

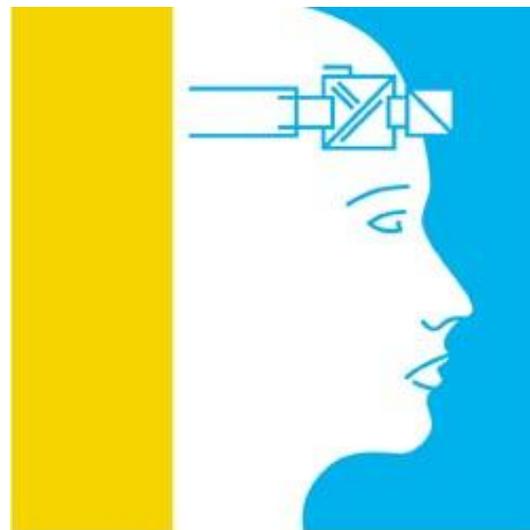
SOFTING LIBRARY

Technology: PROFIBUS

Product: PROFlusb

Topic: How-To

Use Softing's PROFlusb with PACTware™ for configuring PROFIBUS PA Devices



PACTware™

Products Concerned:

- PROFusb Softing's USB Interface to access PROFIBUS networks
- PROFdtm Communication Device Type Manager (commDTM) for Softing's PROFIBUS Interface Cards
- PACTware Vendor and Fieldbus independent FDT Container Software

Purpose of this Document

The purpose of this document is to describe how-to integrate and use Softing's PROFusb interface card with PACTware.

Assumptions / Preconditions

It is assumed that the reader of this document is familiar with (a) PROFIBUS technology and the capabilities of available field devices and (b) with the FDT container software PACTware.

Introduction

FDT is an open technology that enables users to easily access and extract intelligent information from their automation products. Depending on the actual installation FDT technology requires three, maximum four types of components.

- FDT Container Application A Windows application that represents the user interface. The container application relies on CommDTM's to access the communication layer and invokes vendor specific DeviceDTM's to operate field devices.
- CommDTM A commDTM represents communication devices like PC communication cards, couplers, gateways, and linking devices. Provided by the interface card manufacturer.
- GatewayDTM GatewayDTMs are required if transitions between different network protocols exist. A gatewayDTM goes into action between the communication DTM and the device DTM..
- DeviceDTM In a comparison the DeviceDTM corresponds to the printer driver. It is used in different systems in the same way. Provided by the device manufacturer

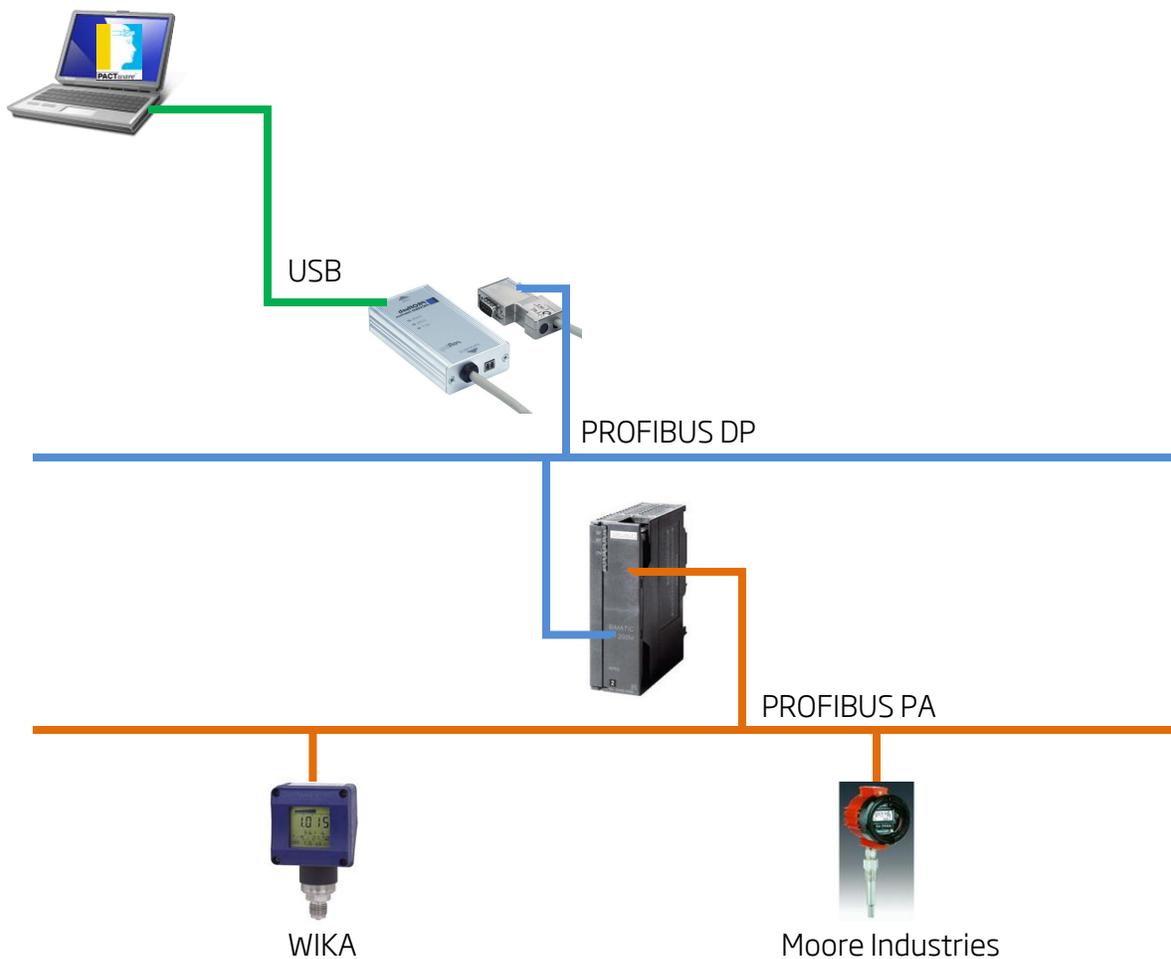
For more information on FDT technology please visit www.fdtgroup.org

Environment

The example environment consists of

- Computer running Windows 7 SP1 32-bits
- PACTware Version 4.0
- PROFlusb interface card
- Two PROFIBUS PA field devices
- Siemens DP/PA coupler

