

## User Guide

# smartLink HW-DP



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# 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 responsible for configuring and maintaining field devices in process automation networks. Before installing and operating the smartLink HW-DP make sure that you have read and fully understood the safety requirements and working instructions in this guide.

## 1.3 Typographic conventions

The following 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 damage or injury.



### Note

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



### Hint

This symbol is used when providing you with helpful user hints.

## 1.4 Document history

Document version	Changes since last version
1.00	first version
1.01	minor editorial changes
1.02	minor editorial changes
1.10	Chapter added on connecting to PROFIBUS devices via OPC UA and connecting to HART devices via FDT/DTM added.
1.10-1	Description on how to register a license added to Chapter <a href="#">Licensing</a> <sup>36</sup> .
1.20	<ul style="list-style-type: none"> <li>New <a href="#">password rules</a><sup>29</sup> and description on how to connect to PROFIBUS devices via MQTT to plantPerfect Monitor added.</li> <li>Section <a href="#">PROFIBUS DP connector</a><sup>14</sup> added.</li> </ul>
1.20-1	Support for HART IP RIOs updated.
1.20-2	Password description for <a href="#">login to user interface</a> <sup>25</sup> changed.
1.20-3	<ul style="list-style-type: none"> <li>Support for Pepperl+Fuchs HART IP RIO LB8105.</li> </ul>
1.21	Description of PROFIBUS bus parameter view with project settings and effective settings added. Adaptation of guide to new features of SW Version 1.21
1.30	<ul style="list-style-type: none"> <li>Support for E+H Netilion and the FieldEdge SGC500 gateway</li> <li>Extended HART-IP Server to additionally provide information of the remote I/O level</li> <li>Provide PROFIBUS network and device statistics over MQTT</li> </ul>

## 1.5 Related documentation and videos

See the following links for additional and related product information:

- [smartLink DTM User Guide](#)
- [Video tutorial - Integrating and using Softing smartLink HW-DP](#)

## 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](mailto: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 smartLink HW-DP

The Softing smartLink HW-DP gateway provides access to the communication system and connects the higher-level network structure with the field level.

The default configuration allows for a start-up in only a few minutes. In order to prevent network disruptions by unauthorized configuration changes, all configuration functions are protected by user administration.

### 2.1 Intended use

The smartLink HW-DP is designed to be used as a secure access point to PROFIBUS networks. Any other use is deemed non-intended use.

**CAUTION**

Do not use this device in hazardous areas! See Section Specifications for permissible ambient conditions.

**Note**

Installation and operation of the smartLink HW-DP must be performed by qualified personnel only.

### 2.2 Supported features

smartLink HW-DP supports the following features:

- parameter setting of HART devices connected to PROFIBUS DP networks via HART IP and FDT/DTM
- parameter setting of PROFIBUS DP devices via FDT/DTM and Simatic PDM
- provides process data, asset and diagnostic information of PROFIBUS devices via OPC UA
- provides asset and diagnostic information of PROFIBUS devices for plantPerfect Monitor

### 2.3 System requirements

To parametrize PROFIBUS and HART devices with your smartLink HW-DP you will need:

- 24V power supply
- PC with web browser
- Ethernet cable
- PROFIBUS cable

## 2.4 Technical data

Hardware	<b>Processor:</b> Intel Cyclone V SoC with dual core ARM Cortex-A9 <b>Status LEDs:</b> PWR, RUN, ERR, BUS <b>Real-Time Clock:</b> Real-time clock with buffering, setting time via browser or by NTP server
Interfaces	<b>Ethernet:</b> 1 xIEEE 802.3 10BASE-T, 100Base-TX, 1000Base-T, connector RJ4 <b>PROFIBUS DP:</b> 1 segment with RS485 physical layer, connector 90-pin sub-D socket
Supported communication protocols	HART IP, PROFIBUS DP
Supported PROFIBUS remote I/Os	<b>Siemens:</b> T 200SP: 155-6BU01-0CN0 ET 200iSP: 152-1AA00-0AB0 ET 200M: 153-2BA10-0XB0 <b>ABB:</b> S800: CI801, CI840, CI840A S900: CI920N, CI920S <b>Pepperl+Fuchs:</b> LB: LB8105, LB8106, LB8109 FB: FB8206, FB8209 <b>R.Stahl:</b> iS1+: CPM 9440/15-01-11 <b>Turck:</b> BL20: BL20-E-GW-DP, BL20-GW-DPV1 excom: GDP 1,5 <b>WAGO:</b> I/O System 750: 750-333, 750-833
Supported HART IP IO modules	<b>Siemens:</b> ET 200SP: 134-6TD00-0CA1, 135-6TD00-0CA1 ET 200iSP: 134-7TD00-0AB0, 135-7TD00-0AB0, 134-7TD50-0AB0, 138-7FA00-0AB0 ET 200M: 332-8TF01-0AB0, 331-7TF00-0AB0, 331-7TF01-0AB0, 331-7TB00-0AB0, 332-8TF00-0AB0 <b>ABB:</b> S800: AI815, AO815, AI845, AO845A, AI895, AO895 S900: AI930N, AO930N <b>Pepperl+Fuchs:</b> LB: LB3002, LB3102, LB3103, LB3105, LB4002, LB4005, LB4102, LB4105, LB3005A2, LB3006A, LB3106A, LB4106A, LB7104A FB: FB3202B1, FB3202B2, FB3205B2, FB3205B3, FB3302B2, FB3305B2, FB4202B2, FB4202B3, FB4205B2, FB4205B3, FB4205C2, FB4302B2, FB7204B3, FB7304B3 <b>R.Stahl:</b> iS1+: AIM 9461/12-08-11, AOM 9466/12-08-11, AUM 9468/32-08-11 <b>Turck:</b> BL20: BL20-2AIH-I, BL20-2AOH-I excom: AIH40Ex, AOH40Ex <b>WAGO:</b> I/O System 750: 750-484, 75x-842
Supported HART-IP Applications	Emerson AMS Device Manager V14.1.1, V14.5 Endress + Hauser Netilion (FieldEdge SGC500)
Supported FDT Applications	PACTware, Endress + Hauser FieldCare

Dimensions (H x W x D) Weight	120 mm x 28 mm x 110 mm
Weight	about 430g
Power Supply	18 VDC ... 32 VDC; SELV/PELV power supply mandatory, typical input current: 200 mA, maximum input current: 1 A (allowing for in-rush current at switch-on)
Typical Power Loss	5 W
Operating Temperature	-40 °C ... +65 °C (see also Section <a href="#">Installation Positions</a> <sup>16</sup> )
Storage Temperature	-40 °C ... +85 °C
Relative humidity	10 % ... 95 %, non-condensing
Cooling	Convection, no fan
Mounting	DIN rail 35 mm
Protection	IP20
Altitude	intended use must not exceed 2000 m in altitude
Usage location	indoor use only; no direct sunlight

## 2.5 Safety precautions



### CAUTION

During operation, the device's surface will be heated up. Avoid direct contact. When servicing, turn off the power supply and wait until surface has cooled down.



### CAUTION

The electronic components of the smartLink HW-DP are sensitive to electrostatic discharges. Damages due to electrostatic discharge can lead to premature failure of components or intermittent faults at a later stage. Before installing the smartLink HW-DP, divert the electrostatic discharge away from your body and the tools used.



### Note

Do not open the housing of the smartLink HW-DP. It does not contain any parts that need to be maintained or repaired. In the event of a fault or defect, remove the device and return it to the vendor. Opening the device will void the warranty!

## 2.6 Real-time clock

A real-time clock is located on the device, which is used to validate the temporal validity when using certificates. The real-time clock is buffered so that the real-time clock continues to run in the event of a brief power failure. The buffer time is limited and depends on various parameters (ambient temperature, duration of use, ...) and can range from a few hours to several days.

During the initial installation and if the power failure lasts longer than the buffer time, the RTCs are set using a browser via the web server (see corresponding section: Setting the RTC via browser).










Therefore, a problem with the validity of a certificate can indicate that the real-time clock is not set. It is recommended to use a time server in the network (NTP server), then the device automatically fetches the current time (see corresponding section: Activating the NTP server).

## 2.7 LED status indicators

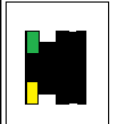
smartLink HW-DP has four device status LEDs and two RJ45 connection status LEDs on the front:

<b>PWR</b>	=	power supply - refer to <a href="#">next section</a> <sup>11</sup>
<b>RUN</b>	=	running - refer to <a href="#">next section</a> <sup>11</sup>
<b>ERR</b>	=	error - refer to <a href="#">next section</a> <sup>11</sup>
<b>BUS</b>	=	configuration - displays configuration upload - refer to <a href="#">next section</a> <sup>11</sup>

















The device status LEDs are permanently on or flash in different colors and frequencies as indicated below:

Symbol	Color	Lighting
	none	off
	red	permanent
	green	permanent
	red	flashing (1 Hz)
	red	flashing quickly (5 Hz)
	green	flashing (1 Hz)
	green	flashing slowly (0.5 Hz)
	green	flashing quickly (5 Hz)
	orange (red/green)	permanent
	orange (red/green)	green permanent + red flashing (1 Hz)























The RJ45 status LEDs indicate the following behaviour:

web server port LEDS	Colour	Behaviour
	green	ON when port has an active link
	yellow	FLASHING when there is traffic on the port

















### 2.7.1 Status LEDs startup phase

LEDs				Meaning
PWR 	RUN 	ERR 	BUS 	<b>Power Off</b> – check Power supply.
PWR 	RUN 	ERR 	BUS 	<b>Power On</b> - 24V DC power supply is ok.
PWR 	RUN 	ERR 	BUS 	<b>Start up phase</b> (up to 30 seconds).
PWR 	RUN 	ERR 	BUS 	<b>Start up phase finished</b> – check execution mode (normal or factory).

### 2.7.2 Status LEDs – factory mode

LEDs				Meaning
PWR 	RUN 	ERR 	BUS 	Device running in factory mode.
PWR 	RUN 	ERR 	BUS 	Firmware update is running.
PWR 	RUN 	ERR 	BUS 	Request to execute factory reset.
PWR 	RUN 	ERR 	BUS 	Device executes factory reset.
PWR 	RUN 	ERR 	BUS n.a	<b>Software error</b> - reboot the device.
PWR 	RUN 	ERR 	BUS n.a	<b>Software error</b> - device restarted automatically and error is reported in log file.

### 2.7.3 Status LEDs – normal mode

LEDs				Meaning
PWR 	RUN 	ERR n.a.	BUS n.a.	Device running in Normal mode.
PWR 	RUN 	ERR n.a.	BUS n.a.	Firmware update is running.
PWR 	RUN 	ERR n.a.	BUS 	Device joined PROFIBUS and is online.
PWR 	RUN 	ERR n.a.	BUS 	Device is configuring for PROFIBUS or Bus error.
PWR 	RUN 	ERR 	BUS n.a.	<b>Software error</b> - reboot the device.
PWR 	RUN 	ERR 	BUS n.a.	<b>Software error</b> - device restarted automatically and error is reported in log file.



## 3 Installation

### 3.1 Hardware installation



#### Note

With an ambient temperature above 55 °C at the place of installation it is very likely that the temperatures of connecting cables will increase if the cables are installed in an unfavourable position. In such cases, measure the temperature to ensure that the service temperature of the cables is not exceeded or use cables sustaining high temperatures of at least 90 °C.

#### 3.1.1 Mounting and dismounting



#### Note

Make sure the smartLink HW-DP is mounted in such a way that the power supply can be easily disconnected. Depending on the installation position, the maximum ambient operating temperature may differ. See Section [Installation positions](#) <sup>16</sup> for details.

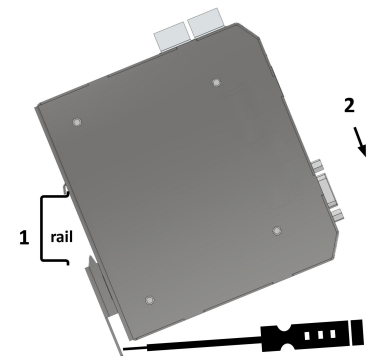


#### Installation and inspection

Installation and inspection must be carried out by qualified personnel only (personnel qualified according to the German standard TRBS 1203 - Technical Regulations for Operational Safety). The definition of terms can be found in IEC 60079-17.

#### Mounting

1. Hook the upper notch of the cut-out on the back of the device into a 35 mm DIN rail.
2. Leverage the screwdriver upwards, pull the locking bar downwards and move the device down towards the rail.
3. Press the gateway down towards the rail until it slides into place over the lip of the locking bar.

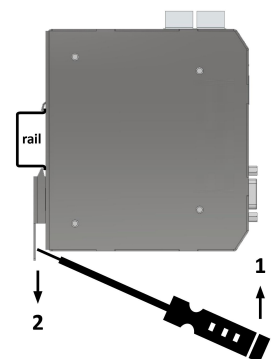


#### Note

Do not put stress on the system by bending or torsion.

#### Dismounting

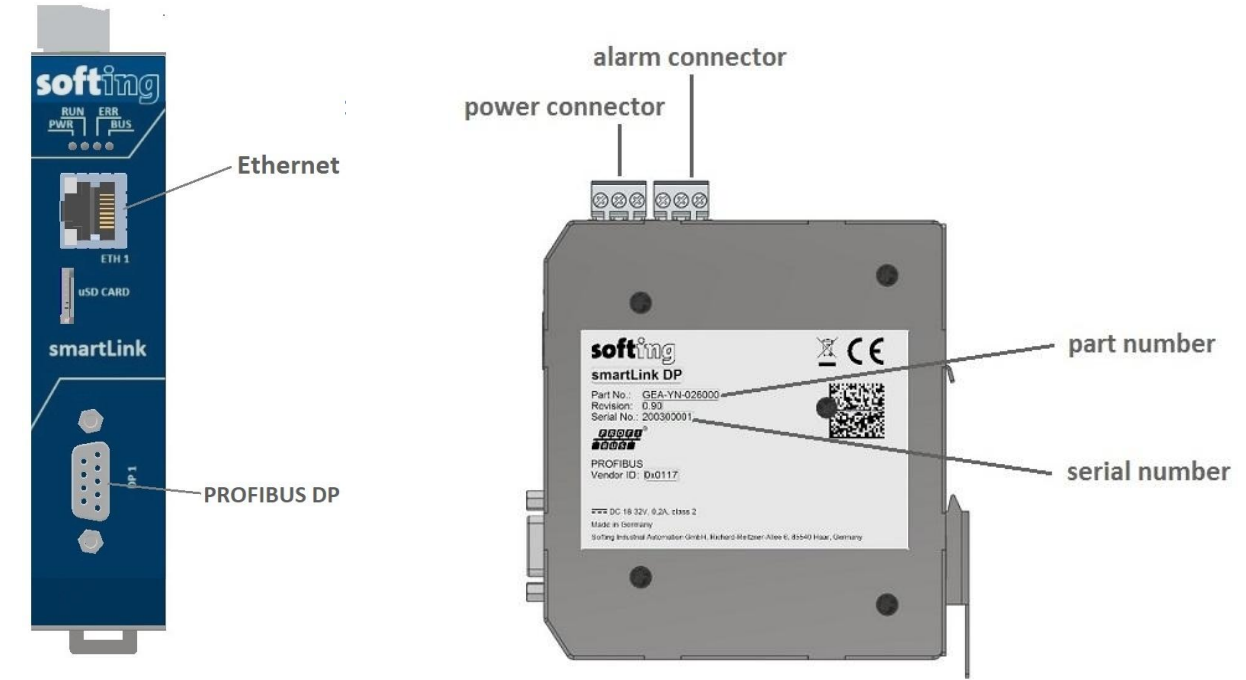
1. Slide a screwdriver diagonally under the housing into the locking bar.
2. Leverage the screwdriver upwards, pull the locking bar downwards and move the gateway upwards off the rail.



3.1.2 Connection diagrams

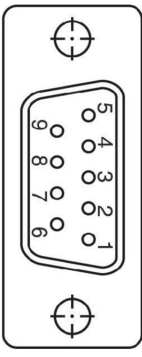
The following diagram shows the input and output interfaces of the smartLink HW-DP. The device has one 10/100/1000 Base-T Ethernet port (ETH1) and one PROFIBUS DP port (DP 1) for data communication.

The connectors on the top are reserved for the supply voltage and alarm output. The uSD card slot is used for future service purposes and is not supported in the current version of the product.



3.1.3 PROFIBUS DP connector

Below you see the front view of the PROFIBUS DP connector (female D-Sub 9) and the function of the available signals. The connector pins are assigned according to the international standard IEC 61158-2 (Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition).

	Pin	Signal	Description
	1	-	optinal - not in use
	2	-	optinal - not in use
	3	RxD/TxD-P	receive / transmit data (+)
	4	CNTR-P	control signal to repeater (+)
	5	DGND	data ground
	6	VP	voltage plus (+5Vdc for terminating resistors)
	7	-	optinal - not in use
	8	RxD/TxD-N	receive / transmit data (-)
	9	-	optinal - not in use

### 3.1.4 Power and alarm connectors

Connect the smartLink HW-DP to a 24 V DC power supply.

