



Operating Instruction Manual

ComPro DTM

Configuration of the netTAP

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1 Introduction

1.1 About ComPro DTM

This manual describes the use of ComPro DTM. According to the FDT/DTM specification a DTM represents a single device and/or a device class. The ComPro DTM is used for configuration and diagnosis of devices within a FDT frame application.

1.2 System Requirements

- PC with 1 GHz processor or higher
- Windows NT 4.0/2000/XP
- Windows NT: Service Pack 6a
- Internet Explorer Version 5.5 or higher
- FDT/DTM V 1.20 compliant Frame Application
- Free disk space: min. 20 - 30 MByte
- CD ROM drive
- RAM: min. 256 MByte
- Graphic resolution: XGA (1024 x 768) or higher
- Keyboard and Mouse

Further conditions for using ComPro DTM:

To configure a device with a ComPro DTM the following requirements have to be accomplished:

- Completed hardware installation of a DTM-compatible device
- Installed FDT Framework
- Open Project in FDT Framework
- Loaded DTM in the Device Catalog of the FTD Framework

Note: For configuration with the ComPro DTM only one device can be inserted in the configuration file of the frame application.

2 ComPro DTM Structure

2.1 Representation of ComPro DTM

The configuration dialog of the ComPro DTM is divided in different areas:

- A common header which contains the **General Device Information**.
- A combination of a tree view control, the **Project Tree**, and an editable table control, called **Configuration Window**.

2.1.1 General Device Information

The general device information contains information about the device configured with ComPro DTM.

This information are the **Device Type**, the name of the **Device** and a **Description** about this device.


	Device Type:	NetTap Device
	Device:	NT 30-DPS-RS4
	Description:	DP-Slave - RS-485/422

Figure 1: General Device Information

2.1.2 Project Tree

The left side in the combination window shows the device configuration as project tree. The representation of the sub items in this project tree depends on the loaded firmware and so its representation can vary.

General Structure of the Project Tree:

Settings	
Device	The subfolder Device in the Settings folder contains the functions Select Firmware and Download firmware as well as the function Device Assignment , where the favored driver can be assigned.
Configuration	The subfolder Configuration in the Settings contains the Parameter of the opened configuration. The displayed parameters depend on the loaded firmware and can be edited in the corresponding sub items.
Service	
Device	The subfolder Device in the Service folder shows the Device information as well as the Configured Drivers for informational use and the function Driver Activation . To use the Service functions the device needs to be connected because the displayed information is read out from the device.
Diagnosis	
Device	The subfolder Device in the Diagnosis folder contains the function Reset Firmware and displays the Firmware name and the Firmware version of the actual loaded firmware as well as the Task States of the actual configured protocol which are cyclically updated. The displayed task states depend on the selected firmware file and so the representation can vary.

Table 1: Structure of ComPro DTM - Overview

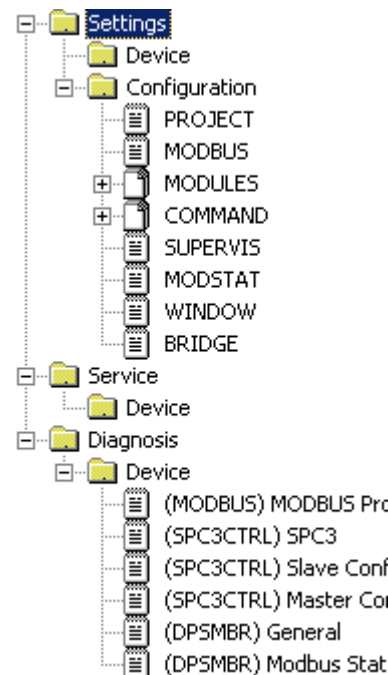


Figure 2: Project Tree (for example Modbus Protocol)

2.1.3 Configuration Window

The right side in the combination window shows the possibilities of the device configuration in detail. The representation in the individual sub items in the configuration window depend partially on the loaded firmware and so it can vary.

Two main groups of the configuration window are available:

1. Configuration Dialogs

The configuration dialogs are for example the Device dialog in the Settings folder where the device assignment and the firmware selection can be set.

2. Editable Tables

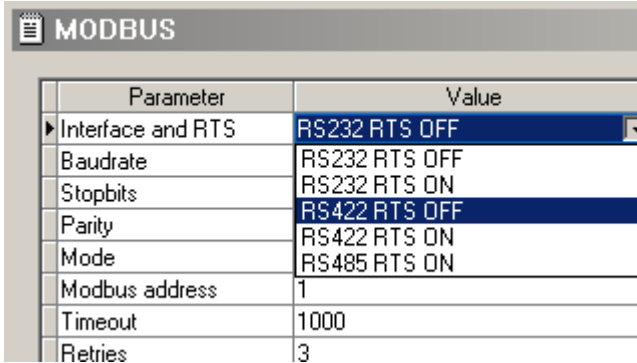
The editable tables contain parameters and values. Depending on the selected item in the project tree the parameter values are displayed in three different formats and so it is distinguished between two different kinds of tables:

- **Table Type 1**

This kind of table has a fixed structure. The parameter names are displayed in the left column and the corresponding values are displayed in the right column.

The column **Parameter** is static. That means the displayed names can not be changed and no parameter row can be deleted or added.

The entries in the column **Values** can be static or editable. The editable values can be changed by typing in or via a pull down menu, depending on the selected item in the project tree and the displayed parameters and values.



Parameter	Value
▶ Interface and RTS	RS232 RTS OFF
Baudrate	RS232 RTS OFF
Stopbits	RS232 RTS ON
Parity	RS422 RTS OFF
Mode	RS422 RTS ON
Modbus address	1
Timeout	1000
Retries	3

Figure 3: Configuration Window - Table Type 1 (for example Modbus parameter)

- **Table Type 2**

The **entire display** of table type 2 has a fixed structure and the entries can not be edited directly.

The **Parameter** names are displayed in the headline and the **Values** of all data sets are shown in the following lines.

Entries can be added to the **entire display** when adding a dataset in the **single display** of table type 2. The added dataset is also displayed in this table. This table type is used for the item MODULES in the project tree.

MODULES	
Moduletype	Modulelength
in byte con	2
out word	64
out byte con	2
out byte con	64

Figure 4: Configuration Window - Table Type 2 - Entire display

In the **single display** of table type 2 the sub items of MODULES, called dataset, are shown in a single table for each dataset. This table is structured like the table type 1. That means the **Parameter** names are displayed in the left column and the corresponding **Values** are displayed in the right column.