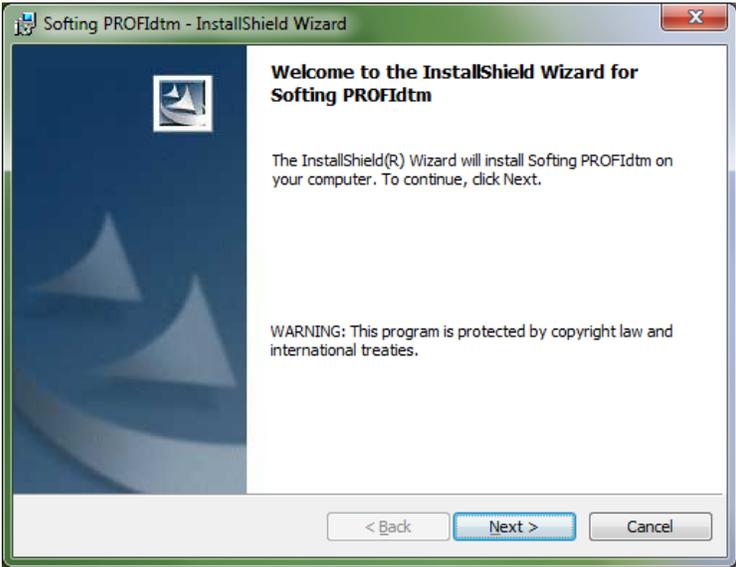
Network Diagram



Software Installation

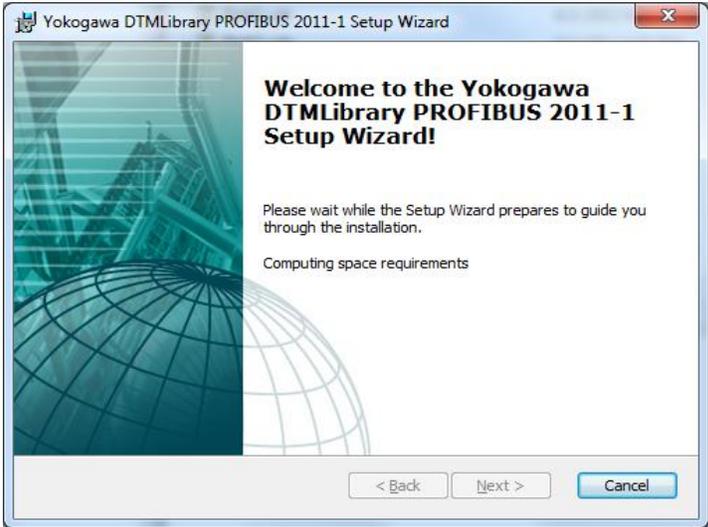
First install all components that make up the system.

Step	Action																
1.a	<p>Locate the software CD included with the PROFlusb interface card and install the hardware driver. Depending on your version of Windows you might have to answer a few security questions. In our case, the driver for the 32-bit version of Windows 7 is installed.</p> <table border="1"> <thead> <tr> <th>Version</th> <th>Operating System</th> <th>Installation</th> <th>Manuals</th> </tr> </thead> <tbody> <tr> <td>5.45 (32-Bit)</td> <td>Windows 7, Windows Vista, Windows XP and Windows 2000</td> <td>Software Installation ↓</td> <td>User manual (Version 5.4) 📄</td> </tr> <tr> <td>5.45 (64-Bit)</td> <td>Windows 7, Windows Vista and Windows XP</td> <td>Software Installation ↓</td> <td>User manual (Version 5.4) 📄</td> </tr> <tr> <td>5.27 (32-Bit)</td> <td>Window NT and Windows 9x/ME</td> <td>Software Installation ↓</td> <td>User manual (Version 5.2) 📄</td> </tr> </tbody> </table>	Version	Operating System	Installation	Manuals	5.45 (32-Bit)	Windows 7, Windows Vista, Windows XP and Windows 2000	Software Installation ↓	User manual (Version 5.4) 📄	5.45 (64-Bit)	Windows 7, Windows Vista and Windows XP	Software Installation ↓	User manual (Version 5.4) 📄	5.27 (32-Bit)	Window NT and Windows 9x/ME	Software Installation ↓	User manual (Version 5.2) 📄
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1.b	Restart the computer																
2.a	<p>Locate or download the free-of-charge PROFIdtm from Softing.</p> <p>To download the PROFIdtm please follow the link below , click on "Downloads", and select "PROFIBUS CommDTM PROFIdtm Vx.yz Free of Charge":</p> <p>http://industrial.softing.com/en/products/functionality/interface-cards-gateways/usb-interface-cards/profibus/profibus-master-single-channel-usb-interface-card.html</p>																

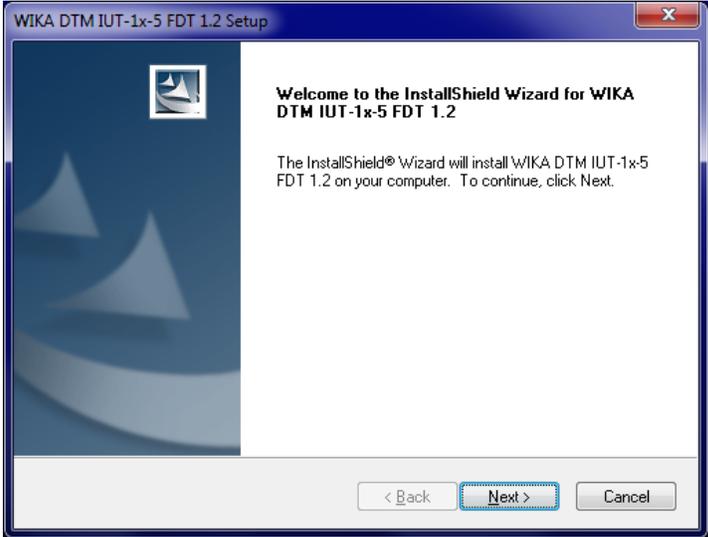
2.b	<p>Install the PROFIdtm</p> 
3	<p>Download and install PACTware (FDT frame application). You can download PACTware, for example, from http://www.pepperl-fuchs.us/usa/en/classid_162.htm</p> 

4 Locate or download the required deviceDTMs of all of your field devices and install them. Depending on your version of Windows you might have to answer a few security questions.

Install Example 1: Yokogawa DTM library for PROFIBUS devices



Install Example 2: Single deviceDTM for a WIKA device



Display Elements of the PROFlusb interface card

On the front of the PROFlusb are five LEDs (PWR (Power); CON; ACT) indicating the device and the communication status. The Table below shows the symbols used in this document for the various indications of the display elements (LED block).

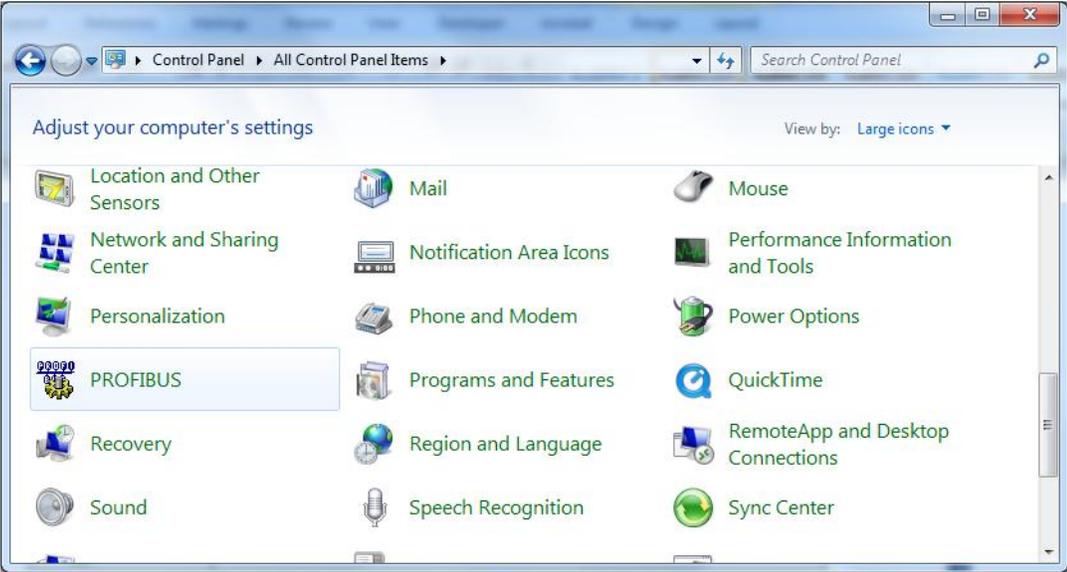
Symbol	Meaning for Display Element
	LED OFF
	LED Permanent
	LED Flashing