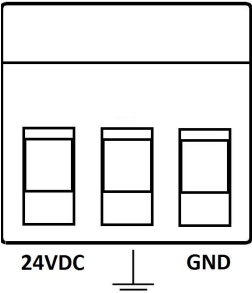



**Note**

smartLink HW-DP is intended for connection to a SELV/PELV circuitry only.

#### Power connector

The supply voltage (18 VDC .... 32 VDC) is connected by a 3-pole terminal block. The power supply is connected to the plug connector via flexible wires with a cross section of 0.75 to 1.5 mm<sup>2</sup>. The ground connection wire must have a cross section of 1.5 mm<sup>2</sup>.

	Signal	Description
	24VDC	24 V DC power supply
		Functional earth
	GND	Ground

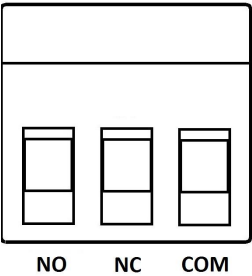


**CAUTION**

The Functional Earth (FE) connection of the device has to be connected at low inductance with the Protective Earth (PE) of the system.

#### Alarm connector

The alarm output has a voltage range of 0-32V. The contact can be operated with a maximum current of 0.5A. Connect the positive supply voltage with the COM terminal to avoid damage when the connector accidentally mixed up.

	Signal	Description
	NO	Normally Open
	NC	Normally Closed
	COM	Common Terminal

### 3.1.5 Installation positions

The smartLink HW-DP can be mounted horizontally and vertically. Depending on the installation position, different ambient operating temperatures ( $T_a$ ) apply.



#### Minimum distance

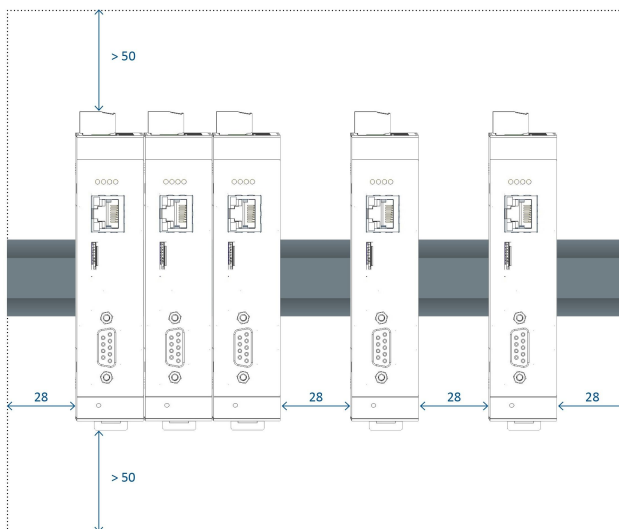
Provide a minimum distance of 50 mm to the air inlet and air outlet to ensure natural convection.



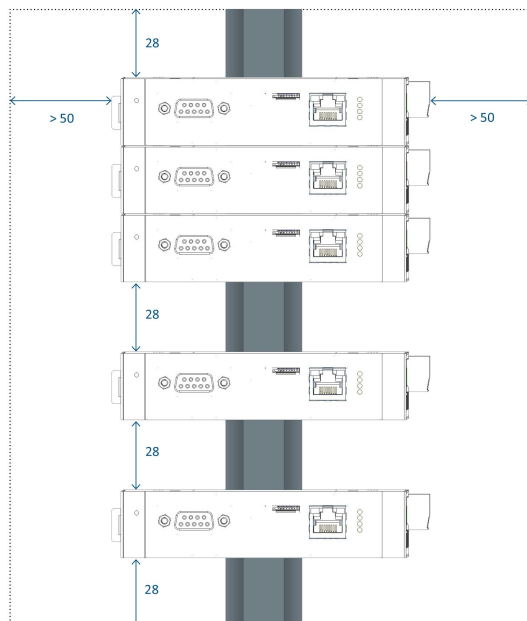
#### Rotated installation position

The maximum permissible ambient temperature values also apply to a 180° rotated installation position.

### Horizontal installation position and maximum temperatures



### Vertical installation position and maximum temperatures



Maximum ambient temperature ( $T_a$ )	$T_a$ - no distance	$T_a$ at 28mm distance between devices
horizontal	60 °C	65 °C
vertical	50 °C	60 °C

### 3.1.6 Connecting to the network

1. Connect your PROFIBUS network to the RS485 port of your smartLink HW-DP.
2. Connect your PC running the engineering and asset management tools using the Ethernet port.



#### **WARNING**

Installing smartLink HW-DP while your network is in operation may cause data transfer problems if the network is in a poor electrical condition.

### 3.1.7 Powering up the device

Turn on the power supply. The boot process will take about 30 seconds. Refer to [LED status indicators](#)<sup>10</sup> for a detailed description of the LEDs and their behaviour.

### 3.1.8 Resetting the device

If your smartLink HW-DP is not responding, is malfunctioning or you simply cannot log on to the device because you have forgotten your login credentials you can restore the original factory conditions, remove the existing user data and clear the device settings by performing a hard reset. Licenses will not be affected by the reset and will remain on the device. However, performing a factory reset will clear your device of all parameter settings and configuration data.



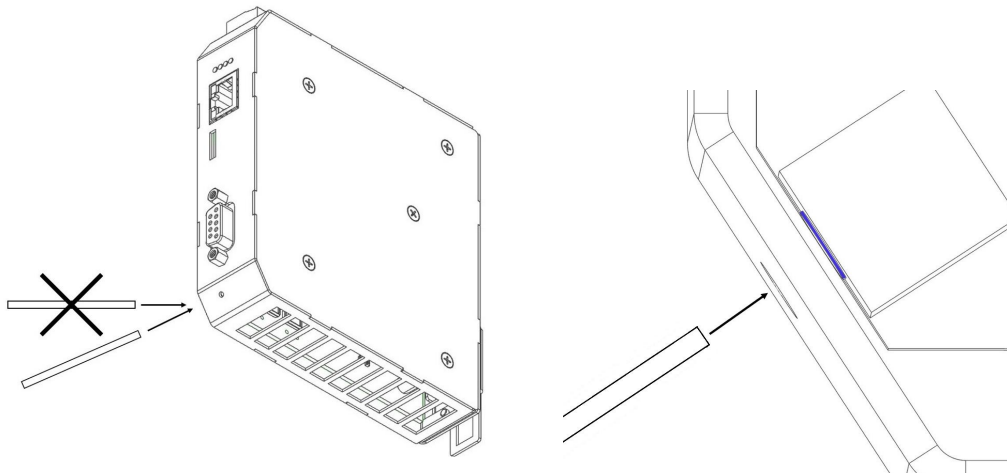
#### Note

We recommend to press the reset button only if you wish to clear your device of all configurations or if you have attempted all other methods of troubleshooting. Remember that the a hard reset will delete all device settings and data added by the user.

#### 3.1.8.1 How to restart the factory firmware

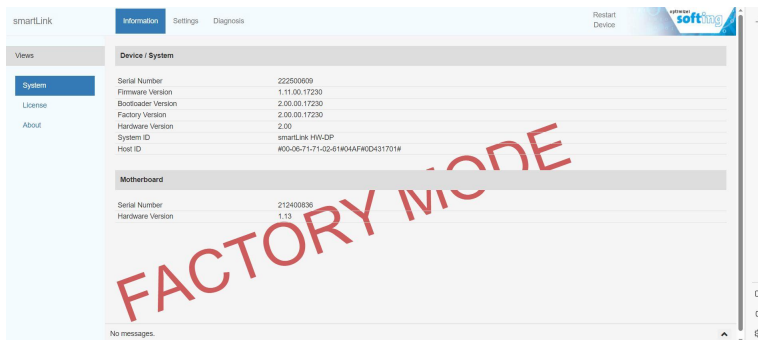
The smartLink HW-DP device comes with a factory firmware that cannot be deleted or overwritten. When the device detects that the standard user firmware is faulty, it will automatically resort to the factory firmware. However, in the unlikely event that the factory firmware is flawed and the smartLink HW-DP device does not manage to load it automatically, you will have to restart it manually by performing as described below. Licenses will not be affected by the reset and will remain on the device.

1. Disconnect the power supply from the smartLink HW-DP device.
2. Insert the tip of a metal pin, of a pen or the end of an unwound paper clip into the hole of the reset button as shown above.

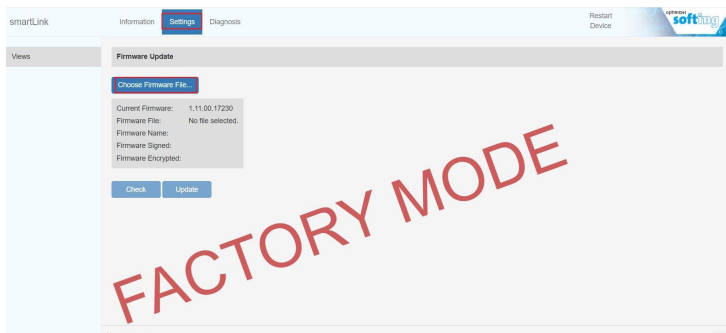


3. Press the reset button very carefully while reconnecting and powering up the device again and hold the button until the [RUN LED](#)<sup>11</sup> turns red and is flashing fast.
4. Release the reset button.  
The smartLink HW-DP is restarting.

5. Open your Internet browser and enter the IP address of your smartLink HW-DP to access the user interface. At this point the user interface indicates that it is running in factory mode.

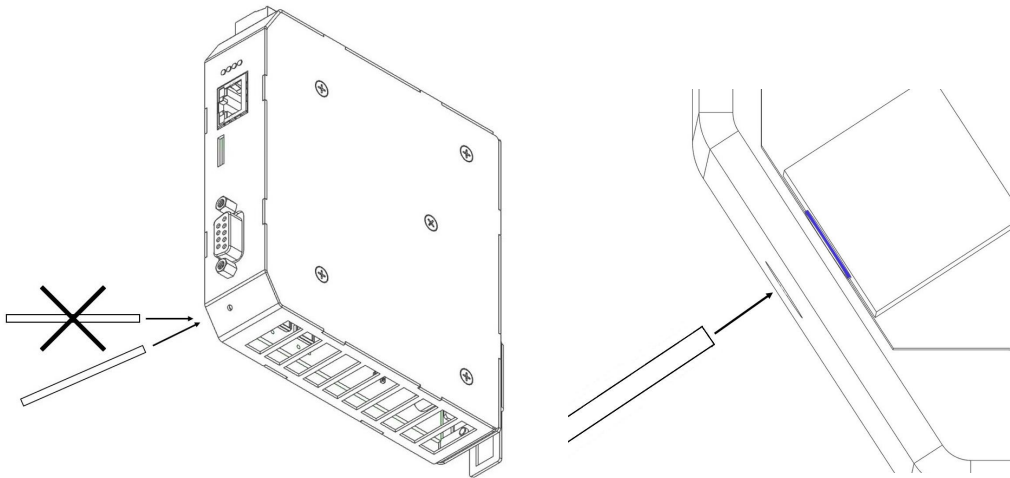


6. Select **Settings** → **Choose Firmware File...** to update the firmware of your smartLink HW-DP. See Chapter [Firmware update](#)<sup>31</sup> for details.



### 3.1.8.2 How to reset the device to factory default

1. Insert the tip of a metal pin, of a pen or the end of an unwound paper clip into the hole of the reset button as shown.



2. Press the reset button very carefully while reconnecting and powering up the device again and hold the button until the [RUN LED](#)<sup>11</sup> turns red and is flashing fast.
3. Release the reset button.  
The smartLink HW-DP is restarting.
4. Press the reset button and hold for about 15 seconds until the two LEDs in the middle (RUN and ERR) are flashing red.
5. Release the reset button.  
When the lights turn off (after about a minute), the smartLink HW-DP is reset and starts in factory mode. First the PWR LED turns yellow. Next the PWR LED turns from yellow to green and the LED RUN turns from red to green.
6. Now update the device with the latest firmware. See Chapter [Firmware update](#)<sup>31</sup> for details.



## 3.2 Software installation

When you install a Softing product for the first time, you will be asked if you trust the publisher. Activate the option **Always trust software from Softing AG** if you do not want to be asked in subsequent installations and select **[Install]** to start the installation.

1. Go to the smartLink HW-DP [product website](#) to download the latest software (Search and Configure, PROFIdtm and smartLink DTM)\*
2. Start by downloading and installing the **Search and Configure** tool.
3. Follow the on-screen installation instructions.
4. Read the license agreement carefully.  
If you have questions, you can **[Cancel]** the installation at this point and contact us. Click **[Print]** if you want to print the license agreement to a PDF or on a printer.
5. Select **I accept the terms in the license agreement** and click **[Next]**.
6. Click **[Install]** to install the selected software application on your PC.  
While the installation is in progress, the status bar of the installation wizard shows the different steps that are being executed. If you want to abort the installation, click **[Cancel]** button. The installation wizard will undo all modifications that have been made to your computer up to this point. Otherwise, wait until the installation is completed.
7. Press **[Finish]** to complete the installation and exit the wizard.



### Note

Proceed with the installation of the other software packages.

- 
- \* Search and Configure: discovery and IP-Configuration of smartLink HW-DP  
PROFIdtm: needed for FDT-Applications (i.e. PACTware, ...) to access PROFIBUS slaves  
smartLink DTM: needed for FDT-Applications (i.e. PACTware, ...) to access HART devices connected to PROFIBUS slaves.

### 3.3 Commissioning

The smartLink HW-DP comes with an integrated web server which is used to configure the device and parameterize the connected PROFIBUS devices. The default IP address of the integrated web server is 192.168.0.10. To access the smartLink HW-DP from your PC, you either have to change the default IP address of the integrated web server to an address on your network or change the IP address on your PC network adapter to match the network address of your device (e.g. 192.168.0.1). Section 4.2<sup>22</sup> and Section 4.3<sup>24</sup> describe how to perform either of the two settings.

#### 3.3.1 Prerequisites

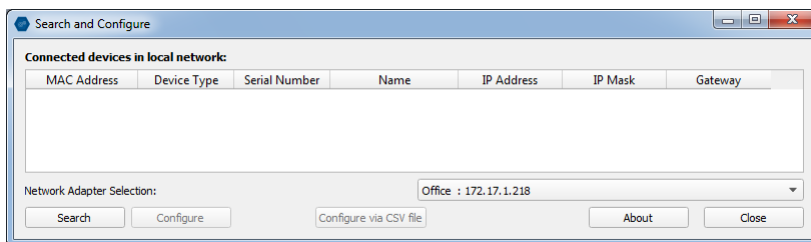
- The smartLink HW-DP is connected with a PC which runs a Chrome or Firefox browser supporting JavaScript.
- Search and Configure tool is installed.

#### 3.3.2 Changing the IP address of a smartLink HW-DP

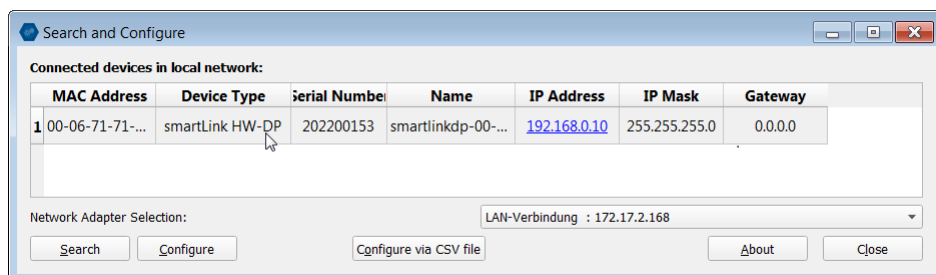
Before you can operate the connected smartLink HW-DP you will have to change the default IP address of your gateway so that your PC can communicate with the integrated web server over the Local Area Network.

The following steps apply to Windows 10.

1. Click **Start** → **Softing** → **Search and Configure**.  
The application window is opened.



2. Click the dropdown list of the **Network Adapter Selection**.  
This selection menu shows all networks of your PC.
3. Select the network adapter which is connected to the smartLink HW-DP .
4. Click **[Search]** to start searching for connected devices.  
The search may take a moment.



5. Select the smartLink HW-DP.

6. Click **[Configure]** or double-click the device.  
The configuration window opens. Here you can change the IP settings.

	New Values	Current Settings
Host name	smartlinkdp-00-202200153.local	smartlinkdp-00-202200153.local
IP address	192.168.0.10	192.168.0.10
Subnet mask	255.255.255.0	255.255.255.0
Default gateway address	0.0.0.0	0.0.0.0
Maintenance IP address		
Use DHCP	<input type="checkbox"/>	<input type="checkbox"/>
FW version		1.00.00.13272
HW version		200
User name	administrator	
Password		

Submit Cancel



### Note

You may also change the hostname. However, ensure that you follow hostname specifications RFC 952 and RFC 1123.