The column **Parameter** is static and not editable. The displayed names can not be changed and no parameter row can be deleted or added. The entries in the column **Values** can be editable. The editable values can be changed via a pull down menu.

Tables of the single display of table type 2 can be created and are added to the MODULE item.

Dataset 3	
Parameter	Value
Moduletype	out byte con
Modulelength	2

Figure 5: Configuration Window - Table Type 2 - Single display

2.2 Status String



Figure 6: Status String






Number	Meaning	
1	Name of the ComPro DTM manufacturer - Hilscher GmbH	
2	Connection State green = connected not green = not connected	
		
3	Data Source / Database	
4	Configuration was changed If this symbol is indicated, the configuration was changed and these changes have not been saved until yet. When saving the actual configuration, this symbol expires.	
5	Status of device	
	Info	
	Warning	
	Error	
6	Status of device in plain text	

Table 2: Status String

2.3 Dialog Button Behavior

OK Button

It is asked if the last modifications should be saved to the frame applications database. If it is confirmed with **OK**, the settings are stored and the dialog is closed, otherwise the dialog is closed without storing the settings.

Cancel Button

Clicking the **Cancel** button it is asked to confirm the loss of all modifications made before.

Apply Button

The modifications are stored to the frame applications database when clicking the **Apply** button.

3 Configuration with the ComPro DTM

3.1 Getting Started - Configuration Steps

The following table describes the steps to configure a device with ComPro DTM as it is typical for many cases. At this time it is presupposed that the hardware installation was done.

This configuration steps are described as example of a netTAP device. In case of other devices some configuration steps can be different to this example.

#	Action	Short Description	For detailed information see section	Page
1	Create new project / Open existing project	Depends on frame application For Hilscher netFrame select File > New respectively File > Open	-	-
2	Load device catalog	Depends on FDT Container For Hilscher netDevice select Network > Device Catalog > Reload Catalog	-	
3	Insert device into configuration	Depends on FDT Container For Hilscher netDevice insert device via drag and drop on the Master bus line in the window netDevice	-	-
4	Select firmware	Click the Browse button in the Device Configuration dialog and select a firmware file, then click Open	<i>Select Firmware File</i>	16
5	Select driver	Select a driver in the Device Configuration dialog and click the Select button. Assign the device to this driver.	<i>Select Driver</i>	18
6	Load firmware	Load the selected firmware by selecting the Download button in the Device Configuration dialog	<i>Load Firmware</i>	16
7	Configure device	Configuration possibilities depend on loaded firmware	-	-
8	Save project	Depends on frame application For Hilscher netFrame select File > Save	-	
9	Connect device	Depends on FDT Container For Hilscher netDevice select Device > Connect	<i>Connect / Disconnect Device</i>	21
10	Download Configuration	Depends on FDT Container For Hilscher netDevice select Device > Download	<i>Download</i>	21
11	Diagnosis	Select the item Task State (Task states depend on loaded firmware) and see states for diagnosis information	<i>Diagnosis</i>	24
12	Disconnect	Depends on FDT Container For Hilscher netDevice select Device > Disconnect	<i>Connect / Disconnect Device</i>	21

Table 3: Getting Started - Configuration Steps

3.2 Firmware

3.2.1 Select Firmware File

A firmware file has to be selected to be able to use the configuration and diagnosis functions of the ComPro DTM. If no firmware file is selected all configuration dialogs are disabled.

With the **Browse** button the dialog for selection of a firmware file opens.

In this dialog a firmware can be selected by clicking on it. Below the selection field the name of the selected **Firmware**, the name of the connected **Hardware** as well as the firmware **Version** and the manufacturer **Date** are shown.

Firmware:	DPSASC
Hardware:	NT30DPS
Version	V01.000a
Date:	03.06.03

Figure 7: Select Firmware File - Displayed Firmware Information

Select the favored firmware by clicking on it and open it via the **Open** button.

A firmware download to the device can be made now, if the device was assigned to a driver.

More information about the **Device Assignment** can be found in section *Select Driver* on page 18.

Further information about the **Download of the Firmware** is described in section *Load Firmware* on page 16.

3.2.2 Load Firmware

A firmware file need to be loaded, if no firmware is available in the device or if a new firmware file for the device is selected.

Click the **Download** button in the Device dialog to load the firmware into the device.

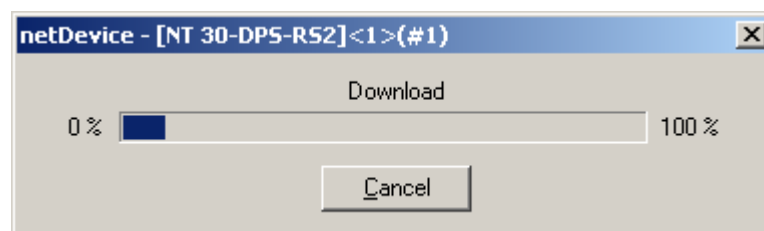


Figure 8: Firmware Download

After the download the **Name** and the **Version** of the selected firmware are displayed in the **Device** dialog:

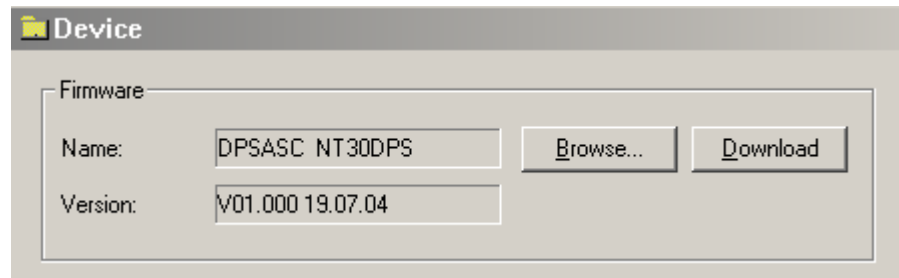


Figure 9: Device Dialog

After a firmware download also a sub folder with the name **Configuration** is created in the **Settings** folder of the project tree. This folder contains the configuration of the device divided to different sub items. These items, displayed in the folder depend on the loaded firmware and are not described here in detail.

For further information see the manual of the loaded firmware.

3.3 Select Driver

In the dialog of the **Device Assignment**, a driver has to be selected. With the selection of the driver, it is determined, how the ComPro DTM communicates with the device.

