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softing

How to Connect dataFEED OPC Suite to Siemens MindSphere

data  **FEED®**

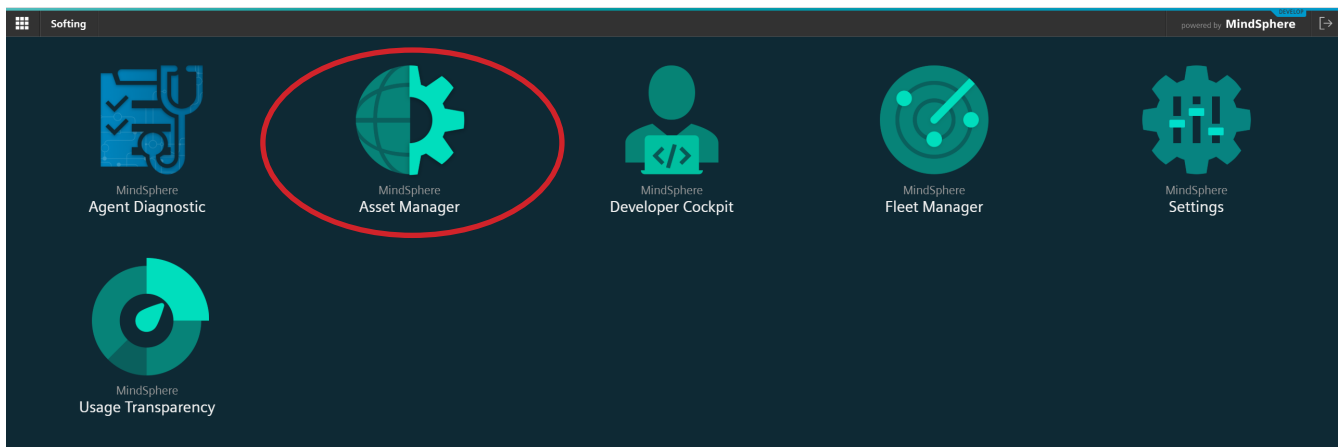
How to Connect *dataFEED OPC Suite* to *Siemens MindSphere*

Initial *Siemens MindSphere* Configuration Steps

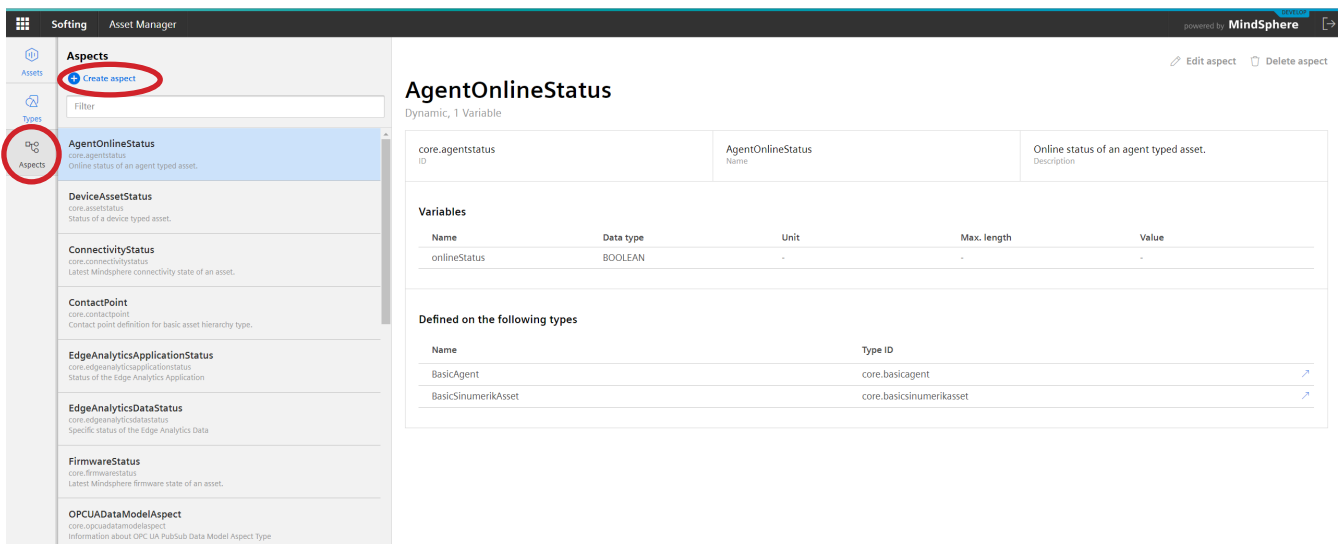
1. Login at *Siemens MindSphere*

- Open <https://tinyurl.com/y882czbx> for *Siemens MindSphere* login

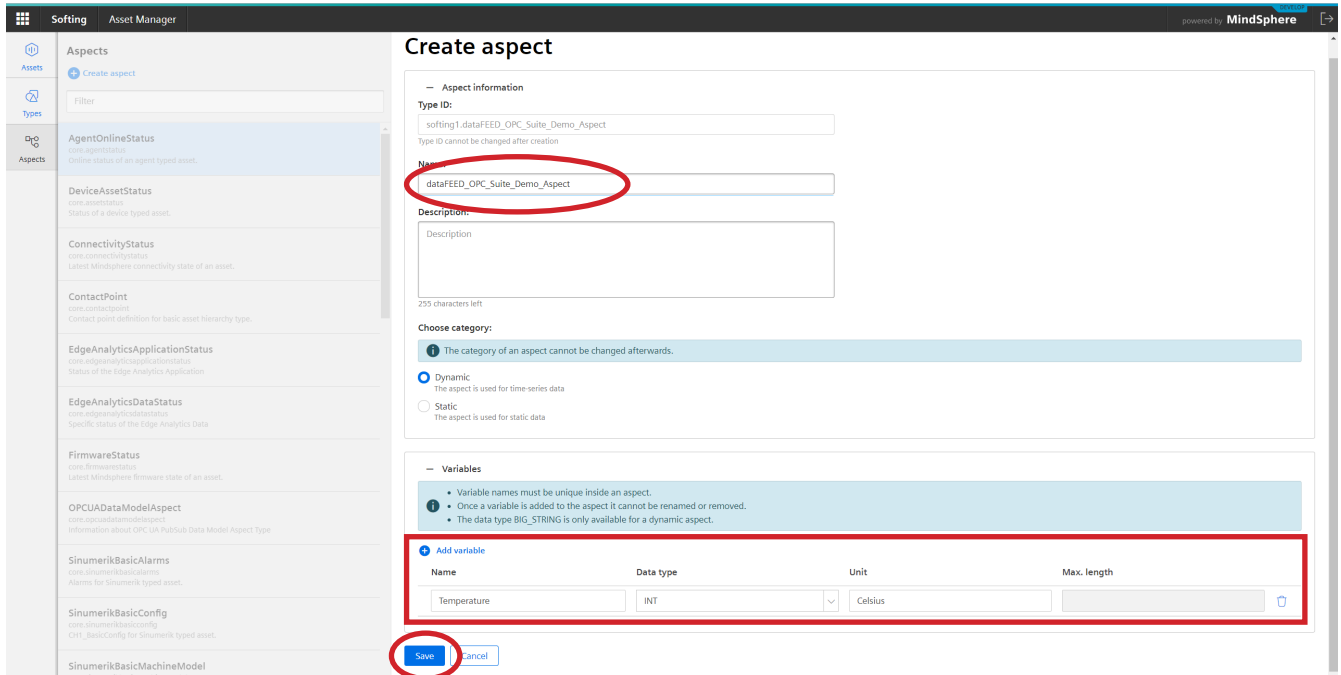
2. Create Aspect



- Click **Asset Manager**



- Click **Aspects** view
- Click **Create aspect** link for creating a new Aspect



Create aspect

— Aspect information

Type ID: softing1.dataFEED_OPC_Suite_Demo_Aspect

Name: dataFEED_OPC_Suite_Demo_Aspect

Description:

255 characters left

Choose category:

☒ Dynamic
The aspect is used for time-series data

☐ Static
The aspect is used for static data

— Variables

Variable names must be unique inside an aspect.

Once a variable is added to the aspect it cannot be renamed or removed.

The data type BIG_STRING is only available for a dynamic aspect.

