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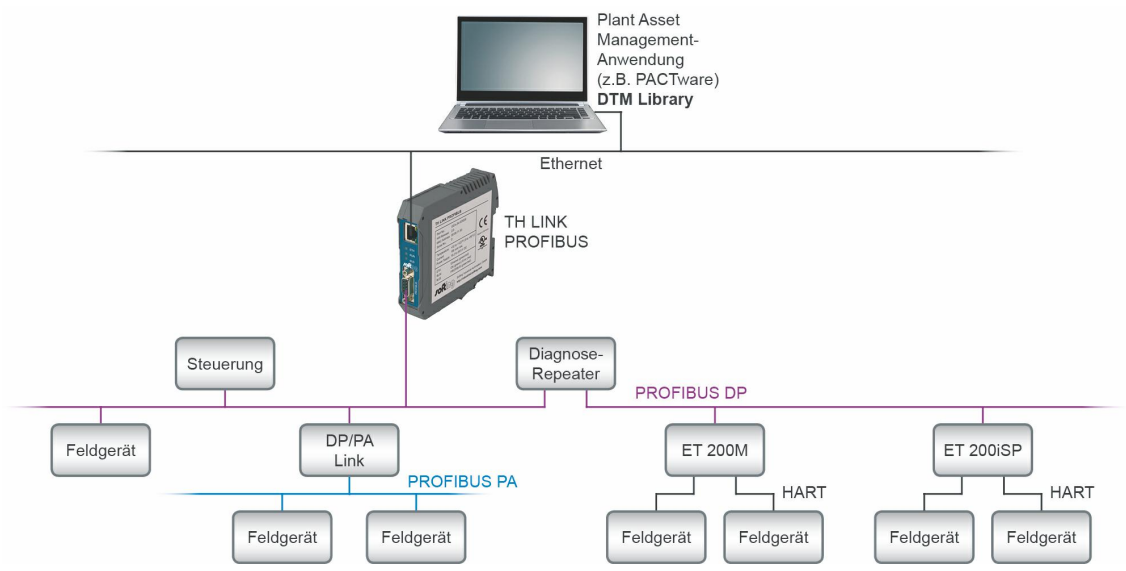
User Manual

CommDTM PROFIBUS DP-V1



Industrial

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1 About the CommDTM PROFIBUS DP-V1

Softing Industrial Automations CommDTM PROFIBUS DP-V1 can be used in all FDT frame applications (such as FieldCare or PACTware) for communication between PROFIBUS PA devices, HART devices (connected to the PROFIBUS via Remote I/O (RIO) with HART functionality) and their Device DTMs. Access is assigned centrally via the TH LINK PROFIBUS. The PROFIBUS communicates acyclically (DP-V1) and parallel to the master class 1 (MCL1) as a configuration master MCL2. For communication with the field device, the respective device DTM has to be integrated into the project of the FDT frame application.

You can use the CommDTM PROFIBUS DP-V1 within one FDT frame application repeatedly and concurrently. To do so, load the CommDTM PROFIBUS DP-V1 repeatedly into the project window. A respective physical access to the PROFIBUS needs to be available for every loaded CommDTM PROFIBUS DP-V1 for communication (TH LINK PROFIBUS hardware).

CommDTM PROFIBUS DP-V1 functionalities can be accessed through the context menu of the used FDT frame application.

2 About this manual

Read this manual before starting

For damages due to improper connection, implementation or operation Softing refuses any liability according to our existing guarantee obligations.

2.1 Document history

Document version	Modifications compared to previous version
1.00	initial version
1.01	Section Engineering data [13] added.
1.02	New Corporate Identity implemented.
1.03	Minor changes and corrections incl. product name change from "xEPI 2" to "TH LINK PROFIBUS".

2.2 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:\<product name>\delivery\software\Device Description files*

CAUTION

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

Note

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

Hint

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

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3 FDT frame applications

The different FDT frame applications vary in functionality and naming of the individual functions. In this User Manual the naming refers to the »FieldCare« frame application. Complete functionality for the frame application is described in the FieldCare online help.