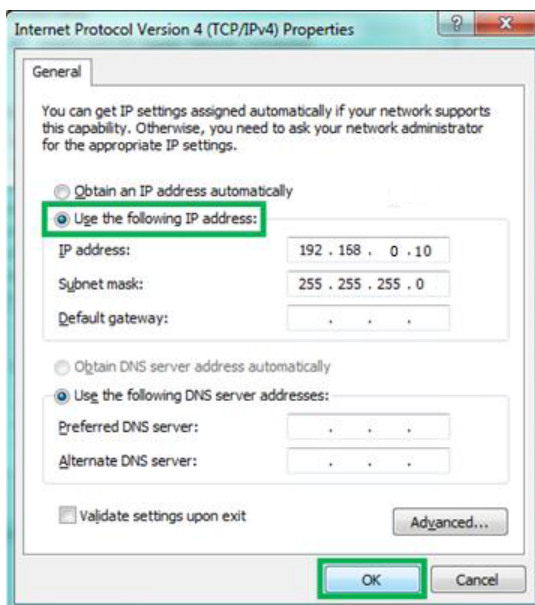
7. Enter a dedicated IP address and subnet mask or click **Use DHCP** to obtain the IP settings from a DHCP server.
8. Enter the **password**.  
Example: **GEA-YN-026000<serialnumber>**  
The serial number can be found on the device, on the packaging and in the Search and Configure tool.
9. Click **[Submit]**.  
The changed settings are written to the device.

### 3.3.3 Setting the IP address of your PC

If you have not changed the IP address of the smartLink HW-DP as described in the previous [Section](#)<sup>22</sup> you will need to configure the IP address of your PC to access the gateway from your PC.

The following chapter describes how to set a static IP address in Windows 10.

1. Click **Start → Windows System → Control Panel** from your task bar.
2. Select **Network and Internet → Network and Sharing Center**.  
A new window opens where you can view your basic network information.
3. Click on your Internet connection (either Ethernet or wireless) next to Connections under **View your active networks**.  
A new window opens.
4. Click **[Properties]**.
5. Select **Internet Protocol Version 4 (TCP/IPv4)**.  
The following window opens.



6. Select **Use the following IP address** and enter a specific IP address and Subnet mask. In our example we use the following settings:  
IP address: 192.168.0.10  
Subnet mask: 255.255.255.0
7. Click **[OK]** to confirm.

### 3.3.4 Login to user interface

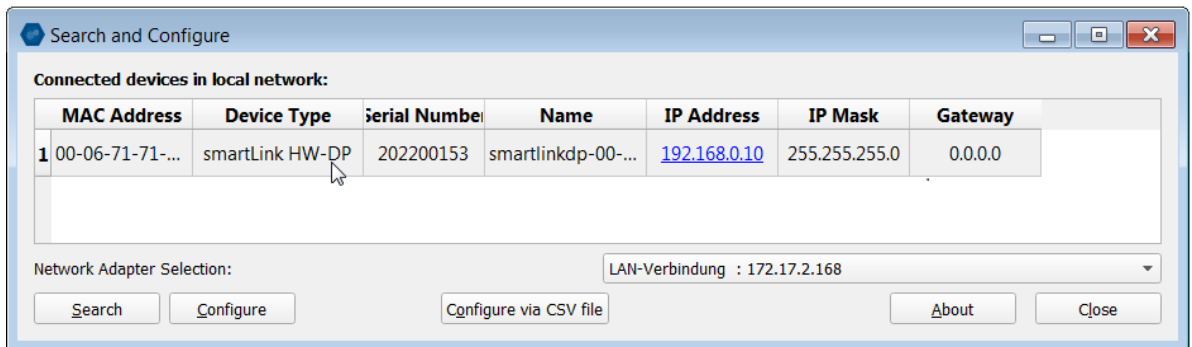
1. Open your Internet browser and enter the IP address of your smartLink HW-DP.



#### Note

If you can't recall the IP address of your gateway, start the [Search And Configure](#)<sup>22</sup> tool to find out what it is (see Step 2).

2. Double-click the IP address of the smartLink HW-DP to launch the login window in your web browser.



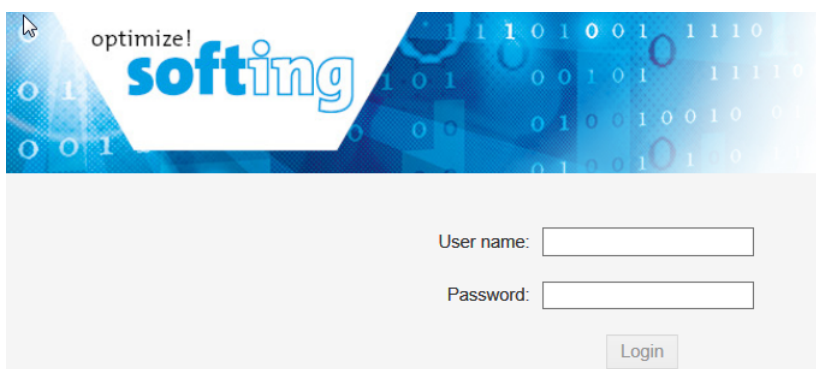
3. Enter **administrator** in the user field and a combination of the prefix **GEA-YN-026000** followed by the serial number.



#### Note

Always use the same prefix **GEA-YN-026000** even if you find a slightly different product number printed on the package label.

Example: **GEA-YN-026000 <serialnumber>**



The web-based interface opens with the login page.

### 3.3.5 Configuring PROFIBUS

See Section [Profibus configuration](#)<sup>44</sup> in Chapter *Working with the user interface* and the [Video tutorial - Integrating and using Softing smartLink HW-DP](#) for more details.

# 4 Working with smartLink HW-DP

The following chapter describes how to connect to the smartLink HW-DP user interface and use the tools and technologies of the Asset Management System manage (configure, parameterize, troubleshoot and maintain) field devices on your network. See also the Video tutorial [Integrating and using Softing smartLink HW-DP](#).



**Note**  
See Section [Log in to user interface](#) <sup>25</sup> for details on how to access the interface..

## 4.1 User interface

### 4.1.1 General functions

All interface windows display the following functions:

#### Restart Device

This function is available only when logged in as administrator or maintenance engineer and is used to restart the gateway remotely as instructed in this user guide or whenever required in ongoing operation.

#### Logout

Select this function to log out as an active user.

#### Auto logout

This default setting logs out the current user from the gateway if the interface has been inactive for 10 minutes.

### 4.1.2 Information

The **Information** window shows detailed product-related information in the menus **System**, **License** and **About**, including the type of gateway hardware, version, bootloader and firmware of your gateway.

#### 4.1.2.1 System

Select **Information** → **System** to view the hardware and software details of your device.

smartLink	Information	Settings	Diagnosis	PROFIBUS	HART IP	OPC UA	MQTT
Views	Device / System						
System	Serial Number						
License	222500609						
About	Firmware Version						
	1.30.00.24980						
	Bootloader Version						
	2.00.00.17230						
	Factory Version						
	2.00.00.17230						
	Hardware Version						
	2.00						
	System ID						
	smartLink HW-DP						
	Host ID						
	#00-06-71-71-02-61#04AF#0D431701#						
	Motherboard						
	Serial Number						
	212400836						
	Firmware Version						
	-						
	Hardware Version						
	1.13						

Parameter	Meaning
Serial Number	Serial number of the gateway.
Firmware Version	Version of the currently running firmware.
Bootloader Version	Version number of the boot loader.
Factory Version	Version number of the factory image.
Hardware Version	Version number of the hardware.
System ID	Device type = smartLink HW-DP
Host ID	This is the ID you will need to request a licence.

#### 4.1.2.2 License

Select **Information** → **License** to view the licenses used by the gateway firmware under an [open source license](#).

#### 4.1.2.3 About

Select **Information** → **About** to show information about Softing and other useful information.

4.1.3 Settings

4.1.3.1 Network

Select **Settings** → **Network** to view and change the TCP/IP settings.



Note

You need to be logged in as [Administrator or Maintenance](#) <sup>29</sup> user to change default settings. If you change the settings you must restart the gateway.

smartLink

InformationSettingsDiagnosisPROFIBUSHART IPOPC UAMQTT

Views

NetworkUser AccountsFirmwareResetHTTPSTime & DateLicensing

TCP/IP Settings

☐ Obtain IP settings from a DHCP server

IP Address192.168.0.10✓

Subnet Mask255.255.255.0✓

Default Gateway0.0.0.0✓

Hostnamefg-x00-202200153.local✓

☒ Enable discover services

The new data is used after a restart of the device

Apply

Parameter	Meaning
Obtain IP address from a DHCP server	The Dynamic Host Configuration Protocol (DHCP) is activated and the IP address is obtained from a DHCP server.
IP address	Internet Protocol (IP) address of the device used for web access.
Subnet mask	Subnet mask of the device used for web access.
Default gateway	Default gateway of the device used for web access.
Hostname	Name of the device used by a name server.
Enable discover services	Check the box to enable <i>Simple Service Discovery Protocol</i> (SSDP) <i>multicast DNS</i> (mDNS) and <i>SearchAndConfigure</i> .
Apply	Click [Apply] to confirm changes made in this window.



### 4.1.3.2 User accounts

In this section you will learn how to change accounts and passwords. As **Administrator** you can create and delete user accounts and also change passwords.

1. Select **Settings** → **User Accounts**.

2. Select a user role in the dropdown menu, assign a user name and enter a **New password** in the corresponding fields according to the password rules.
3. Retype the password in the **Confirm new password** field and click **[Create]** to save the user and password settings.

#### Password rules

A password must contain between eight and 128 characters, including at least 1 lower case letter, 1 upper case letter, 1 number and 1 special character: !"#%&'()\*+,-./:;<=>?@[\\]^\_`{|}~

#### Changing the password

1. Enter the user name of the account for which you want to change the password.
2. Enter the **Old password**.
3. Enter the **New password**.
4. Retype the password in the **Confirm new password** field and click **[Change]** to save the new password settings.

## Deleting an account

1. Enter the user name of the account which you want to delete.
2. Click **[Delete]** to erase the account settings and all remove the user.

The following table shows the user roles and corresponding permissions:

Permission	Administrator	Diagnostic	Maintenance	Observer
Create and delete accounts	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Change all passwords	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Change own password	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Configuring gateway	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Reading configuration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reading diagnostics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Updating firmware	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Resetting gateway	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Installing HTTPS certificates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		



### Note

The user role *Diagnostic* is not required for daily operations. It is reserved for internal purposes such as troubleshooting. Softing Support may ask you to add a user with this role to obtain more details of your smartLink HW-DP.

#### 4.1.3.3 Firmware update

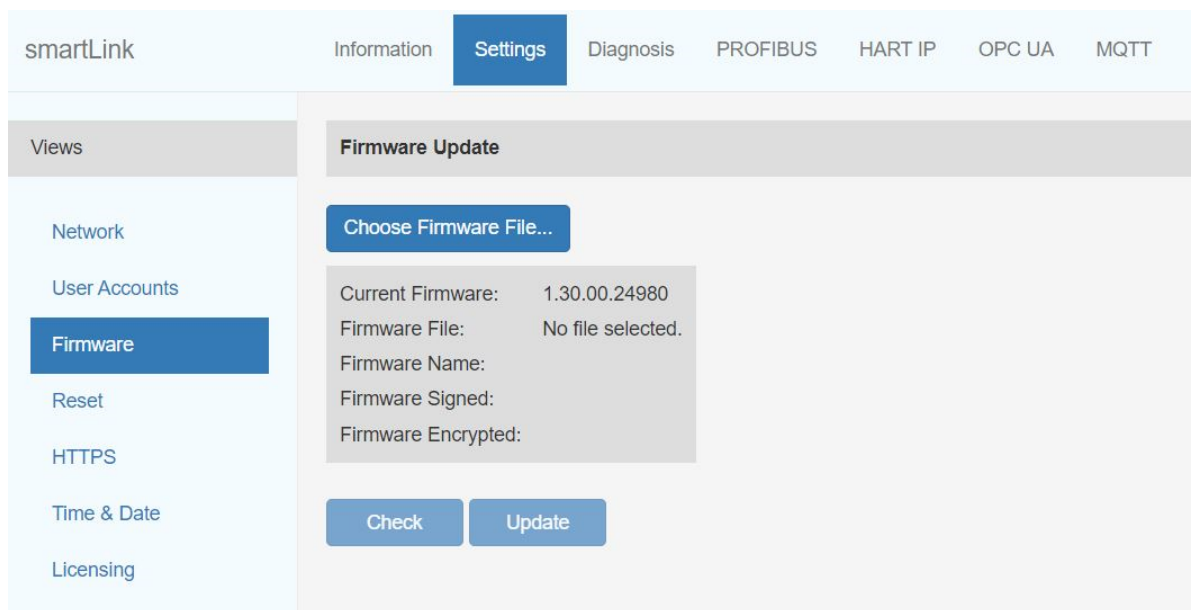
The gateway comes with pre-installed firmware (factory version) which is maintained and updated to continuously enhance the functionality of the device. To ensure that your smartLink HW-DP is running the latest firmware version check for the latest version in the Softing [Download Center](#). Bear in mind that the smartLink HW-DP cannot be downgraded to a previous version.



##### Note

You need to be logged in as user [administrator](#)<sup>29</sup> or diagnostic.

1. Download the firmware update to your computer.  
When you are downloading from this site for the first time you will have to register yourself in a few steps.
2. Log on to the web interface of the gateway.
3. Select **Settings** → **Firmware** in the side bar navigation.
4. Click **[Choose Firmware File...]** and select the file *firmware.bin* from the firmware update you downloaded.

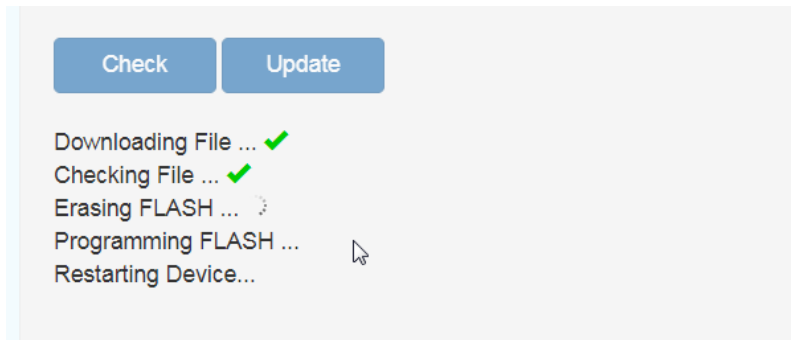


5. Click **[Update]** to install the latest firmware and **[OK]** in the message window. The update progress is shown beneath the update button.



##### Hint

Click **[Check]** to verify if the file you have chosen is a valid firmware file.



The system performs a firmware file check. The download starts automatically. When the download is completed the smartLink HW-DP will be rebooted. When the boot process is completed, the RUN LED is ON.

**Note**

After the gateway has rebooted you are automatically forwarded to the login page. If this fails press F5 to reload the web page.

**Note**

If anything goes terribly wrong during the firmware update you can always repeat the firmware update.

#### 4.1.3.4 Reset

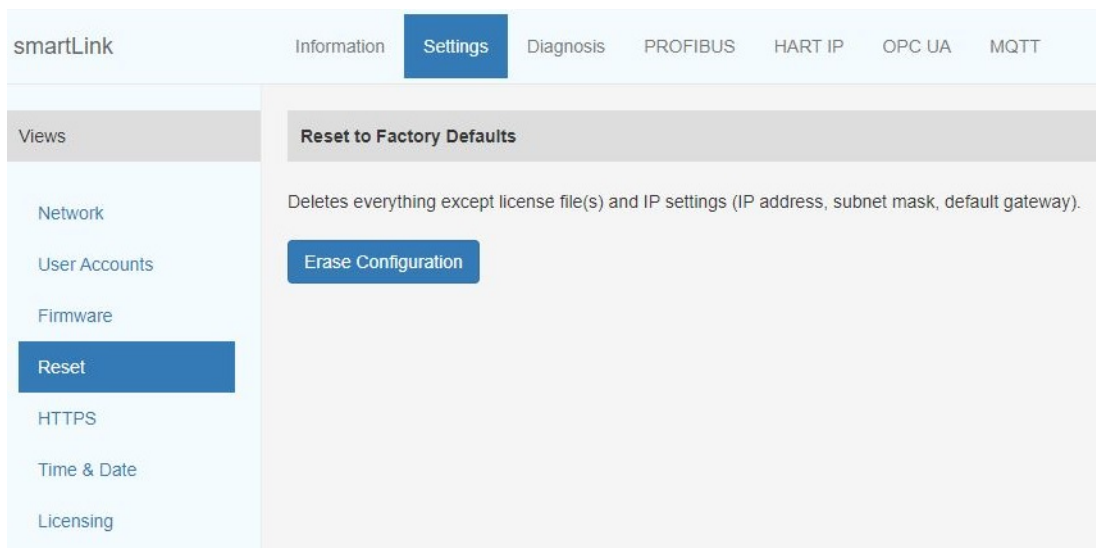
Unlike the factory reset (hard reset) described in Chapter *Hardware Installation*, this soft reset deletes the configuration of your smartLink HW-DP and restores the factory settings of your gateway.

1. Select **Settings** → **Reset** in the side bar navigation
2. Select **[Erase Configuration]** to reset your device to default settings.