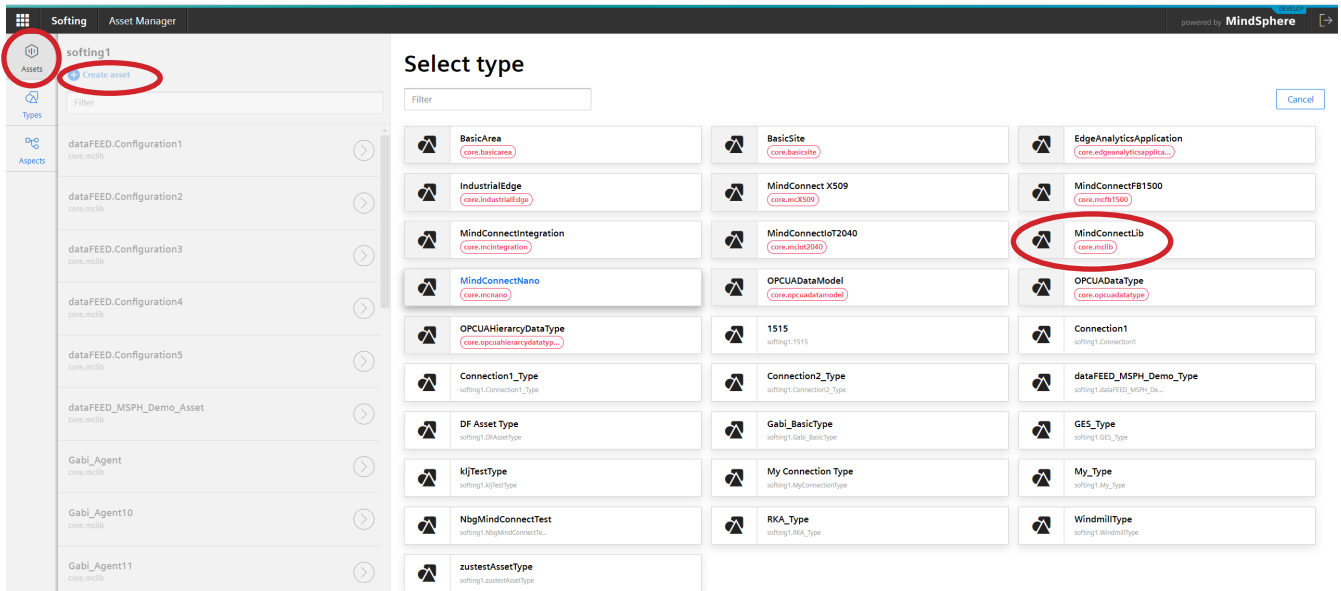
Add variable

Name	Data type	Unit	Max. length
Temperature	INT	Celsius	

Save **Cancel**

- Enter freely selectable Aspect name in **Name** field
- Add all individual variables including their data types and units in the **Add variable** section
In case of string variables also their maximum string lengths have to be defined
- Press **Save** button

3. Create Asset



Select type

Filter

Assets

softing1

Types

dataFEED.Configuration1

dataFEED.Configuration2

dataFEED.Configuration3

dataFEED.Configuration4

dataFEED.Configuration5

dataFEED_MSPH_Demo_Asset

Gabi_Agent

Gabi_Agent10

Gabi_Agent11

BasicArea

IndustrialEdge

MindConnectIntegration

MindConnectNano

OPCUADataModel

1515

Connection1_Type

DF Asset Type

kijTestType

NbgMindConnectTest

zustestAssetType

BasicSite

MindConnect X509

MindConnectIoT2040

OPCUADataModel

1515

Connection2_Type

Gabi_BasicType

My Connection Type

RKA_Type

EdgeAnalyticsApplication

MindConnectFB1500

MindConnectLib

OPCUADataType

Connection1

dataFEED_MSPH_Demo_Type

GES_Type

My_Type

WindmillType

- Click **Assets** view
- Click **Create asset** link for creating a new Asset
- Select **ModConnectLib** asset type

Add asset

General

Type ID:

core.mclib

Selected type of asset cannot be changed

Name: *

dataFEED_OPC_Suite_Demo_Asset

Description:

Description

255 characters left

+ Location

+ Variables

Aspects

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

* Required input field

Save

Cancel

- Enter freely selectable Asset name in **Name** field
- Press **Save** button

4. Configure Asset

Softing

Asset Manager

powered by MindSphere

Assets

Types

Aspects

softing1

Create asset

Filter

dataFEED.Configuration5

dataFEED_MSPH_Demo_Asset

dataFEED_OPC_Suite_Demo_Asset

Gabi_Agent

Gabi_Agent10

Gabi_Agent11

Gabi_Agent12

softing1 > dataFEED_OPC_Suite_Demo_Asset

dataFEED_OPC_Suite_Demo_A...

Edit asset

Add child asset

...

Basic settings

Street

Postal code

Region

Latitude

City

Country

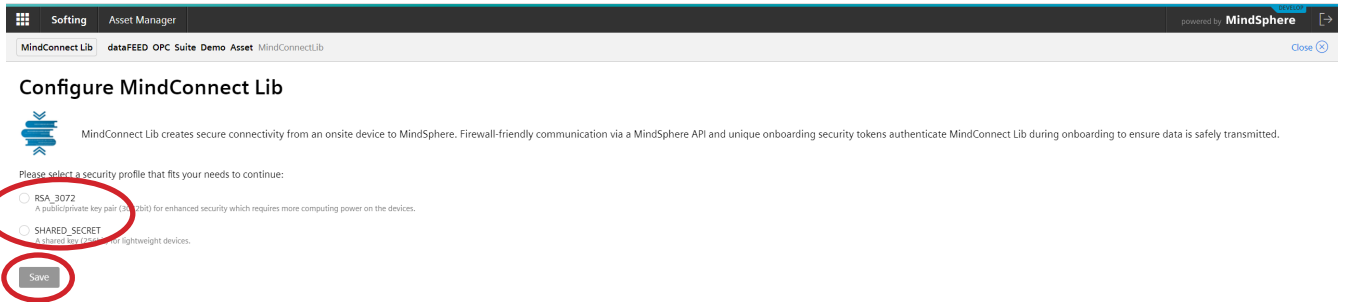
Longitude

EuropeBerlin

Time zone

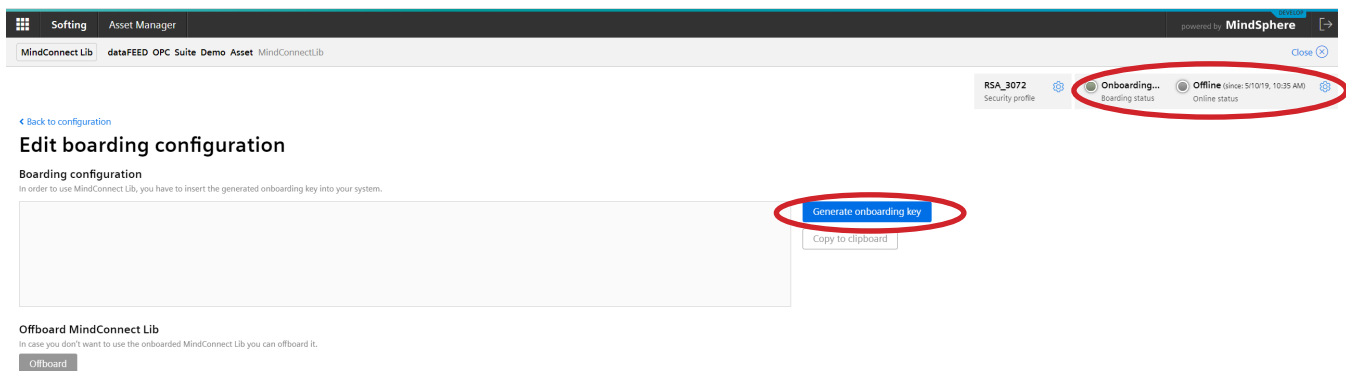
MindConnect Lib

- Click **Assets** view
- Select previously created Asset
- Click **ModConnect Lib** link



