

NETLink[®] PRO family

Application Examples with RFC 1006

Edition 7 / 05.11.2017

Helmholz products

S7/S5 OPC-Server V4.10.2.9117 (Company Helmholz)

Products of other manufacturers

INAT-OPC-Server (INAT GmbH)

Indusoft Web Studio V7.0 (Indusoft)

InTouch V9.5 (Wonderware GmbH)

KEPserverEx V5.4.135.0 (KEPware Inc.)

PROCON-Win V5.3 (GTI Control)

VisAM Win32 (VISAM GmbH)

WinCC V7.4 (Siemens AG)

WinCC flexible 2005/2007 (Siemens AG)

ZenOn V6.2 (COPA-DATA)

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Hannberger Weg 2, 91091 Grossenseebach, Germany

Note:

We have checked the content of this manual for conformity with the hardware and software described. Nevertheless, because deviations cannot be ruled out, we cannot accept any liability for complete conformity. The information in this manual is regularly updated. When using purchased products, please heed the latest version of the manual, which can be viewed in the Internet at www.helmholtz.com, from where it can also be downloaded.

Our customers are important to us. We are always glad to receive suggestions for improvement and ideas.

Revision history of this document:

Edition	Date	Revision
1	07.05.2008	First edition
2	07.04.2010	PRO family updated
3	29.11.2010	KEPserverEx V5.4.135.0 updated
4	04.07.2011	Helmholz OPC Server V4.0.6.4908 updated
5	05.08.2011	Added Indusoft Web Studio V7.0 and PROCON-Win V5.3
6	15.08.2012	Added WINCC V7.0
7	04.10.2017	Added WINCC V7.4
8	30.10.2017	KEPServer V6.2.429.0 updated

Contents

1	Overview	6
1.1	Application and function description	6
1.2	Information in the figures	6
2	RFC 1006 Activation via the Web Interface	7
2.1	Requirements	7
2.2	Adapting the configuration side	7
3	Helmholz OPC-Server V4.12.0.11527	9
3.1	Configuration of the communication partner	9
3.2	Setting up the OPC Toolbox demo client	11
4	INAT-OPC-Server (INAT GmbH)	14
4.1	Configuring the INAT OPC server	14
4.2	INAT-OPC Client	15
5	Indusoft Web Studio V7.0	17
5.1	Configuring the Indusoft communication driver	17
5.2	Setting up values to visualize	19
6	InTouch V9.5 (Wonderware GmbH)	22
6.1	Starting the System Management Console	22
6.2	Configuring the Device Group	22
6.3	Configuring the Wonderware Client	23
7	KEPserverEx V6.2.429.0 (KEPware Inc.)	24
7.1	Configuring KEPserverEx	24
7.2	Starting the OPC quick Client	33
8	PROCON-Win V3.2 (GTI Control)	34
8.1	Configuring the driver and connection	34
8.2	Creating a Picture	37
9	VisAM Win32 (VISAM GmbH)	41
9.1	Configuring VisAM Win 32	41
9.2	Starting visualization	44

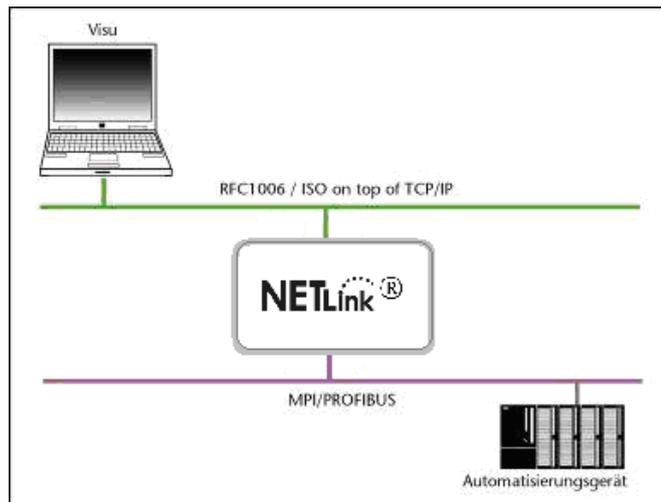
10	WinCC V7.4 (Siemens AG)	45
10.1	Add the protocol driver	45
10.2	Creating a variable	46
11	WinCC flexible 2005/2007 (Siemens AG)	48
11.1	Configuring connections	48
11.2	Configuring the PG/PC interface	49
12	ZenOn V6.2 (COPA-DATA)	50
12.1	Configuring Zenon	50
12.2	Setting the driver	51
12.3	Driver configuration	51
12.4	Integrating variables in images	52
13	Address conversion table	53
14	Troubleshooting	54
15	Directory of Sources	56

1 Overview

1.1 Application and function description

This document is intended as a supplement to the NETLink® product line manuals.

Many visualization manufacturers support the TCP/IP protocol 'RFC1006' also known as 'ISO on top of TCP' to be able to communicate with S7-300/S7-400 systems, for example.



If this 'RFC1006' function is activated for example in the NETLink® PRO, explicit adaptations must be made to the software products. This manual describes step by step the basic settings of a small selection of visualization solutions for transferring data via this communication path.

In firmware versions from 2.3 of the NETLink® PRO family adapters the "RFC1006" function is always active.

It is assumed that the reader is familiar with the development environment of the software solutions mentioned in this document, as only the points specific to the connection are described

More extensive support with commissioning and parameterization of the various SCADA-, HMI/OPC server systems is available directly from the manufacturers in question.

At this point is not described how a Internet teleservice via VPN and port forwarding is implemented with a NETLink® Ethernet gateway.



Please pay attention to the information in the figures

1.2 Information in the figures

Many of the figures in this document contain settings and directions for use marked or highlighted in red.

2 RFC 1006 Activation via the Web Interface

The examples described here are based on NETLink models with firmware versions less than V2.3 (e.g. NETLink® PRO). Prior to the use with this device the RFC 1006 functionality has to be set manually.

A detailed description is also given in the accordingly manual! We generally recommend upgrading your NETLink® products with the last firmware version, so you can always use the latest features.

2.1 Requirements

The NETLink® Ethernet gateway is connected to the PC via a network card. One of the SCADA/OPC server programs described below is also installed on this PC. The Webinterface function must not be deactivated. It is accessed via one of the installed Internet browsers (for example, Mozilla Firefox, Opera, Konqueror, or Internet Explorer).

You do not need to install any additional drivers for the NETLink®.

The applications described here were performed on the Windows XP operating system with service package 2 and 3.

2.2 Adapting the configuration side

As soon as the Web interface is opened by entering the relevant URL '*http://<ip address>*', the link to "*Configuration*" opens. As soon as you have answered the security query, you can write to all parameters.

From version 2.3 there is a text field: "RFC mode is always activated". In this case, you can skip this section.

The '*RFC 1006 interface ON/OFF*' option is activated by entering "*ON*" and confirming with the "*OK*" button (see Fig.)

In the next window, the settings are displayed again and must be confirmed with "*OK*" before they are finally transferred to the NETLink® device.



*affects only the products:
700-881-MPI11 and
700-881-MPI12*

The following figure shows the configuration screen in the NETLink® PRO web interface. In the current firmware versions of other NETLink® Ethernet variants is this manual assignment not necessary.

Configuration menu in NETLink® PRO:

Home Status Basic Configuration Security Observe Variables Help

NETLink PRO Compact Basic Configuration

Device specific parameters

Device Name:

TCP/IP Parameters

Static IP Address: Static parameters are used if DHCP is switched off.

Static Subnet Mask: Static parameters are used if DHCP is switched off.

Static Gateway: Static parameters are used if DHCP is switched off.

Additional NETLink Port: Don't take well-known ports less than 1024, (RFC-Port 102 is not allowed here).

DHCP:

DHCP Timeout (in seconds):

Web Interface:

MPI/PROFIBUS Settings (RFC Mode is always activated)

Go online after boot up: Set only to ON, if PG/PC interface doesn't control the communication (e.g. for PLC-to-PLC transmission).

NetLink Bus Address: Is only used when "Go online after boot up" resp. "Single Master" is ON (address settings of PG/PC interface is then ignored).

Single Master: Is not evaluated if NETLink communicates via PG/PC interface.

Single Master bus parameters

Bus Profil:

Baud rate: HSA: These bus parameters are used if adapter is single master.

Tslot_Init: Tlr:

Max. Tsd: Min. Tsd:

Tset: Tqui:

Gap Factor: Retry:

RFC Multi Computing with TSAP: Bus Address: (Offers access to multiple PLCs in a rack by one bus address)

RFC Routing over CPs with TSAP: Rack(0-7): Slot(0-31): (e.g. access over PROFIBUS-CP342-5 by rack 0 slot 2)

RFC TSAP Decimal Format: Default TSAP Format is hexadecimal (e.g. ControlMaestro uses decimal format)

User/Password Settings

User:

New Password:

Retype New Password:

restart the adapter

Helmholtz GmbH | Hannberger Weg 2 | D-91091 Großenseebach | Phone: +49 9135 73 80 - 0 | Fax: +49 9135 73 80 - 110 | info@helmholtz.de | www.helmholtz.de



Rebooting can take up to 15 seconds.

After the new parameterization data have been stored, the NETLink® PRO is restarted to activate the new configuration.