Display Element	Description
PWR (Power)	Power Indicator
 Off	No connection; No supply voltage is present.
 Green	Power is on (over USB or external power supply).
CON	Status of PROFlusb
 Green	USB cable is connected but card is not initialized by application
 Off	Card is initialized - no USB communication
 Green	Card is initialized - active USB communication
 Red	USB communication error (consult manual)
ACT	Status of PROFIBUS Master
 Off	PROFIBUS Master is not initialized
 Green	PROFIBUS Master is initialized - Master ready but not communicating
 Green	PROFIBUS Master is communicating
 Red	PROFIBUS communication error (consult manual)

Connecting the PROFlusb

The following list the necessary steps to establish a link between a computer and the PROFlusb and to connect the PROFlusb to PROFIBUS.

Note: The PROFlusb is based on PROFIBUS DP as the physical layer. To access PROFIBUS PA devices a DP to PA coupler must be present in your network.

Step	Action
1	Connect the included USB cable to your computer and to the PROFlusb interface card.
2	<p>Open the "Control Panel" located and open the item "PROFIBUS". Note: You might have to switch from the "Category" view to the "Icon" view to see this item.</p>  <p>The screenshot shows the Windows Control Panel window with the view set to 'Large icons'. The 'PROFIBUS' icon is highlighted with a blue selection box. Other visible icons include Location and Other Sensors, Network and Sharing Center, Personalization, Recovery, Sound, Mail, Notification Area Icons, Phone and Modem, Programs and Features, Region and Language, Speech Recognition, Mouse, Performance Information and Tools, Power Options, QuickTime, RemoteApp and Desktop Connections, and Sync Center.</p>

2.b Click on "Scan.."

The screenshot shows the PROFIBUS Control Panel window. On the left, a tree view lists various PROFIBUS components, with 'PBpro ETH / FG series' selected. The right pane shows details for this series, including a table with 'Item' and 'Data' columns, and a 'Firmware Version' field with the value '<not available>'. At the bottom, the 'Scan...' button is highlighted with a green rectangular box. Other buttons like 'Add...', 'Remove', 'Edit...', 'OK', 'Cancel', and 'Apply' are also visible.

2.c A green check mark will appear to indicate that the driver has recognized the PROFlusb interface card. Click on "Apply" and/or "OK".

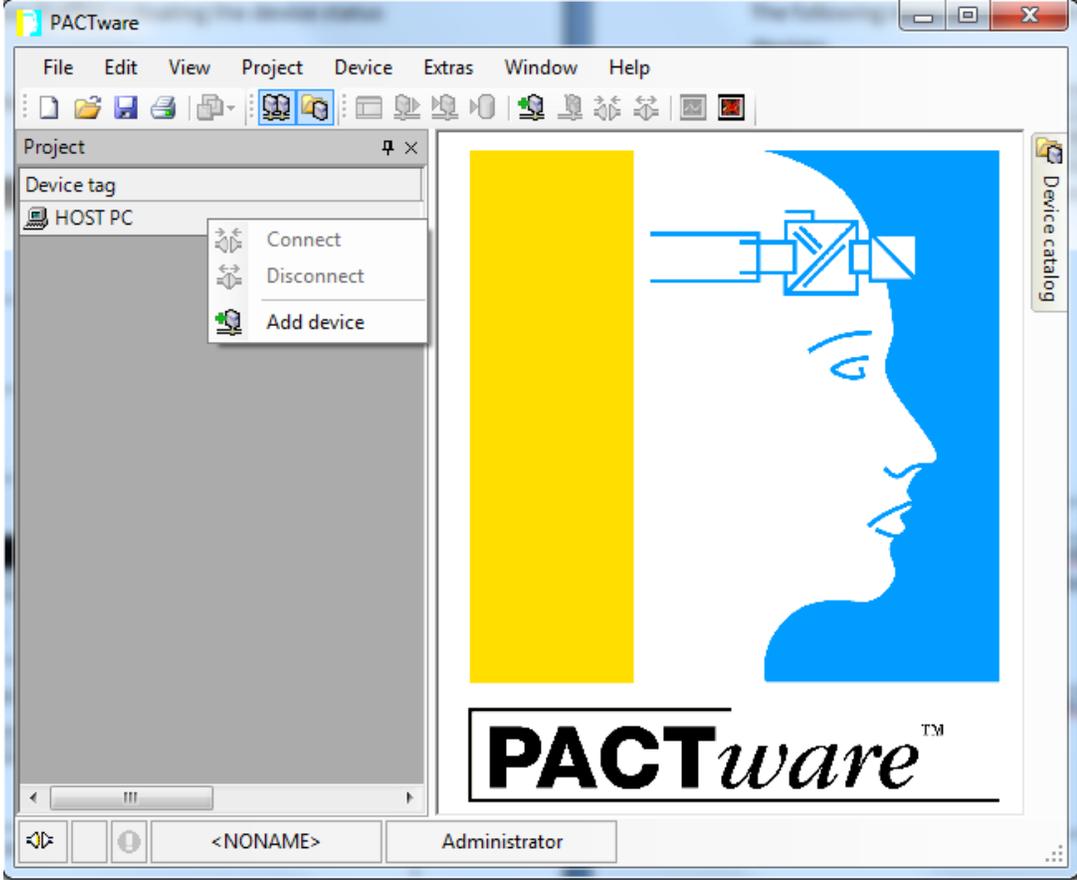
The screenshot shows the PROFIBUS Control Panel window after a scan. The tree view on the left now includes 'PROFlusb' with a sub-entry 'Node0' that has a green checkmark next to it. The right pane displays details for 'PROFlusb Node0', including 'Interface Number 0', 'Serial Number 110702431', 'Firmware Type PROFstack Master', and 'Firmware Version PROFstack 6.22.0.03.release.built16E'. Below the details, there are sections for 'Device Names' and 'Alias Dev. Names' with their respective paths. At the bottom, the status message 'This device is working properly' is displayed. The 'Apply' button is highlighted with a green rectangular box.