To select a driver, mark the favored driver by clicking on it in the dialog window **Device Assignment** and confirm your selection with **Select**.

The configuration window of the favored driver opens.

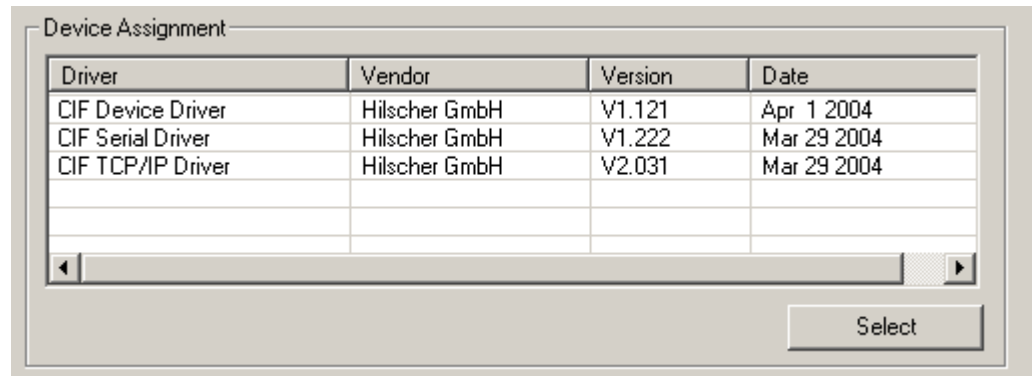


Figure 10: Device Assignment - Driver Selection

Note: This is a list of drivers that are installed on the PC. It depends on the device, which driver can be used.

The following drivers are available:

- **CIF Device Driver**

The ComPro DTM communicates with the device via the Dual-port memory of the device. This communication is utilized when ComPro DTM is used on the same PC on which the device is installed.

Note: The CIF Device Driver has to be installed and it must have access to the device.

- **CIF Serial Driver**

The ComPro DTM communicates with the device via a serial connection. In this case a COM port of the PC must be connected with the diagnostic interface of the device via a diagnostic cable.

Note: The pin assignment of the diagnostic cable is described in the hardware documentation of the device manufacturer.

This communication is utilized when ComPro DTM has to access the device via the diagnostic interface of the device.

Note: If a netTAP device is used, only the serial driver can be used for configuration.

If a device is installed in the PC the following two application cases are possible:

Application case 1: ComPro DTM is installed on another PC (e.g. a notebook) than the device.

Application case 2: ComPro DTM is installed on the same PC on which the device is situated. Then the application can use the Dual-port memory to access the device and the diagnostic interface can be used at the same time to communicate with the device (diagnostic data).

- **CIF TCP/IP Driver**

ComPro DTM communicates with the device via an Ethernet TCP/IP connection.

This communication is utilized when ComPro DTM is installed on a PC and the PC and the device are connected via Ethernet.

It has to be distinguished:

1. The device is installed in a PC and the TCP/IP connection is built up to the PC, which means the IP address of the PC is used as IP address.
2. The device has an own Ethernet connection and the TCP/IP connection is built up to the device, that means the IP address of the device is used as IP address.

Select the favored driver for the communication between ComPro DTM and the used device from the lower table.

You find a detailed instruction about the selection of the several drivers in the denoted section:

Driver	Described in section	Page
CIF Device Driver	<i>CIF Device Driver</i>	25
CIF Serial Driver	<i>CIF Serial Driver</i>	27
CIF TCP/IP Driver	<i>CIF TCP/IP Driver</i>	29

Table 4: Driver Selection

3.4 Configure Device

The device configuration is carried out in the sub folder **Configuration** which is included in the folder **Settings**.

The first item in the configuration is always **Project**. There the project information is shown and can be edited if necessary.

The following items depend on the loaded firmware and can vary. For more detailed information about the configuration of these items see the description of the firmware.

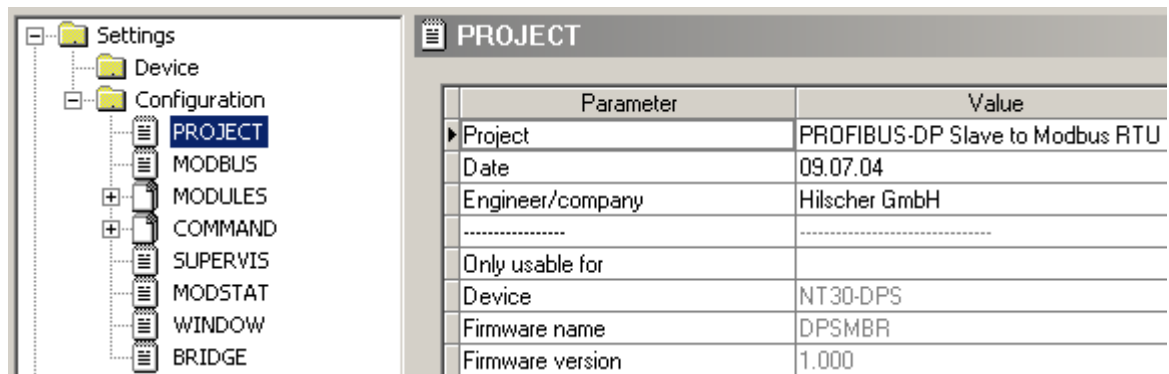


Figure 11: Configure device - Project

4 Online Functions

4.1 Connect / Disconnect Device

For using the functions **Service** and **Diagnosis**, it is necessary that an online connection to the device exists otherwise this dialogs are not available or do not contain values.

Note: The **Settings** function with its configuration windows can only be edited if the device is offline.

Build up Connection

A connection to the device is mostly built up via the context menu of the device. Admittedly the menu direction depends on the frame application (FDT Framework) and it can vary.

For further information about building up a connection see the description of the frame application.

Disconnect Device

If the connection to the device should be disconnected, mostly the context menu of this device has to be called up again. Where to find the function for disconnecting a device, admittedly depends on the frame application (FDT Framework) and it can vary.

4.2 Download

A download to the device has to be made to transfer the configuration with the corresponding parameter data into the device, which was created in the application.

Note: Before a download can be made, a connection to the device has to be build up. Further information about building up a connection you find in section *Connect / Disconnect Device* on page 21.