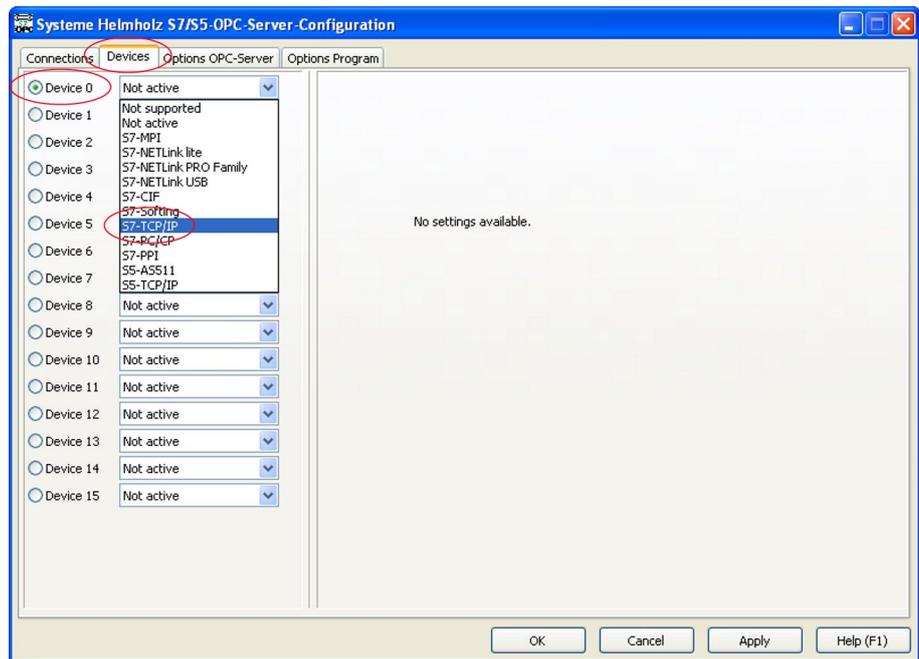
3 Systeme Helmholz OPC-Server V4.12.0.11527

The following steps must be performed in the described sequence (Version November 2017):

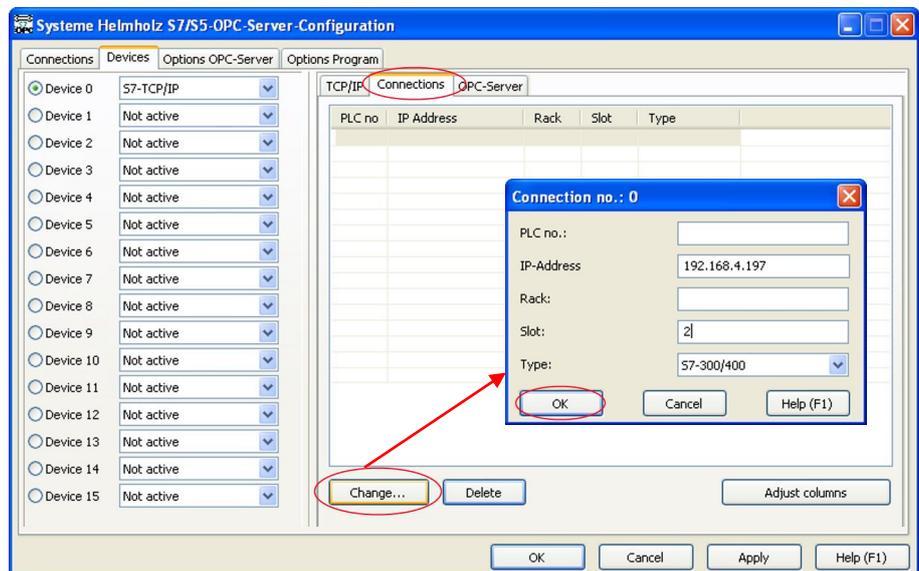
3.1 Configuration of the communication partner

Start the “*Configuration S7-OPC Server*” program module via *Start/Programs/Systeme Helmholz/S7-OPC-Server*:

- Select tab card “*Devices*”.
- In this example, click device 0 and then select “*S7-TCP/IP*” from the pull-down menu.

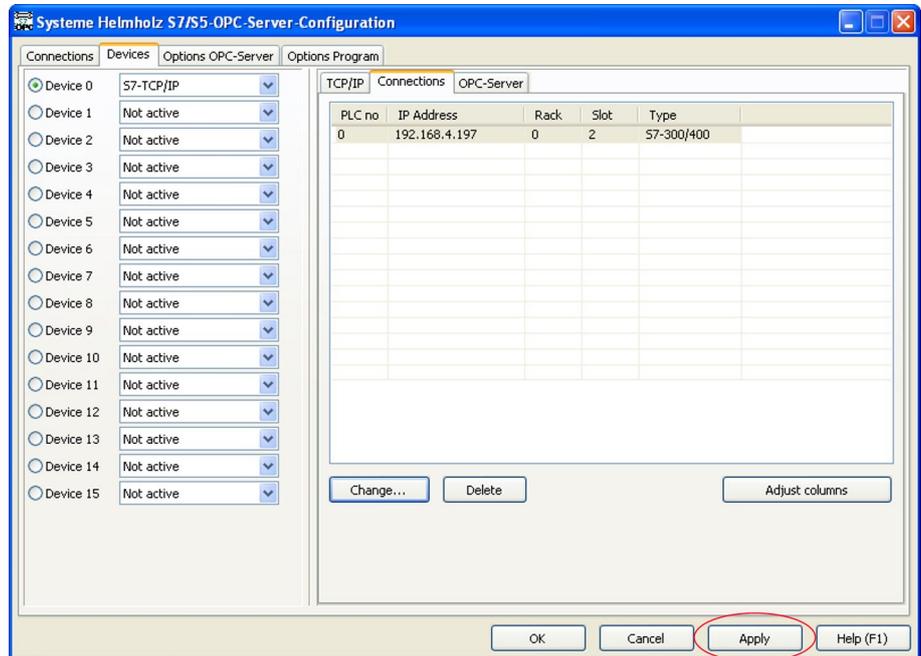


- Go to the tab “*Connections*” in the right sub window.
- Click „*Change...*” to create a new connection.



It opens a new connection window

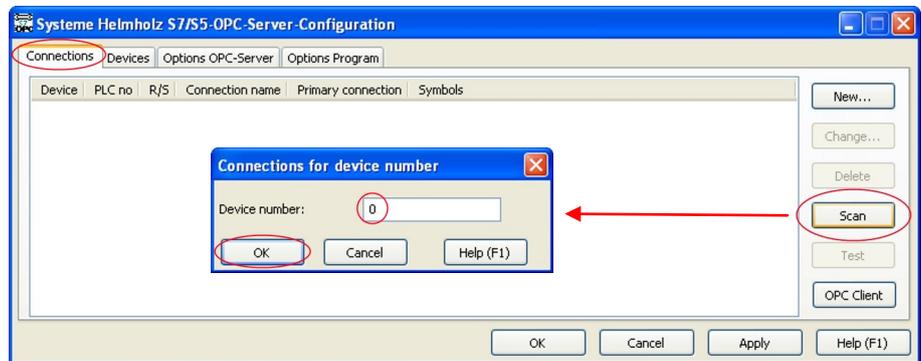
- The PLC no. and Rack in this example is not relevant
- Enter the NETLink® address in the IP address field
- Enter the MPI address of the connected PLC in “Slot”
- Finally set the type of PLC you are working with.
- Close the window by clicking “OK”.



Complete your connection settings with “Apply”

Next, select the main tab “Connections”

- Click the Button “Scan”.

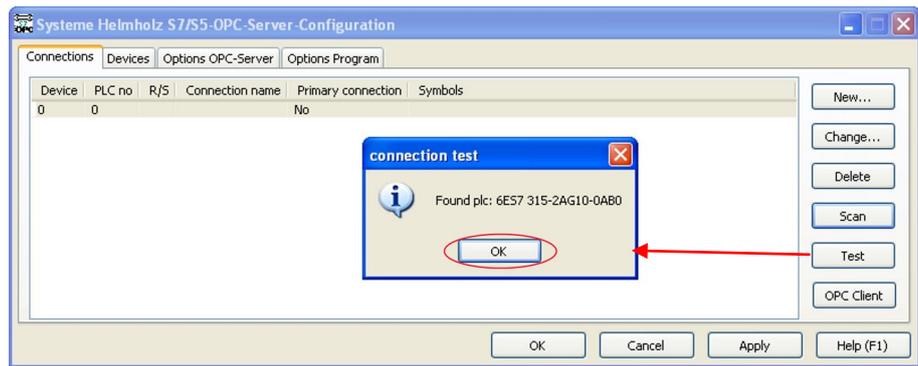


Enter the configured device number (possible 0 to 15). In this example -> 0

- Confirm with “OK”

The connection to the adapter should be established and displayed.

- The CPU can be determined with “Test” (this feature is optional and must not be executed in mandatory).

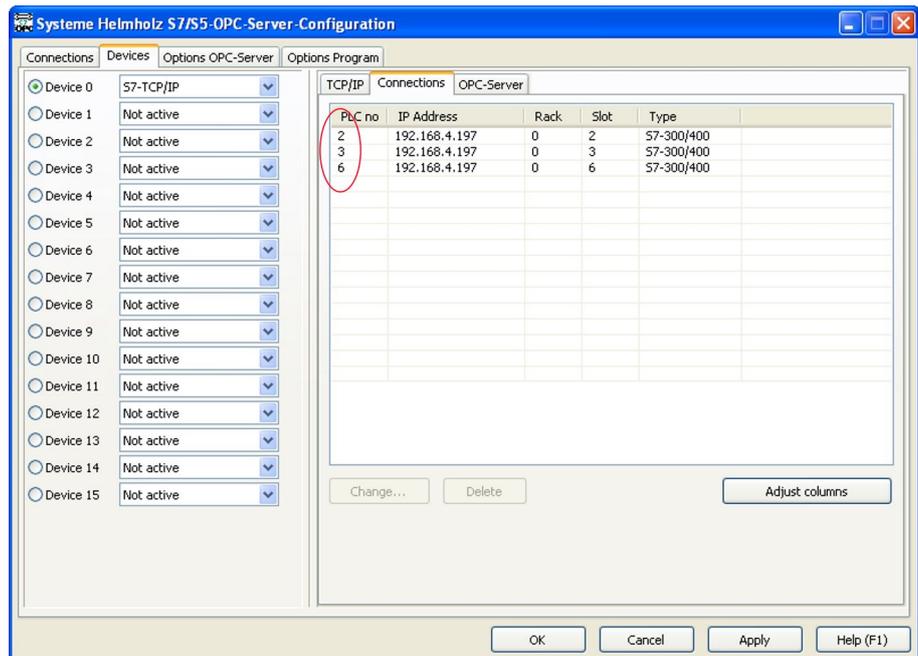


- The connection test was successful and can be confirmed with “OK”.

The OPC server is now fully configured for a NETLink® to PLC connection.

If you want to set up multiple connections within a device, the “PLC no.” has to be unique for each connection. These numbers must be different.

 Choose the CPU address as PLC-number to prevent duplicates



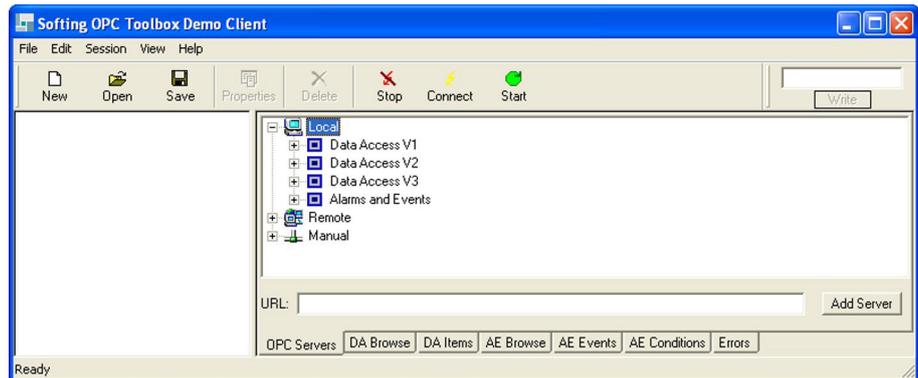
3.2 Setting up the OPC Toolbox demo client

The following steps are provided as an example only and are not obligatory for customer applications. They serve as a visual check whether data exchange is taking place.