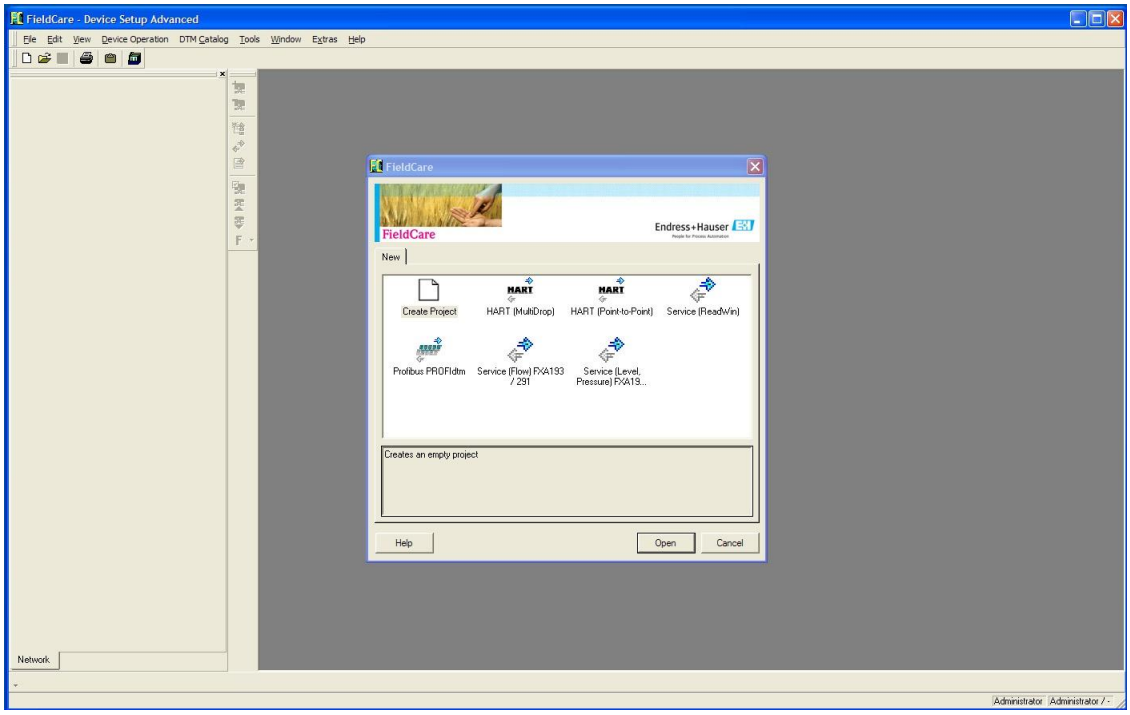

Figure 1: FieldCare

3.1 Context menu

Right-click an entry in the project window of the FDT frame application to open the context menu. Its entries are default entries of the FDT frame application. Select **Additional functions** in this window to display the entries to the respective DTM. Functionalities displayed in gray are not supported or already opened. To select these functions, an online connection might be required.

Integration of CommDTM PROFIBUS DP-V1 into a project is described in Section Example of a project design 18.

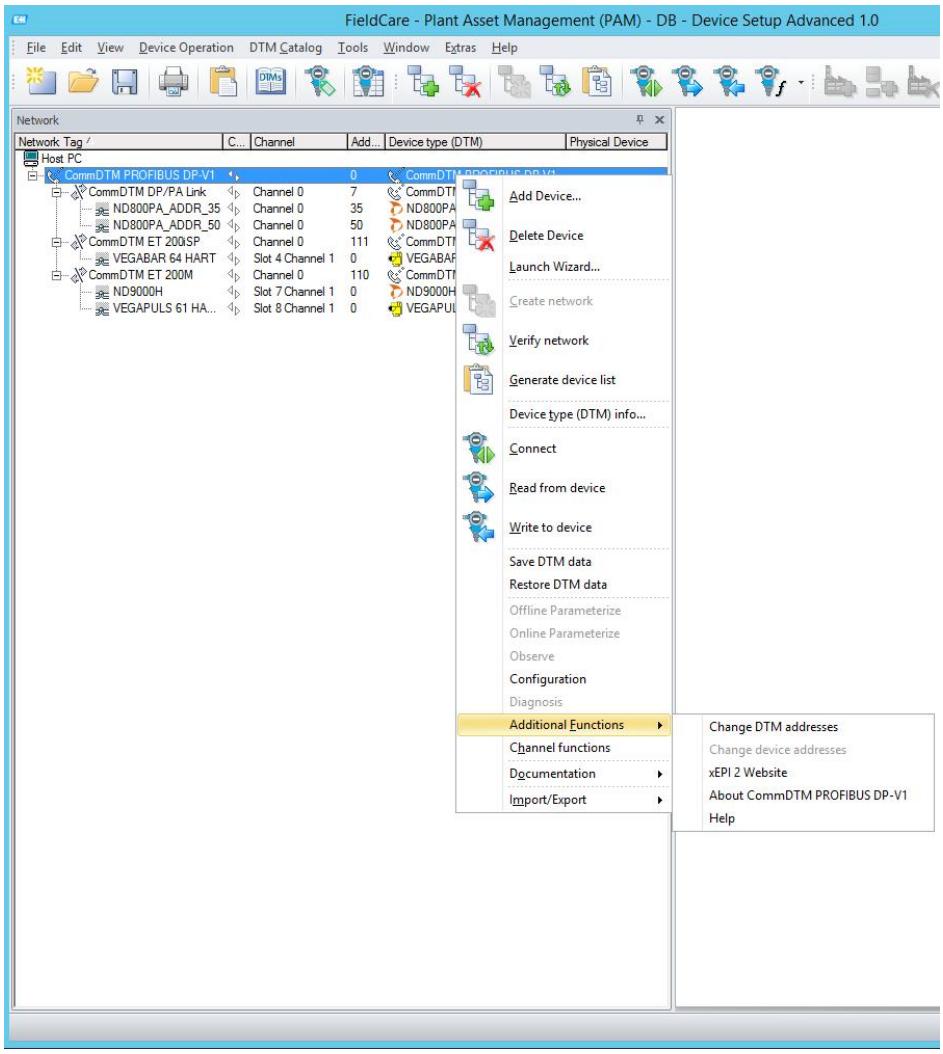

Figure 2: Context menu for the CommDTM PROFIBUS DP-V1

Note

The tag name depends on the FDT frame application. The tag name in FieldCare is for example "CommDTM PROFIBUS DP-V1".