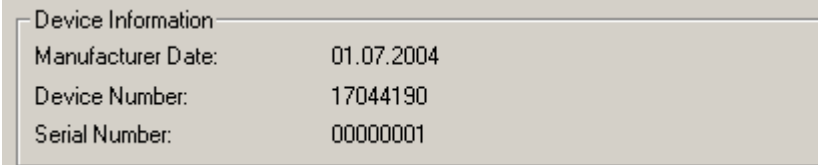
If the download was successfully, the actual configuration in the application is loaded down into the Master device.

4.3 Service

4.3.1 Device

General Device Information:

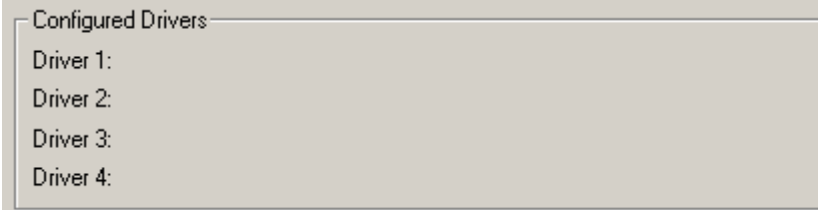
The device dialog contains information about the connected hardware. The **Manufacturer Date**, the **Device Number** and the **Serial Number** are retrieved and shown here.



Device Information	
Manufacturer Date:	01.07.2004
Device Number:	17044190
Serial Number:	00000001

Figure 12: Service - Device Information

Configured Drivers:



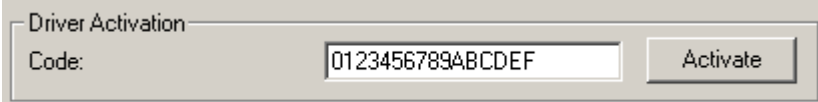
Configured Drivers	
Driver 1:	
Driver 2:	
Driver 3:	
Driver 4:	

Figure 13: Configured Drivers

This function is not relevant for netTAP devices and reserved for future use.

Driver Activation:

The license code for the hardware has to be typed in into the field **Code**, if a license code is necessary. Via the **Activate** button the license is transferred into the hardware.



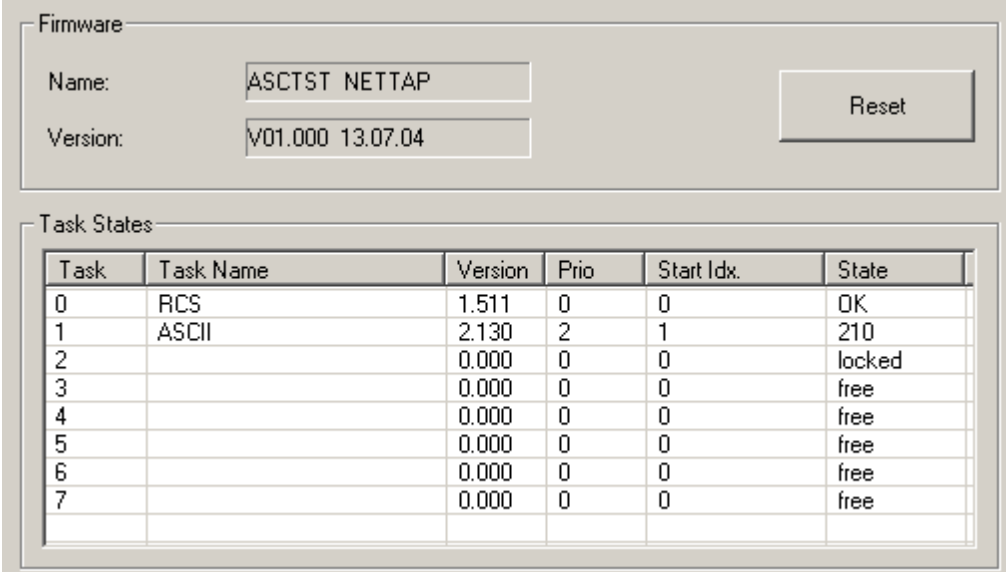
Driver Activation	
Code:	<input type="text" value="0123456789ABCDEF"/>
	<input type="button" value="Activate"/>

Figure 14: Activate Code

Note: The license code 1234567890ABCDEF is an invalid code and it is only used as an example.

4.3.2 Firmware Reset

The **Name** and the **Version** of the Firmware are displayed in the project tree with **Service > Firmware**. In this dialog the device can be reset with the **Reset** button.



Task	Task Name	Version	Prio	Start Idx.	State
0	RCS	1.511	0	0	OK
1	ASCII	2.130	2	1	210
2		0.000	0	0	locked
3		0.000	0	0	free
4		0.000	0	0	free
5		0.000	0	0	free
6		0.000	0	0	free
7		0.000	0	0	free

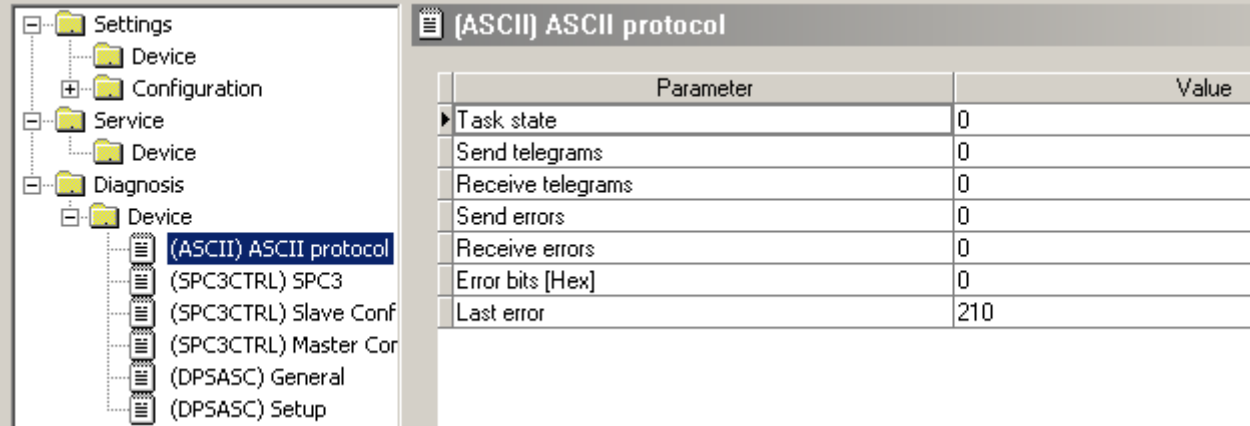
Figure 15: Service > Firmware

4.4 Diagnosis

The **Diagnosis** function helps to find bus and configuration errors and it contains counters, states and parameter information.