Start program module “OPC Toolbox demo client” with *Start/Programs/Systeme Helmholtz/S7-OPC-Server*. The various tab cards are displayed below.

The “OPC Servers” field opens first:

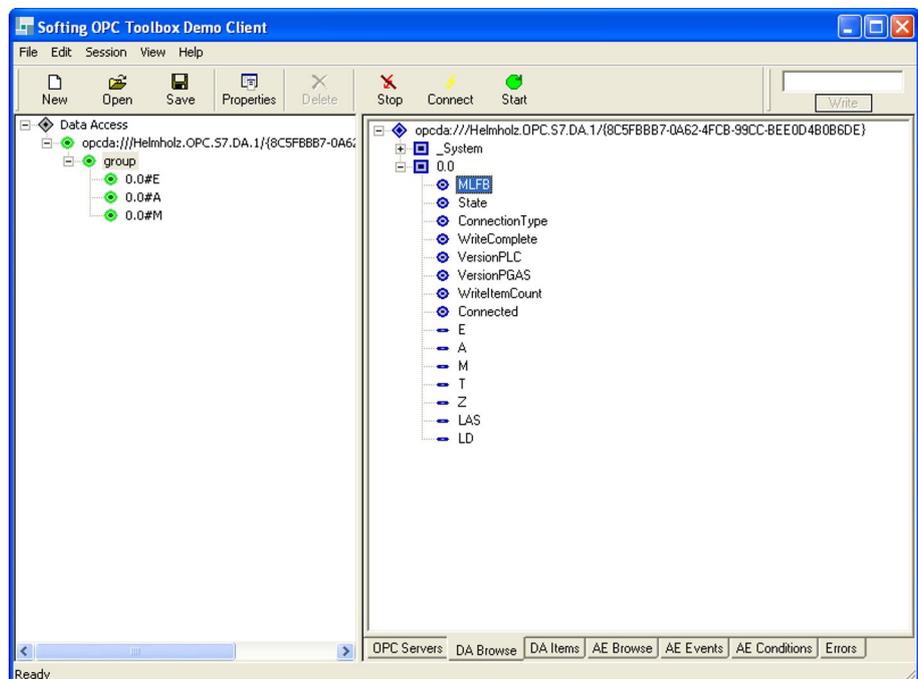
- the tree structure can be open by clicking the plus sign in front of “Local”



- open “Data Access V3” in a similar manner
- open “Helmholz S7/S5 OPC Server” similarly
- Double-click “Helmholz.OPc.S7.DA.1”
- The “group” opens in the left field. The green circle indicates that the connection has been started.

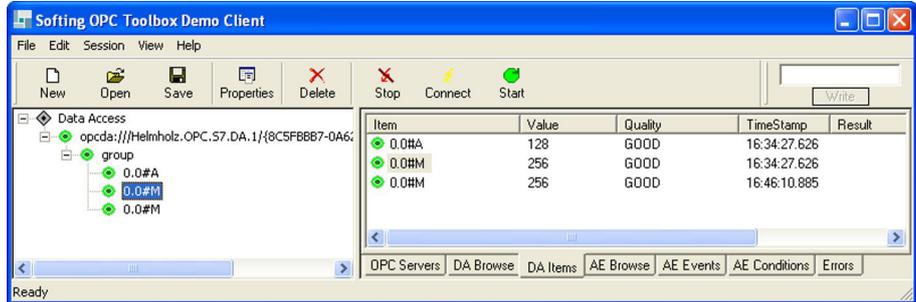
Now switch to the “DA Browse” tab card.

- open “opcda://Helmholz.OPC.S7.DA.1/{...” in the tree structure
- A device is displayed when it has been found (in this case “0.0”).
- On opening the device, the data access objects are searched from the CPU and then listed.
- Transfer the selected items into the left column by double clicking (multiple selections possible).



Now switch to the “DA Items” tab card.

- The connection quality status is displayed in the “Quality” column
- Currently, only the permissible name range elements are displayed under “Value”.

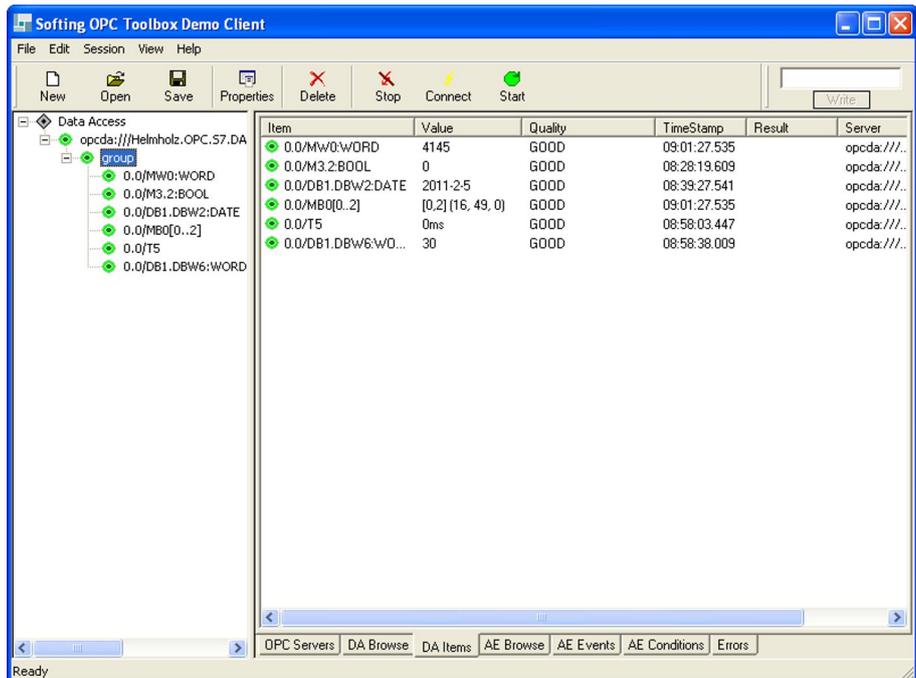


- Every item can be edited by selecting it and then clicking the “Properties” button.



- The changes are adopted with “Apply” and “OK”.

Further examples of the syntax of various items:

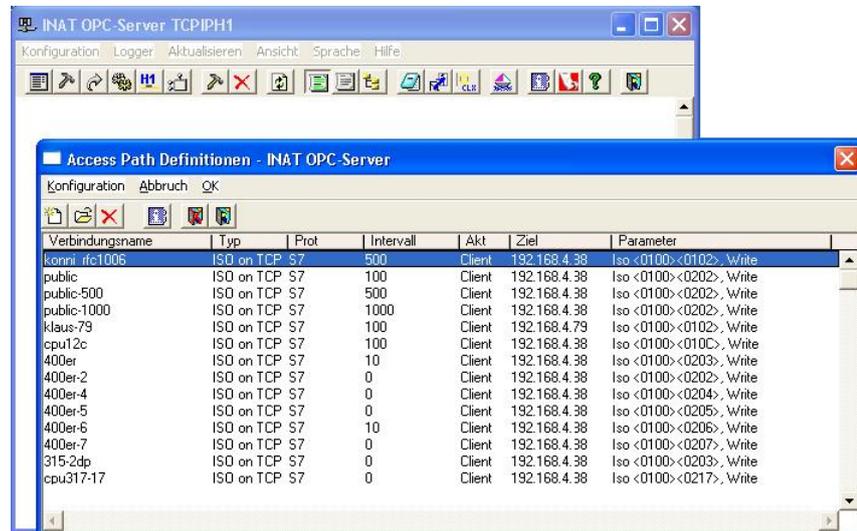


4 INAT-OPC-Server (INAT GmbH)

The following steps must be performed in the described sequence (status May 2008):

4.1 Configuring the INAT OPC server

The following dialog box opens when you select “*Configuration->AccessPathDefinition*” from the menu:



A new connection is generated via menu “*Configuration->New*” in dialog box “*Access Path Definition*”.

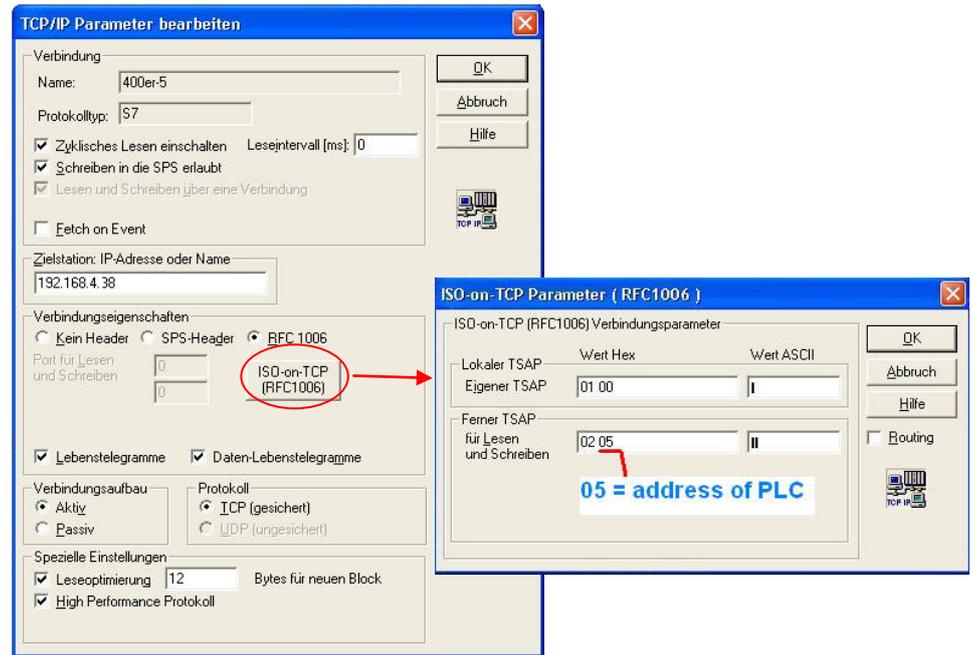
The following dialog box opens.