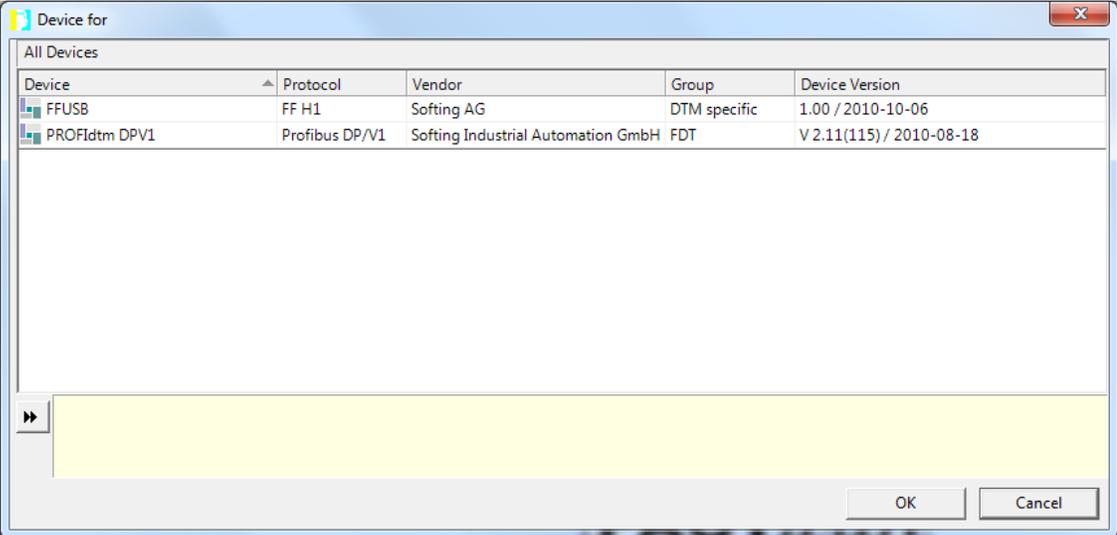
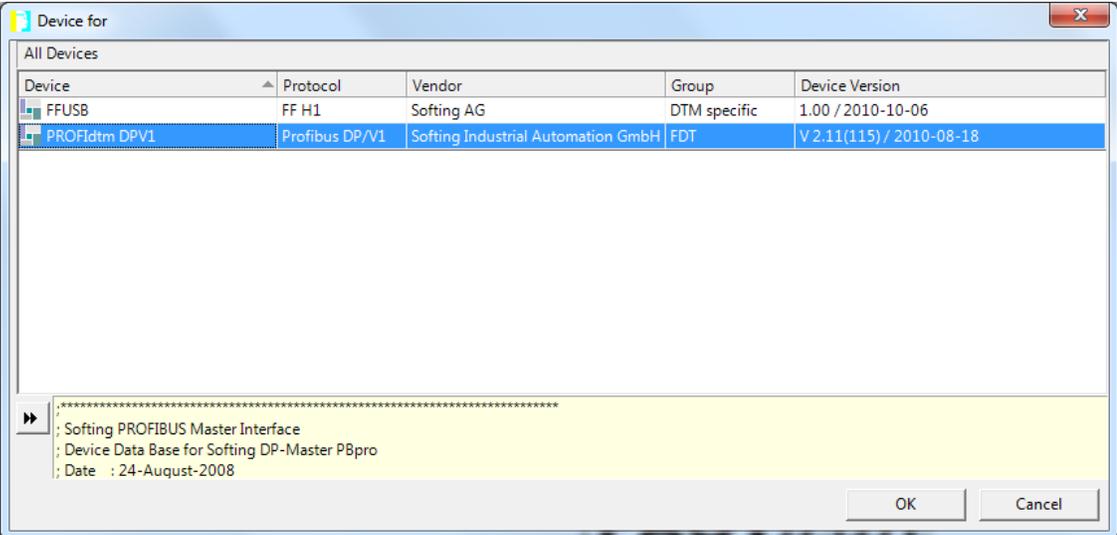
- 3 Use the standard 9-pin male PROFIBUS connector to connect the PROFlusb interface card to the PROFIBUS DP network.

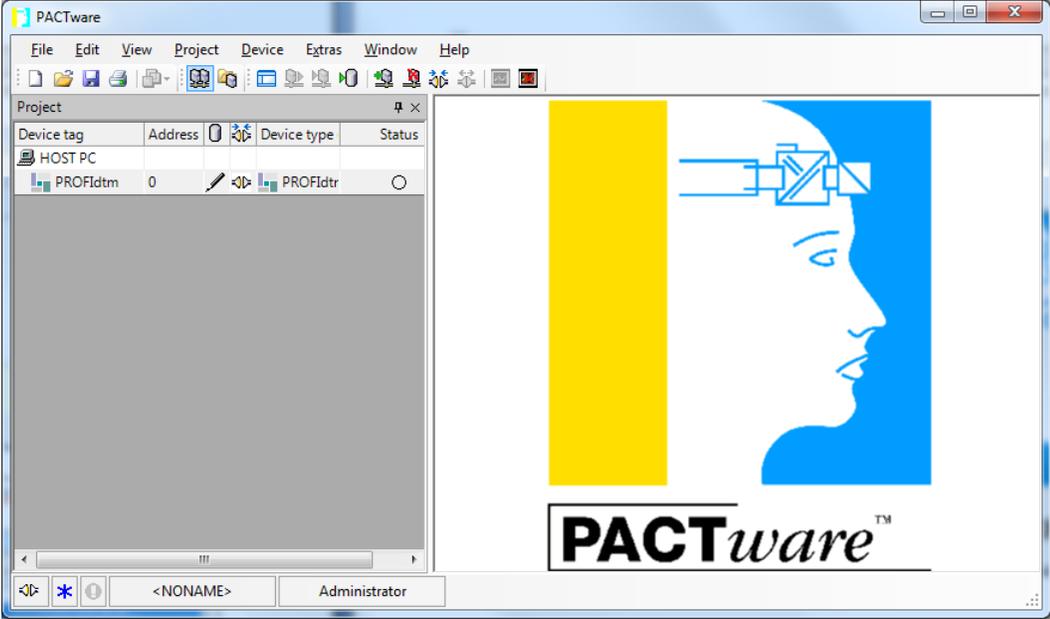


Selecting the PROFlusb Interface Card within PACTware

The following steps demonstrate how to use Softing's PROFlusb within PACTware to gain access to field devices.

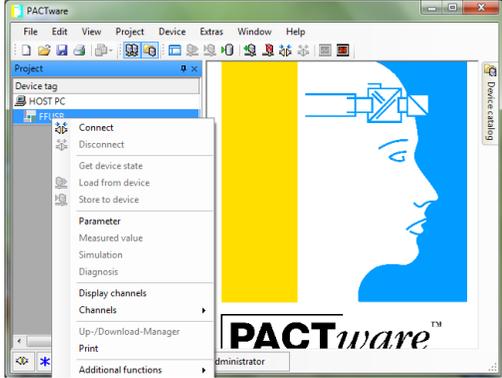
Step	Action
1	Start the FDT container application PACTware. Note: Open and update the PACTware "Device Catalog" if necessary.
2	First, you need to instantiate the commDTM. Hover with your mouse over the symbol "HOST PC" and right-click with your mouse (You can also use the F3 key to open the device catalog). 