#### Note

You need to be logged in as [administrator](#)<sup>29</sup>.



3. Click **[OK]** to confirm your selection.  
Your smartLink HW-DP will be restarted with the default settings. License files and IP settings will not be deleted.



#### Note


The password is reset to the [default password](#)<sup>25</sup>.

4.1.3.5 HTTPS

If you access the device on an HTTPS connection, make sure a trusted certificate is used. You can check easily if the IP address of your gateway is secured by a certificate. Most web browsers typically display a padlock icon in the address bar to indicate that a secured HTTP connection is used. Click on the icon to find out which type of security and certificate is used.

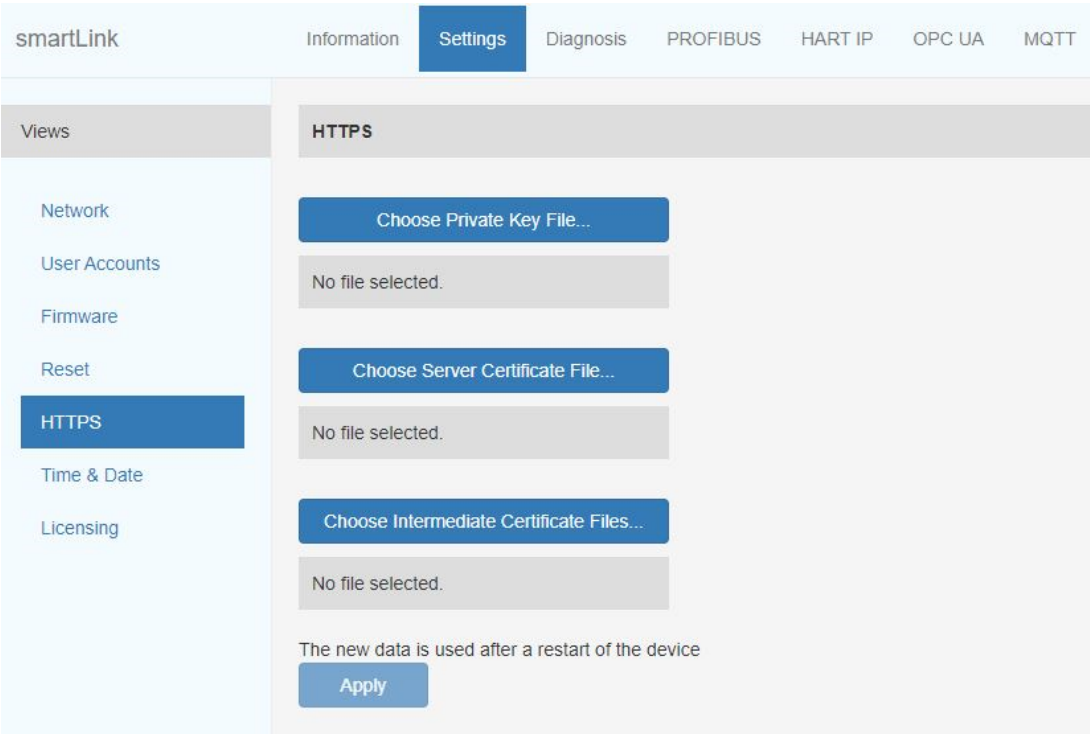
smartLink HW-DP uses Open SSL V1.0.2 for TLS 1.2 with a self-signed Softing certificate. If you want to use a different certificate to secure your gateway, select **Settings** → **HTTPS** and choose the upload options to install a private key, server certificate file and intermediate certificate files.

When you configure the HTTPS settings the initially installed self-signed certificate is replaced. You can restore the original certificate by resetting the default gateway configuration (**Settings** → **Reset** → **Erase Configuration**).




**Note**

You need to be logged in as [administrator](#)<sup>29</sup> to change the HTTPS settings.



Parameter	Meaning
Choose private key file...	Install the private key file, containing the private key, generated simultaneously with the certificate signing request.
Choose server certificate file...	Install the server certificate file.
Choose Intermediate Certificate Files...	Optional for installing necessary intermediate certificate files.
Apply	Click button to activate your settings.



**Note**

If you change the settings you must restart the gateway.

**Note**

If you are experiencing problems with certificates, please update your web browser first with the most recent version before contacting Softing support.

**Note**

As your web browser might use cached data, please refresh the browser after rebooting the gateway.

#### 4.1.3.6 Time & Date

Select **Settings** → **Time & Date** in the side bar navigation to set the time and date of your smartLink HW-DP.

1. Click **[Set time from browser]** to synchronize the gateway with the PC date and time manually.
2. Click **[Use time server]** and enter the IP address of your time server to synchronize date and time automatically.

Parameter	Meaning
Browser time (UTC)	The time set on the PC.
Device time (UTC)	The time set on the gateway.
NTP server	IP address of a Network Time Protocol (NTP) server used for time synchronisation.
Time server	The time can be set either manually or using a time server.

#### **4.1.3.7 Licensing**

You will need a license for each HART or PROFIBUS device to which you intend to connect over the network. A license is a unique key tied to the serial number of your gateway. It cannot be migrated or run on another smartLink HW-DP. Each HART and PROFIBUS device requires an individual license. Assuming that a license is installed and you have activated HART IP in the user interface, your HART device is automatically licensed though a system scan running constantly in the background. Similarly, a PROFIBUS device is licensed if you have activated OPC UA and/or MQTT in the user interface or if the license has been accessed via PDM or PROFIdtm.


A license for HART Device Support is needed by any Asset Management Tool to parameterize and/or monitor HART devices. Licenses for PROFIBUS Slave Support are needed by any PROFIBUS Asset Management Tool to parameterize and/or monitor PROFIBUS slaves. They are also needed to retrieve process data and diagnosis data from PROFIBUS slaves via OPC UA. Each license is tied to a PROFIBUS slave and can be used for Asset Management and for OPC UA at the same time.

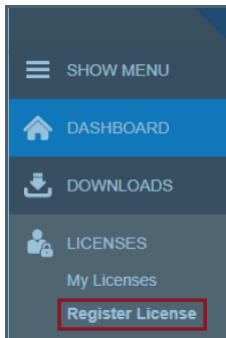
A license which is assigned to a specific device can only be reassigned to a different device, after your smartLink HW-DP has been switched off. If a HART device is removed, its license can be assigned to another HART device if necessary after deactivating and reactivating HART IP. If a PROFIBUS device is removed, its license can only be assigned to a PROFIBUS device with the same station address (it does not matter if it is the same device or a different one as only the station address counts).

If your smartLink HW-DP has no license or you wish to connect to more than one HART device than you have previously licensed, please contact Softing Support.



## How to register a license

1. Go to the Softing Industrial website and click the  icon in the upper right corner to register yourself or select this [My Softing Portal](#) link. When you are registered and logged in you are directed to the **My Softing Dashboard**.
2. Select **Licenses** → **Register License** in the side menu.



3. Enter the license key from your License Certificate in the license key input field. You will find the license key on the certificate you have received by email.

### Register License

Please enter your License Key and your Host ID. If you want to get notified in case of new releases, just check enable release info.

Activate License:

License Key

12345-ABCDE-67890-FGHIJ

Device/Host ID

☐ Enable Release Info

Register License

Cancel

4. Select **Information** → [System](#) <sup>26</sup>.
5. Highlight and copy the Host ID from the Device/System table.
6. Paste the Host ID into the Device/Host ID field of the Register License form.
7. Click **[Register License]**.  
A license file is generated.
8. Click **[Download]** to save the license file to your PC.

## How to install a license

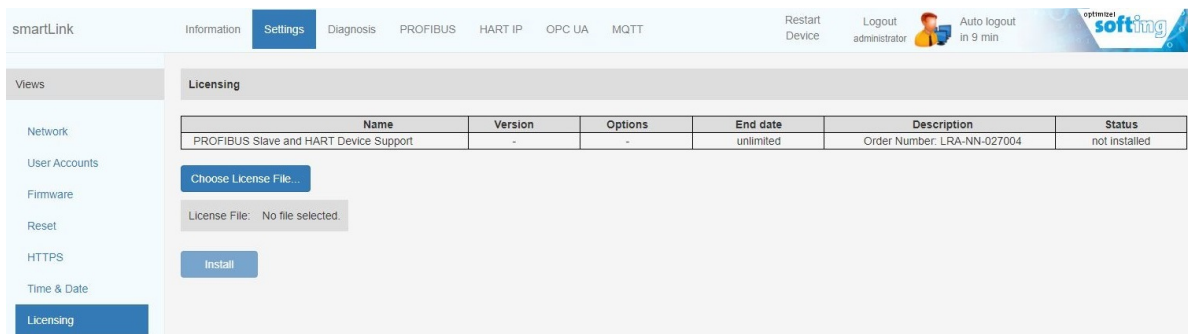


### Note

If you only want to access HART devices you do not require licenses for PROFIBUS Slave Support and vice versa.

To install a license file follow these steps:

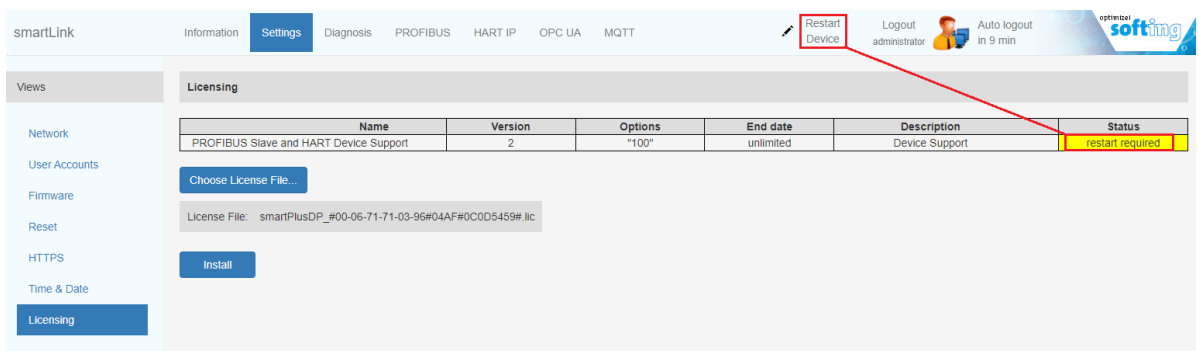
1. Select **Settings** → **Licensing** in the side bar navigation.



2. Click the **[Choose License File]** button.  
Windows Explorer will open.
3. Go to the directory to which you have saved the file.
4. Select the license file and click **[Open]** in Windows Explorer.  
The license file is now shown under the **[Choose License File]** button.
5. Click the **[Install]** button.  
When the license has been installed, the following message appears at the bottom of the window.

Update License Info 1055: The license has been successfully updated.

In the Licensing window, the table entries for HART Device Support will have changed.



Parameter	Meaning
Version	A support number (for internal use only).
Options	Total number of supported HART devices.

End Date	The date on which the license expires. Generally all licenses are unlimited.
Description	Before a license is installed, this field displays the license order number.
Status	Before a license is installed, the field displays "not installed". When a license has been installed it shows "restart required" against a yellow background. After the gateway has been restarted it shows "installed" against a green background.

6. Click **Restart Device** in the top menu of the window.  
The following message will appear.

smartLink HW-DP

smartLink HW-DP will be restarted.

All applied configuration data will be used.

Continue and restart?

OK Cancel

7. Click **OK**.  
Now the status column will show "installed" meaning the license is activated.

The screenshot shows the smartLink HW-DP web interface. The top navigation bar includes tabs for Information, Settings, Diagnosis, PROFIBUS, HART IP, OPC UA, and MQTT. The left sidebar lists various settings categories: Network, User Accounts, Firmware, Reset, HTTPS, Time & Date, and Licensing (which is currently selected). The main content area displays the Licensing section, which includes a table with the following data:

Name	Version	Options	End date	Description	Status
PROFIBUS Slave and HART Device Support	2	"100"	unlimited	Device Support	installed

Below the table, there is a "Choose License File..." button, a text field showing "License File: No file selected.", and an "Install" button.

For details on how to save a copy of your license, see **Diagnosis** → [Log File](#) <sup>41</sup>

#### 4.1.4 Diagnosis



##### Note

The menu **Diagnosis** including all submenus **Settings, Log File, Threads, Status, Live List** is reserved for Softing Support to help Expert users analyse system data.

##### 4.1.4.1 Settings

Select **Diagnosis → Settings** to view gateway settings and log file values. The settings can be viewed in any role. To change the settings you must have administration rights.

Parameter	Meaning
Log File Priority	Available values: Emergency, Alert, Critical, Error, Warning, Notice, Information. All messages with the set priority or higher are logged. The log file is shown under <b>Diagnosis → Settings</b>
Log File Facility	Tick the checkbox for the protocol layer you want to write to the log file.
Send Syslog Messages	Activates additional debug logging and sends the information to the network. Can be logged with wireshark, Visual Syslog Server or similar applications.
Apply	Click the Apply button to activate your settings. The data is written to the log file.

#### 4.1.4.2 Log File

Select **Diagnosis** → **Log File** to view log files and backup file including HART licenses . You can also filter the diagnostic log by ticking and unticking the checkboxes of the different priorities. This only affects the display of the log and not the settings of the log file priority under **Diagnosis** → **Settings**.



#### Note

Use the button **[Support Data]** to save all PROFIBUS and HART IP connection status data and mapping data to a file. The information contained in this file may provide Softing Support with valuable information to address and fix potential issues.

Parameter	Meaning
EMERGENCY, ALERT, CRITICAL, ERROR, WARNING, NOTICE, INFORMATION	Tick the check boxes to set a display filter.
Clear	Click this button to delete the log file entries.
Refresh	Click this button to update the message log entries.
Support Data	Click this button to upload a collection of all available logs for support requests.

#### Saving a license

1. Click the **[Refresh]** button at the top to update the table contents.
2. Click the **[Support Data]** button.  
A zip file containing all data including the licenses of the device data is created.
3. Open the zip file to find the license key file for this gateway.

#### 4.1.4.3 Threads

Select **Diagnosis** → **Threads** to view the current state of the threads. The list you will see and the details contained may not be of any use to you but helps Softing support to diagnose device and performance errors.

smartLink

Information

Settings

Diagnosis

PROFIBUS

HART IP

OPC UA

MQTT

Restart Device

Logout administrator

Auto logout in 9 min

softing

Views

Threads

Settings

Log File

Threads

Status

Live List

Id	Name	State	Set Priority	Current Priority	Stack Base	Stack Size	Stack Used
1	Idle Thread	RUNNABLE	31	31	0x01F08168	2048	248
2	Idle Thread	RUNNABLE	31	31	0x01F08968	2048	248
3	Clock mgmt	SLEEP	20	20	0x01F1B310	7936	536
4	main	SLEEP	10	10	0x01F09B38	12000	1520
5	FG-2xx led	SLEEP	30	30	0x00D1FD6C	4096	408
6	fh2 gc thread	SLEEP	30	30	0x01FF7858	4096	360
7	FG-2xx ffs	SLEEP	30	30	0x01C2293C	16384	364
8	SysLog	SLEEP	30	30	0x01F15F6C	4096	284
9	FG-2xx ecc	SLEEP	30	30	0x01C3B4D4	4096	228
10	FG-2xx firmware	SLEEP	27	27	0x01C20F8C	4096	292
11	FG-2xx capture	SLEEP	27	27	0x01C491EC	4096	296
12	FG-2xx console worker	SLEEP	25	25	0x01C442BC	8192	856

#### 4.1.4.4 Status

Select **Diagnosis** → **Status** to view the smartLink HW-DP diagnostic data.

smartLink

Information

Settings

Diagnosis

PROFIBUS

HART IP

OPC UA

MQTT

Restart Device

Logout administrator

Auto logout in 9 min

softing

Views

Status

Refresh1 s

Settings

Log File

Threads

Status

Live List

Uptime00:07:44

CPU Load (0.1s)3 % / 0 %

CPU Load (1s)2 % / 0 %

CPU Load (10s)3 % / 0 %

CPU IRQ (0.1s)188 / 14

CPU IRQ (1s)206 / 31

CPU IRQ (10s)211 / 35

RAM size480 MB

RAM static31.859 MB

RAM dynamic used1.06 MB

RAM dynamic free447.081 MB

Current Temperature36 °C

#### 4.1.4.5 Live List

Select **Diagnosis → Live List** to see a list of all connected HART devices, the number of assigned licenses (shown as HART IP for access to HART devices and the remaining connections to PROFIBUS devices) and unassigned licenses. By clicking **[Reassign Licenses]** you will reassign all licenses. This will entail a restart of your smartLink HW-DP.



#### Note

Reassigning licenses is only necessary if there are not enough licenses available.

After smartLink HW-DP has finished booting, it starts scanning the PROFIBUS network for Remote IOs (RIOs) and displays a list with all active (live) HART devices.