When you have confirmed the new connection with the OK button, you can set the parameters in the subsequent dialog box:

The most important entries are:

- The IP address of the target station
- Connection properties RFC1006



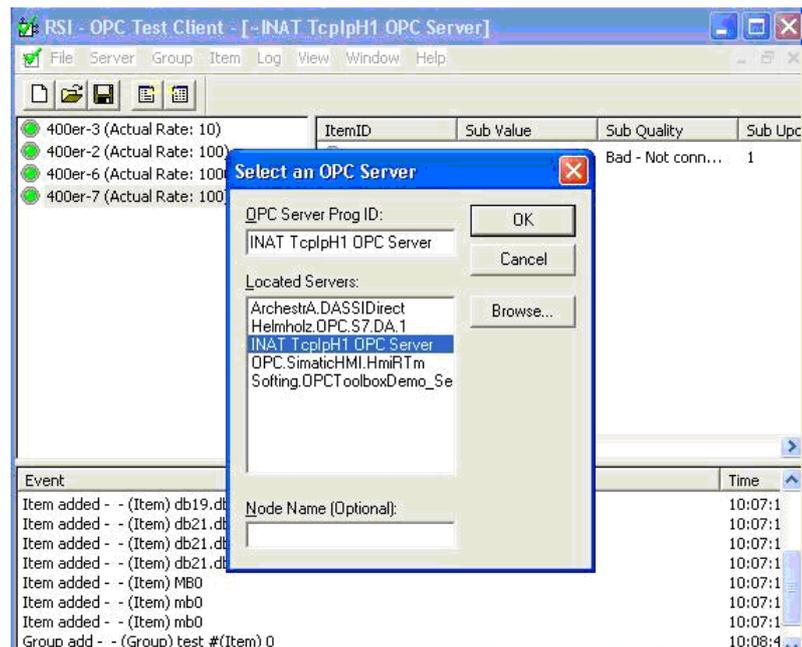
The RFC1006 setting is configured via the “ISO-on-TCP” button.

4.2 INAT-OPC Client

Select the OPC Server.

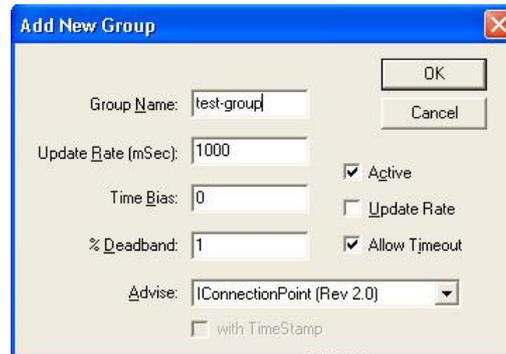
Once the server is configured, you can access the data of the controller via the OPC Client.

You can select the OPC server from which the configured data will be fetched via menu item “File->New”.

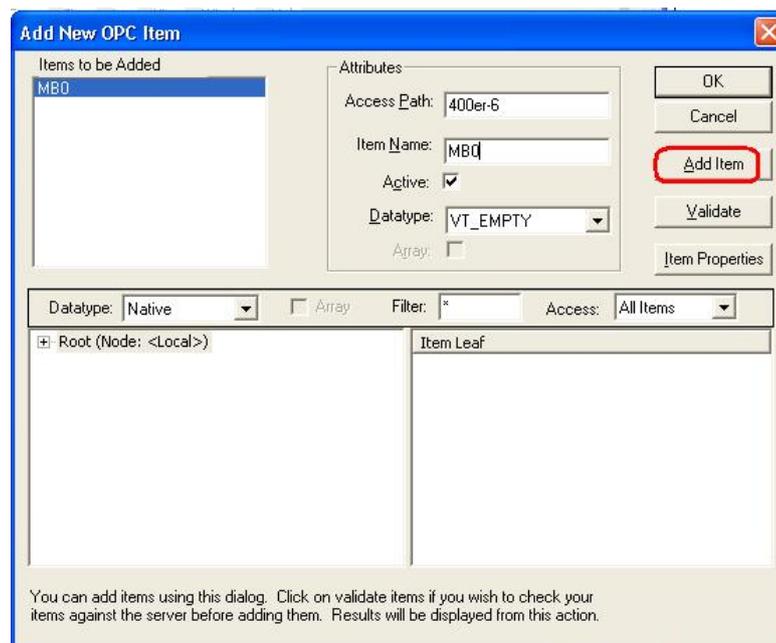


Configuring visualization data

- First of all, create a "Group"
- Menu "Group->Add Group..."



- Then select menu "Item->Add Item..."
- Important! In field "Access Path" you must enter the name of the connection exactly as designated in the OPC server
- For "Item Name" enter the variable from the SPC
- Finally press button "Add Item" and then "OK"

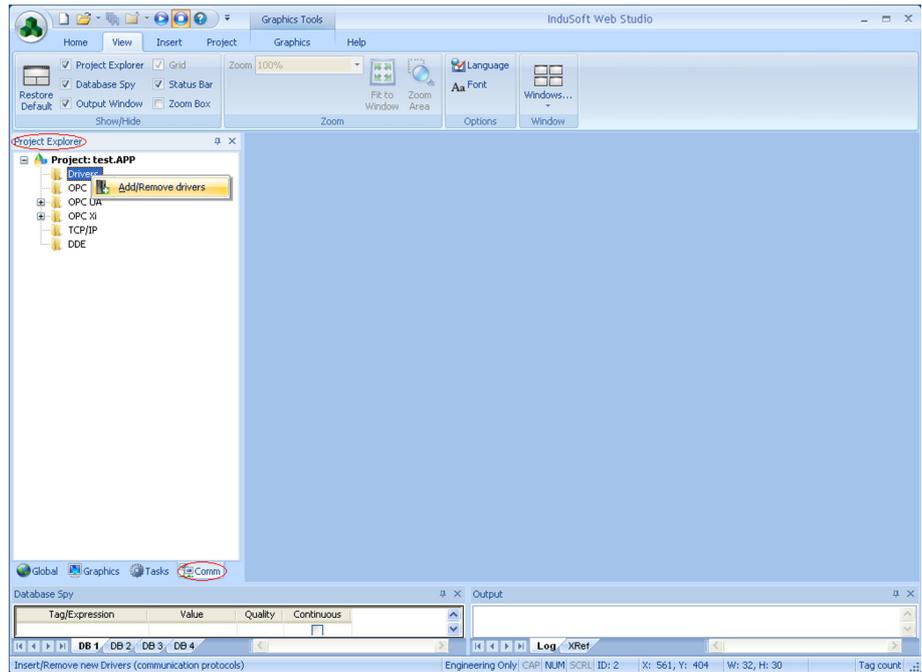


5 Indusoft Web Studio V7.0

The following steps must be performed in the described sequence (status August 2011). The user should be familiar with IWS or at least have the “Getting Started” guide and the Indusoft-driver specs “SIETH” at hand.

5.1 Configuring the Indusoft communication driver

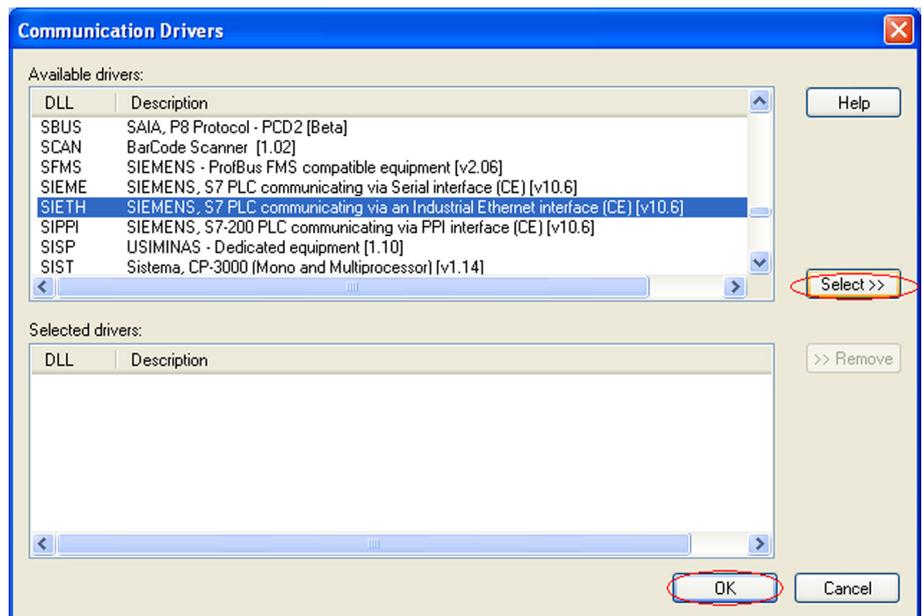
Choose the tab „Comm“ in „Project Explorer“, then right-click on “Drivers” and choose “Add/Remove drivers”:



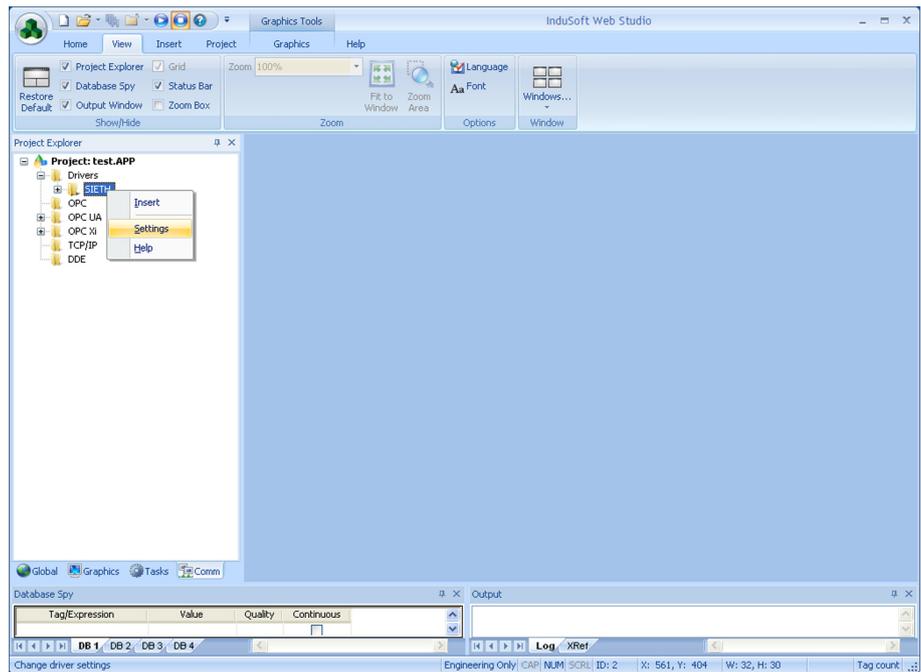
Pick the “SIETH” driver out and add it by clicking “Select>” and confirm with “OK”:



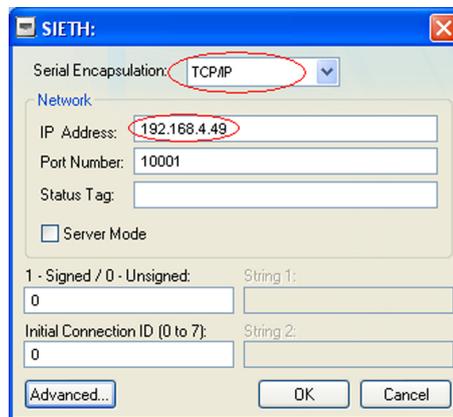
Press „Help“ before you select the driver in order to open the corresponding driver manual.