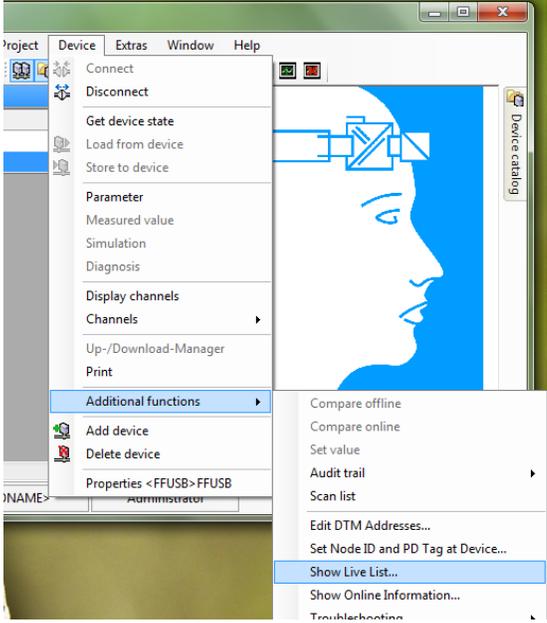
Step	Action															
3	<p>A left mouse-click on “Add device” displays the list of available commDTMs on your computer.</p>  <table border="1" data-bbox="316 493 1404 577"> <thead> <tr> <th>Device</th> <th>Protocol</th> <th>Vendor</th> <th>Group</th> <th>Device Version</th> </tr> </thead> <tbody> <tr> <td>FFUSB</td> <td>FF H1</td> <td>Softing AG</td> <td>DTM specific</td> <td>1.00 / 2010-10-06</td> </tr> <tr> <td>PROFIdtm DPV1</td> <td>Profibus DP/V1</td> <td>Softing Industrial Automation GmbH</td> <td>FDT</td> <td>V 2.11(115) / 2010-08-18</td> </tr> </tbody> </table>	Device	Protocol	Vendor	Group	Device Version	FFUSB	FF H1	Softing AG	DTM specific	1.00 / 2010-10-06	PROFIdtm DPV1	Profibus DP/V1	Softing Industrial Automation GmbH	FDT	V 2.11(115) / 2010-08-18
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4	<p>Select the entry PROFIdtm and click on “OK”. This is the commDTM for Softing’s PROFibus interface card.</p>  <table border="1" data-bbox="316 1161 1404 1245"> <thead> <tr> <th>Device</th> <th>Protocol</th> <th>Vendor</th> <th>Group</th> <th>Device Version</th> </tr> </thead> <tbody> <tr> <td>FFUSB</td> <td>FF H1</td> <td>Softing AG</td> <td>DTM specific</td> <td>1.00 / 2010-10-06</td> </tr> <tr style="background-color: #e0e0ff;"> <td>PROFIdtm DPV1</td> <td>Profibus DP/V1</td> <td>Softing Industrial Automation GmbH</td> <td>FDT</td> <td>V 2.11(115) / 2010-08-18</td> </tr> </tbody> </table> <p data-bbox="354 1507 860 1575"> ; Softing PROFIBUS Master Interface ; Device Data Base for Softing DP-Master PBpro ; Date : 24-August-2008 </p>	Device	Protocol	Vendor	Group	Device Version	FFUSB	FF H1	Softing AG	DTM specific	1.00 / 2010-10-06	PROFIdtm DPV1	Profibus DP/V1	Softing Industrial Automation GmbH	FDT	V 2.11(115) / 2010-08-18
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Step	Action												
5	<p data-bbox="297 348 1398 426">After few seconds a symbol representing the Softing commDTM will be added to the project.</p>  <p>The screenshot shows the PACTware software interface. On the left, there is a 'Project' table with the following data:</p> <table border="1"><thead><tr><th>Device tag</th><th>Address</th><th>Device type</th><th>Status</th></tr></thead><tbody><tr><td>HOST PC</td><td></td><td></td><td></td></tr><tr><td>PROFIdtm</td><td>0</td><td>PROFIdtr</td><td></td></tr></tbody></table> <p>The main workspace on the right displays a logo consisting of a yellow vertical bar, a blue profile of a head with a technical symbol on its forehead, and the text 'PACTware™' below it. The taskbar at the bottom shows the user is logged in as 'Administrator'.</p>	Device tag	Address	Device type	Status	HOST PC				PROFIdtm	0	PROFIdtr	
Device tag	Address	Device type	Status										
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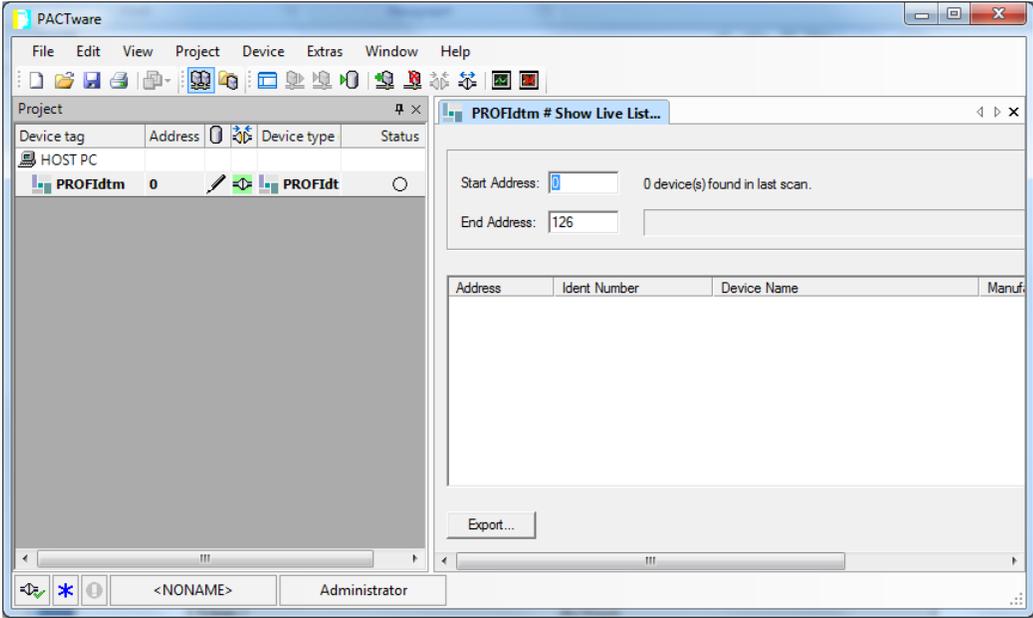
Testing the PROFlusb within PACTware

The following steps demonstrate how-to generate a live list of all connected PROFIBUS PA devices within PACTware.