Views

Settings

Log File

Threads

Status

Live List

Live List
47 HART device(s)
License(s) occupied: 47 by HART IP, 18 by MQTT, OPC UA and PDM / DTM
License(s) remaining: 310
Reassign Licenses
Refresh

4 HART device(s)

licensed	Channel	Long Tag / Message	HART Long Address	Distributor	Device Type	Device Revision	Command Revision
✓	0	ABB-CI801_35.1.0	ad e9 1e 88 89	006d (PR Electronics)	6de9	1	7
✓	1	ABB-CI801_35.1.1	ad ef 1e ec 5c	006d (PR Electronics)	6def	1	5
✓	2	ABB-CI801_35.1.2	9a 0b a8 c0 1c	001a (ABB)	1a0b	2	5
✓	3	ABB-CI801_35.1.3	ad e9 1e 88 ab	006d (PR Electronics)	6de9	1	7

4 HART Module (Segment DP1, Slave 35, Slot 2 = Card 35)

Segment: Segment DP1  
Slave Address: 35  
Slot: 2  
I/O channels: 8

1 HART device(s)

licensed	Channel	Long Tag / Message	HART Long Address	Distributor	Device Type	Device Revision	Command Revision
✓	0	ABB-CI801_35.2.0	93 03 5d be 4f	0013 (Fisher Controls Intl LLC)	1303	2	5


4 HART Module (Segment DP1, Slave 40, Slot 4 = Card 40)

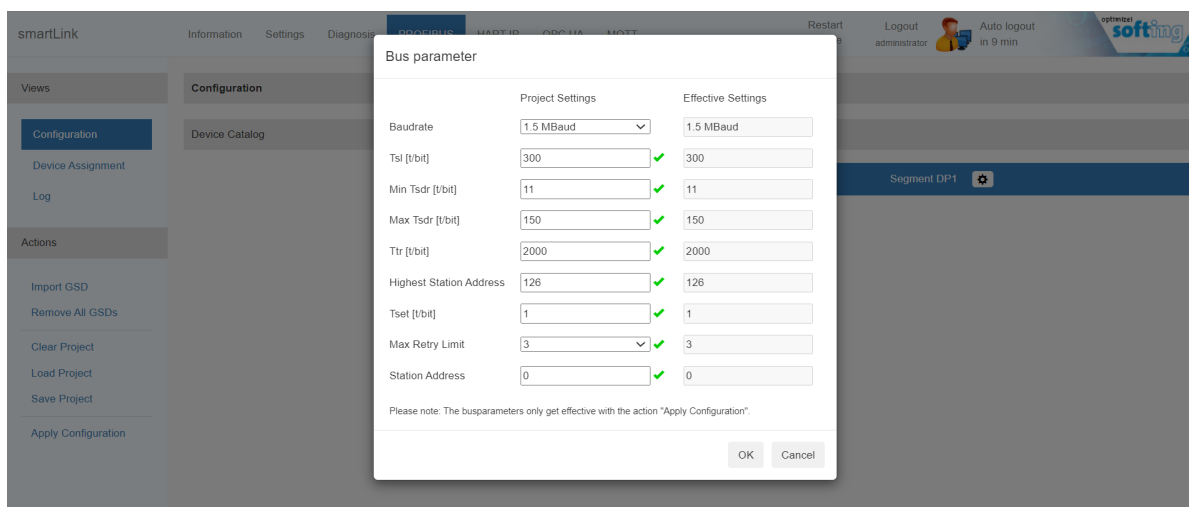
Segment: Segment DP1  
Slave Address: 40  
Slot: 4

## 4.1.5 PROFIBUS

### 4.1.5.1 Configuration

This section describes how to configure the PROFIBUS bus parameters of the smartLink HW-DP. You need to be logged in as [Administrator or Maintenance](#) <sup>29</sup> User.

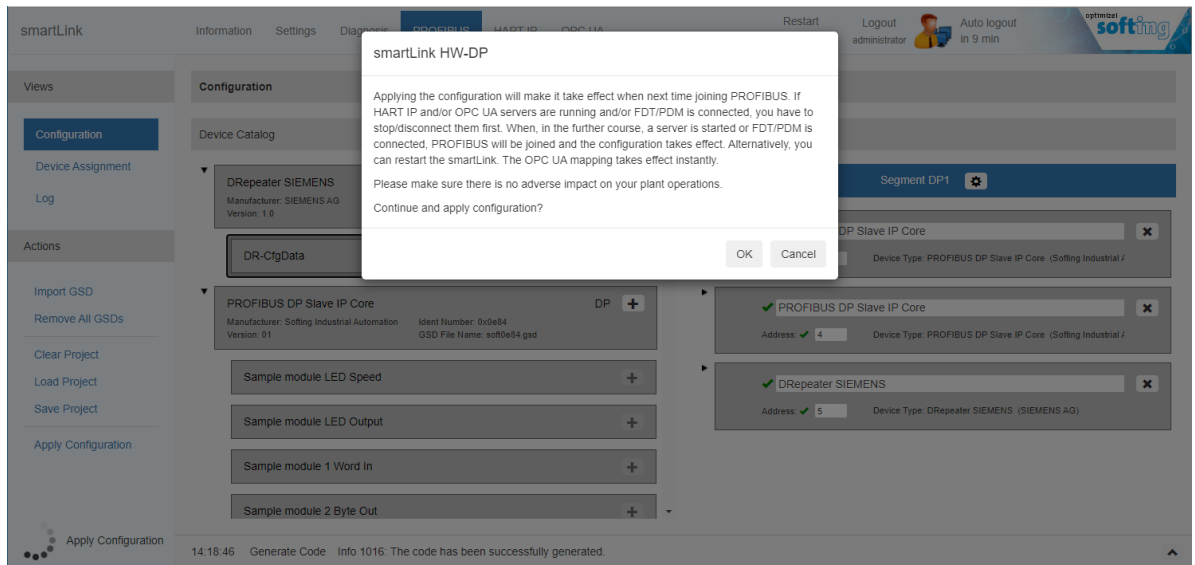
1. Select **PROFIBUS** → **Configuration**.
2. Click the **icon**  to open the PROFIBUS bus parameters window.  
The Project Settings are default settings. For each baud rate you can select from the dropdown list the smartLink HW-DP will suggest default Project Settings.
3. Set the parameters according to your network environment requirements. Ensure that the baud rate is set correctly and that the station address does not conflict with an address in the PROFIBUS network.



Terms /Abbreviations	Meaning
Project Settings	This column shows the bus parameters of the current project.
Effective Settings	This column shows bus parameters currently in use.
Baudrate	The rate at which data is transferred in a PROFIBUS communication segment. "1.5MBaud" means that segment can transfer a maximum of 1.5 megabits per second.
Tsl	<b>Slot Time:</b> This time determines the maximum time the sender waits for a response from the addressed device.
Min TsdR	<b>Minimum Station Delay Responder:</b> The time that the slave must wait before it may respond to a request from the master. The default value is $11t_{Bit}$ .
Max TsdR	<b>Maximum Station Delay Responder:</b> The time in which the slave must respond to a request from the master. The value range is set between 60 and $800t_{Bit}$ .
Ttr	<b>Target Rotation Time:</b> This time is the maximum time available for one Token rotation. In this time span, all DP masters receive the Token once.
Highest Station Address	Indicates the highest valid device address in the PROFIBUS network.
Tset	<b>Setup Time:</b> This is the time that may pass between receiving a data telegram and the respective reaction within a device.
Max Retry Limit	The total number of retries.
Station Address	This is the address of the gateway connecting to the PROFIBUS network.



4. Click **[Ok]** to close the window.
5. Click **[Apply Configuration]** in the side menu



Actions	Meaning
Import GSD	Import GSD device description file to device catalog.
Remove all GSDs	Deletes all previously imported GSDs.
Clear Configuration	Deletes all configured devices.
Load Configuration	Loads a previously saved configuration.
Save Configuration	Saves the configuration to a file.
Apply Configuration	Activates the configuration at the PROFIBUS masters.



#### Note

If you plan to configure slave devices for an OPC UA communication you will need to execute **Import GSD** under Actions in the side menu.



#### Note

If you are re-configuring the PROFIBUS setup on the smartLink, the numbering of the slots will no longer match the slot numbering in the live list. The PROFIBUS configuration is based on the .gsd file of the manufacturer.


#### 4.1.5.2 Device assignment

The PROFIBUS network can be accessed through multiple clients in parallel. As any parallel access of the same slave may create an undefined state, each Ethernet interface of the smartLink HW-DP can be configured with a designated PROFIBUS device address range. So clients connecting to the network via smartLink HW-DP only see devices which are assigned to the interface they are using.

1. Select **PROFIBUS → Device Assignment**.
2. Click **[Add]** to define an address range for the PROFIBUS devices.
3. Click **[Apply]**.



#### Note

To add address ranges to make sure that the PROFIBUS bus parameters are set and the DP1 segment is deactivated. Overlapping address ranges are indicated by the icon .

#### 4.1.5.3 Log

The PROFIBUS log represents the state of the PROFIBUS connection. The data helps Softing Support troubleshoot a connection problem.

Timestamp (UTC)	Segment	Address	State	Status
2023-04-13 12:55:19.644148	DP1	3	Online Stop	Ok
2023-04-13 12:55:19.643219	DP1	3	Offline	Configured

Click **[Refresh]** to update the PROFIBUS log.

## 4.1.6 HART IP

### 4.1.6.1 Settings

1. Select **HART IP** → **Settings** to see the current settings.
2. Enter an alternate **port number** if required. The communication is typically run on the default port **5094**. Set the alternate port to use a different port if the default port is already occupied by another protocol.
3. Tick the checkbox for **Add Remote IOs to Network Topology** to start the PROFIBUS slave hosting the Remote IO .
4. Tick the checkbox **Segment DP1** to start the HART IP server and PROFIBUS.
5. Click **[Apply]** to confirm and activate your settings.

The screenshot shows the 'HART IP Settings' page in the smartLink interface. The left sidebar has 'Settings' selected. The main area contains the following settings:

Setting	Value	Status
IP Address	192.168.0.10	
Subnet Mask	255.255.255.0	
Default Gateway	0.0.0.0	
Default Port	5094	
Alternate Port	0	✓
Long Tag	#00-06-71-71-02-61#04AF#0D4K	✓
Add Remote IOs to Network Topology	<input checked="" type="checkbox"/>	
Start HART IP server for	<input type="checkbox"/> Segment DP1	

An 'Apply' button is located at the bottom of the settings area.

### 4.1.6.2 Log

Select **HART IP** → **Log** to see details of the HART IP communication activity. This log file is typically used by Softing support for troubleshooting a problem.

The screenshot shows the 'HART IP Log' page in the smartLink interface. The left sidebar has 'Log' selected. The main area displays a table of communication activity logs:

Timestamp (UTC)	Session	Status
2023-04-27 12:14:48.046191	0	Session initialized with Keep Alive Time 420000
2023-04-27 12:12:04.292736	0	Session closed KeepAliveTime expired
2023-04-27 09:49:35.381433	0	Session initialized with Keep Alive Time 420000
2023-04-27 09:05:29.924423	0	Session closed KeepAliveTime expired
2023-04-27 08:49:18.742929	0	Session initialized with Keep Alive Time 420000
2023-04-27 07:58:58.233229	0	Session closed KeepAliveTime expired
2023-04-27 04:49:10.388923	0	Session initialized with Keep Alive Time 420000

## 4.1.7 OPC UA

If you want to connect to PROFIBUS DP devices using OPC UA communication make sure you have installed the GSDs of the field devices and configured the field devices.

### 4.1.7.1 Settings

1. Select **OPC UA → Settings** to see the current settings.
2. Enter a port number or keep the default port number. The OPC UA communication is typically run on the default port **4880**. Use an alternate port if the default port is already taken by another protocol.
3. Tick the checkbox **Segment DP1** to start the OPC UA server and PROFIBUS.
4. Click **[Apply]** to confirm and activate your settings.

The screenshot shows the 'smartLink' interface with the 'OPC UA' tab selected. Under 'Views', 'Settings' is chosen. The 'OPC UA Settings' section contains a 'Port' input field with the value '4840' and a green checkmark. Below it, the 'Start OPC UA server for' checkbox is checked, and 'Segment DP1' is selected. An 'Apply' button is present. At the bottom, the 'Server Endpoint' is shown as 'opc.tcp://192.168.0.3:4840/Softing/smartLinkHW-DP'.

### 4.1.7.2 Mapping

Select **OPC UA → Mapping** to see details of the PROFIBUS to OPC UA mapping.

The screenshot shows the 'smartLink' interface with the 'OPC UA' tab selected. Under 'Views', 'Mapping' is chosen. The 'OPC UA Mapping' section displays two tables: 'Input Data' and 'Output Data'.

**Input Data**

Tag	Data Type	Segment	Slave Address	Device Name	Device Tag	Slot	Channel Id	Data Offset
Sample module LED Speed_IN_1	ByteString	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	1	1	0
Sample module 1 Word In_IN_1	ByteString	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	3	1	1
Sample module 1 Word In/Out_IN_2	ByteString	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	5	2	3

**Output Data**

Tag	Data Type	Segment	Slave Address	Device Name	Device Tag	Slot	Channel Id	Data Offset
DR-CfgData_OUT_1	ByteString	DP1	3	DRepeater SIEMENS	DRepeater SIEMENS	1	1	0
Sample module LED Output_OUT_1	ByteString	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	2	1	0
Sample module 2 Byte Out_OUT_1	Byte	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	4	1	1
Sample module 2 Byte Out_OUT_2	Byte	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	4	2	2
Sample module 1 Word In/Out_OUT_1	ByteString	DP1	4	PROFIBUS DP Slave IP Core	PROFIBUS DP Slave IP Core	5	1	3

### 4.1.8 MQTT

MQTT is a lightweight, publish-subscribe network protocol that transports messages between devices, suitable for transmitting data to the cloud. smartLink HW-DP uses MQTT to send asset and diagnostics data of PROFIBUS devices. You can connect arbitrary MQTT client applications to process this information.

Using Softing's **plantPerfect Monitor**, you can visualize asset and diagnostic monitoring of your PROFIBUS devices in a DP network.

#### 4.1.8.1 Settings

1. Select **MQTT → Settings** to see the current settings.
2. Enter the **IP address** of the MQTTbroker.
3. Select the **Transport Protocol**.
4. Enter a port number in the **Port of MQTT Broker** field or keep the default port number. The MQTT communication is typically run on the default port **1883**.
5. Select the **Publishing Mode** from the drop down menu.
6. Tick the checkbox **Segment DP1** to start the MQTT client and PROFIBUS.
7. Click **[Apply]** to confirm and activate your settings.

The screenshot shows the 'MQTT Settings' page in the smartLink interface. The left sidebar has 'Settings' selected. The main area contains the following settings:

- IP Address of MQTT Broker: 192.168.0.30 (with a green checkmark)
- Transport Protocol: TCP (dropdown menu)
- Port of MQTT Broker: 1883 (with a green checkmark)
- Publishing Mode: Fast (dropdown menu)
- Start MQTT Client for: Fast (dropdown menu, with 'P1' visible next to it)

An 'Apply' button is located at the bottom of the settings area.

#### 4.1.8.2 Log

Select **MQTT → Log** to see details of the MQTT communication activity. This log file is typically used by Softing support for troubleshooting a problem.

The screenshot shows the 'MQTT Log' page in the smartLink interface. The left sidebar has 'Log' selected. The main area displays a table of MQTT communication events.

Timestamp (UTC)	Event	Details
2021-10-15 07:52:57.007315	Failed to connect to broker	The MQTT broker is not reachable.
2021-10-15 07:52:15.994700	Connecting to broker	
2021-10-15 07:52:15.993338	Started	
2021-10-15 07:52:15.967699	Stopped	

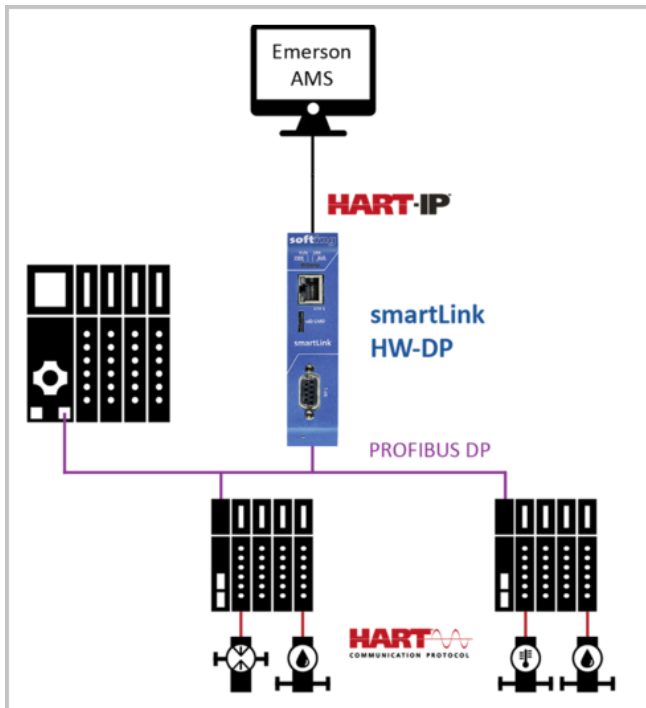
A 'Refresh' button is located in the top right corner of the log table.