- In the „Project Explorer“, tab „Comm“ right-click on the driver “SIETH” and from the context menu choose “Settings”:

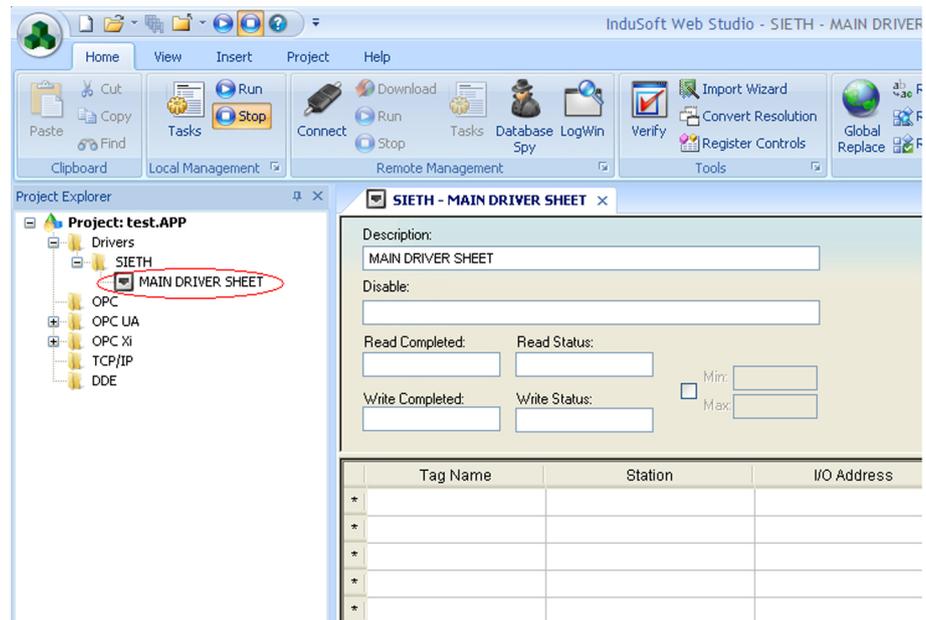


Under “Serial Encapsulation” choose “TCP/IP” and under “IP Address” enter the IP address of the NETLink. Everything else will be left default:



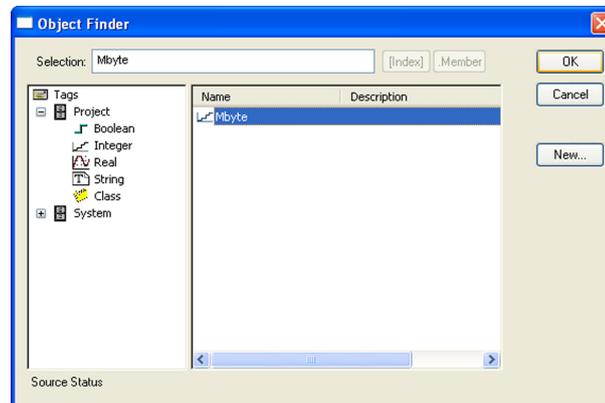
5.2 Setting up values to visualize

In the tree of the “Project Explorer” under “Drivers” -> “SIETH” you can find a “Main Driver Sheet”. Double-click either this or any other driver sheet:



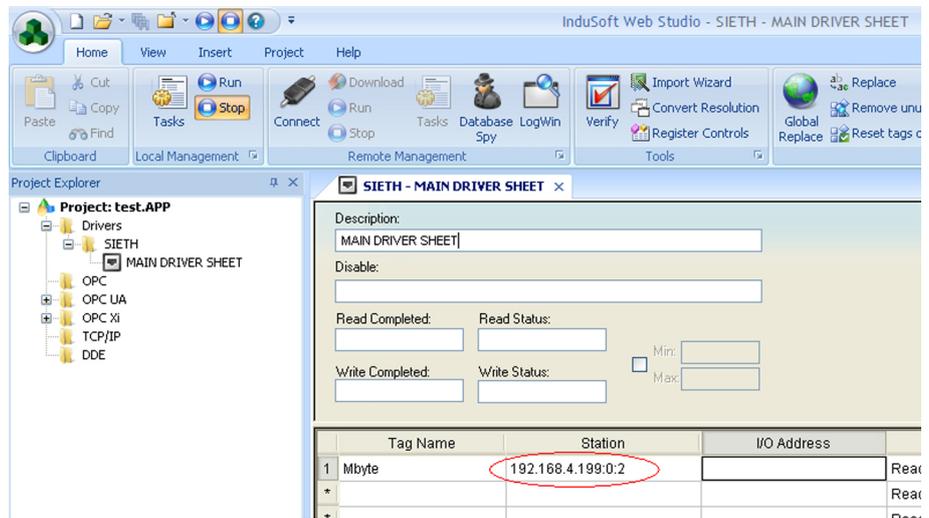
On this “Driver Sheet” you have to configure any values you choose to visualize.

- After double-clicking the first empty cell in the column “Tag Name” a dialog window opens, in which to choose the tag to specify. In this example the tag is called “Mbyte”:

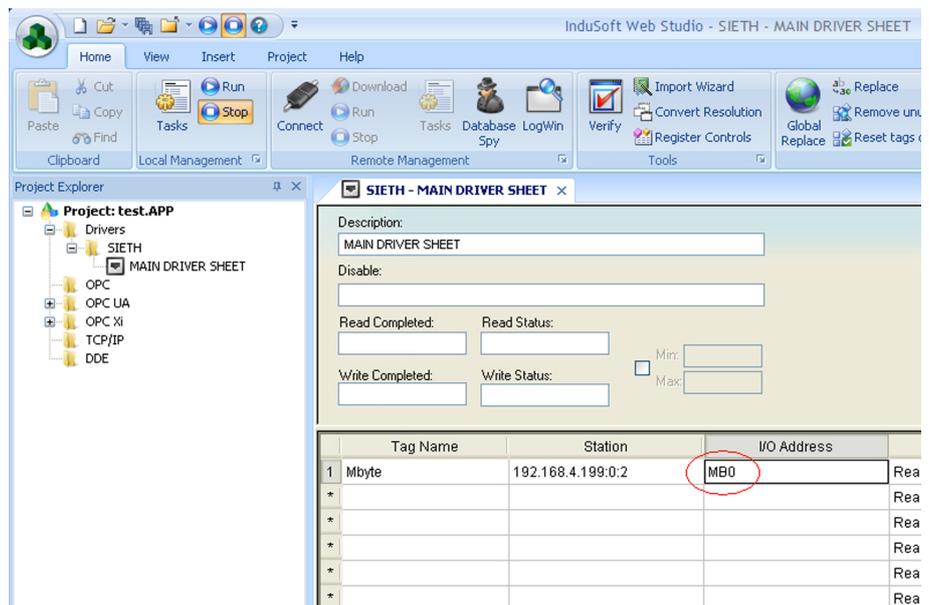


- Enter the IP address of the adapter, the rack number and the slot (the PLCs MPI address) under the column “Station” using this format:

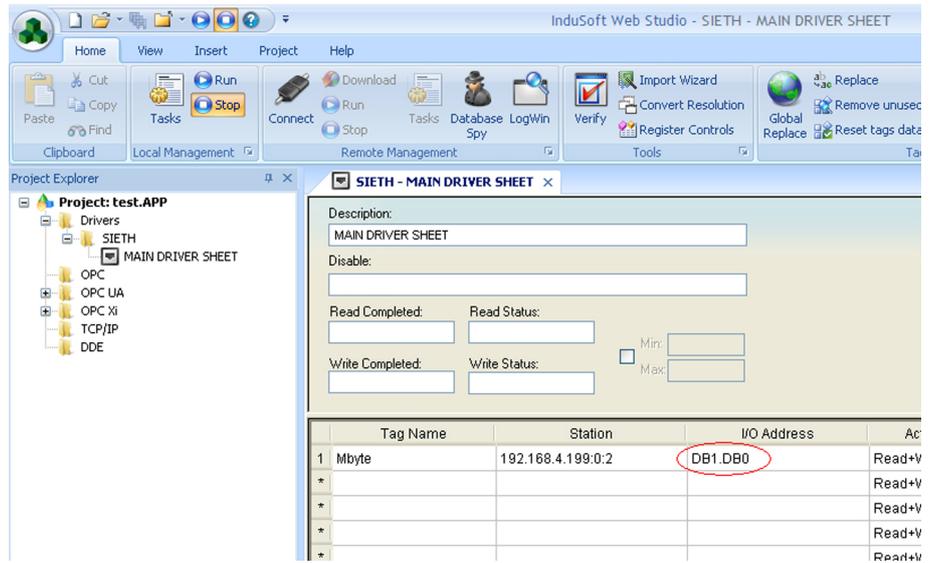
<IP address> : <Rack> : <Slot>



- Adjacent enter the memory address of the variable you want to access on the PLC under the column “I/O Address” (for further information please consult the “SIETH” driver manual):



- Important for S7-200 users!
The V registers of the S7-200 can be read by stating the DB1 registers. (For further information please consult the “SEITH” driver manual):



- Save the “Driver-Sheet” and run the application. The value contained in flag byte 0 (VB0 in a S7-200) will be saved and displayed in the tag “Mbyte”.