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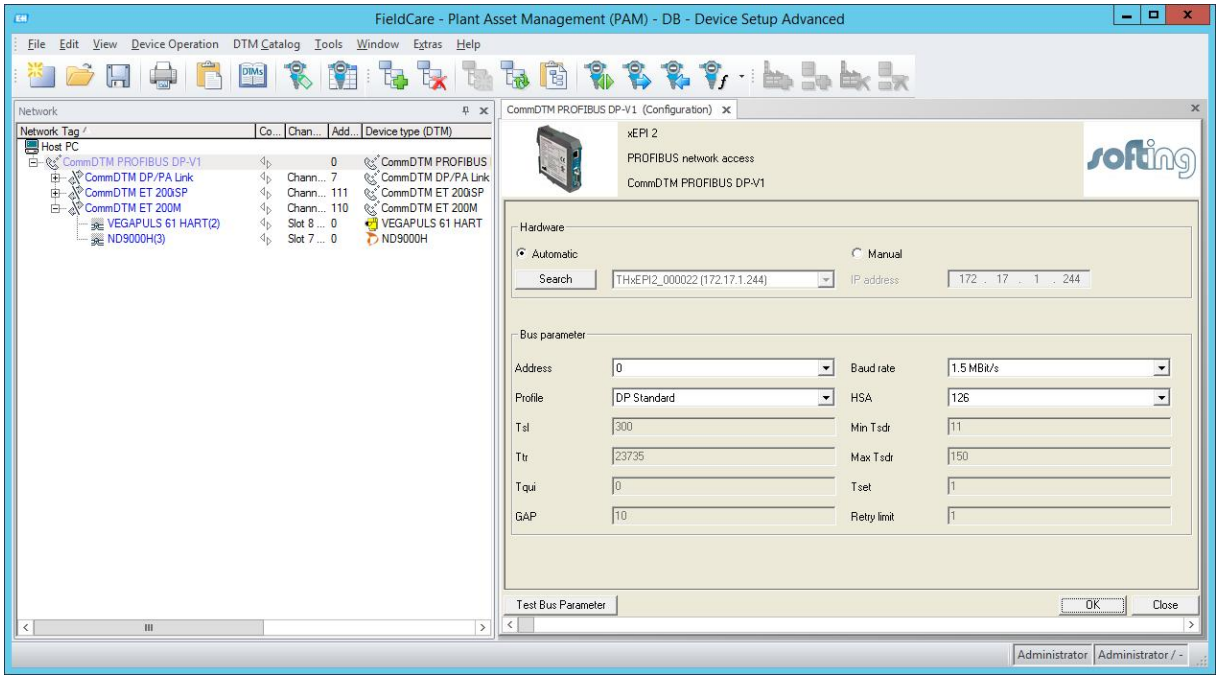
3.1.1 Configuration

3.1.1.1 Input in the configuration window

In this window you select the hardware (physical access to the PROFIBUS) for the CommDTM PROFIBUS DP-V1. The access is assigned via TH LINK PROFIBUS. Here you set the specific PROFIBUS parameters (bus parameters) for the selected hardware. This function is only available when being offline.



Proceed as follows:

1. In the project window right-click **CommDTM PROFIBUS DP-V1** and select **Configuration**.
2. Select the hardware. Decide whether to search for hardware automatically or whether to enter the hardware manually.

Automatic search

1. Click **[Search]** then select the hardware available in the list. (Hardware must be installed or TH LINK PROFIBUS must be found in the network).
2. The TH LINK PROFIBUS devices are displayed in a list as follows:

   <Hostname> (<IP-Adresse>)
3. The hardware is detected and displayed by multi-cast request via Ethernet. If your network does not support this functionality (e.g. blocked by firewall or router), no hardware or only local hardware will be displayed. In this case you can set the hardware manually.

Manual search

1. Enter the IP address into the corresponding field.
2. Set the PROFIBUS parameter. Perform the following settings:
   a. **Address**: Click the list box. Select the respective PROFIBUS address

b. **Baud rate**: Click the list box. Select the respective baud rate for the PROFIBUS net.

c. **Profile**: Click the list box. Select the respective profile. The bus parameters are displayed for the selected profile. In the profiles **DP Standard**, **Universal (DP/FMS)** and **Pepperl+Fuchs** you can only modify the HSA. If you want to modify further bus parameters, select **User defined** from the list box. Then click into the corresponding parameter field and perform the required settings.

Note

We strongly recommend using standard profiles on all masters within the PROFIBUS network. Manual settings of bus parameters require extensive PROFIBUS knowledge. If the other masters do not use standard profiles, then use the parameters of these other masters.

3. Click **[Test bus parameter]** to test whether the bus parameters set are correct. In case of errors the incorrect values are marked with an exclamation mark. The corresponding error message is displayed in the window **Saved DTM messages**.

4. Click **[OK]**.

Note

In a PROFIBUS network the PROFIBUS address (device address) must only be assigned once. Within this network the bus parameters for all stations must be identical.