Define security settings

- Select *security profile*
- Press **Save** button



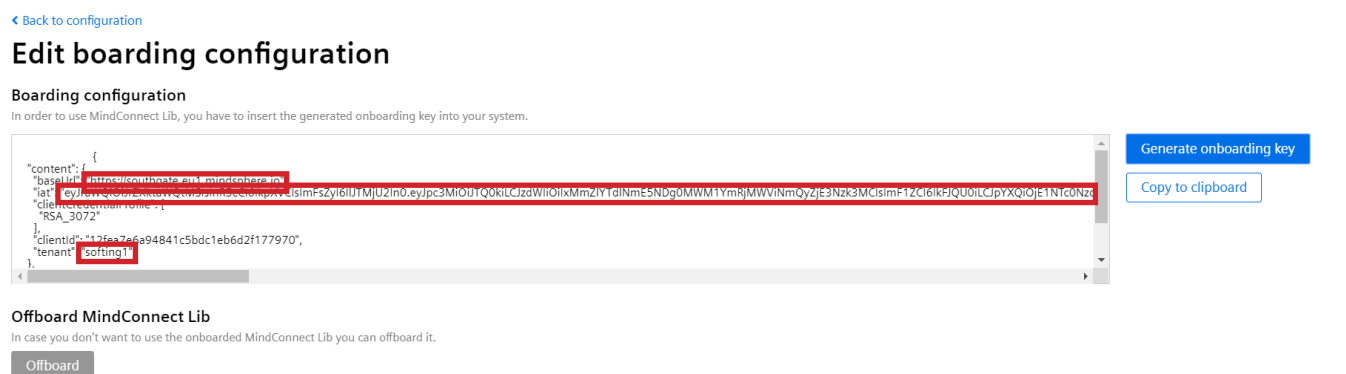
NOTE:

The top right section of the screen shows the *Boarding status* and *Online status* information: At this stage the actual *Boarding status* is shown by a green blinking light and the text *Onboarding...* indicating that the **dataFEED OPC Suite** connection is in the configuration phase and not yet completed. Once the **dataFEED OPC Suite** connection has been established the *Boarding status* light is shown permanently green

The Online status will change from *Offline* to *Online* as soon as data is received.

Clicking the *Setting* (gearwheel) icons at the top right of the screen allows to modify the *security profile* respectively the *online status* at any time.

- Press **Generate onboarding key** button
(Part of generated key needs to be copied in **dataFEED OPC Suite** configuration in a later step)



- Copy marked texts of lines *baseUrl*, *iat* and *tenant* without quotation marks

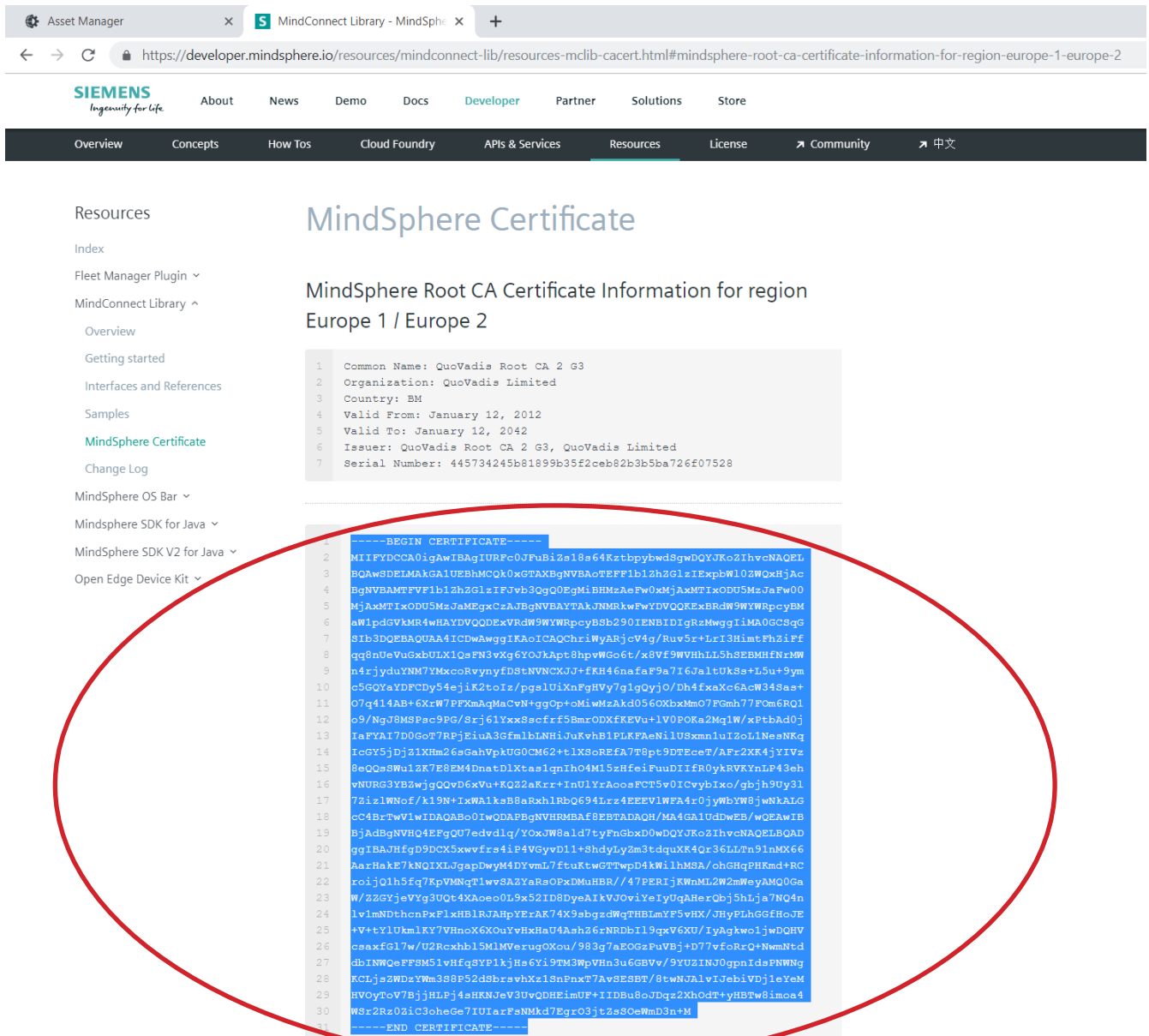
NOTE:

The **Siemens MindSphere** onboarding key is available only at this stage of the **Siemens MindSphere** configuration. As part of this information is needed in **dataFEED OPC Suite** configuration, **Siemens MindSphere** configuration is interrupted here and continued at a later step.

5. Create *Siemens MindSphere* Certificate File

A certificate file is required for the initial connection of **dataFEED OPC Suite** to **Siemens MindSphere**.

- Open <https://developer.mindsphere.io/resources/mindconnect-lib/resources-mclib-cacert.html>



The screenshot shows the Siemens MindSphere Developer portal. The left sidebar contains a 'Resources' menu with 'MindSphere Certificate' highlighted. The main content area is titled 'MindSphere Certificate' and 'MindSphere Root CA Certificate Information for region Europe 1 / Europe 2'. It displays a table with certificate details:

Line	Value
1	Common Name: QuoVadis Root CA 2 G3
2	Organization: QuoVadis Limited
3	Country: BM
4	Valid From: January 12, 2012
5	Valid To: January 12, 2042
6	Issuer: QuoVadis Root CA 2 G3, QuoVadis Limited
7	Serial Number: 445734245b81899b35f2ceb82b3b5ba726f07528

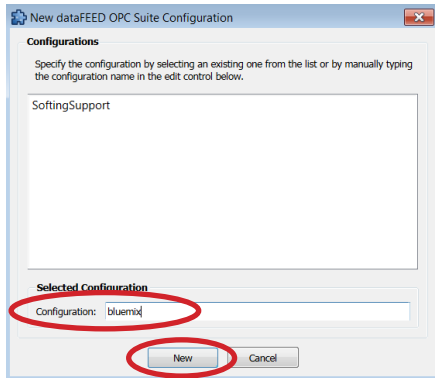
Below the table, the full certificate text is displayed, starting with '-----BEGIN CERTIFICATE-----' and ending with '-----END CERTIFICATE-----'. A red circle highlights these lines, indicating the certificate content to be copied.

- Copy **Siemens MindSphere** certificate to clipboard
- Start text editor, paste clipboard and store **Siemens MindSphere** certificate in *PEM* file (If text editor doesn't support saving the certificate using the extension *PEM*, just store the certificate to any file name and rename the file to *PEM* file afterwards.)