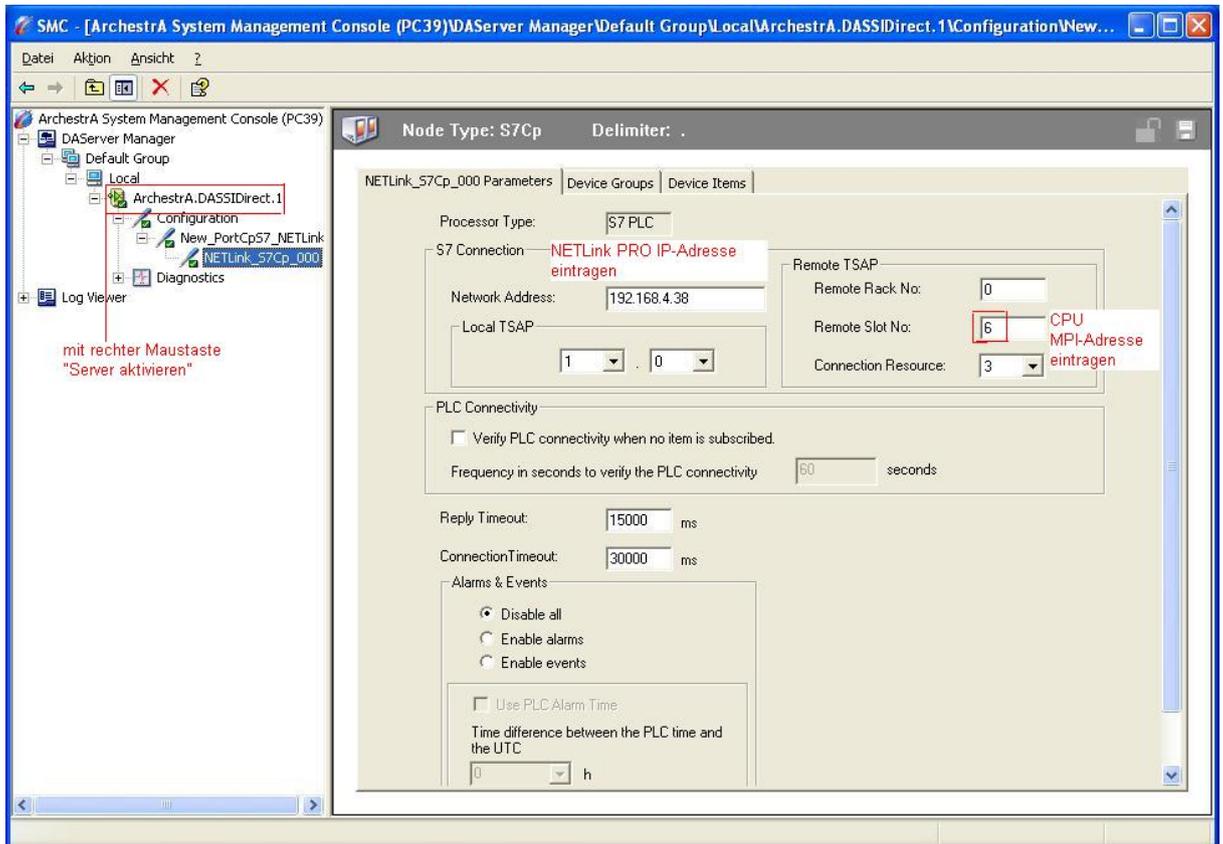
6 InTouch V9.5 (Wonderware GmbH)

(System Management Console 2.0 Version 5.1)

The following steps must be performed in the described sequence (status July 2007):

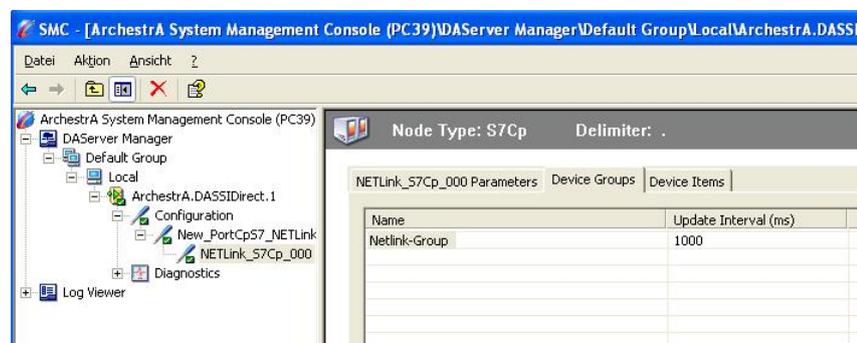
6.1 Starting the System Management Console

"Start->Programs->Wonderware->System Management Console"



6.2 Configuring the Device Group

Enter Device Group (later the NETLink® will be addressed with this name from the WWClient)

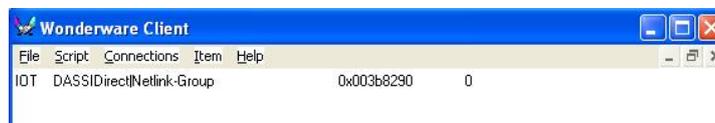


6.3 Configuring the Wonderware Client

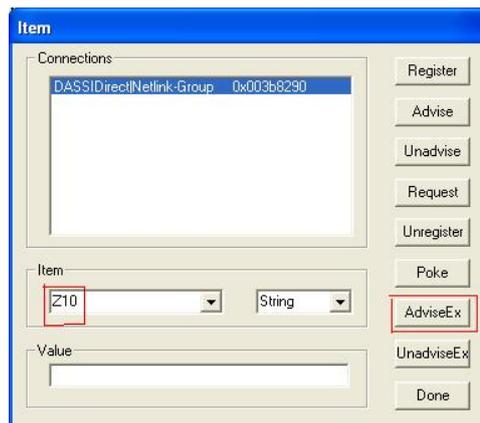
"Start -> Programs -> Wonderware Factory Suite -> Common-> WWClient" to establish connection



If the connection has been set correctly, the following display opens:



Configuring the item



If the Item configuration is correct and the SIDirect DAServer has been activated, the configured "Item" is updated in the "Wonderware Client" window.

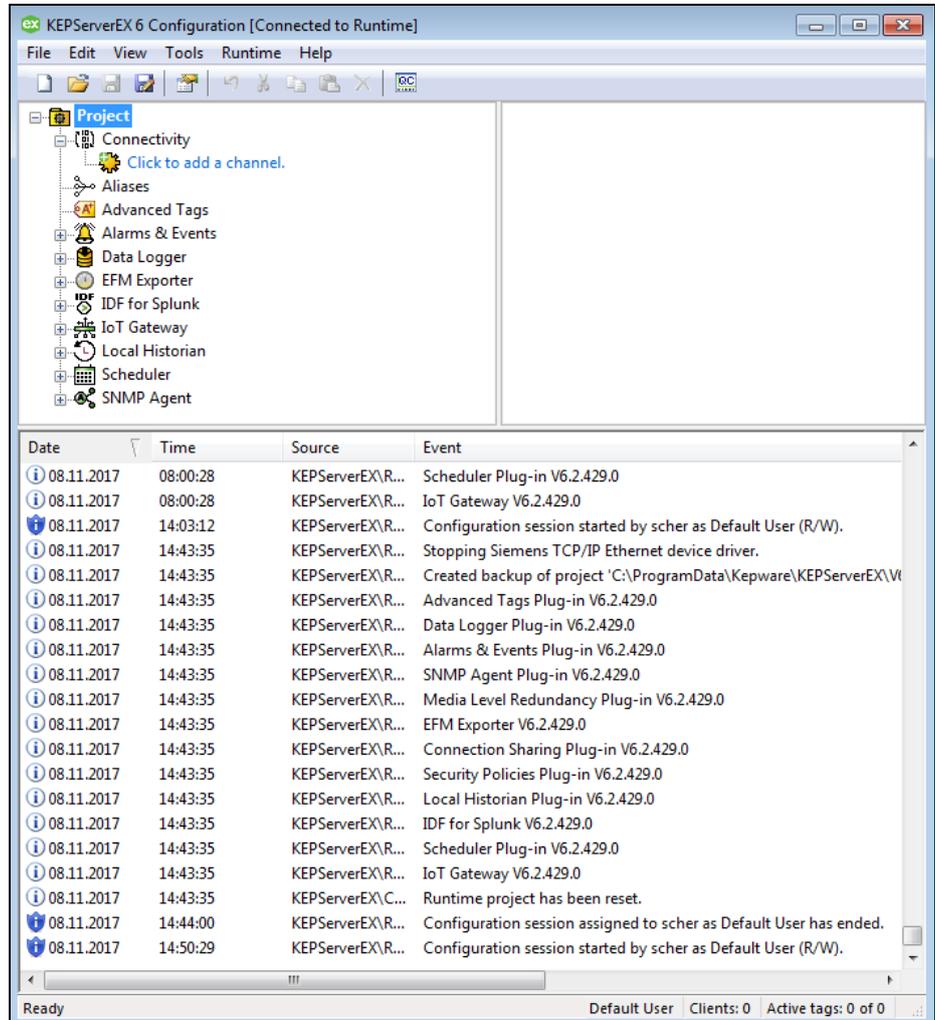


7 KEPserverEx V6.2.429.0 (KEPware Inc.)

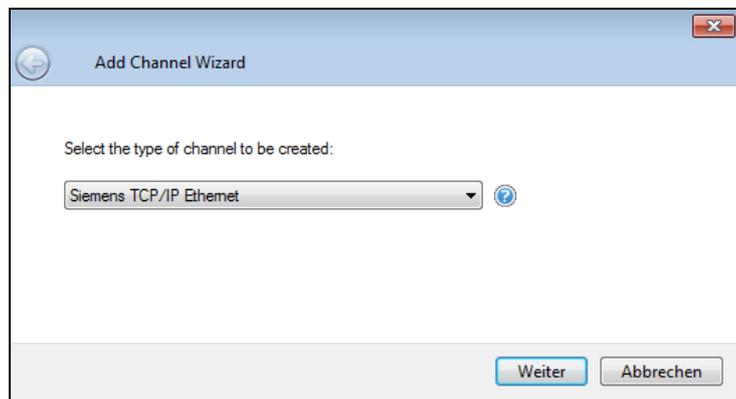
The following steps must be performed in the described sequence (status November 2017):

7.1 Configuring KEPserverEx

Start program module KEPServerEx, create a new project or right-click in the demo project and select “New Channel”.



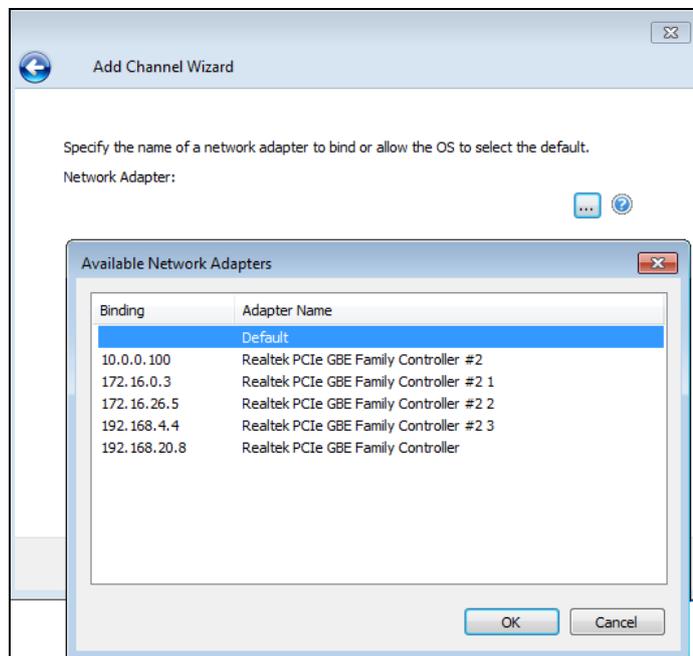
Select device driver “Siemens TCP/IP Ethernet”