Step	Action
1	<p>Right click on the PROFIdtm symbol and select "Connect" or select the PROFIdtm symbol and use the menu entry "Device->Connect".</p> 

Step	Action
2	<p>Right click on the PROFIdtm symbol and select "Additional Functions-> Show Live List..." or select the PROFIdtm symbol and use the menu entry "Device-> Additional Functions-> Show Live List..."</p>  <p>Please Note: The PROFlusb requires a DP to PA coupler to access PA devices. Please refer to the manual of the DP/PA coupler to configure the correct baud rate within the PROFIdtm. You can select the baud rate by (a) right-clicking on PROFIdtm symbol and selecting "Parameter" or under menu entry "Device->Parameter".</p>

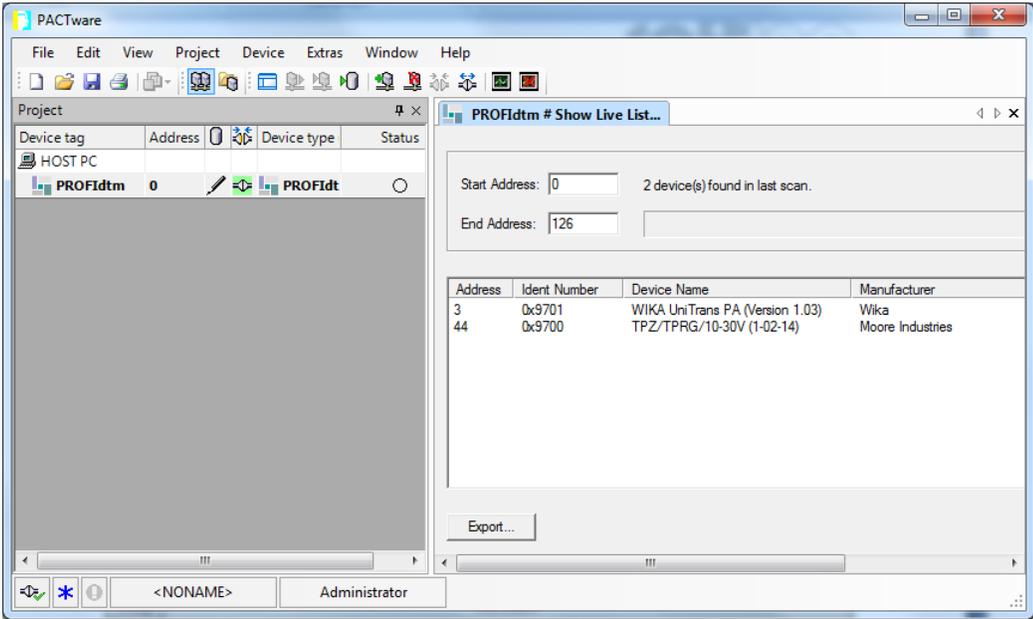
3 Click on the "Start Scan" Button on the right to start the process of creating the live list.



Step

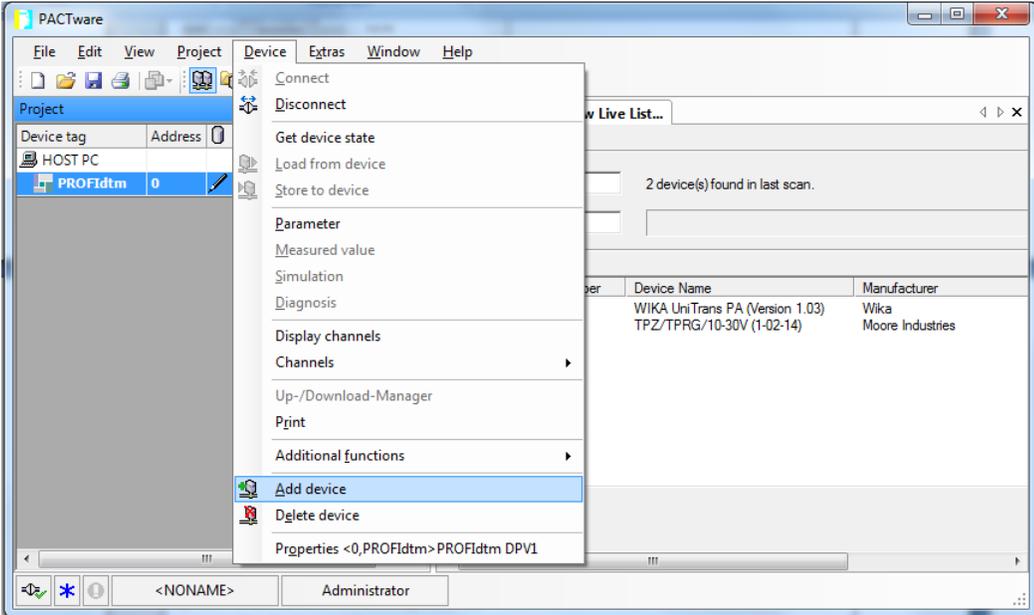
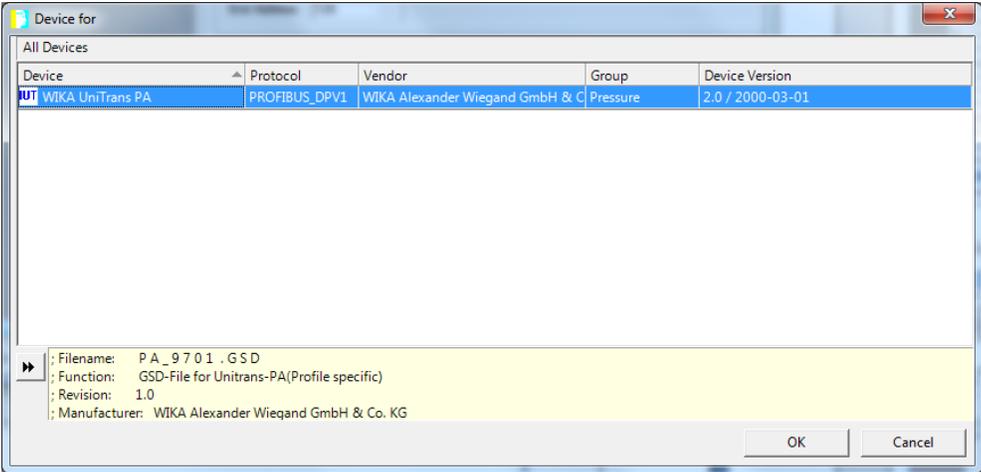
Action