Initial *dataFEED OPC Suite* Configuration Steps

6. Create New *dataFEED OPC Suite* Configuration

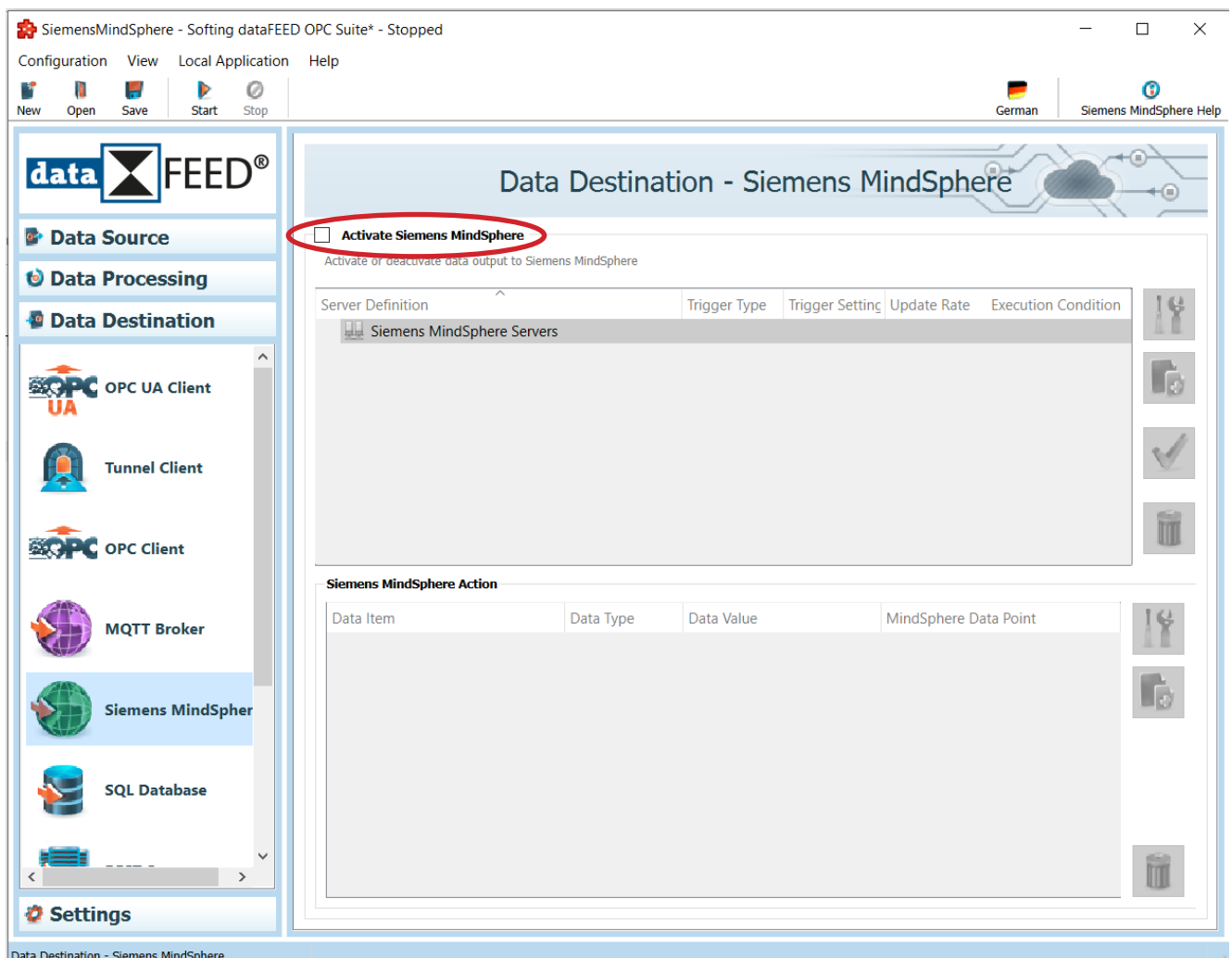
- Start *dataFEED OPC Suite Configurator*
- Navigate to *Configuration/New* page



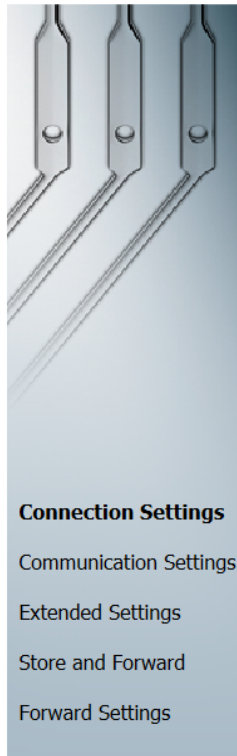
- Enter freely selectable **Configuration** name
- Click **New** button

7. Define *Siemens MindSphere* Connection

- Navigate to *Data Destination/Siemens MindSphere* page



- Select **Activate Siemens MindSphere** checkbox



Connection Settings

On this wizard page the name, state and specific information of the Siemens MindSphere server connection are configured.

Connection: Connection_01

Connection Name

Provide the name of the current connection. The name must be unique throughout the whole configuration.

Connection name:

Connection State

Specify the status of the connection.

Connection active: ☒

Connection Information

Tenant ID:

MindSphere Certificate: ...

Click 'Next' to continue...

Next

Cancel

Help

- Enter freely selectable connection name in **Connection name** field
- Enter personal tenant ID in **Tenant ID** field
Tenant ID either is defined in **Siemens MindSphere** contract or can be copied from **Siemens MindSphere** onboarding key (see last step of section 4)

NOTE:

If *Tenant ID* is copied from **Siemens MindSphere** onboarding key this information has to be copied without quotation marks

- Enter file name of **Siemens MindSphere** certificate file in **MindSphere Certificate** field (see section 5)
- Click **Next** button

- Enter *baseUrl* information from **Siemens MindSphere** onboarding key (see last step of section 4) in **Host Name** field
- Do not change pre-defined port number in **Port** field
- Make sure the selected **Authentication Type** maps the security profile defined in **Siemens MindSphere** (see section 4)
- Enter *iat* information from section 4 in **Initial Access Token** field

Information from the generated **Siemens MindSphere** onboarding key has to be copied without quotation marks

For continuation of **dataFEED OPC Suite** configuration some more information from **Siemens MindSphere** configuration is required. Thus, **dataFEED OPC Suite** configuration is interrupted here and continued at a later step.

8. Create *Siemens MindSphere* Data Source (Continuation of Section 4)

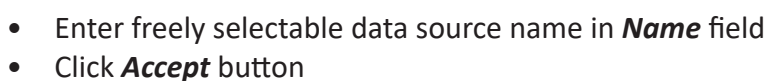
Edit boarding configuration

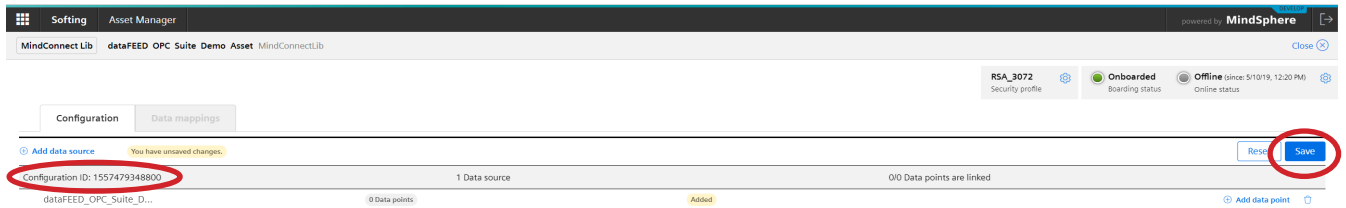
In order to use MindConnect Lib, you have to insert the generated onboarding key into your system.

Copy to clipboard

In case you don't want to use the onboarded MindConnect Lib you can offboard it.