3.1.1.2 Configuration window explanation

Hardware	Hardware selection for using an TH LINK PROFIBUS.
Address	Address within the PROFIBUS network.
Baud rate	Baud rate of the PROFIBUS network.
Profile	Selection of bus parameter profiles. In the profiles »DP Standard«, »Universal (DP/FMS)« and »Pepperl+Fuchs« you can only modify the HSA. If you want to modify further bus parameters, select »User defined« from the list box. Then click into the corresponding text field and perform the required settings.
HSA	Highest Station Address. States the highest valid station address in the PROFIBUS network.
Tsl	Slot time. This time determines the maximum time the sender waits for a response from the addressed station.
Min Tsdr	Minimum station delay responder time. This time determines the minimum delay after which the responding station shall answer at the earliest.
Max Tsdr	Maximum station delay responder time. This time determines the maximum delay after which the responding station shall have answered at the latest.
Ttr	Target rotation time. This time is the maximum time available for one Token rotation. In this time span, all DP masters receive the Token once.
Tqui	Quiet time for modulator. This is the time a station needs for switching from sending to receiving after telegram end.
Tset	Setup time. This is the time that may pass between receiving a data telegram and the respective reaction of the station.

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GAP — GAP factor. Specifies after how many bus rotations the master searches for new active stations in order to include them into the bus and send the Token to these stations. The GAP range is between the own address and the subsequent station address (exception: the range of the highest station address up to address 127 does not belong to the GAP range).

Retry limit — Maximum number of call retries. Determines the maximum number of telegram retries carried out to reach a station.

3.1.2 Change device addresses

This functionality allows to display and change the PROFIBUS address of the connected devices. This function is only available online. You can only modify the address of field devices if the field devices support this functionality.

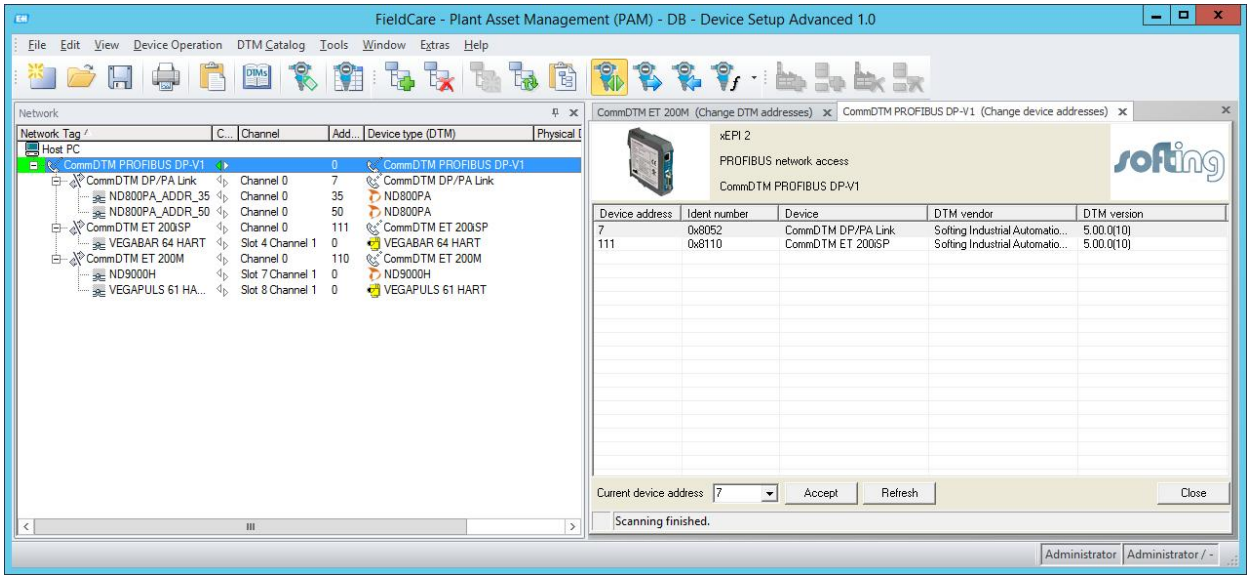

Figure 3: Modify device address

Proceed as follows:

1. Right-click **CommDTM PROFIBUS DP-V1** in the project window and select the function **Establish connection**. The existing online connection is displayed in the FDT frame application (see Help for »FDT Frame Application«).
2. Right-click **CommDTM PROFIBUS DP-V1** in the project window and select the function **Additional functions → Change device addresses**.
3. Select the **channel** in the selection field and click **[Refresh]**. The field devices appear in the window **Change device addresses**. Corresponding device names, DTM vendors and DTM versions are displayed only if a DTM is installed for the field device concerned.
4. Select the field device.
5. Select a new address from the list box **Current device address** in the lower window and click **[Accept]**. An online connection to the field device is automatically established, the address is modified, and the field device is disconnected again. In the status bar of the window, information is displayed on whether this function has been completed successfully, or whether the field device does not support this functionality.

Note

After changing the device address you need to set the DTM address of the respective device DTM to the identical address.

Note

Not all devices support device address setting through the CommDTM PROFIBUS DP-V1. Device addresses for some field devices can only be set directly at the field device. Refer to the manual of the respective field device vendor for detailed information.

3.1.3 DTM addresses

3.1.3.1 Set DTM address

Proceed as follows:

1. In the project window right-click **CommDTM PROFIBUS DP-V1** and select **Add device.**
2. From the device catalog select a device and click **[OK]**. The window for setting DTM addresses is opened:
3. Set the DTM address and then click **[OK].**

3.1.3.2 Change DTM address

Using this function you can display and change the DTM addresses of the field device DTMs. This function is only available offline. Make sure to use an identical address both for the field device and for its respective DTM. The DTM address displayed or set is used during connection establishment to the respective field device.