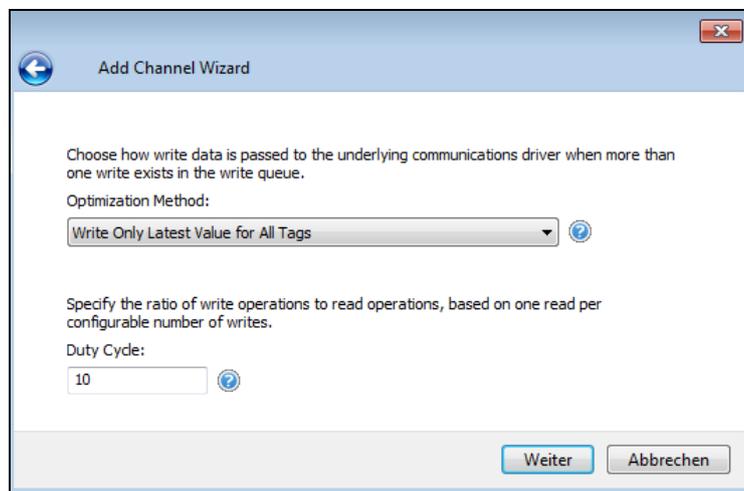
Enter a new name or leave the existing one and “Continue”



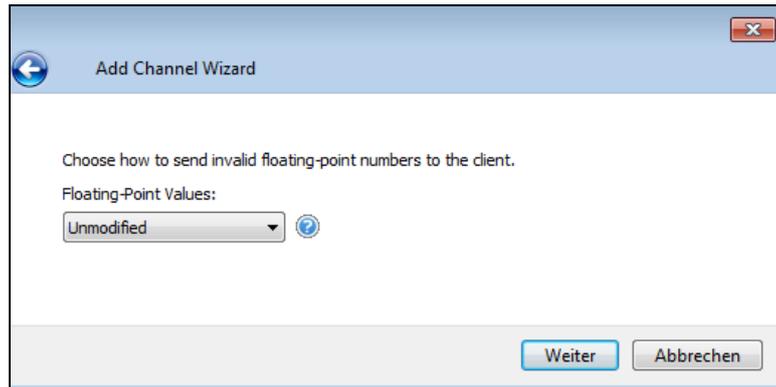
Select the computer's own network card



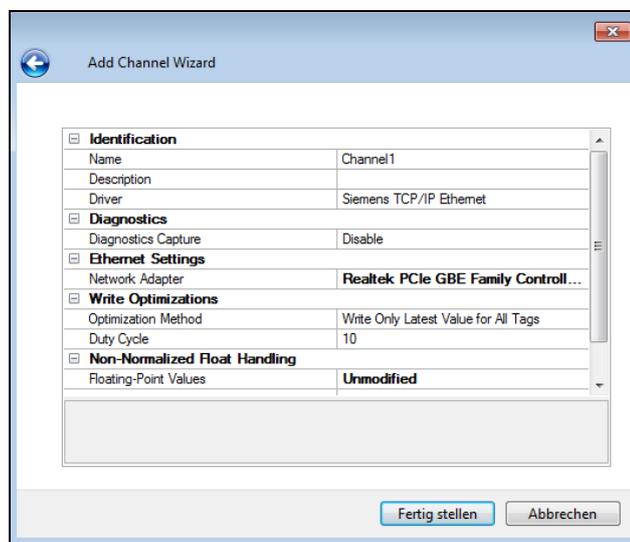
Leave default optimizations and confirm with “Continue”.



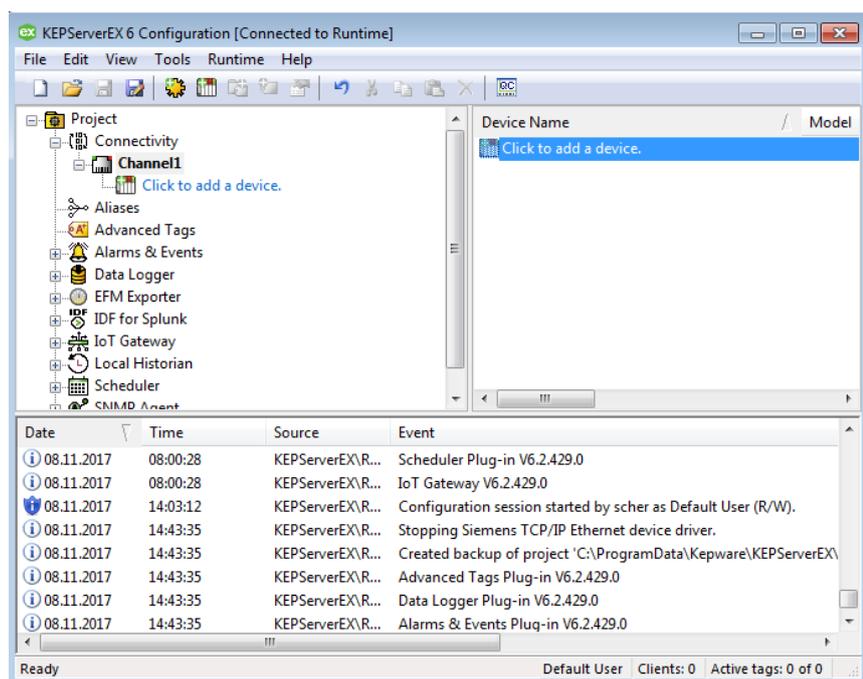
Select the Floating-Point Values to “Unmodified” and confirm with “Continue”



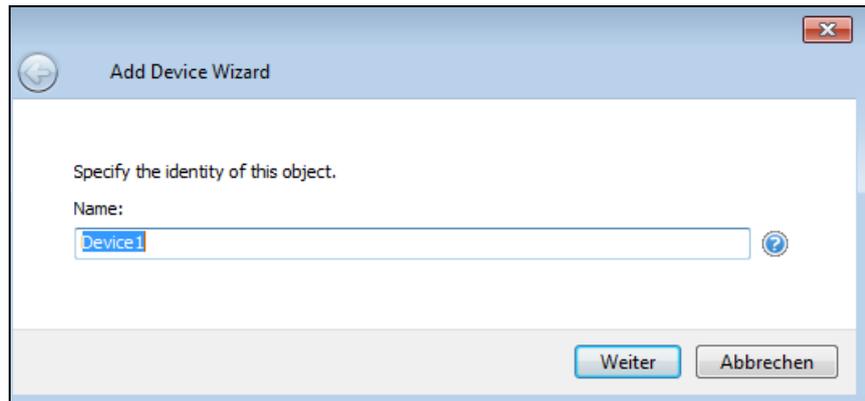
Finish” the channel settings.



Select “Click to add a device” to assign the NETLink® as a device

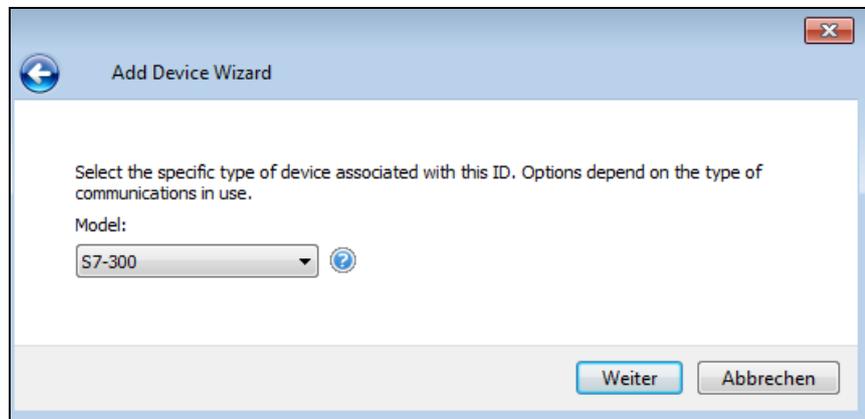


Enter a new name or leave the existing one and “Continue”



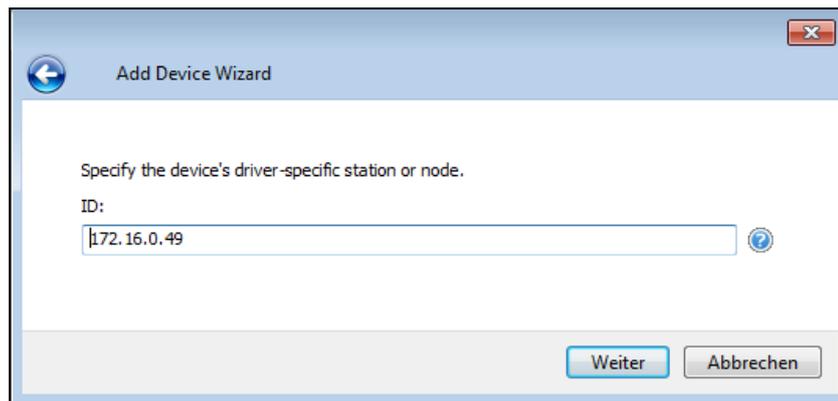
The screenshot shows the 'Add Device Wizard' dialog box. The title bar reads 'Add Device Wizard'. The main text says 'Specify the identity of this object.' Below this, there is a label 'Name:' followed by a text input field containing 'Device1'. A help icon is to the right of the field. At the bottom right, there are two buttons: 'Weiter' (Next) and 'Abbrechen' (Cancel).

Select device model “S7-300”



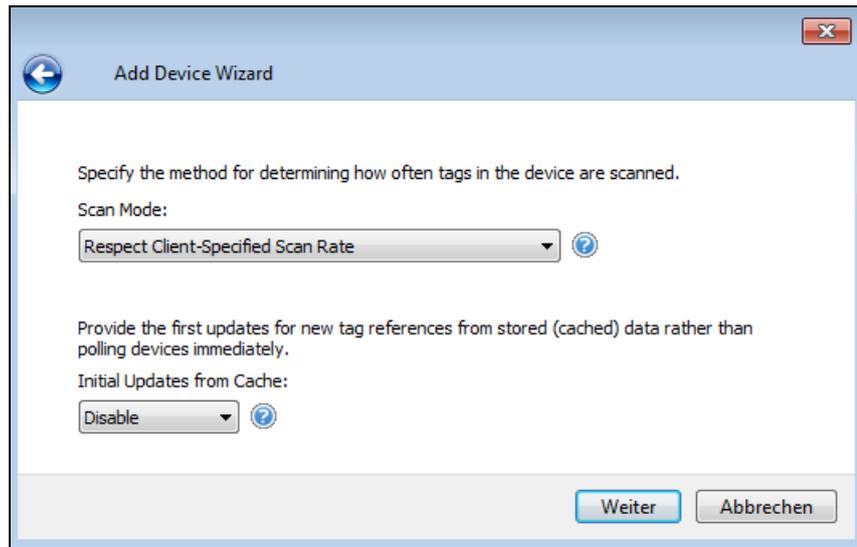
The screenshot shows the 'Add Device Wizard' dialog box. The title bar reads 'Add Device Wizard'. The main text says 'Select the specific type of device associated with this ID. Options depend on the type of communications in use.' Below this, there is a label 'Model:' followed by a dropdown menu showing 'S7-300'. A help icon is to the right of the dropdown. At the bottom right, there are two buttons: 'Weiter' (Next) and 'Abbrechen' (Cancel).