- Select < **Back to configuration** link





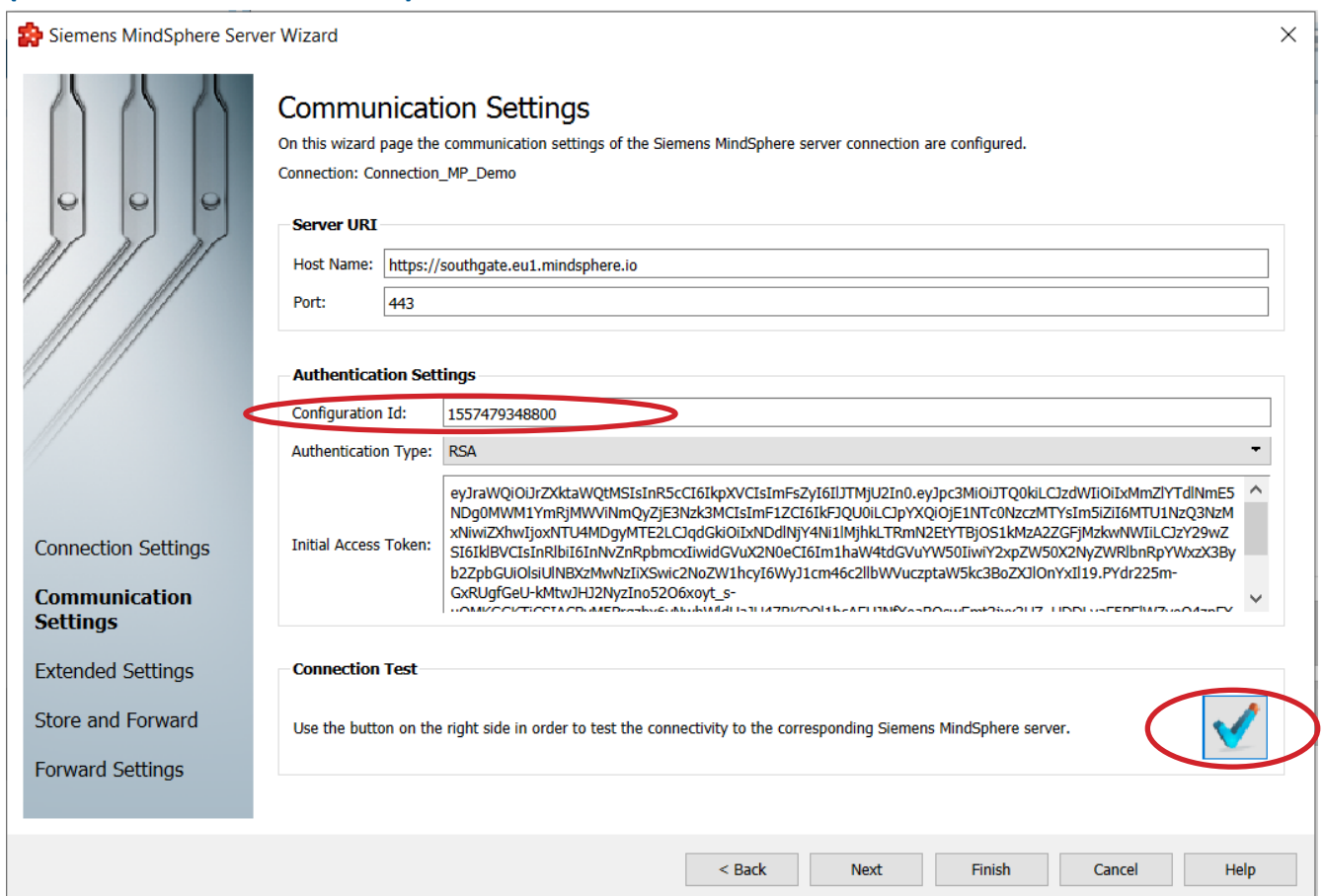
- Copy *configuration ID* to clipboard for further use in **dataFEED OPC Suite** configuration
- Click **Save** button

NOTE:

For continuing the **Siemens MindSphere** configuration the successful establishment of the connection to **dataFEED OPC Suite** is required. Therefore, the **Siemens MindSphere** configuration is interrupted here and continued at a later step.

Continuation of dataFEED OPC Suite Configuration

9. Define Siemens MindSphere Connection (Continued) (Continuation of Section 7)



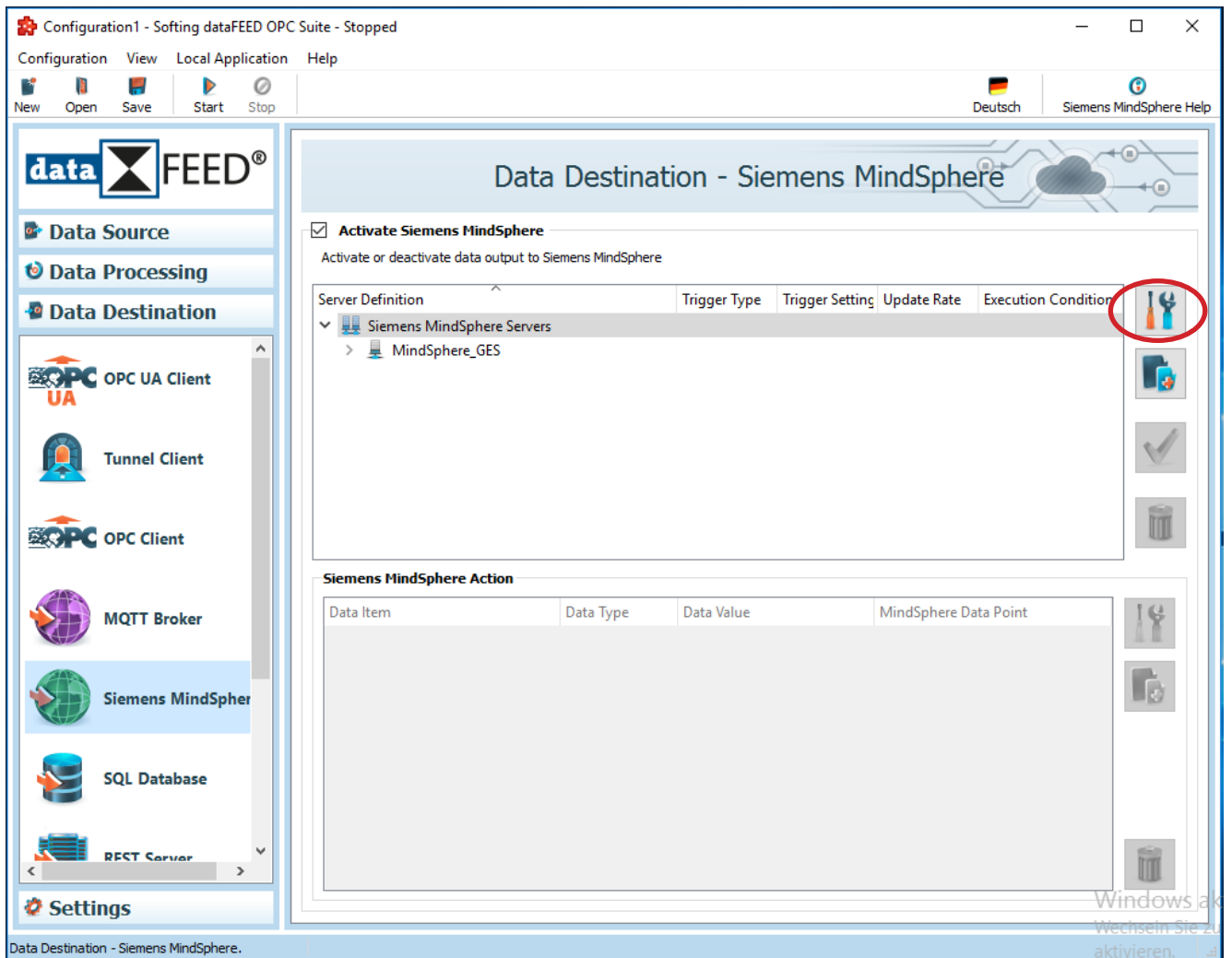
- Enter copied configuration ID in **Configuration Id** field
- Click **Connection Test** button for testing the connection between **dataFEED OPC Suite** and **Siemens MindSphere**

NOTE:

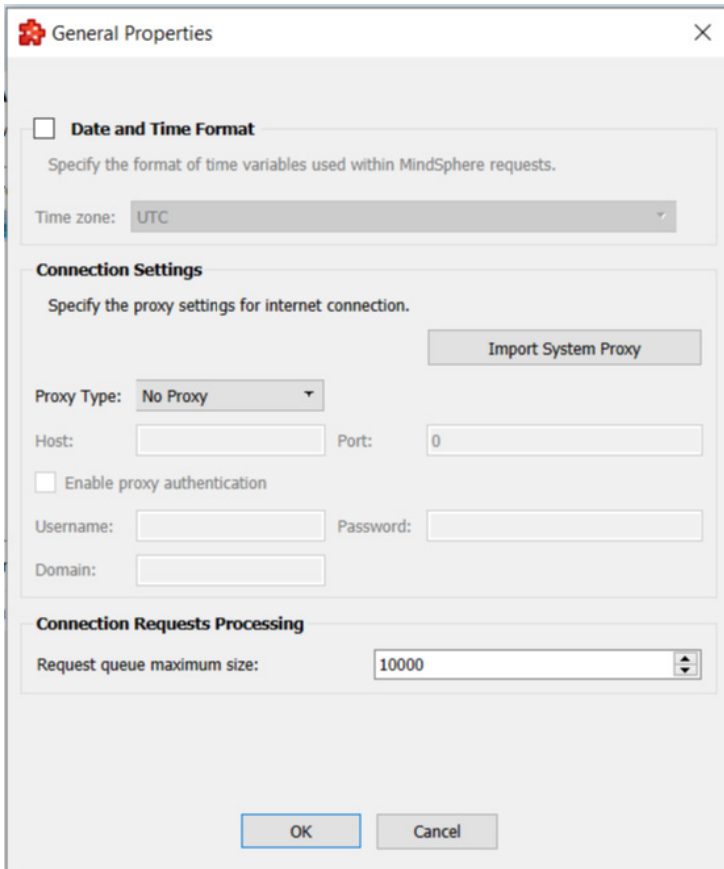
Please continue with section 11, if the connection between **dataFEED OPC Suite** and **Siemens MindSphere** has been established successfully

10. Correct Proxy Settings

- Navigate to **Data Destination/Siemens MindSphere** page



- Click **Properties** button



General Properties

☐ **Date and Time Format**
Specify the format of time variables used within MindSphere requests.

Time zone: UTC

Connection Settings
Specify the proxy settings for internet connection.

Import System Proxy

Proxy Type: No Proxy

Host: Port:

☐ Enable proxy authentication

Username: Password:

Domain:

Connection Requests Processing

Request queue maximum size:

OK Cancel

- Check individual Proxy settings

Continuation of *Siemens MindSphere* Configuration

11. Assign Asset Variables to Aspects (Continuation of Section 8)

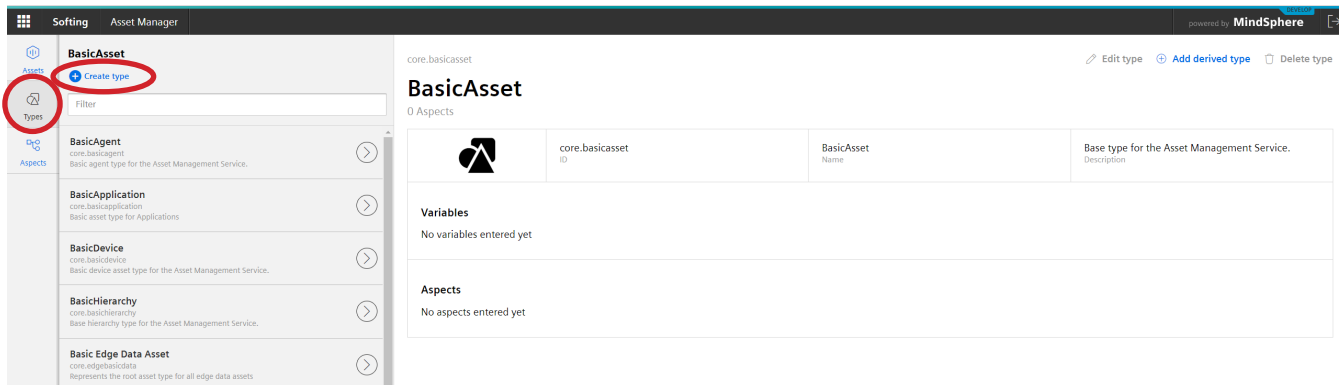
Upon successful establishment of connection between **dataFEED OPC Suite** and **Siemens MindSphere** the *Boarding status* light in the top right section of the screen is shown permanently green (see section 4 for further information)



NOTE:

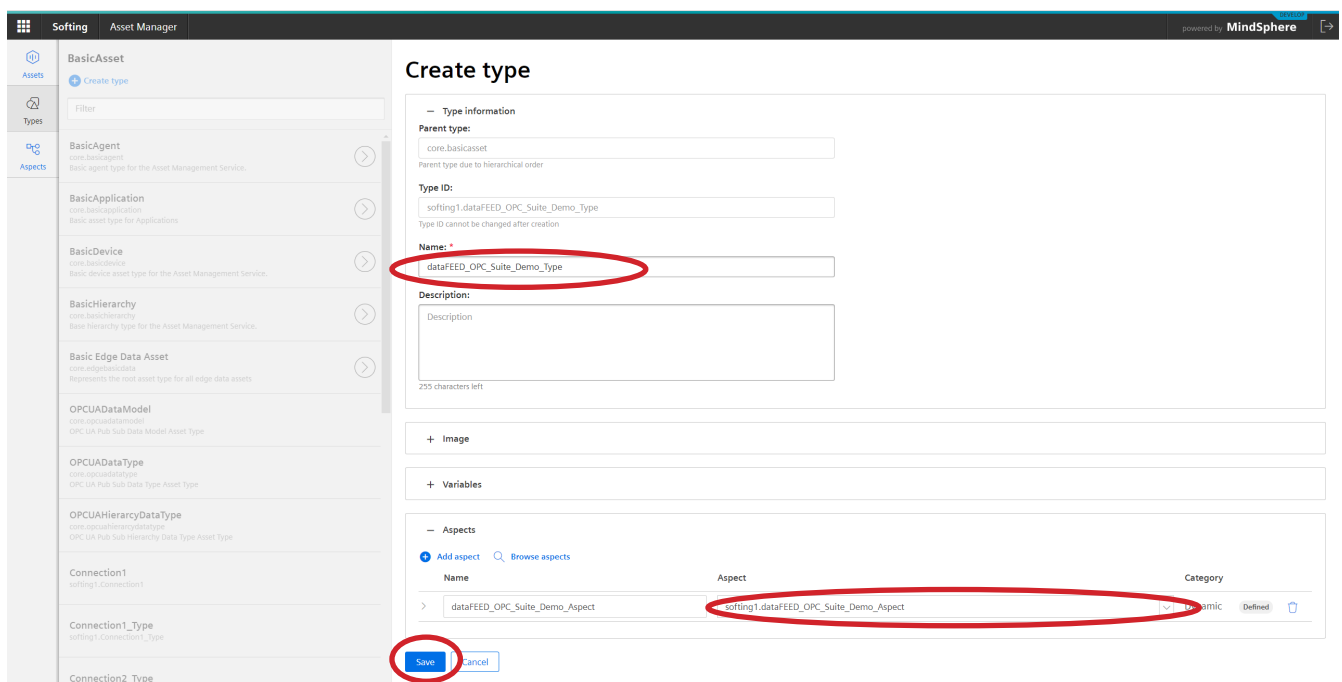
In **Siemens MindSphere**, for assigning the previously defined variables to Assets, a Type has to be created first, which then has to be connected to the Aspect and finally to the Asset.

- At **Siemens MindSphere** home screen select **Asset Manager**



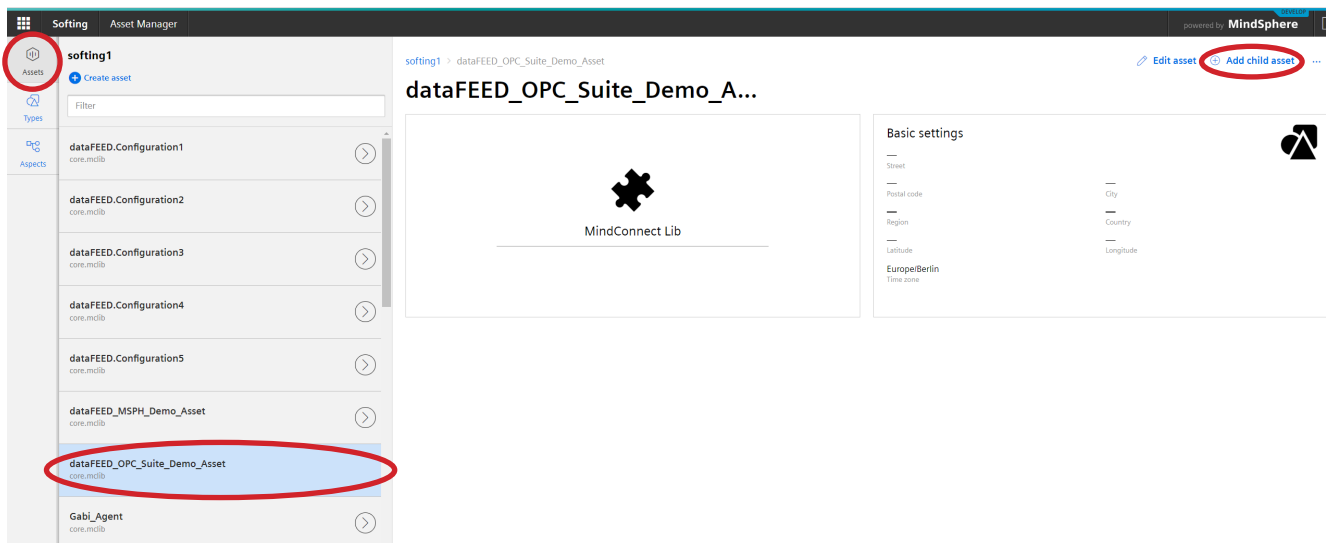
The screenshot shows the Siemens MindSphere Asset Manager interface. On the left sidebar, the 'Types' view is selected, and the 'Create type' button is circled in red. The main panel displays the details for the 'BasicAsset' type, including its ID, name, and description.