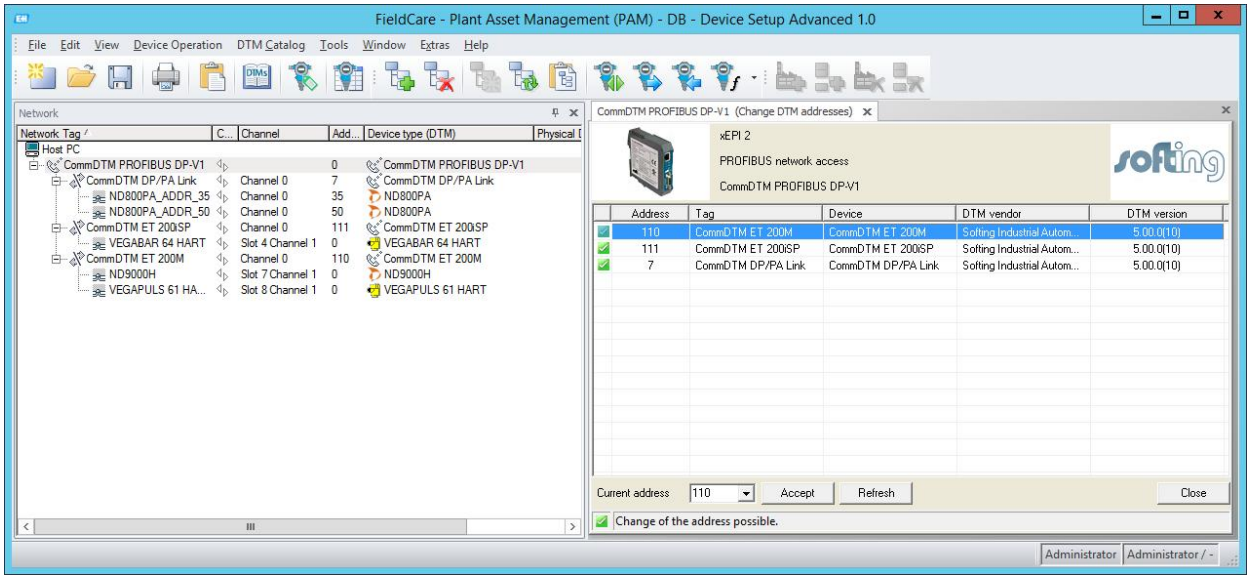

Figure 4: Change DTM address

Proceed as follows:

1. Right-click **CommDTM PROFIBUS DP-V1** in the project window and select the function **Additional functions → Change DTM addresses**.
2. Click **[Refresh]** to start scanning.

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3. The DTM addresses are now listed in the window **Change DTM addresses**. Corresponding device names, DTM vendors and DTM versions can only be displayed if this functionality is supported by the frame applications.
4. Mark the DTM.
5. Select a new address for the field device DTM from the list box **Current device address** in the lower window part and click **[Accept]**. In the status bar of the window, information is displayed on whether this function has been completed successfully, or whether the DTM does not support this functionality.

Note

This function is not supported by all DTMs. You can only change the DTM address directly through the field device DTM in the project.

3.1.4 Engineering data

Using the TH LINK PROFIBUS you can transmit tags and descriptions of the FDT project to TH LINK PROFIBUS with this function.