## 4.2 Connecting to Emerson AMS Device Manager

For details on how to connect your smartLink HW-DP over HART IP with an Asset Management System (AMS) see Sections [HART IP](#)<sup>47</sup> and [PROFIBUS device assignment](#)<sup>46</sup>.

### 4.2.1 Using Emerson AMS

The following section describes how to configure your network using the Emerson Asset Management System. For details see also the Emerson AMS user manual. Changes to settings and values of HART device (such as names and units) connected to the network are automatically displayed in the [Live List](#)<sup>43</sup> of the smartLink HW-DP user interface.

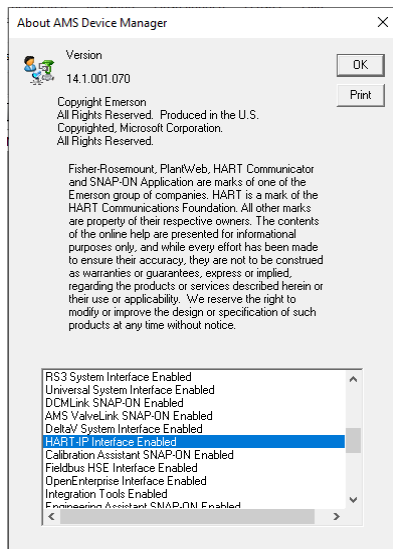


#### 4.2.1.1 Preparations

- You must have Emerson AMS (version 14.1 or later) installed on your PC.
- Your Emerson AMS must have an Emerson HART-IP license.

#### 4.2.1.2 Network configuration

1. Click **Windows Start → AMS Devices Manager → About AMS Device Manager** to verify, if your AMS version supports HART-IP network components. The following window opens.




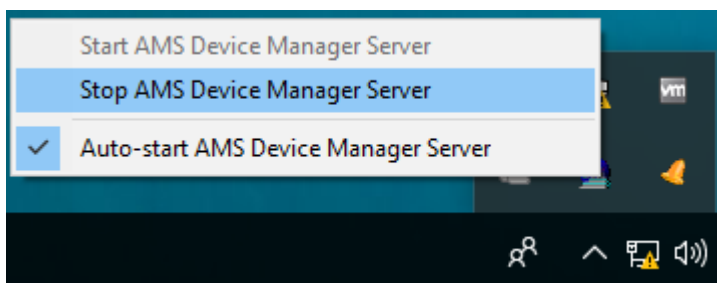
2. Scroll down in the drop-down list to see if you can find **HART-IP Interface Enabled**.




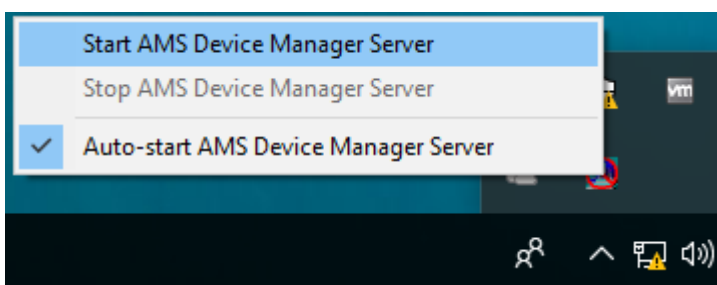
#### Note

You will not be able to configure HART-IP if your AMS version does not have a HART-IP licence.

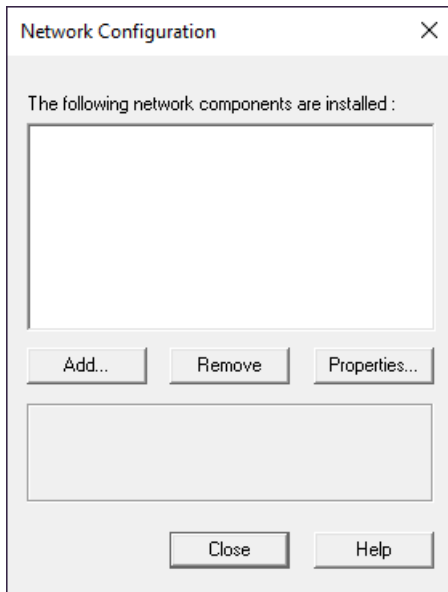
3. Click **[OK]**.
4. Right-click the  icon at the bottom of your screen and to stop the AMS Device Manager Server.



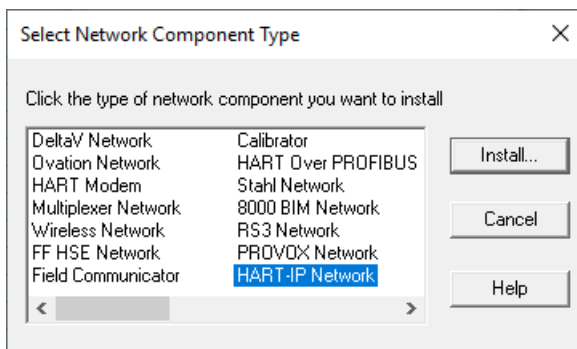
5. Wait Right-click the  icon at the bottom of your screen and to start the AMS Device Manager Server again.



6. Click **Windows Start → AMS Devices Manager → Network Configuration**. The AMS network configuration window opens.

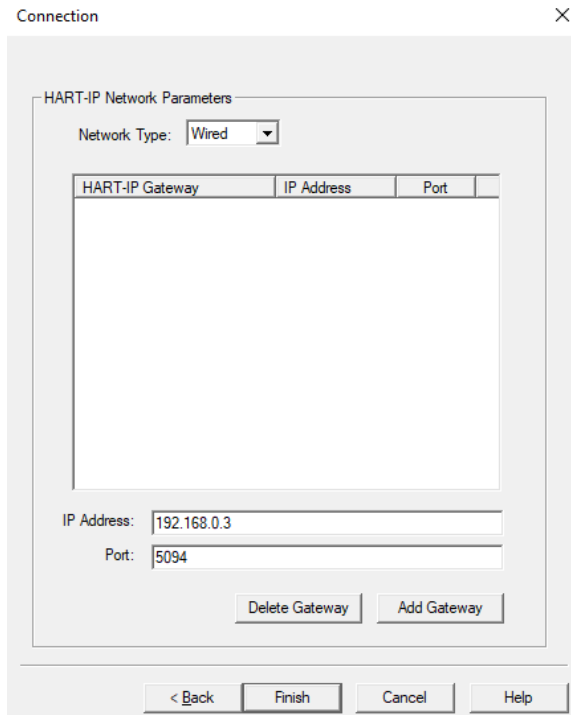


7. Click **[Add]**.
8. Select the component **HART-IP Network** from the list.
9. Click **[Install...]** and follow the wizard on-screen instructions.

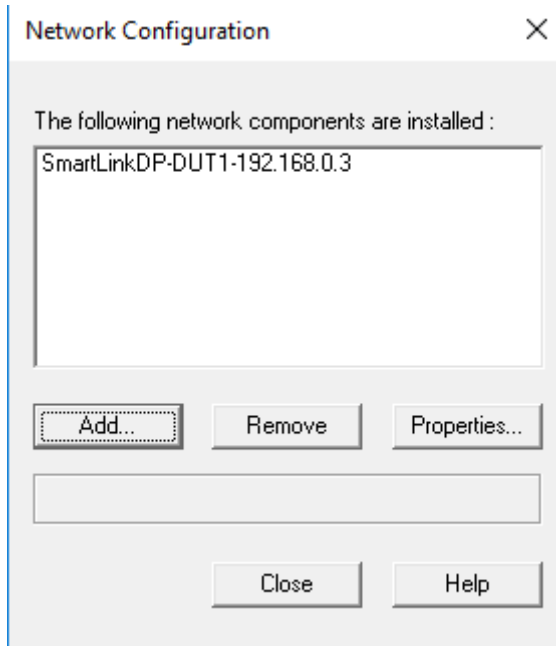


10. Enter the IP address of your smartLink HW-DP.  
Keep the default port 5094.



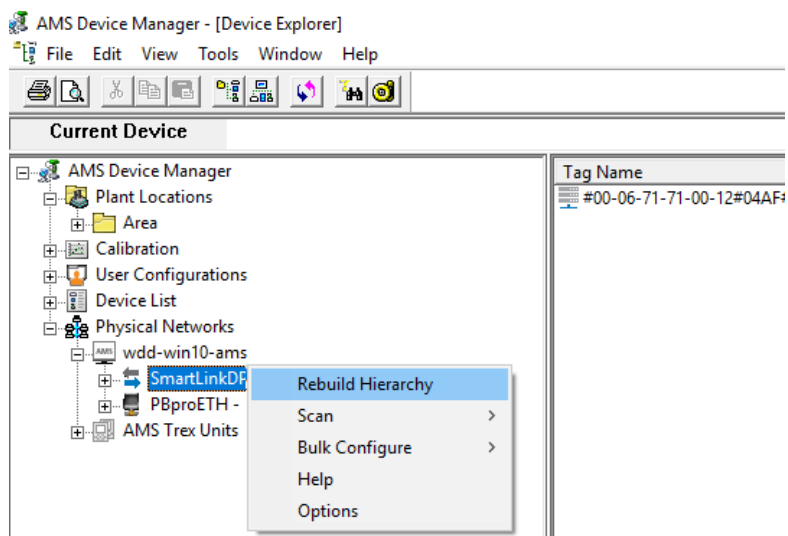


11. Click **[Add Gateway]**.  
The added gateway is shown with the corresponding IP address.
12. Click **[Finish]**.  
Your smartLink HW-DP are now shown as available network components by the name and the corresponding IP address you entered.

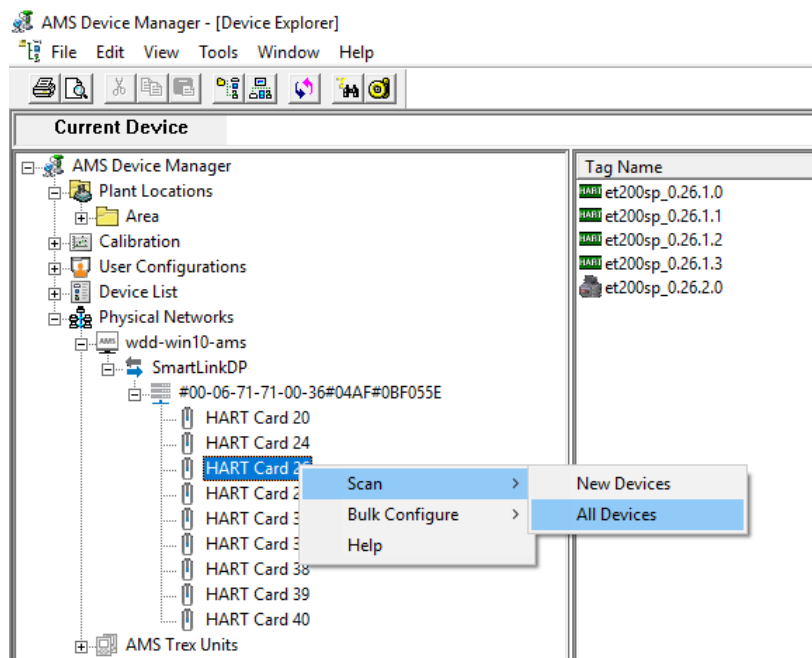


13. Click **[Close]**.

14. Click **Windows Start → AMS Devices Manager → AMS Devices Manager**.  
The AMS device manager window opens.



15. Right-click your gateway (SmartLinkDP) and select **Rebuild Hierarchy**.  
The gateway scans the network for connected PROFIBUS RIOs. When the scan is finished, the SmartLinkDP tree topology shows all PROFIBUS RIOs as HART Cards.
16. Right-click a HART Card and select **Scan → All Devices** to identify connected HART devices.

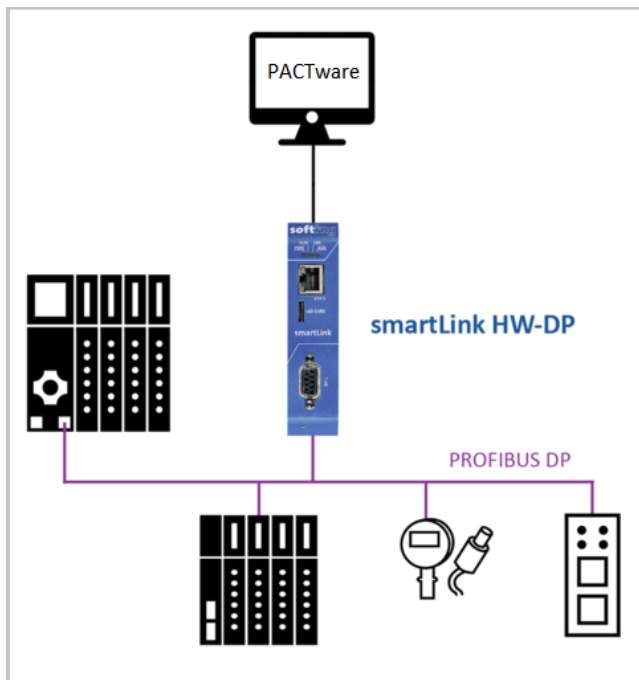


When the scan has finished you can continue configuring the HART Devices. Follow the instructions in the Emerson AMS manual.

## 4.3 Connecting to PACTware

PACTware is an FDT frame application which allows you to view field devices of different suppliers in a graphical interface similar to a browser window. To manage the information of these devices, PACTware uses a Device Type Manager (DTM) within the frame application. The DTM is a software which allows you to access a field device similar to a device driver. It contains the complete logic (data and functions) of the field device. Using DTMs the same device setting procedures can be used in any FDT environment.

For details on how to set PROFIBUS device parameters see the online manual integrated in the most recent PROFIdtm application you downloaded and installed from the product website.



### 4.3.1 PROFIBUS

#### 4.3.1.1 Prerequisites

The default IP address of the built-in web server has been changed to an address on your network or the IP address of your PC has been changed to an IP address corresponding to the network address of your gateway (e.g. 192.168.0.1). See Chapter [Setting the IP address of the PC](#) <sup>24</sup>.


- PACTware 4.1 or any other FDT frame application is installed.
- PROFIdtm is installed.

#### 4.3.1.2 Setting PROFIBUS device parameters with PACTware

##### Installation

- Install the most recent version of PROFIdtm or PDM library from the smartLink HW-DP product website.
- Install the most recent version of smartLink DTM from the product website.

### PROFIBUS Configuration for PROFIdtm and PDM

1. Click the Windows **Start**  button to open the start menu.
2. Select Softing **PROFIBUS → Driver Configuration** to configure the PROFIBUS driver.
3. Allow Windows **User Account Control (UAC)** to modify settings.  
The PROFIBUS Control Panel is opened.
4. Select the smartLink HW-DP and click **[Add...]**.
5. Enter a symbolic name and click **[Next]**.
6. Enter the IP address of your smartLink HW-DP and click **[Next]**.
7. If required, change the timeout settings (Timeout for Connect and Max Idle Time).  
In most cases default settings can be used.
8. Click **[Finish]**.  
The configuration wizard is closed. In the Control Panel the node name is shown on the left side underneath the smartLink HW-DP. The question mark on a yellow background means that the connection to the smartLink HW-DP has not yet been tested.
9. Confirm your settings with **[Apply]** and **[OK]**.  
The PROFIBUS Control Panel tests the connection to the smartLink HW-DP. After a short while, the yellow question mark is replaced by a green check mark. If a red cross appears instead, check the network cables and the IP settings of your PC and the gateway. Ensure that the PC and the smartLink HW-DP are on the same IP subnet.
10. Continue with Chapter Creating a project in PACTware.

### smartLink DTM Configuration

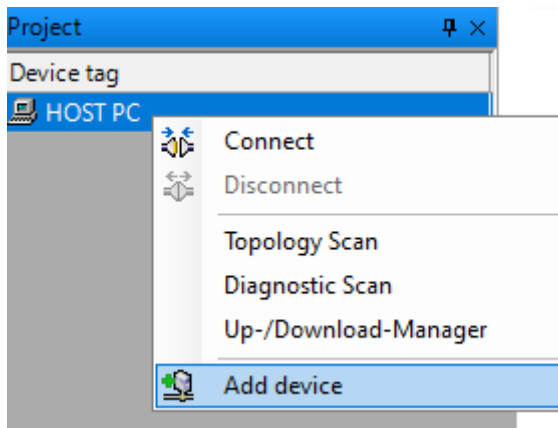


#### Note

See the smartLink DTM user guide for details. You find this document in the Downloads area of the product webpage.