- Click **Types** view
- Click **Create type** link for creating a new Type

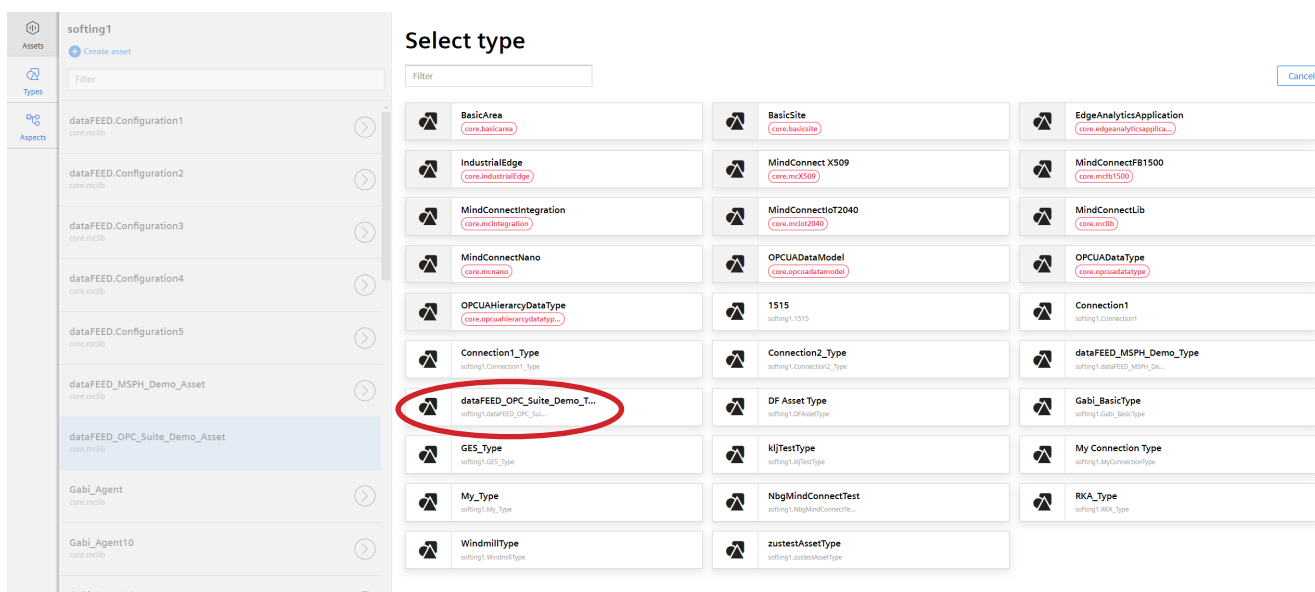


The screenshot shows the 'Create type' form in the Siemens MindSphere Asset Manager. The 'Name' field is circled in red, and the 'Aspect' dropdown menu is also circled in red, showing the selected option 'softing1.dataFEED_OPC_Suite_Demo_Aspect'. The 'Save' button is also circled in red.

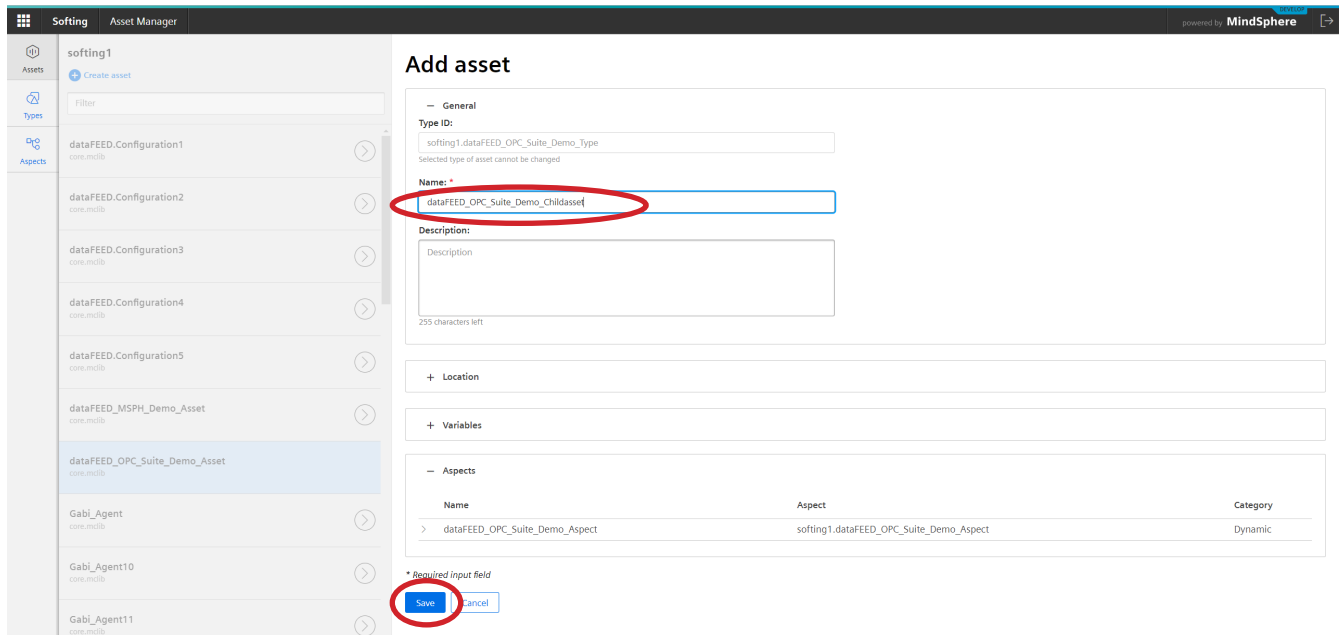
- Enter freely selectable Asset name in **Name** field
- Select previously created Aspect from **Aspect** dropdown list
- Press **Save** button



- Click **Assets** view
- Select previously created Asset
- Click **Add child asset** link



- Select previously created Type



Add asset

General

Type ID: softing1.dataFEED_OPC_Suite_Demo_Type
Selected type of asset cannot be changed

Name: * dataFEED_OPC_Suite_Demo_Childasset

Description: Description
255 characters left

+ Location

+ Variables

Aspects

Name	Aspect	Category
> dataFEED_OPC_Suite_Demo_Aspect	softing1.dataFEED_OPC_Suite_Demo_Aspect	Dynamic

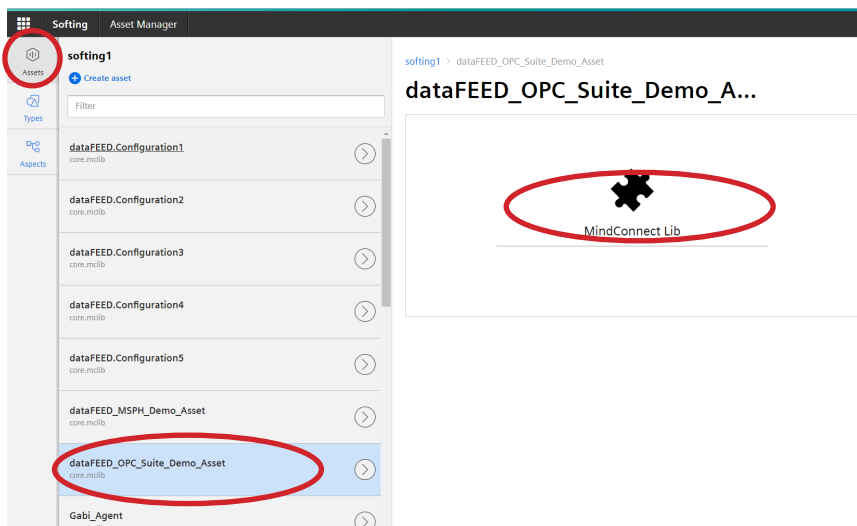
* Required input field

Save Cancel

- Enter freely selectable Asset name in **Name** field
- Press **Save** button

NOTE:

For connecting the created Aspect variables with Asset it is essential to create the individual variables as Asset variables using the identical data type and unit



Assets

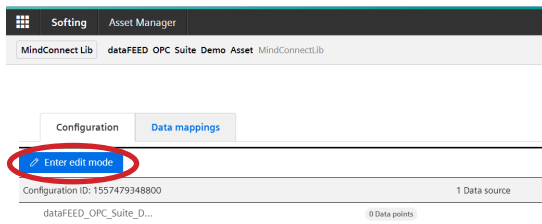
softing1

dataFEED_OPC_Suite_Demo_Asset

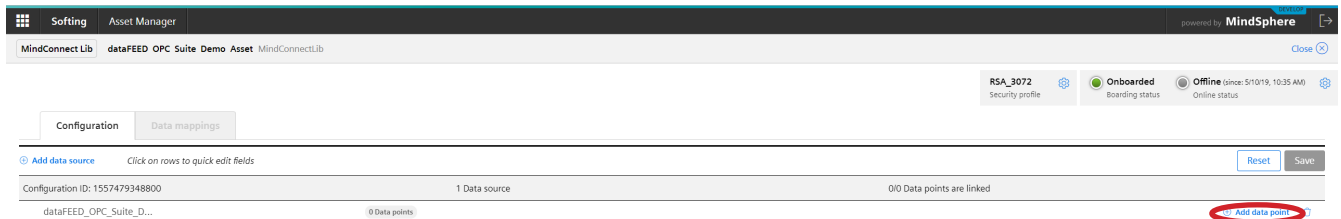
dataFEED_OPC_Suite_Demo_A...

MindConnect Lib

- Click **Assets** view
- Select previously created Asset
- Click **ModConnect Lib** link



- Press **Enter edit mode** button

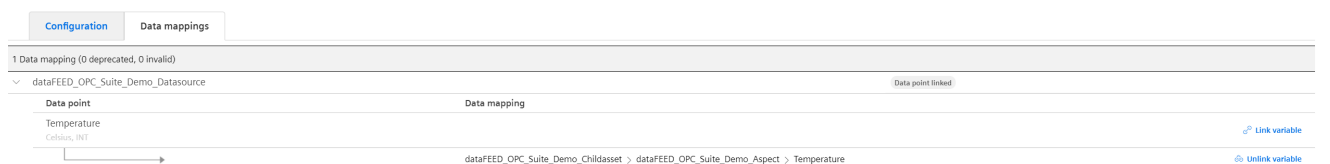


- Click **Add data point** link
- Add all individual Aspect variables as Asset variables
- Press **Save** button



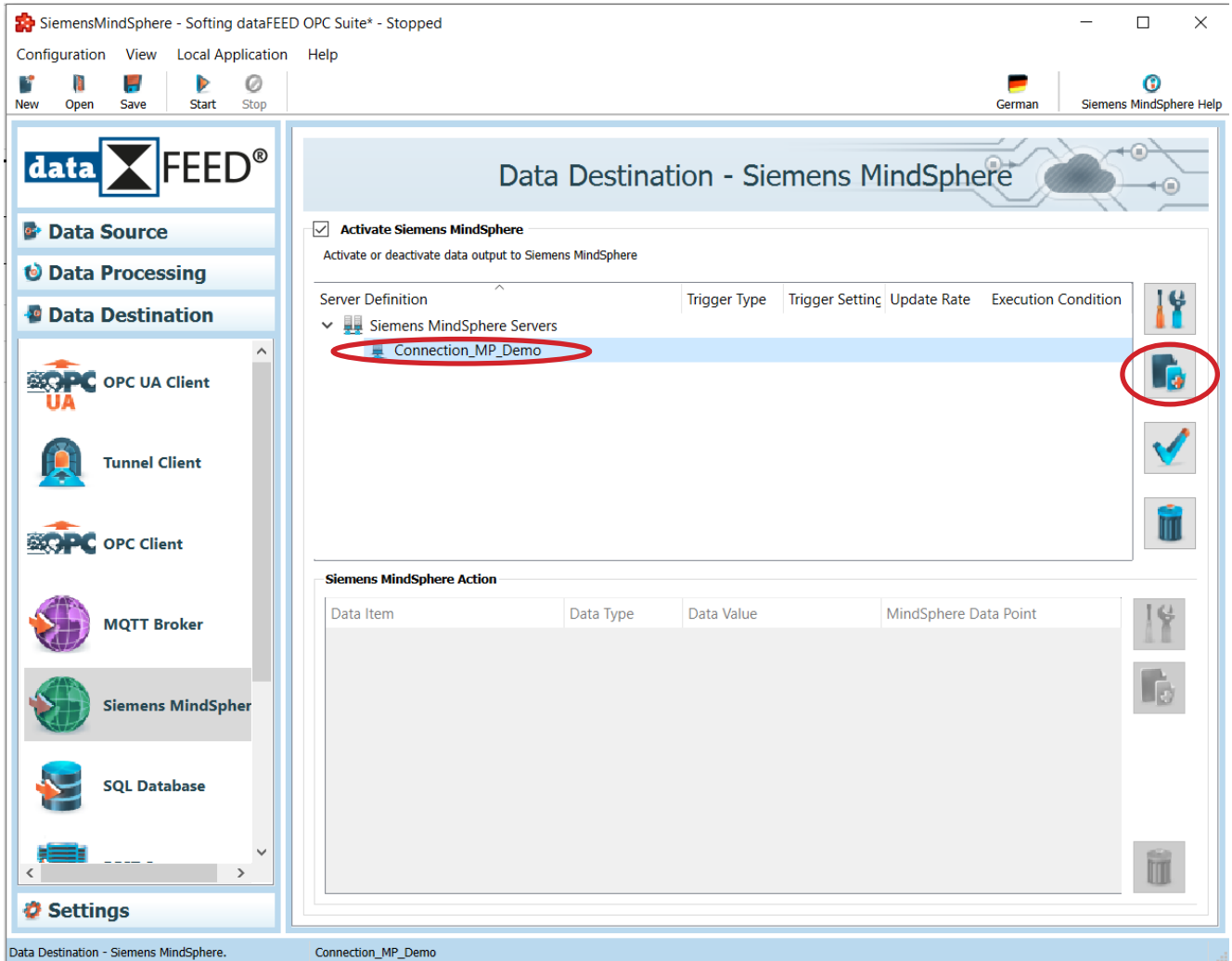
- Select **Data mappings** tab
 - Click **Link variable** link
- A window is shown at the right side allowing to click the created Child Asset and afterwards to assign the appropriate variable.

At the end **Siemens MindSphere** shows the assigned variables



Continuation of *dataFEED OPC Suite* Configuration

12. Create and Connect *dataFEED OPC Suite* Variables



- Select connection
- Click **Add a Siemens MindSphere Server definition** button
A freely selectable connection name plus an associated trigger is defined.
In a last step the window is shown

Siemens MindSphere Server Action Wizard

Item & Data Point Mappings

On this page the action parameter content of item to data point mappings can be specified.

Item Selection

Data item

- Local Namespace - SiemensMindSphere
 - _System
 - Local Items
 - Modbus_PLC
 - Temperature

Action Parameter

Data Item	Data Type	Data Value	MindSphere Data Point
Modbus_PLC.Temperature	I2	Data Value	1557481807440
<Enter or drag data item value>			<Enter data point value>

< Back **Finish** Cancel Help

- Select individual **dataFEED OPC Suite** data item in **Item Selection** area and drag-and-drop it to **Data Item** field of **Action Parameter** area
- Enter configuration ID from **Siemens MindSphere** configuration in **MindSphere Data Point** field of **Action Parameter** area
- Press **Finish** button

Now the connection between **dataFFED OPC Suite** and **Siemens Mindsphere** is configured. For data exchange a re-start of **dataFFED OPC Suite** is required.

Select **Fleet Manager** from **Siemens MindSphere** home screen to define a visualization application.

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