To receive Task State values the device needs to be online. How to connect the device and bring it into the status online depends on the used frame application and cannot be described here. For further information see the description of the frame application manufacturer.

The displayed **Task States** depend on the loaded firmware and are not described here in detail. For further information about the tasks and their meaning see the manual of the loaded firmware.



Parameter	Value
Task state	0
Send telegrams	0
Receive telegrams	0
Send errors	0
Receive errors	0
Error bits [Hex]	0
Last error	210

Figure 16: Diagnosis - Task State (as example ASCII protocol)

5 Appendix

5.1 Device Assignment

5.1.1 CIF Device Driver

The CIF Device Driver supports up to four devices in one PC, and they are accessed via the Dual-port memory.

Driver Description

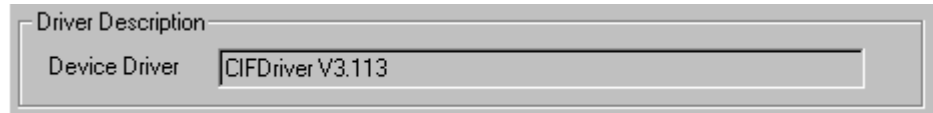


Figure 17: CIF Device Driver - Driver Description

In the upper part of the CIF Device Driver dialog the actual used CIF Device Driver and its version number are displayed. This is shown only for information purposes and is not editable by the user.

Board Selection

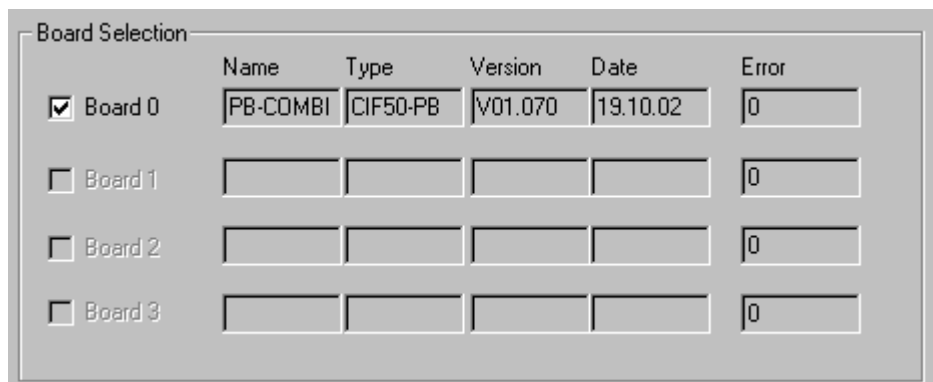


Figure 18: CIF Device Driver - Board Selection

If an assignable device is found by the CIF Device Driver, the checkbox next to the board number is selectable. To select the device, you have to enable it by clicking in the checkbox located left of the desired board and confirm this selection with **OK**.

Checkbox	Description
<input type="checkbox"/>	Device is still not assigned and it can be selected.
<input checked="" type="checkbox"/>	Device is assigned. The Assignment can be abrogated by deselecting.
<input type="checkbox"/>	The assignment of the device is not possible.
<input checked="" type="checkbox"/>	The device is still assigned in another open configuration and can not be selected here.

Table 5: Device Assignment - Possible checkboxes of the CIF Device Driver

Now the device is connected with the ComPro DTM via the CIF Device Driver and the Device Assignment dialog is closed.

By clicking the **Cancel** button, the Device Assignment is closed without an assignment has been completed or respectively changed.

More Details of the CIF Device Driver

Next to the field Board Selection there is a button with the name **more>>**. Selecting this button, a dialog opens which displays further information about the CIF Device Driver.

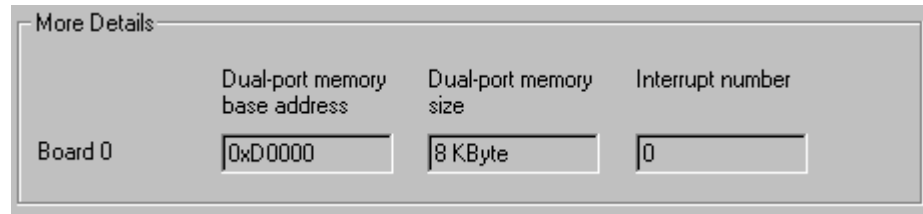


Figure 19: CIF Device Driver - More Details

In this dialog the used Dual-port memory base address, the Dual-port memory size and the Interrupt number of the selected board are displayed. Interrupt number 0 means polling mode. This display is only for information purposes and is not editable by the user.

5.1.2 CIF Serial Driver

The CIF Serial Driver supports the interfaces COM1 to COM 4 of the PC, in order to get the configuration or to do diagnostic serially via the diagnostic interface of the device.

Driver Description

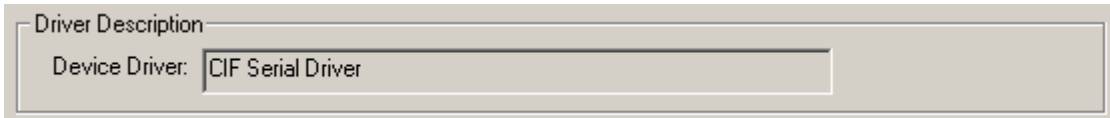


Figure 20: CIF Serial Driver - Driver Description

In the upper part of the CIF Serial Driver dialog the actual used driver is displayed. This is shown only for information purposes and is not editable by the user.