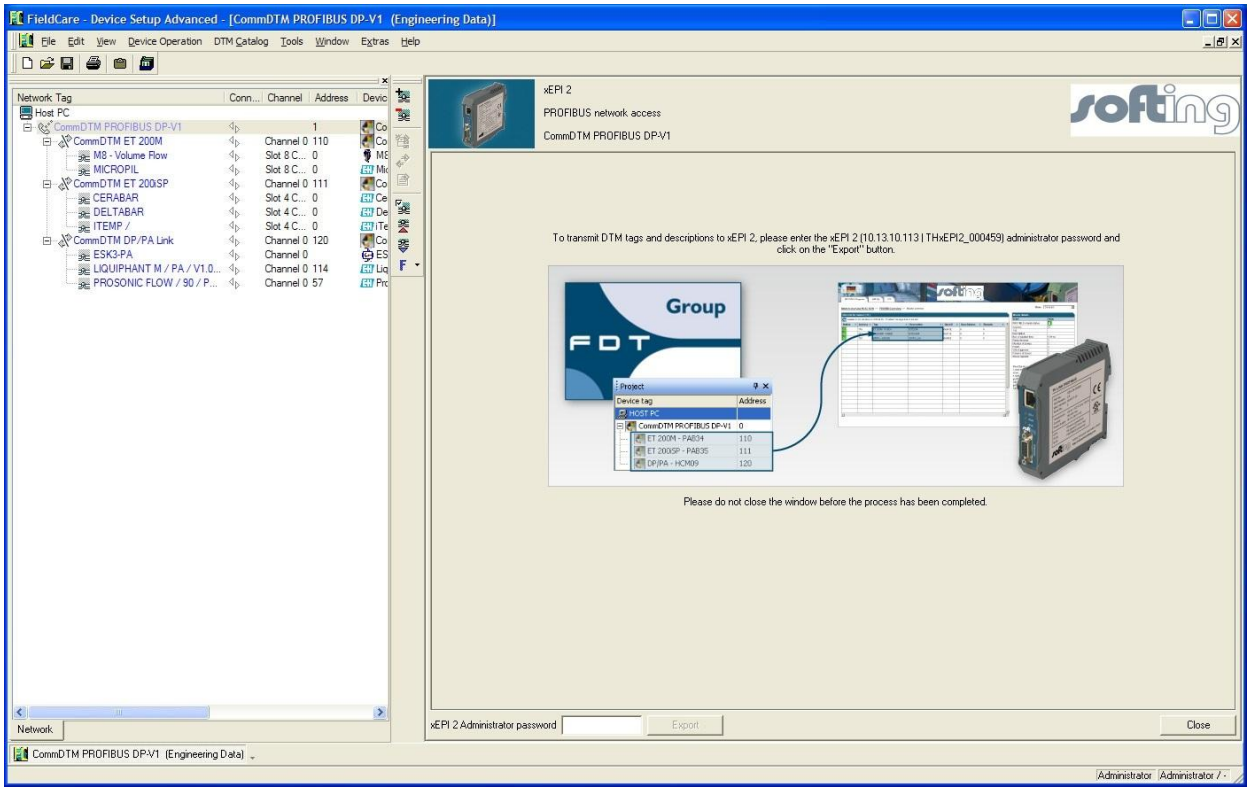

Figure 5: Engineering data

Proceed as follows:

1. In the project window right-click **CommDTM PROFIBUS DP-V1**::
2. Select **Additional functions → Engineering data**. A window is opened allowing you to export engineering data.
3. Enter the administrator password for the TH LINK PROFIBUS. (Standard: serial number of the TH LINK PROFIBUS. For further information refer to the TH LINK PROFIBUS Installation Manual.)
4. Click **[Export]** to transmit the tags and descriptions of the FDT project into the TH LINK PROFIBUS.

Note

Replace the data of any existing tags and descriptions on the TH LINK PROFIBUS. If you click **[No]**, this process is cancelled.

If the tags and descriptions exceed the limits, you are asked to cut at the maximum position. If you click **[No]**, this process is cancelled.

3.1.5 TH LINK PROFIBUS website

This function is used to open the TH LINK PROFIBUS website.

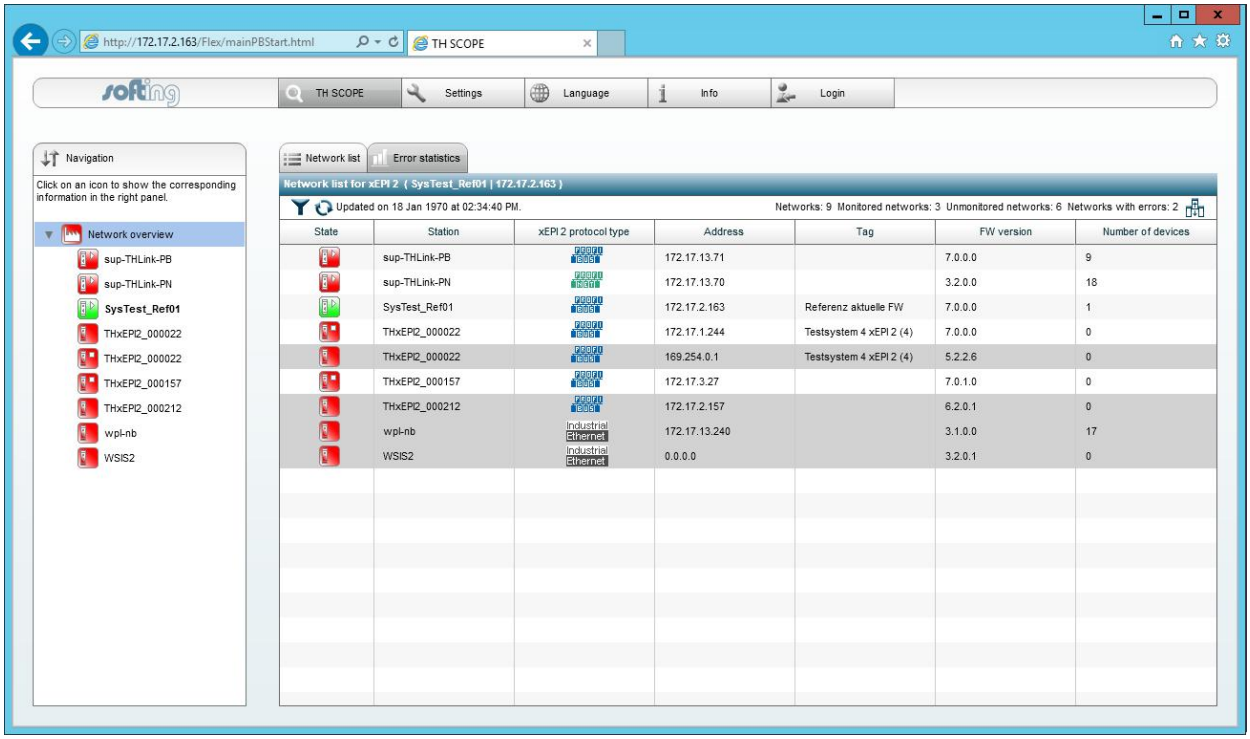

Figure 6: TH LINK PROFIBUS website

Proceed as follows:

1. In the project window right-click **CommDTM PROFIBUS DP-V1** in the Device tag column.
2. Select **Additional functions → TH LINK PROFIBUS Website** to open the TH LINK PROFIBUS website.

