used)
-1	All type

Path attribute:

- CNC
- Loader

Kind of system group:

- None
- Group of machining
- Group of turning

Status of 3D interference mode

Value	Description
0	Not 3D interference mode
1	3D interference mode by Built-in 3D interference check
2	3D interference mode by personal computer function

Status of alarm

Value	Description
0	***(Others)
1	ALArM
2	BATtery low
3	FAN (NC or Servo amplifier)
4	PS Warning
5	FSsB warning
6	LeaKaGe warning
7	ENCoder warning
8	PMC alarm

AUTOMATIC/MANUAL mode selection

Value	Description
0	MDI

Value	Description
1	MEMory
2	****
3	EDIT
4	HaNDle
5	JOG
6	Teach in JOG
7	Teach in HaNDle
8	INC-feed
9	REference
10	ReMoTe

Status of program editing

M series

Value	Description
0	**** (Not editing)
1	EDIT (during editing)
2	SeaRCH (during searching)
3	OUTPUT (during output)
4	INPUT (during input)
5	COMPARE ((during comparing)
6	Label SKip (label skip status)(30i, 0i-D/F are unused.)
7	ReSTaRt (during program restart)
9	PTRR (during tool retraction and recovery mode)
10	RVRS (during retracing)
11	RTRY (during reprogressing)
12	RVED (end of retracing)
13	HANDLE (during handle overlapping)(30i, 0i-D/F are unused.)
14	OffSeT (during tool length measurement mode)
15	Work OffSet (during work zero point measurement mode)
16	AICC (during AI coutour control)(30i, 0i-F)(0i-D:No.13104#0=1)

Value	Description
	AI APC (during AI advanced preview control)(0i-D:No.13104#0=0)
17	MEemory-CHeck (checking tape memory)(30i, 0i-D/F are unused.)
18	CusToMer's BoarD (during customer's board control)(30i, 0i-D/F are unused.)
19	SAVE (saving fine torque sensing data)(30i, 0i-D/F are unused.)
20	AI NANO (during AI nano contour control)(30i, 0i-D/F are unused.)
21	AI APC (during AI advanced preview control)(0i-D:No.13104#0=1)
23	AICC 2 (during AI coutour control II)(30i, 0i-F)(0i-D:No.13104#0=1) AICC (during AI coutour control)(0i-D:No.13104#0=0)
26	LEN (change the manual active offset value:length offset change mode)
27	RAD (change the manual active offset value:radius offset change mode)
28	WZR (change the manual active offset value:workpiece origin offset change mode)
39	TCP (during tool center point control of 5-axes machining)
40	TWP (during tilted working plane command)
41	TCP+TWP (during tool center point control of 5-axes machining and tilted working plane command)
42	APC (Advanced Preview Control)(0i-D:No.13104#0=1)
43	PRG-CHK (High speed program check)
44	APC (Advanced Preview Control)(0i-D:No.13104#0=0)
45	S-TCP (during smooth TCP)(30i, 0i-F)
46	AICC 2 (during AI coutour control II)(0i-D:No.13104#0=0)
59	ALLSAVE (High speed program management:the programs saving in progress)
60	NOTSAVE (High speed program management:by the programs not saved status)

T series

Value	Description
0	**** (Not editing)
1	EDIT (during editing)
2	SeaRCH (during searching)
3	OUTPUT (during output)
4	INPUT (during input)
5	COMPARE (during comparing)

Value	Description
6	Label SKip (label skip status)(30i, 0i-D/F are unused.)
7	OFFSeT (during writing mode of tool length compensation amount)
8	Work ShiFT (during writing mode of work shift amount)
9	ReSTaRt (during program restart)
10	RVRS (during retracing)
11	RTRY (during reprogressing)
12	RVeD (end of retracing)
13	(Not used)
14	PTRR (during tool retraction and recovery mode)
15	(Not used)
16	AICC (during AI coutour control)(30i, 0i-F)(0i-D:No.13104#0=1) AI APC (during AI advanced preview control)(0i-D:No.13104#0=0)
17	MEemory-CHeck (checking tape memory)(30i, 0i-D/F are unused.)
18	(Not used)
19	SAVE (saving fine torque sensing data)(30i, 0i-D/F are unused.)
20	AI NANO (during AI nano contour control)(30i, 0i-D/F are unused.)
21	(Not used)
22	(Not used)
23	AICC 2 (during AI coutour control II)(30i, 0i-F)(0i-D:No.13104#0=1) AICC (during AI coutour control)(0i-D:No.13104#0=0)
26	OFSX (change the manual active offset value:X-axis offset change mode)
27	OFSZ (change the manual active offset value:Z-axis offset change mode)
28	WZR (change the manual active offset value:workpiece origin offset change mode)
29	OFSY (change the manual active offset value:Y-axis offset change mode)
31	TOFS (change the manual active offset value:Tool offset change mode)
39	TCP (during tool center point control of 5-axes machining)
40	TWP (during tilted working plane command)
41	TCP+TWP (during tool center point control of 5-axes machining and tilted working plane command)
42	APC (Advanced Preview Control)(0i-D:No.13104#0=1)

Value	Description
43	PRG-CHK (High speed program check)
44	APC (Advanced Preview Control)(0i-D:No.13104#0=0)
45	S-TCP (during smooth TCP)(30i, 0i-F)
59	ALLSAVE (High speed program management:the programs saving in progress)
60	NOTSAVE (High speed program management:by the programs not saved status)

Status of emergency

Value	Description
0	(Not emergency)
1	EMerGency
2	ReSET
3	WAIT(FS35i only)

Status of manual handle re-trace

Value	Description
0	Invalid of manual handle re-trace
1	M.H.RTR.(Manual handle re-trace)
2	NO RVRS.(Backward movement prohibition)
3	NO CHAG.(Direction change prohibition)

Status of axis movement, dwell

Value	Description
0	***
1	MoTioN
2	DWeLl

Status of M,S,T,B function

Value	Description
0	***(Others)
1	FIN

Status of option

Value	Description
0	Normal
2	Temporary setting mode
3	Waiting of certification

Status of auto running restart after program editing

Value	Description
0	It is either of the following status. - Program did not edit. - Parameter No.10330#7 which is display the message for confirmation of
1	Program is edited

Status of automatic operation

Value	Description
0	****(reset)
1	STOP
2	HOLD
3	STaRT
4	MSTR(during retraction and re-positioning of tool retraction and recovery, and operation of JOG MDI)

T/M mode selection (only with compound machining function)

Value	Description
0	T mode
1	M mode

Status of warning

Value	Description
0	(No warning)
1	WaRNing(Start from middle of program)

Kind of system.

Value	Description
M	Machine
T	Tool

Value	Description
W	Wirecut

7 Glossary

Terms & Abbreviations	Definition
CNC	Computerized Numerical Control
IED	Industrial Edge Device
IEM	Industrial Edge Management
MQTT	Message Queuing Telemetry Transport
OPC UA	OPC Unified Architecture
SaaS	Software as a Service

Softing Industrial Automation GmbH

Richard-Reitzner-Allee 6
85540 Haar / Germany
<https://industrial.softing.com>

 + 49 89 45 656-340

 info.automation@softing.com