Board Selection

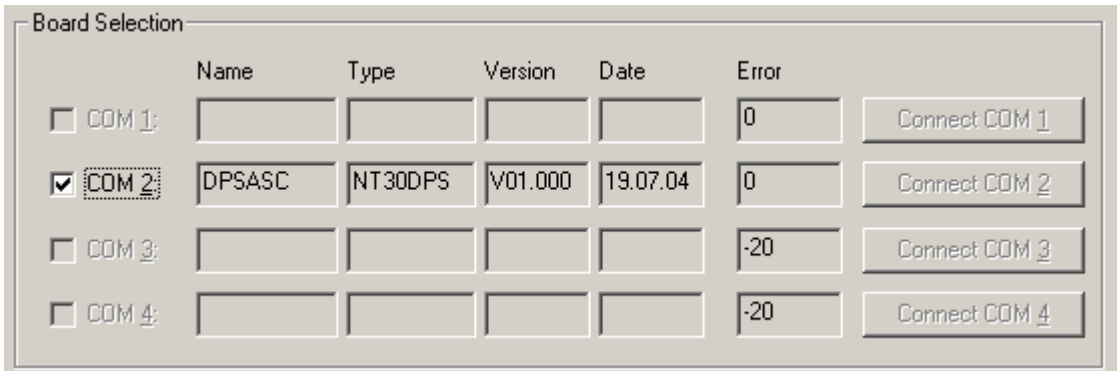


Figure 21: CIF Serial Driver - Board Selection

First the connection must be established by clicking on the button **Connect COM1** or **Connect COM2** or **Connect COM3** or **Connect COM4**. They can be used depending on which COM interfaces are installed and free on the PC.

ComPro DTM sends a request to the corresponding COM Port and polls the firmware of the device. If the device is connected, the Firmware of the device is displayed and the checkbox of the corresponding COM interface is selectable.

Checkbox	Description
<input type="checkbox"/>	Device is still not assigned and it can be selected.
<input checked="" type="checkbox"/>	Device is assigned. The Assignment can be abrogated by deselecting.
<input type="checkbox"/>	The assignment of the device is not possible.
<input checked="" type="checkbox"/>	The device is still assigned in another open configuration and can not be selected here.

Table 6: Device Assignment - Checkboxes of the CIF Serial Driver

This selection has to be confirmed by clicking the **OK** button. Now the device is connected with the ComPro DTM via the Serial Driver and the Device Assignment dialog is closed. If the assignment is not possible or if the assignment has failed, this is displayed by an error number in the Error column.

If the error number **(-51)** appears after activating one of the buttons, a timeout error has occurred. That means no device is connected to this COM port.

The error number **(-20)** indicates that this COM port is not available or not free (already in use). By clicking the **Cancel** button, the Device Assignment is closed without an assignment has been completed or respectively changed.

5.1.3 CIF TCP/IP Driver

The CIF TCP/IP Driver builds up a connection to the device via Ethernet TCP/IP. This communication is utilized when ComPro DTM is installed on a PC and the PC and the device are connected via Ethernet.

It is distinguished between two application possibilities:

1. The device is installed in a PC and the TCP/IP connection is built up to the PC, which means the IP address of the PC is used as IP address. This PC is called Remote PC in the following. The following two requirements have to be accomplished to get access to the device via Ethernet TCP/IP:

Note: The CIF Device Driver has to be installed and it must have access to the device. Additionally the TCP/IP Server has to be started on the Remote PC.

2. The device has an own Ethernet connection and the TCP/IP connection is built up to the device, that means the IP address of the device is used as IP address.

Driver Description



Table 7: CIF TCP/IP Driver - Driver Description

In the upper part of the CIF TCP/IP Driver dialog the actual used driver and its version number are displayed. This is shown only for information purposes and is not editable by the user.

Build up TCP/IP Connection

There are two possibilities to enter the IP address for building up a TCP/IP connection between the device and the PC.

- **Scan network for devices**

Clicking on the **NetIdent Rescan** button, the local Ethernet network is scanned for devices. This devices need to support the identification by the Hilscher NetIdent Protocol. Devices found during the network scan and which are connectable to the PC are displayed in the table **Board Selection**.

- **Type in IP Address manually**

If the device to be connected is not located in the local Ethernet network, it is necessary to type in the IP address of the device manually. Also some devices do not support the identification by the Hilscher NetIdent Protocol. In this case the IP address of the device has to be typed in manually, too.

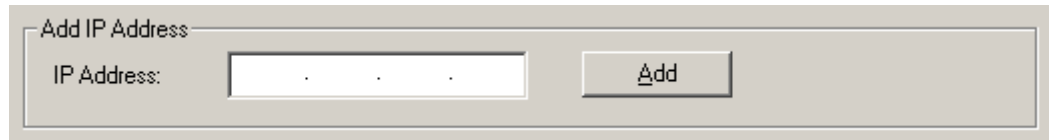


Figure 22: CIF TCP/IP Driver - Type in IP Address manually

The IP address of the device to be connected need to be typed in the field **Add IP Address**. Clicking the Add button, it is tried to build up a CIF TCP/IP connection between the PC and the device.

If a device with the typed in IP address was found, it is displayed in the table **Board Selection**.

Board Selection

In the table **Board Selection** the devices are displayed, which were found via inserting the IP address or via the Hilscher NetIdent Protocol and which can be connected to the PC.

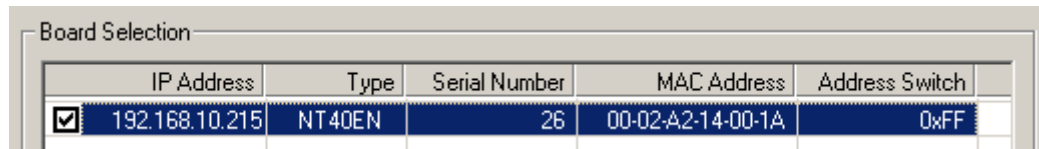


Figure 23: CIF TCP/IP Driver - Board Selection - Found Device

When the device already has an IP address, this is shown in the column **IP Address**. If the shown IP address is 0.0.0.0, an IP address has to be assigned to the device with the button **Set IP Address**. Further information for changing the IP address you find in section *Set IP Address* on page 31.

Connect Device

To connect a device to the PC, the checkbox of the favored device has to be selected in the checkbox in front of the **IP Address** field.

Checkbox	Description
<input type="checkbox"/>	Device is still not assigned and it can be selected.
<input checked="" type="checkbox"/>	Device is assigned. The Assignment can be abrogated by deselecting.

Table 8: Device Assignment - Checkboxes of the CIF TCP/IP Driver

Note: A connection can be build up to exactly one device.