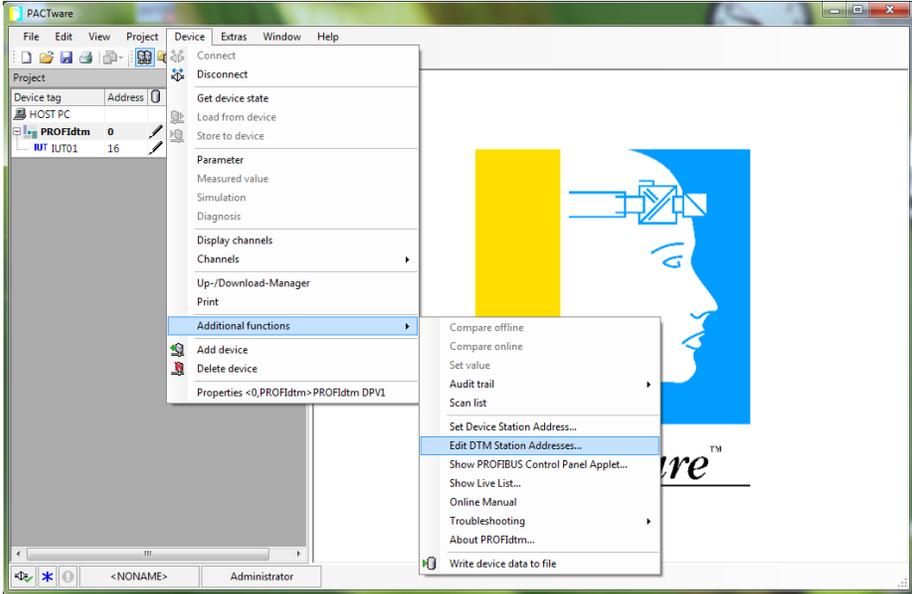
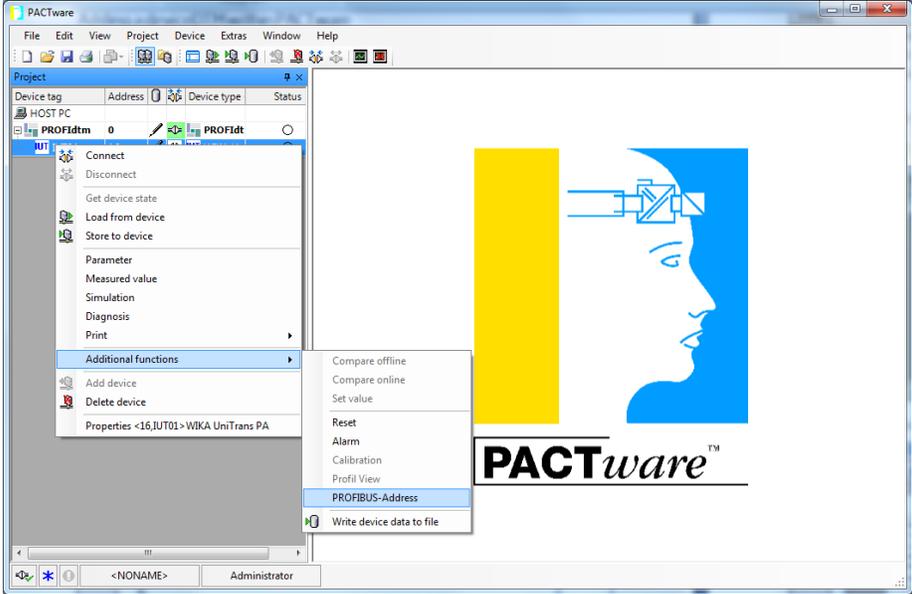
4 After a few minutes PACTware will display a list of all connected devices. Your PROFIdtm is working correctly with the PROFibus interface card.

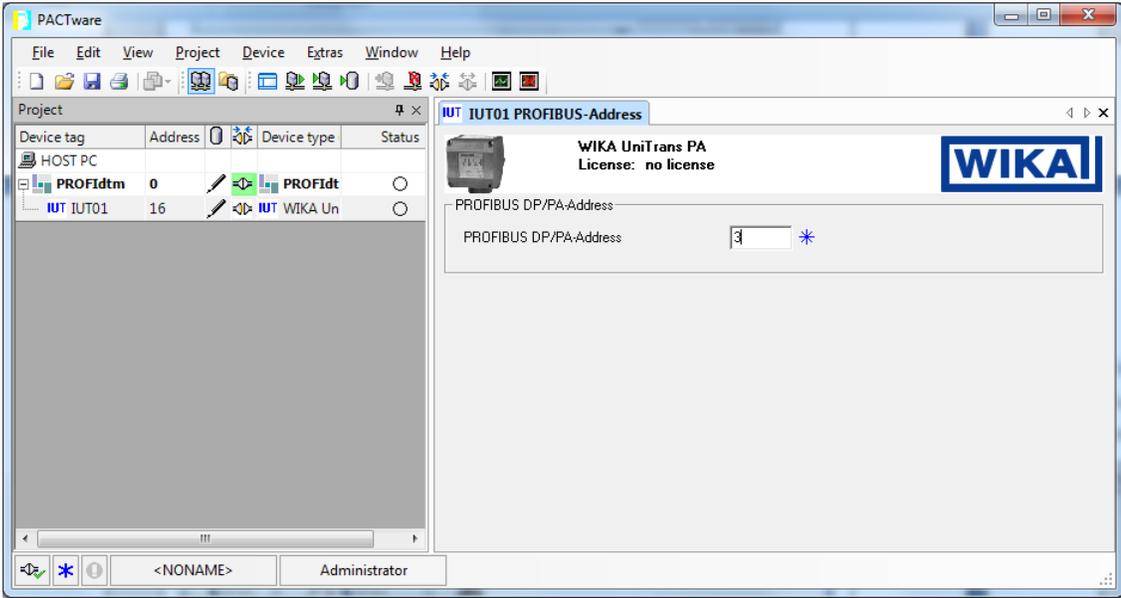


Adding a deviceDTM within PACTware

The following steps demonstrate how to add and configure a deviceDTM. In this example we add a deviceDTM from WIKA.

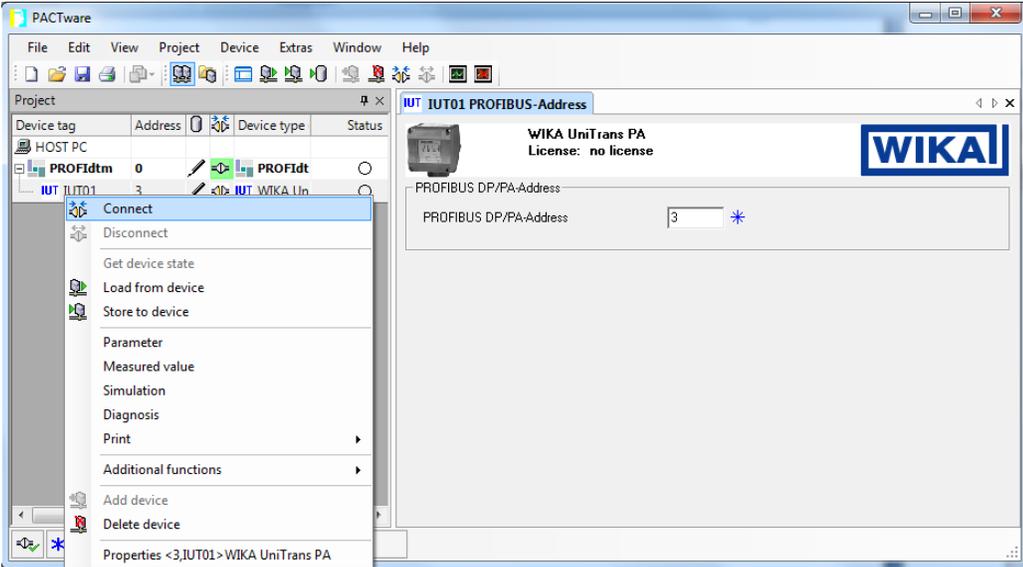
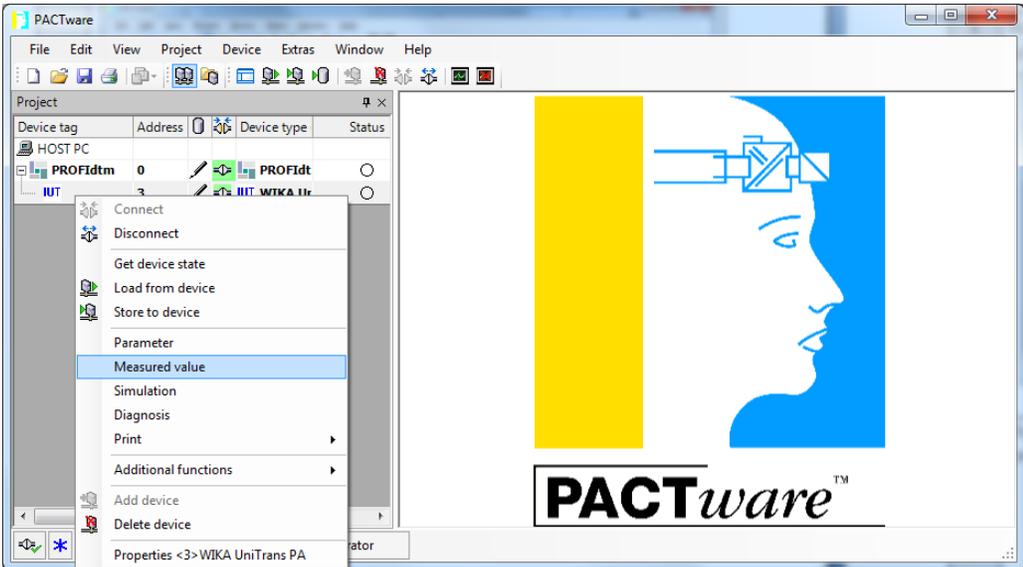
Step	Action
1	<p>Right click on the PROFIdtm symbol and select "Add device" or select the PROFIdtm symbol and use the menu entry "Device->Add device". You can also use the F3 button to open the device catalog.</p> 
2	<p>Select the appropriate deviceDTM. For this example we select the WIKA deviceDTM for the WIKA pressure transmitter.</p> 