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3.1.6 About the CommDTM PROFIBUS DP-V1

This functionality displays information about the installed CommDTM PROFIBUS DP-V1.

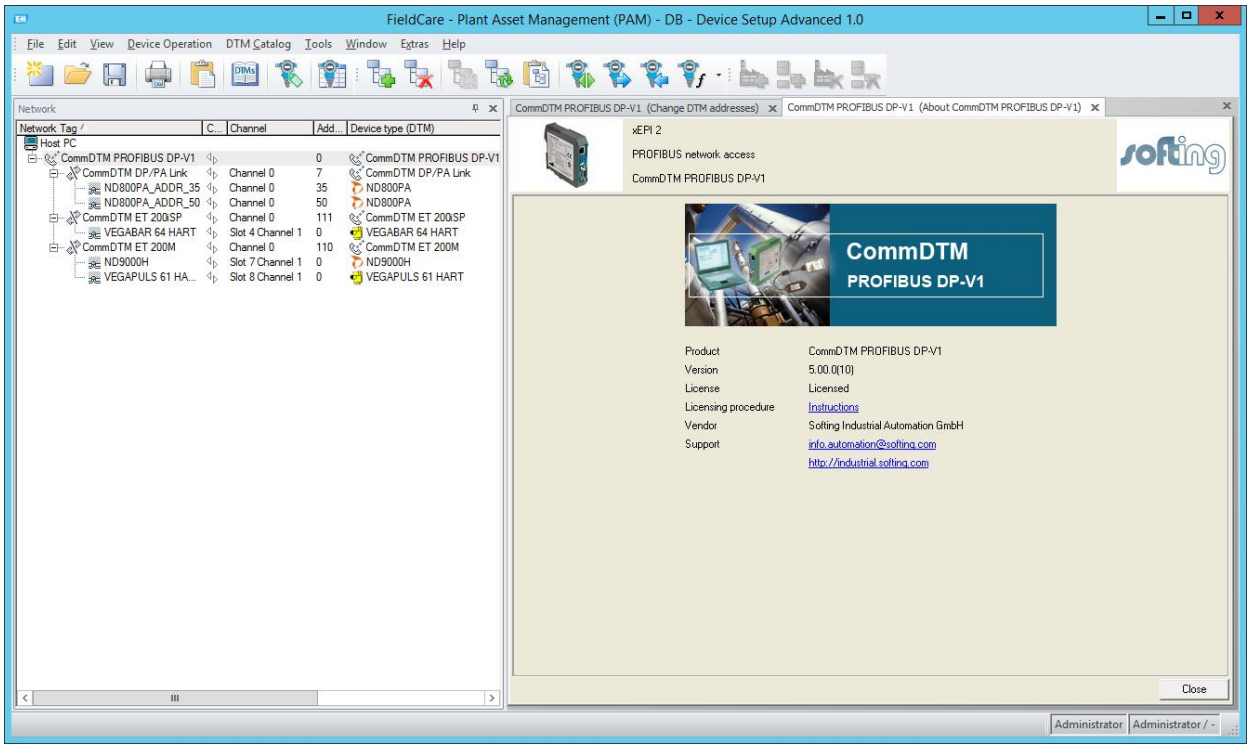

Figure 7: About CommDTM PROFIBUS DP-V1

Proceed as follows to open this window:

1. In the project window right-click on **CommDTM PROFIBUS DP-V1**.
2. Select **Additional functions → About CommDTM PROFIBUS DP-V1**. Information about CommDTM PROFIBUS DP-V1 are displayed.

3.1.7 Help

In the context menu select **Additional functions → Help**. This function opens the User Manual in PDF format. Adobe Acrobat Reader is required. The User Manual is available after installing the DTM library locally on your system.