The following picture shows an assigned device:

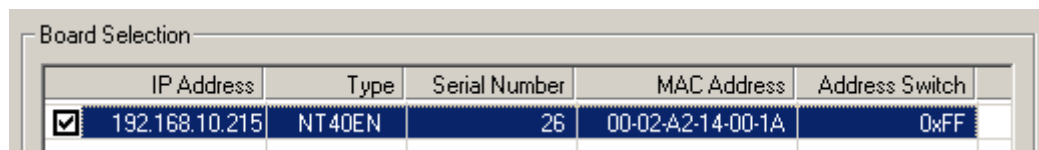


Figure 24: CIF TCP/IP Driver - Board Selection - Assigned Device

This selection has to be confirmed by clicking the **OK** button. Now the device is connected with the System Configurator via the CIF TCP/IP Driver and the Device Assignment dialog is closed.

By clicking the **Cancel** button, the Device Assignment is closed without an assignment has been accomplished or respectively changed.

Filtered Devices

Filtered Device(s)					
IP Address	Type	Serial Number	MAC Address	Address Switch	
192.168.10.161	NN40/42	5	00-02-A2-0A-00-05	0	
192.168.10.155	NL-MPI	13	00-02-A2-0C-00-0D	0	
192.168.10.160	NN40/42	11	00-02-A2-0A-00-0B	0	

Figure 25: CIF TCP/IP Driver - Filtered Devices

Devices listed in the table **Filtered Device(s)** were found during the network scan in the local Ethernet network, but they can not be assigned, because they belong to another device family.

5.1.3.1 Set IP Address

A new IP address is assigned to a device or respectively an existing IP address of a device is changed via the button **Set IP Address**.

Note: The IP address can only be changed in case of Hilscher devices which are connected directly to the Ethernet and which support the function 'Change IP Address'. These are for example: NL-MPI, NN40, NN42, CIF 104-EN, COM-C-EN, COM-EN.

Therefore the device has to be selected in the table Board Selection by activating the checkbox. Via the **Set IP Address** button the following dialog opens:

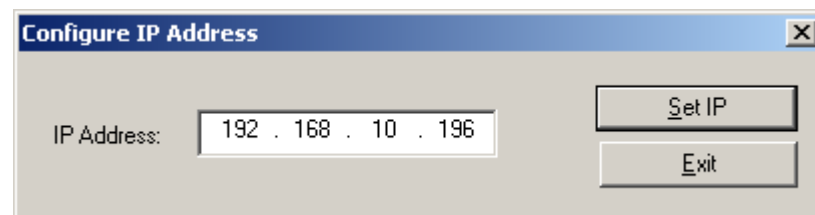


Figure 26: Set IP Address

Type in the IP address for the device and confirm the entry by clicking on the **Set IP** button.

Note: The IP address set by clicking the **Set IP** button is only temporarily adjusted. A permanent storage of the IP address takes place with a download of the configuration from the framework.

5.2 Error Numbers

5.2.1 CIF Device Driver (Dual-port memory) Error Numbers (-1 .. -49)

This is the list of error numbers of Dual-port memory access using the CIF Device Driver.

Error Number	Description
-1	Driver: Board not initialized The communication board is not initialized by the driver. No or wrong configuration found for the given board, check the driver configuration. Driver function used without calling DevOpenDriver() first.
-2	Driver: Error in internal 'Init state'
-3	Driver: Error in internal 'Read state'
-4	Driver: Command on this channel is active
-5	Driver: Unknown parameter in function occurred
-6	Driver: Version is incompatible The device driver version does not correspond to the driver DLL version. From version V1.200 the internal command structure between DLL and driver has changed. Make sure to use the same version of the device driver and the driver DLL.
-10	Device: Dual port memory RAM not accessible (board not found) Dual-ported RAM (DPM) not accessible / no hardware found. This error occurs, when the driver is not able to read or write to the Dual-port memory. Check the BIOS setting of the PC Memory address conflict with other PC components. Try another memory address, check the driver configuration for this board, and check the jumper setting of the board.
-11	Device: Not ready (RDY flag=Ready flag failed) Board is not ready. This could be a hardware malfunction or another program writes inadmissible to the dual-port memory.
-12	Device: Not running (RUN flag=Running flag failed) The board is ready but not all tasks are running, because of an initialization error. No data base is loaded into the device or a wrong parameter can be the reason that a task can't initialize.
-13	Device: Watch dog test failed
-14	Device: Signals wrong Operating System version No license code found on the communication board. Device has no license for the used operating system or customer software. No firmware or no data base to the device is loaded.

Table 9: CIF Device Driver Error Numbers (-1..-14)

Error Number	Description
-15	Device: Error in dual port memory flags
-16	Device: Send mailbox is full
-17	<p>Device: Function PutMessage timeout</p> <p>No message could be send during the timeout period given in the DevPutMessage() function.</p> <p>If you use an interrupt, check the interrupt on the device and in driver setup. These settings have to be the same! Is an interrupt on the board set? Is the right interrupt set? The interrupt could already be used by another PC component, also if the operating system reports it as unused.</p> <p>If you use polling mode, then make sure that no interrupt is set on the board and that polling is set in the driver setup. These settings have to be the same!</p> <p>Device internal segment buffer full and therefore PutMessage() function is not possible, because all segments on the device are in use. This error occurs, when only PutMessage() is used but not GetMessage().</p> <p>HOST flag is not set for the device. No messages are taken by the device. Use DevSetHostState() to signal a board an application is available.</p>
-18	<p>Device: Function GetMessage timeout</p> <p>No message received during the timeout period given in the DevGetMessage() function.</p> <p>If you use an interrupt, then check the interrupt on the device and in driver setup. These settings have to be the same! Is an interrupt on the board set? Is the right interrupt set? The interrupt could already be used by another PC component, also if the operating system reports it as unused.</p> <p>If you use polling mode, then make sure that no interrupt is set on the board and that polling is set in the driver setup. These settings have to be the same!</p> <p>The used protocol on the device needs longer than the timeout period given in the DevGetMessage() function.</p>
-19	Device: No message available

Table 10: CIF Device Driver Error Numbers (-15..-19)