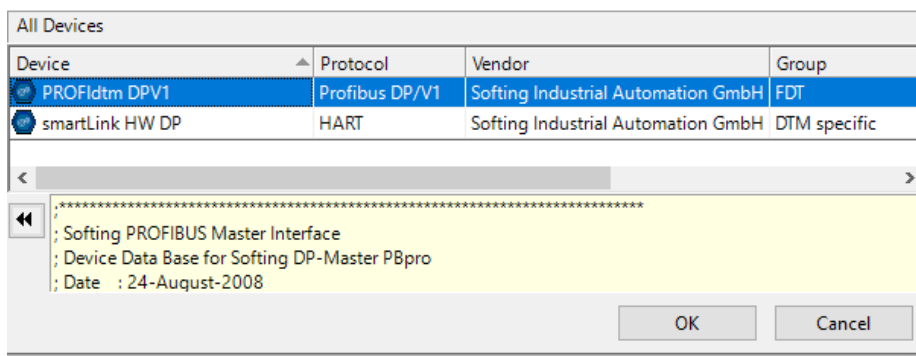
#### 4.3.1.3 Creating a project in PACTware

1. Start PACTware.
2. Create a new Project and save the project.
3. Right-click **Host PC → Add Device** in the device tag column of the project view.



A new window appears with the available devices.

4. Select **PROFIdtm DPV1** from the list and confirm with **[OK]**.  
The device is displayed in the project view.



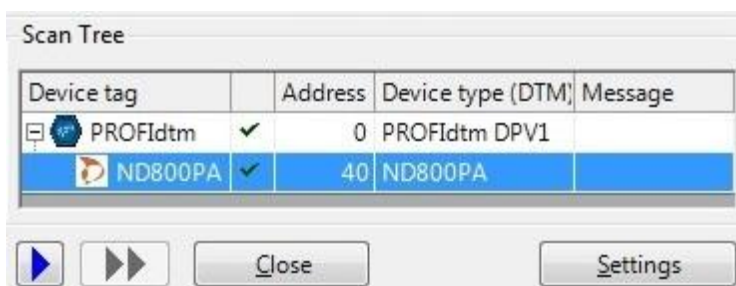
#### Note

Before starting a topology scan ensure that suitable Device DTMs are installed for the connected PROFIBUS devices.

5. Right-click **PROFIdtm** and select **Topology Scan**.
6. Click the arrow in the scan window to start the topology scan.



PROFIdtm and the detected PROFIBUS devices are displayed in the scan window.



7. Close the scan window. The detected PROFIBUS device has been added to the project view.

### 4.3.2 HART

For details on how to set HART device parameters see the smartLink DTM User Guide for details. You will find this document in the Downloads area [Manuals and Documentation](#) of the smartLink HW-DP product page.

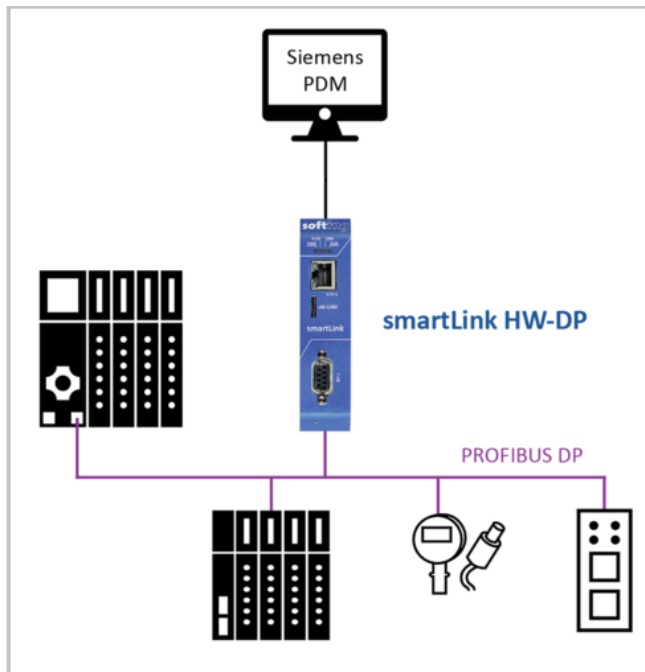


#### Note

The HTTPS interface must be enabled and a certificate for HTTPS must be set to use the DTM, since the DTM uses the HTTPS REST interface of the smartLink HW-DP.

## 4.4 Connecting to Simatic PDM

With the SIMATIC PDM, Siemens provides a framework for managing more than 4 500 field devices independent of the automation and control system used. SIMATIC PDM is an open software tool for devices of a range of over 200 manufacturers. To integrate a field device in a framework you need to import its Electronic Device Description (EDD). This is a file containing all relevant device data. It is typically made available by the device manufacturer for download from its website.



### 4.4.1 Prerequisites

- The default IP address of the built-in web server has been changed to an address on your network or the IP address of your PC has been changed to an IP address corresponding to the network address of your gateway (e.g. 192.168.0.1). See Chapter [Setting the IP address of the PC](#)<sup>24</sup>.
- EDD files and libraries of the PA devices must be imported in the PDM Device Integration Manager (DIM). If not available, download them from the Siemens support website and import them in the DIM.
- The PDM libraries of the Softing PROFIBUS must have been downloaded from the product website and must be installed.

#### 4.4.2 Connecting to SIMATIC PDM

Connecting the SIMATIC Manager with the smartLink HW-DP device:

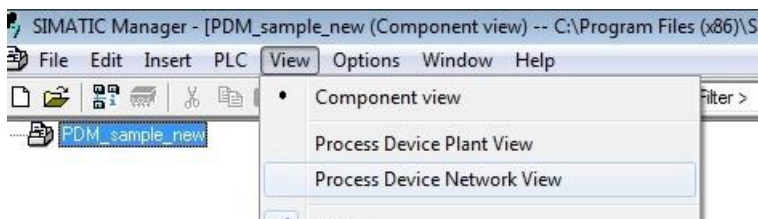
1. Start the SIMATIC Manager from the Windows start menu to create a new project: **Start → All Programs → Siemens Automation → SIMATIC → SIMATIC Manager.**
2. Click **Options → Select PG/PC Interface.**  
A new window with a dropdown menu is opened.
3. Select from the dropdown menu Interface Parameter **Assignment used → Softing PROFIBUS Interface PROFIBUS.1.**
4. Set the timeout value to 60s and confirm with **[OK].**
5. Check the board number to ensure that it corresponds to the number in the node name.  
(See Section 5.1 [Preparation](#)<sup>50</sup>)
6. Click **[OK].**  
You will return to the main window (Component View).



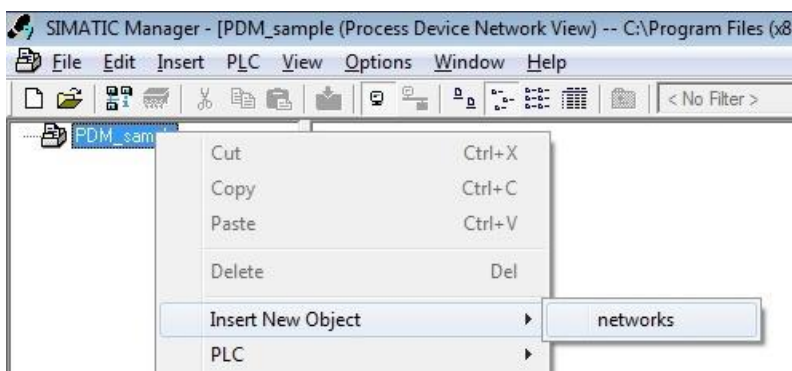
#### Note

A logical connection has now been established between the smartLink HW-DP and the SIMATIC Manager.

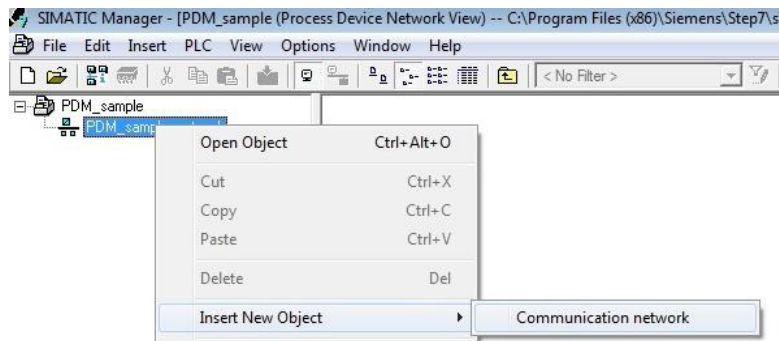
7. Go to **View → Process Device Network View.**



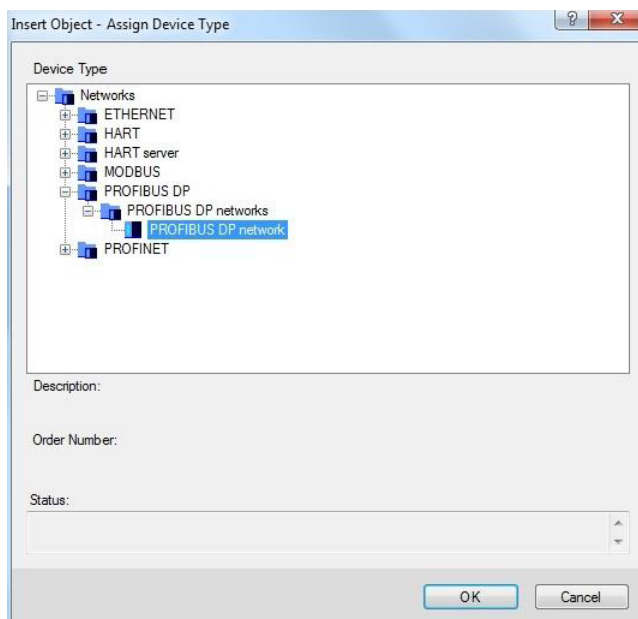
8. Right-click on the configuration symbol in the Process Device Network View and select **Insert New Object → networks.**



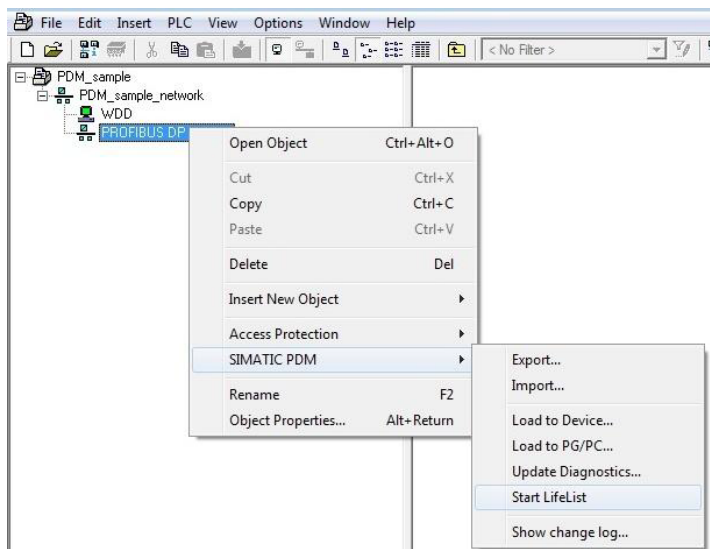
9. Right-click on the network symbol and select **Insert New Object → Communication network.**



10. Click the **[Assign Device Type...]** button.  
The Assign Device Type window is opened.
11. Select **PROFIBUS DP network**.

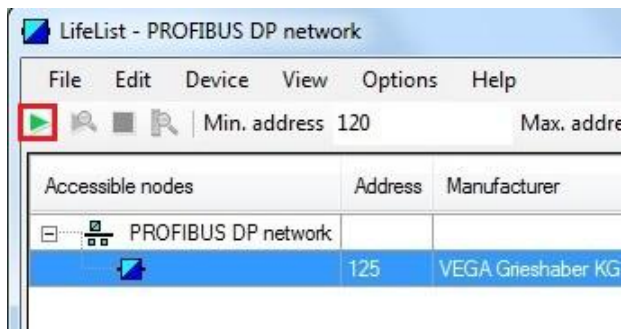


12. Click **[OK]**.  
You are back in the Process Device Network View.
13. Right-click in the left column **PROFIBUS DP network** → **SIMATIC PDM** → **Start LifeList**.

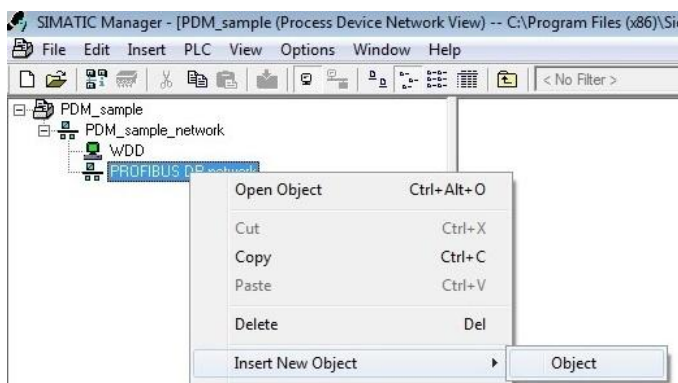




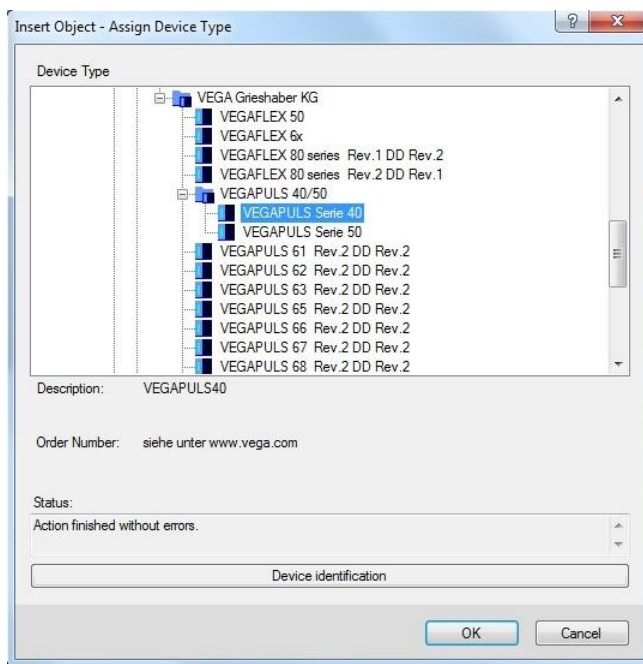
14. Click the **Start Scan icon** (▶) in the top left corner under the menu bar.  
This will run a network scan to verify that the PROFIBUS device can be reached.  
The icon (▶) indicates that a device can be reached to read and write process parameters.




15. Close the window in the top right corner (✖).
16. Right-click in the PROFIBUS DP network view and select **Insert New Object** → **Object**.

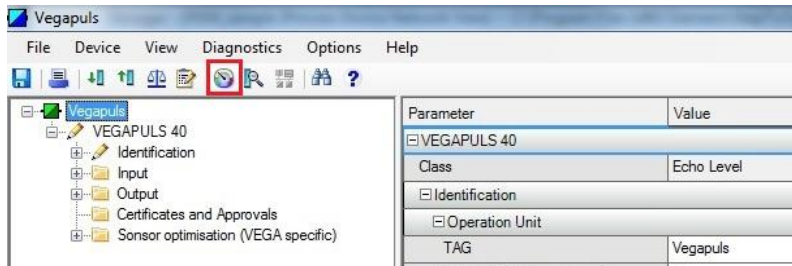


17. Click the **[Assign Device Type...]** button.  
A new window opens.



18. Select the device you want to access from the device type list and click **[OK]**.

19. Enter the PROFIBUS address.
20. Click **[OK]** to confirm.  
The window is closed.
21. Right-click in the Process Device Network View on the device you have just selected and select **Object**.  
This opens the SIMATIC PDM view which shows the parameter values of the selected device.
22. Click the Measured Value Display icon (  ) underneath the menu bar to import the parameter values of the PROFIBUS device to the Process Device Manger.



## 4.5 Connecting to Netilion

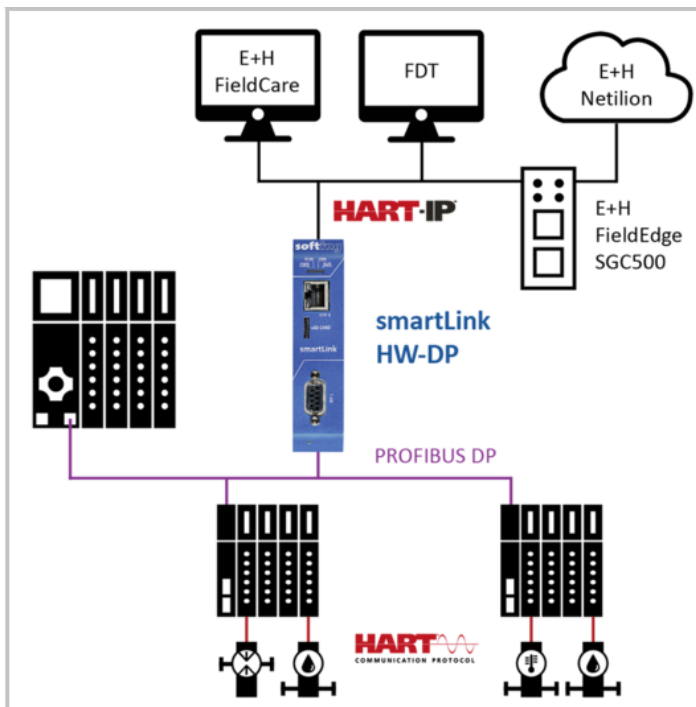
Netilion is a cloud-based IIoT ecosystem from Endress+Hauser designed for industrial processes. It connects the physical and digital world via the combination of IIoT ready devices and digital communication components.