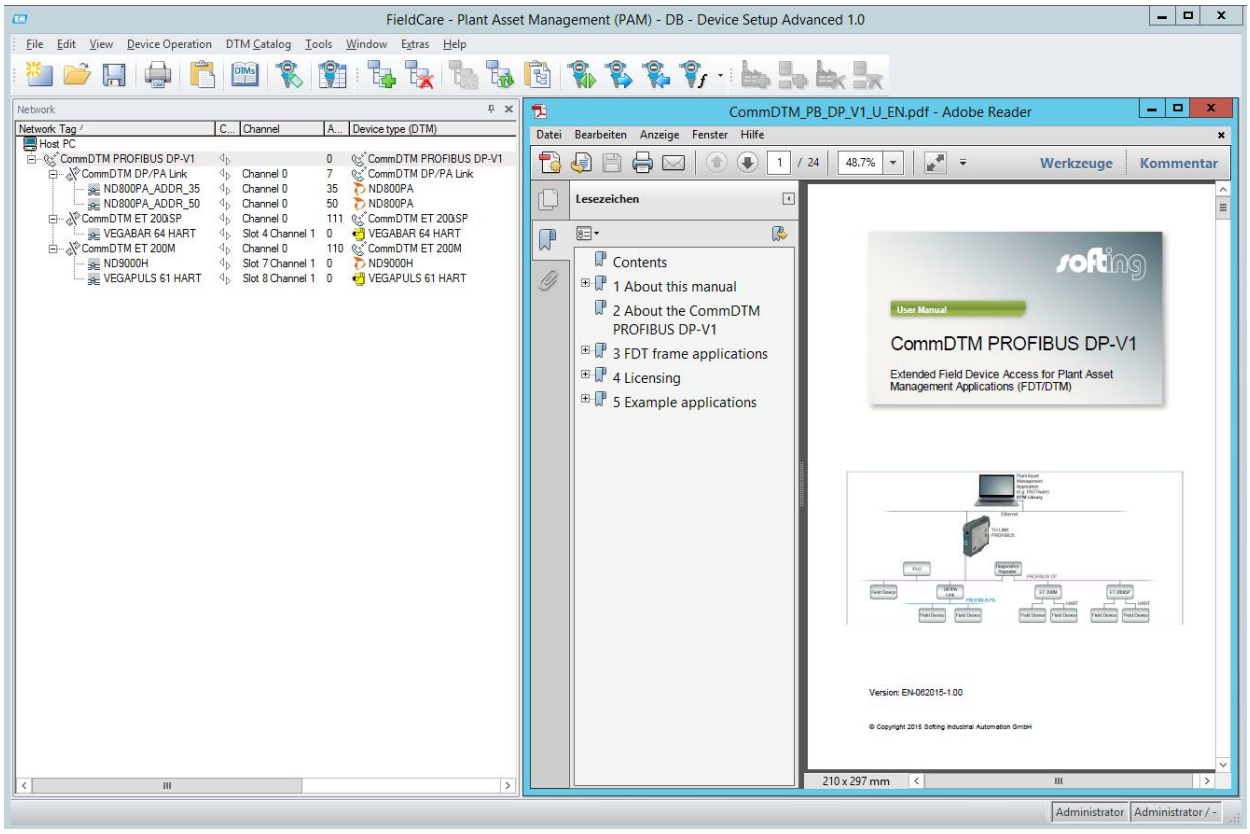

Figure 8: User Manual

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4 Licensing

You do not need a license for CommDTM PROFIBUS DP-V1.

5 Example of a project design

5.1 Prerequisites

The following software must be installed:

- FDT frame application
- Softing DTM Library

The following hardware must be installed:

- TH LINK PROFIBUS

5.2 FDT frame application

1. Start the FDT frame application.
2. Open and update the device catalog.
3. Create a new project.

5.3 Add CommDTM PROFIBUS DP-V1

1. In the project window right-click **Host PC** and select **Add device**.
2. From the device catalog select CommDTM PROFIBUS DP-V1 and click **[OK]**.
3. Configure the CommDTM PROFIBUS DP-V1.

5.4 Configure CommDTM PROFIBUS DP-V1

1. Open the context menu of CommDTM PROFIBUS DP-V1 and select **Configuration**.
2. Click **[Search]** and then select an **TH LINK PROFIBUS** from the list.
3. Perform the configuration according to your PROFIBUS network.

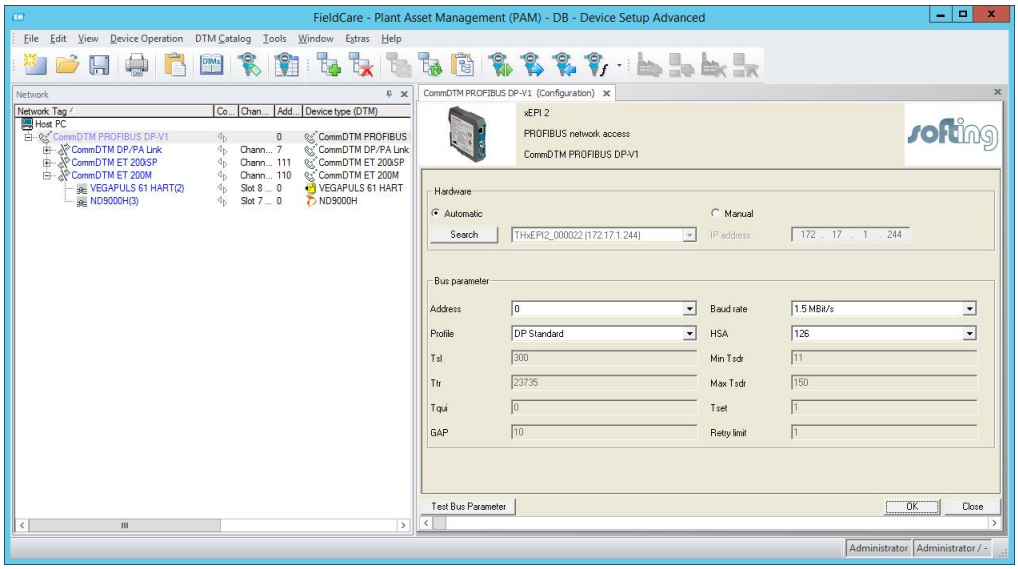

Figure 9: Configure CommDTM PROFIBUS DP-V1

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