Error Number	Description
-20	<p>Device: Reset command timeout</p> <p>The board is ready but not all tasks are running, because of an initialization error. No data base is loaded into the device or a wrong parameter can be the reason that a task can't initialize.</p> <p>The device needs longer than the timeout period given in the DevReset() function. Using device interrupts. The timeout period can differ between fieldbus protocols.</p> <p>If you use an interrupt, then check the interrupt on the device and in driver setup. These settings have to be the same! Is an interrupt on the board set? Is the right interrupt set? The interrupt could already be used by another PC component, also if the operating system reports it as unused.</p> <p>If you use polling mode, then make sure that no interrupt is set on the board and that polling is set in the driver setup. These settings have to be the same!</p>
-21	<p>Device: COM flag not set</p> <p>The device can not reach communication state. Device not connected to the fieldbus. No station found on the fieldbus. Wrong configuration on the device.</p>
-22	Device: IO data exchange failed
-23	<p>Device: IO data exchange timeout</p> <p>The device needs longer than the timeout period given in the DevExchangeIO() function.</p> <p>If you use an interrupt, then check the interrupt on the device and in driver setup. These settings have to be the same! Is an interrupt on the board set? Is the right interrupt set? The interrupt could already be used by another PC component, also if the operating system reports it as unused.</p> <p>If you use polling mode, then make sure that no interrupt is set on the board and that polling is set in the driver setup. These settings have to be the same!</p>
-24	Device: IO data mode unknown
-25	Device: Function call failed
-26	Device: Dual-port memory size differs from configuration
-27	Device: State mode unknown

Table 11: CIF Device Driver Error Numbers (-20..-27)

Error Number	Description
-30	User: Driver not opened (device driver not loaded) The device driver could not be opened. Device driver not installed. Wrong parameters in the driver configuration. If the driver finds invalid parameters for a communication board and no other boards with valid parameters are available, the driver will not be loaded.
-31	User: Can't connect with device board
-32	User: Board not initialized (DevInitBoard not called)
-33	User: IOCTL function failed A driver function could not be called. This is an internal error between the device driver and the DLL. Make sure to use a device driver and a DLL with the same version. An incompatible old driver DLL is used.
-34	User: Parameter DeviceNumber invalid
-35	User: Parameter InfoArea unknown
-36	User: Parameter Number invalid
-37	User: Parameter Mode invalid
-38	User: NULL pointer assignment
-39	User: Message buffer too short
-40	User: Size parameter invalid
-42	User: Size parameter with zero length
-43	User: Size parameter too long
-44	User: Device address null pointer
-45	User: Pointer to buffer is a null pointer
-46	User: SendSize parameter too long
-47	User: ReceiveSize parameter too long
-48	User: Pointer to send buffer is a null pointer
-49	User: Pointer to receive buffer is a null pointer

Table 12: CIF Device Driver Error Numbers (-30..-49)

Error Number	Description
1000	If the operating system of the device reports an initialization error, then a value of 1000 will be add to the error number and shown to the user

Table 13: CIF Device Driver Error Numbers (1000)

5.2.2 CIF Serial Driver Error Numbers (-20 .. -71)

This is the list of error numbers using the serial driver.

Error Number	Description
-20	Driver: No COM port found or COM port already in use.
-21	Driver: COM port already opened
-22	Driver: Function call into driver has failed
-23	Driver: Internal driver error
-24	Driver: Could not create read thread
-25	Driver: Could not create read event
-26	Driver: Could not create write event
-27	Driver: Could not create timer event
-28	Driver: Error by writing data
-29	Driver: Wrong COM state
-30	Driver: COM state error is set
-31	Driver: COM buffer setup failed
-32	Driver: COM set timeout failed
-33	Driver: Receive buffer overrun
-34	Driver: Receive buffer full
-35	Driver: Send busy
-36	Driver: Error during close driver
-40	User: COM port not opened
-41	User: Invalid handle value
-42	User: Invalid COM number
-43	User: Size parameter invalid
-44	User: Size parameter zero
-45	User: Buffer pointer is NULL
-46	User: Buffer too short
-47	User: Setup error

Table 14: CIF Serial Driver Error Numbers (-20..-47)

Error Number	Description
-50	User: Send message, timeout error
-51	User: Could not send a message Cable not connected. Wrong cable. Device does not respond.
-52	User: Send message, no device connected
-53	User: Error by send message, message receiving
-54	User: Telegram collision
-55	User: Telegram, no acknowledgement received
-56	User: Telegram, noise
-57	User: Telegram, data overrun
-58	User: Telegram, parity error
-59	User: Telegram, framing error
-60	User: Telegram, unknown error
-70	User: Timeout by receive a message
-71	User: No message received

Table 15: CIF Serial Driver Error Numbers (-20..-47)

5.2.3 CIF TCP/IP Driver Error Numbers

This is the list of error numbers using the CIF TCP/IP Driver.

5.2.3.1 Standard Win32 Socket API Errors

Error Number	Description
10013	Permission denied
10024	Too many open sockets.
10048	Address already in use
10049	Cannot assign requested address.
10050	Network is down
10051	Network is unreachable
10052	Network dropped connection on reset
10053	Software caused connection abort. An established connection was aborted by the software in your host machine, possibly due to a data transmission time-out or protocol error.
10054	Connection reset by peer
10055	No buffer space available
10056	Socket is already connected
10057	Socket is not connected.
10058	Cannot send after socket shutdown
10060	Connection timed out
10061	Connection refused
10065	No route to host
10092	Winsock.dll version out of range

Table 16: CIF TCP/IP Driver Error Numbers - Standard Win32 Socket API errors

5.2.3.2 Specific NetIdent Errors

Error Number	Description
0x8004c701	Unknown Device Error
0x8004c702	Request Pending
0x8004c703	Set IP time exceeded
0x8004c704	IP address invalid
0x8004c705	Returned IP address invalid
0x8004c706	Answer from wrong device
0x8004c707	Wrong OP code received
0x8004c708	NetIdent Timeout

Table 17: CIF TCP/IP Driver Error Numbers - Specific NetIdent Errors

5.3 User Rights

The dialogs Device Assignment, Configuration and Diagnostic can be opened by all users. For editing the configuration certain user rights are necessary.

The following table shows the User Rights for the different user groups:

	Observer	Operator	Maintenance	Planning Engineer	Administrator
Configuration	X	X	X	X	X
edit parameter values			X	X	X
Diagnosis	X	X	X	X	X

Table 18: User Rights

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7 Glossary

DTM

Device Type Manager

The Device Type Manager (DTM) is a software module, which is delivered with the device by the hardware manufacturer. The DTM may have a graphical interface. The DTM serves as FDT device driver and contains all device-specific data, functions and graphic control elements. Thus the DTM makes possible the parameterizing, configuration, calibration or the test of the equipment via the standardized FDT interfaces.

FDT

Field Device Tool

FDT specifies an interface, in order to be able to use Device Type Manager) in different applications of arbitrary manufacturers. This technology is communication independent and applicable for arbitrary field bus systems.