### Note

To use Netilion, a Netilion account and a Netilion subscription is necessary.

To connect the smartLink HW-DP to Netilion you need to go through the FieldEdge SGC500. It is this edge device which permanently connects the field network through the smartLink HW-DP to the Netilion cloud. The diagram below shows how the smartLink HW-DP connects upwards on HART IP to the Endress+Hauser network and downwards over a PROFIBUS Remote IO to HART field network.



The data read from the HART devices in the field network is stored in the Netilion Cloud. Here it can be accessed and processed by Netilion Services or Netilion Connect.

Using the [Netilion Services](https://netilion.endress.com) application, the transmitted data is processed through the IoT service platforms Netilion Analytics, Netilion Health, Netilion Library and Netilion Value. For more details see: <https://netilion.endress.com>

Using the [Netilion Connect](https://developer.netilion.endress.com/discover) API, the transmitted data can be retrieved directly via a REST JSON API and integrated into a user application. For more details see: <https://developer.netilion.endress.com/discover>



### Note

The FieldEdge SGC500 hardware is part a Netilion subscription and cannot be ordered separately.

See the FieldEdge SGC500 [Operation Instructions](https://www.endress.com/en/field-instruments-overview/iiot-netilion/edge-device-sgc500) for details at: <https://www.endress.com/en/field-instruments-overview/iiot-netilion/edge-device-sgc500>.



### Note

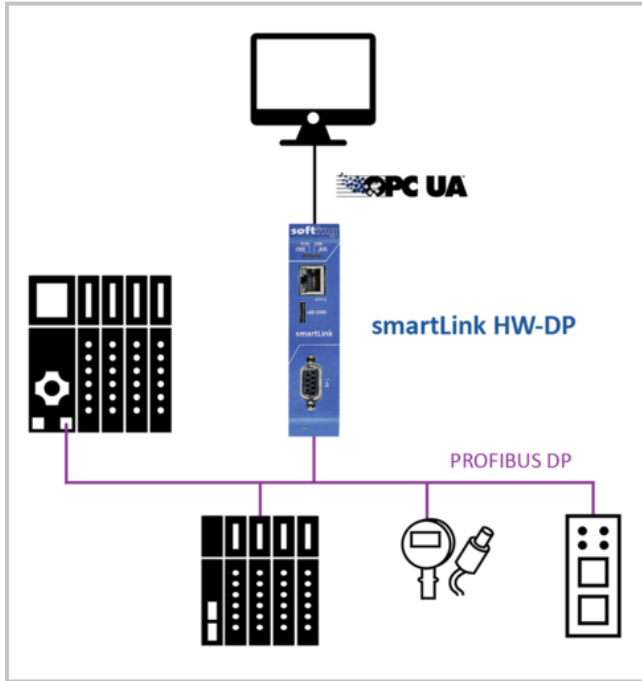
The FieldEdge SGC500 supports the FieldGateway types smartLink (HART IP), SFG250 (HART IP), SFG500 (PROFIBUS), SWG50, SWG70 (both wireless HART) and Liquiline Platform. If the smartLink is not listed for selection, select the SFG250.

## 4.6 Connecting to OPC UA clients

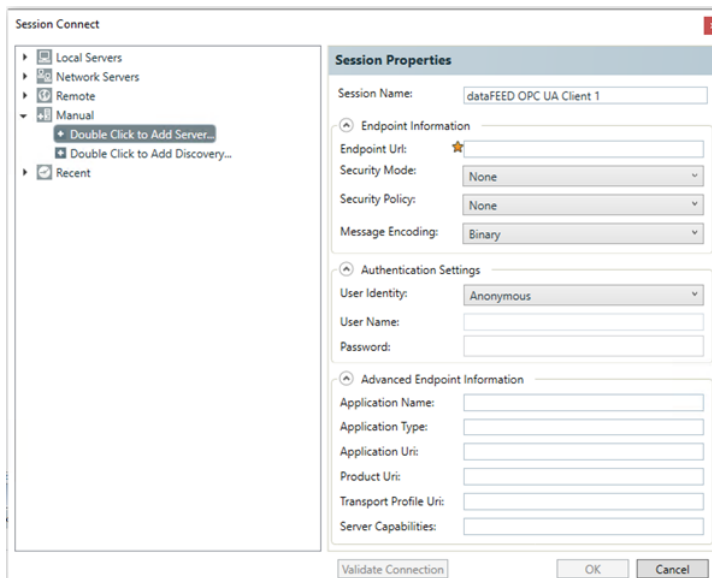


### Note

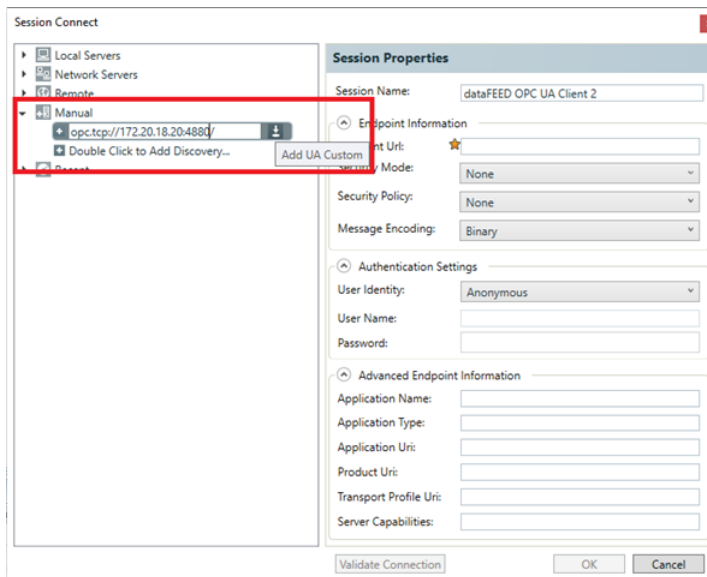
For details on how to connect your smartLink HW-DP with an OPC UA Client see Sections [OPC UA](#)<sup>48</sup> and [PROFIBUS device assignment](#)<sup>46</sup>.



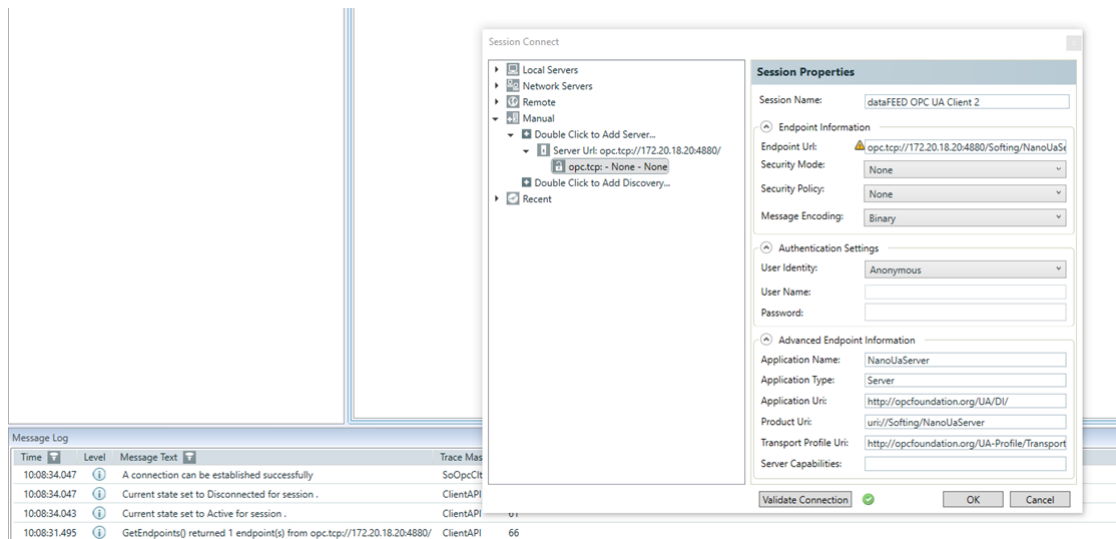
1. Start the **dataFEED** client.
2. Double click **Double-Click to add session** under Project.
3. Select **Manual** and **Double Click to Add Server...**



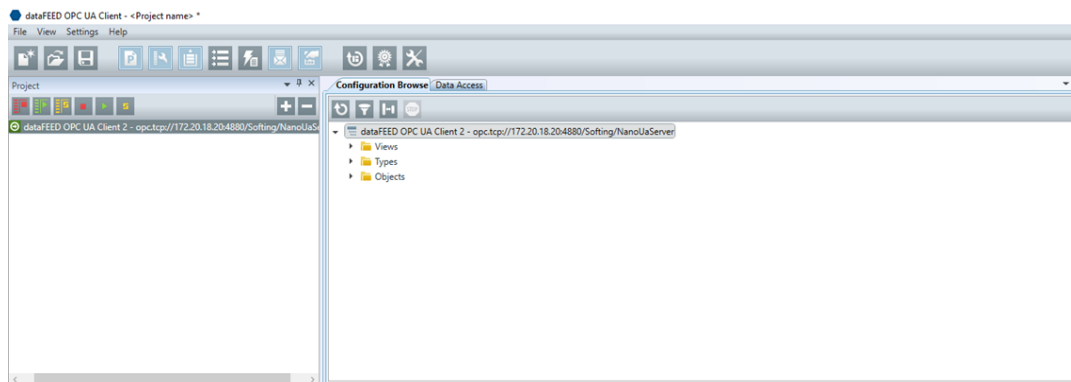
4. Copy the server endpoint from from **OPC UA → Settings**.
5. Enter the URL (example: `opc.tcp://172.20.18.20:4880/`).



6. Click **[Validate Connection]** at the bottom of this window.  
You now have a successful OPC UA connection.



7. Click **[OK]** to close the window.  
You will see the established connection in the **Configuration Browse** window.



#### 4.6.1 Data type conversion

smartLink HW-DP converts PROFIBUS data types to OPC UA data types. Simple data types like Integer16 are mapped to the corresponding OPC UA data types (Int16). All multi-byte data types are converted from big endianness used by PROFIBUS to little endianness used by OPC UA. More complex, structured data types are split up to multiple OPC UA variables. Some data types require additional calculation like scaling. See the following mapping table for an exact description on how PROFIBUS data types are converted to OPC UA data types.

PROFIBUS data type	OPC UA variable name suffix	OPC UA data type	conversion
Boolean		Boolean	0 -> False; !0 -> True
Integer8		Sbyte	-
Integer16		Int16	big -> little endian
Integer32		Int32	big -> little endian
Integer64		Int64	big -> little endian
Unsigned8		Byte	-
Unsigned16		UInt16	big -> little endian
Unsigned32		UInt32	big -> little endian
Unsigned64		UInt64	big -> little endian
Float32		Float	big -> little endian
Float64		Double	big -> little endian
VisibleString		String	ISO 8859-1 -> String
OctetString		ByteString	-
UnicodeString8		String	-
F message trailer with 4 octets	_status	Byte	-
	_crc	ByteString	-
F message trailer with 5 octets	_status	Byte	-
	_crc	UInt32	big -> little endian
TimeStamp	_status	UInt16	big -> little endian
	_seconds	UInt64	big -> little endian (SecondsHigh << 32) + SecondsLow
	_nanoseconds	UInt32	big -> little endian
TimeStampDifference	_status	UInt16	big -> little endian
	_seconds	UInt64	big -> little endian (SecondsHigh << 32) + SecondsLow
	_nanoseconds	UInt32	big -> little endian
TimeStampDifferenceShort		Int64	big -> little endian
Float32+Status8	_value	Float	big -> little endian
	_status	Byte	-
Float64+Unsigned8	_value	Double	big -> little endian

PROFIBUS data type	OPC UA variable name suffix	OPC UA data type	conversion
Unsigned8+Unsigned8	_status	Byte	-
	_value	Byte	-
OctetString2+Unsigned8	_status	Byte	-
	_value	ByteString	-
Unsigned16_S	_status	Byte	-
	_value	UInt16	big -> little endian Input >> 2 (zero-padding shift)
Integer16_S	_status	Byte	Input & 3
	_value	Int16	big -> little endian Input >> 2 (sign-preserving shift)
Unsigned8_S	_status	Byte	Input & 3
	_value	Byte	Input >> 2 (zero-padding shift)
OctetString_S	_status	Byte	Input & 3
	_value	ByteString	Input [0 to (Input.length / 3)]
N2		Float	Input [(Input.length / 3) to Input.length]
			Input [(Input.length / 3) to Input.length]
N2		Float	big -> little endian (float(Input-Integer16) / 0x4000) * 100
N4		Double	big -> little endian (double(Input-Integer32) / 0x40000000) * 100
V2		ByteString	-
L2		ByteString	-
R2		Float	big -> little endian float(Input-Unsigned16)
T2		Float	big -> little endian float(Input-Unsigned16)
T4		Double	big -> little endian double(Input-Unsigned32)
D2		Float	big -> little endian float(Input-Unsigned16) / 16384
E2		Float	if (Input-Unsigned16 & 0x8000) -(float(Input-Unsigned16 & 0x7fff) / 0x80) else float(Input-Unsigned16 & 0x7fff) / 0x80
C4		Double	big -> little endian double(Input-Unsigned32) / 10000
X2		Float	big -> little endian float(Input-Unsigned16)
X4		Double	big -> little endian double(Input-Unsigned32)
Unipolar2.16		Float	big -> little endian (float(Input-Unsigned16) / 0x4000) * 100

## 4.7 Defining address spaces

To use the protocols above, PROFIBUS address spaces have to be defined for each one.

Due to the unique nature of each protocol simultaneous read and write requests to the devices can inflict each other. It is therefore not recommended to use more than one protocol in each address space.

However, if overlapping protocol spaces and the use of more protocols at the same time are necessary it should be treated with utmost caution and knowledge about the risks for the system since the communication status is not clearly defined anymore and errors or communication fails can occur.

The screenshot displays the 'smartLink' software interface, specifically the 'PROFIBUS' configuration tab. The left sidebar shows a navigation menu with 'Views', 'Configuration', 'Device Assignment' (highlighted), and 'Log'. The main content area is titled 'Device Assignment' and shows 'Segment DP1'. It includes sections for 'HART IP' (with an 'Add' button), 'OPC UA' (with an 'Add' button), and 'PDM / DTM' (with an 'Add' button). Each section contains 'Start Node Address' and 'End Node Address' input fields with green checkmarks indicating valid ranges. The HART IP section shows a range from 1 to 25. The OPC UA section shows a range from 26 to 50. The PDM / DTM section shows a range from 51 to 126. An 'Apply' button is located at the bottom of the configuration area.

Protocol	Start Node Address	End Node Address
HART IP	1	25
OPC UA	26	50
PDM / DTM	51	126



## 5 Declaration of conformity

This device is compliant with EC directive 2014/30/EG, "Electromagnetic Compatibility" (EMC directive) and meets the following requirements:

- EN 55011 Industrial, scientific and medical (ISM) devices - radio disturbance - limits and methods of measurement
- EN 55032 Electromagnetic compatibility of multimedia equipment (MME) and interference emission
- EN 61000-6-4 Electromagnetic compatibility (EMC); Part 6-4: generic standard – emission for industrial environments
- EN 61000-6-2 Electromagnetic compatibility (EMC); Part 6-2: generic standard - immunity for industrial environments



### Note

To fulfill the EMC requirements, the other components of your installation (DC adapter, Industrial Ethernet devices, etc.) also have to meet the EMC requirements. A shielded cable must be used. In addition, the cable shield must be grounded properly.



### CAUTION

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures!



### CE

The CE marking indicates conformity with the above standards in a Declaration of Conformity which can be requested from Softing Industrial Automation GmbH.



### RoHS

This product is compliant the Restriction of Hazardous Substances under Directive 2002/95/EC.



### FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.



### VCCI

This Class A product conforms to the regulations of Voluntary Control Council for Interference (VCCI) by Information Technology Equipment.



### WEEE

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime in compliance with Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. Packaging material and worn components shall be disposed of according to the regulations applicable in the country of installation.

## 6 Glossary

Terms & Abbreviations	Definition
DHCP	Dynamic Host Configuration Protocol
DIN	Deutsches Institut für Normung
DTM	Device Type Manager
DP	Decentralised Peripherals
ETH	Ethernet
Ex	Explosion protection
FDT	Field Device Tool
GND	Ground
GSD	General Station Description (a file containing the manufacturer's device data base)
HART	Highway Addressable Remote Transducer
HTTPS	Hypertext Transfer Protocol Secure
I/O	Input/Output
IP	Internet Protocol
MQTT	Message Queuing Telemetry Transport
NTP	Network Protocol Time
OPC UA	Open Platform Communications Unified Architecture
PA	Process Automation
PB	PROFIBUS
PDM	Process Device Manager (sometimes aka Plant Device Manager)
PLC	Programmable Logic Controller
RDL	Redundancy Link
RIO	Remote Input/Output unit
T	Temperature
TCP	Transmission Control Protocol

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