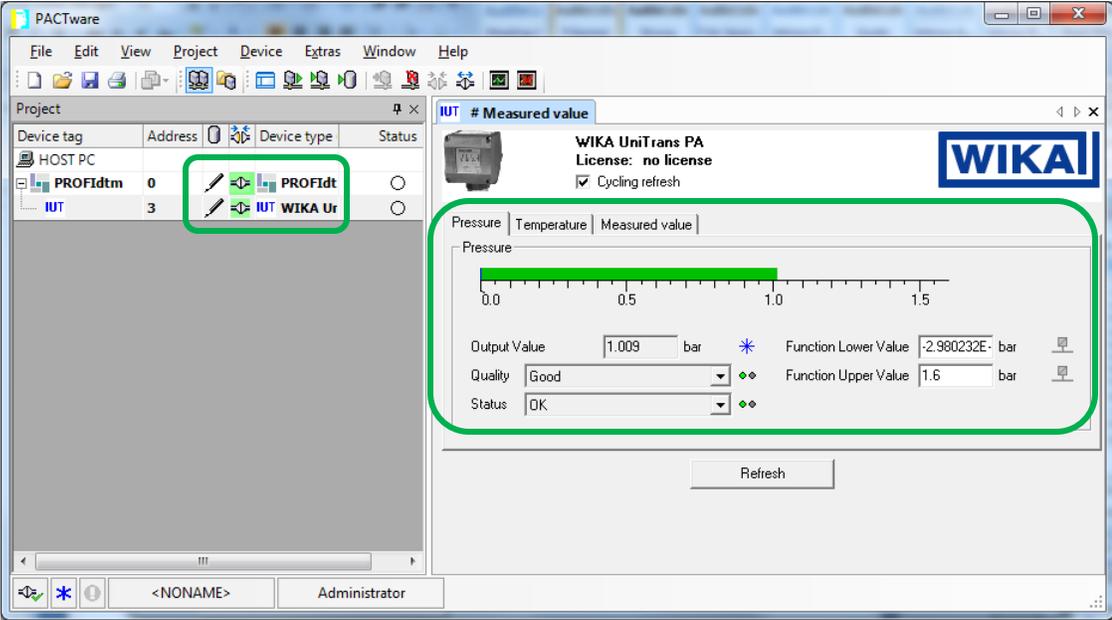
Step	Action
3	<p>Assign the field device address to the according deviceDTM. Please refer to the "Live List" for a list of all addresses used in your network.</p> <p>There are multiple methods to accomplish this configuration step. Here are two examples:</p> <ol style="list-style-type: none"> 1. Right-click on the PROFIdtm symbol and select "Additional functions-> Edit DTM Addresses".  <ol style="list-style-type: none"> 2. Right-click on the deviceDTM and select "Additional functions-> PROFIBUS-Address". 

Step	Action
3	<p data-bbox="300 346 1356 430">Edit the PROFIBUS Address to match the settings in the actual field device. Please refer to the "live list" for the correct address.</p>  <p>The screenshot shows the PACTware interface. On the left, a 'Project' table lists devices: 'HOST PC', 'PROFIdm 0', and 'IUT IUT01' with address '16'. The 'IUT IUT01' device is selected. On the right, the 'IUT IUT01 PROFIBUS-Address' dialog box is open, showing the device name 'WIKA UniTrans PA' and license 'no license'. The 'PROFIBUS DP/PA-Address' field contains the value '3'.</p>

Test the deviceDTM within PACTware

The following steps demonstrate how to use a deviceDTM of a specific PROFIBUS PA device to operate a field device within PACTware.

Step	Action
1	<p>Right click on the deviceDTM symbol and select "Connect" or select the deviceDTM symbol and use the menu entry "Device->Connect".</p>  <p>The screenshot shows the PACTware interface with a project tree on the left containing a device 'IUT IUT01'. A context menu is open over the device, with 'Connect' selected. The main window displays the 'WIKI UniTrans PA' device properties, including the PROFIBUS DP/PA-Address set to 3.</p>
2	<p>Right click on the deviceDTM symbol and select, for example, "Measured value" or select the deviceDTM symbol and use the menu entry "Device-> Measured value".</p>  <p>The screenshot shows the PACTware interface with the same project tree. A context menu is open over the device, with 'Measured value' selected. The background of the main window features a stylized blue and yellow logo of a human head profile with a gear, and the 'PACTware' logo at the bottom.</p>

Step	Action
3	<p data-bbox="293 348 1421 470">If the deviceDTM is configured correctly the deviceDTM-specific "Measured value form" will be populated with actual data from the field device indicating that the deviceDTM is working correctly.</p>  <p>The screenshot shows the PACTware interface. On the left, a project tree lists devices: HOST PC, PROFIdtm (tag 0), and IUT (tag 3). The IUT device is expanded to show a WIKA Ur device. The main window displays the 'Measured value' form for the WIKA UniTrans PA device. The form includes a pressure gauge showing a value of 1.009 bar. Below the gauge, the 'Output Value' is 1.009 bar, 'Quality' is Good, and 'Status' is OK. The 'Function Lower Value' is -2.980232E- bar and the 'Function Upper Value' is 1.6 bar. A 'Refresh' button is located at the bottom of the form. The 'Measured value' tab is highlighted with a green box.</p>