Enter the IP address of the connected NETLink® here.



The screenshot shows the 'Add Device Wizard' dialog box. The title bar reads 'Add Device Wizard'. The main text says 'Specify the device's driver-specific station or node.' Below this, there is a label 'ID:' followed by a text input field containing '172.16.0.49'. A help icon is to the right of the field. At the bottom right, there are two buttons: 'Weiter' (Next) and 'Abbrechen' (Cancel).

Leave default timing and confirm with “Continue”.



Specify the method for determining how often tags in the device are scanned.

Scan Mode:

Respect Client-Specified Scan Rate

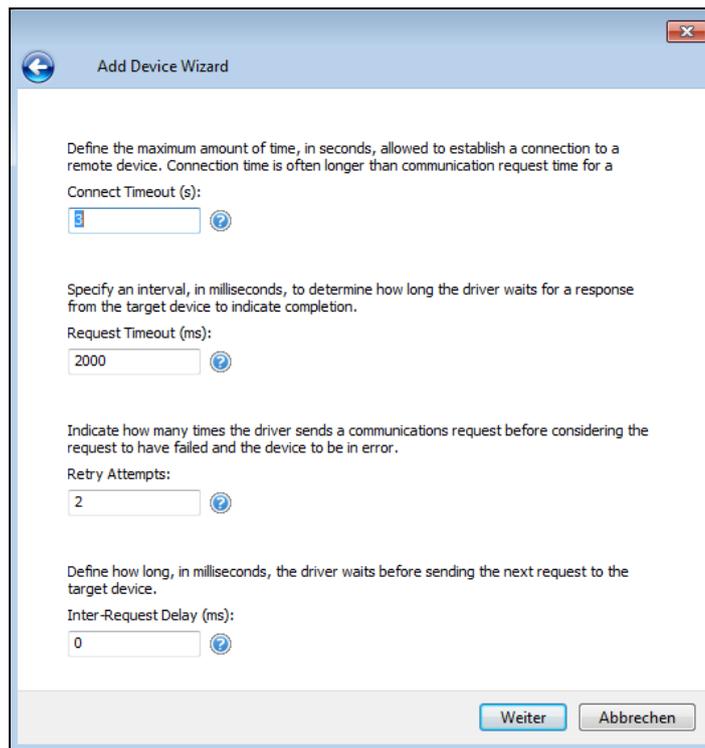
Provide the first updates for new tag references from stored (cached) data rather than polling devices immediately.

Initial Updates from Cache:

Disable

Weiter Abbrechen

No changes at this point “Continue”



Define the maximum amount of time, in seconds, allowed to establish a connection to a remote device. Connection time is often longer than communication request time for a

Connect Timeout (s):

5

Specify an interval, in milliseconds, to determine how long the driver waits for a response from the target device to indicate completion.

Request Timeout (ms):

2000

Indicate how many times the driver sends a communications request before considering the request to have failed and the device to be in error.

Retry Attempts:

2

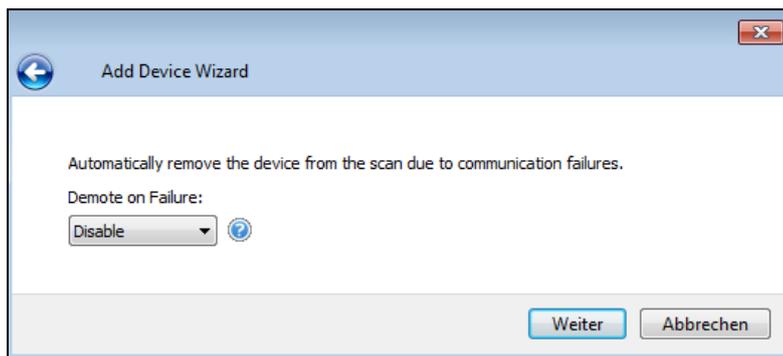
Define how long, in milliseconds, the driver waits before sending the next request to the target device.

Inter-Request Delay (ms):

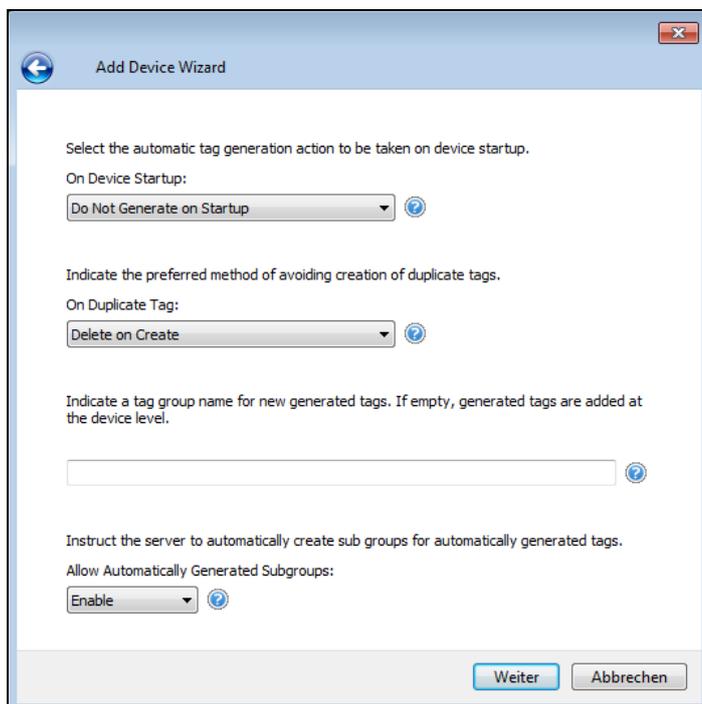
0

Weiter Abbrechen

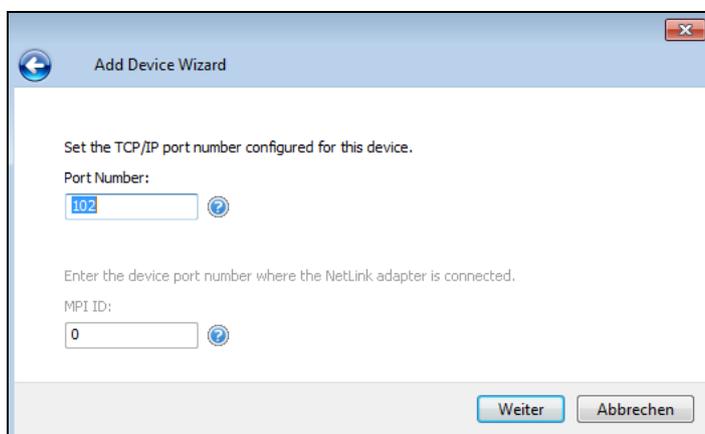
No changes at this point “Continue”



No changes at this point “Continue”



The communications port for RFC 1006 is 102 (default)



The link type must be set to “OP”!

The screenshot shows the 'Add Device Wizard' dialog box with the following fields and values:

- Local TSAP: 4D57
- Remote TSAP: 4D57
- Link Type: PC
- CPU Rack: 0
- CPU Slot: 2

Buttons at the bottom: Weiter, Abbrechen

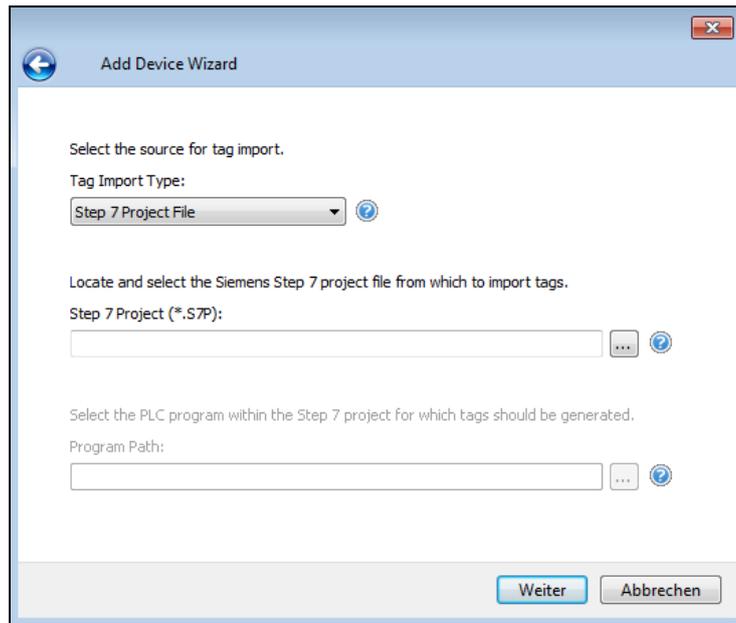
Leave byte order at “Big Endian(S7 Default)”.

The screenshot shows the 'Add Device Wizard' dialog box with the following field and value:

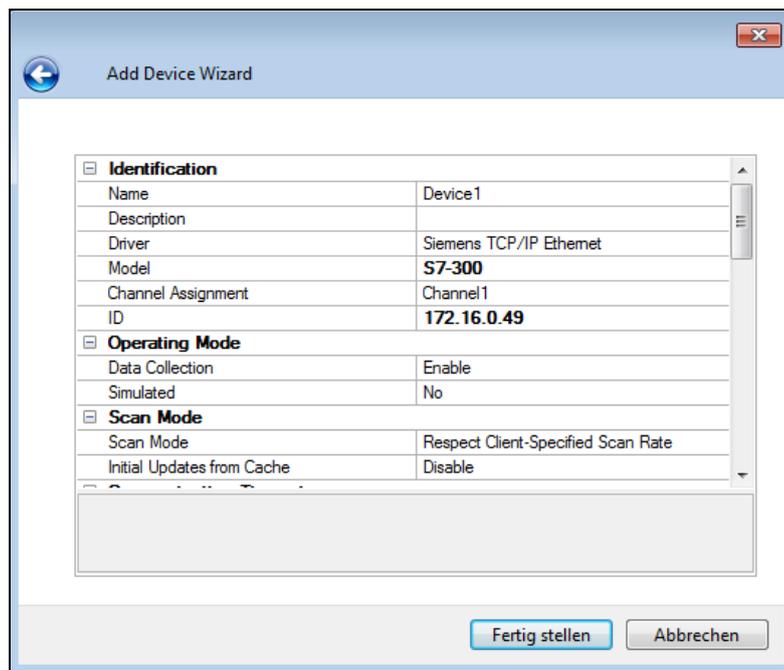
- Byte Order: Big Endian

Buttons at the bottom: Weiter, Abbrechen

No changes at this point “Continue”

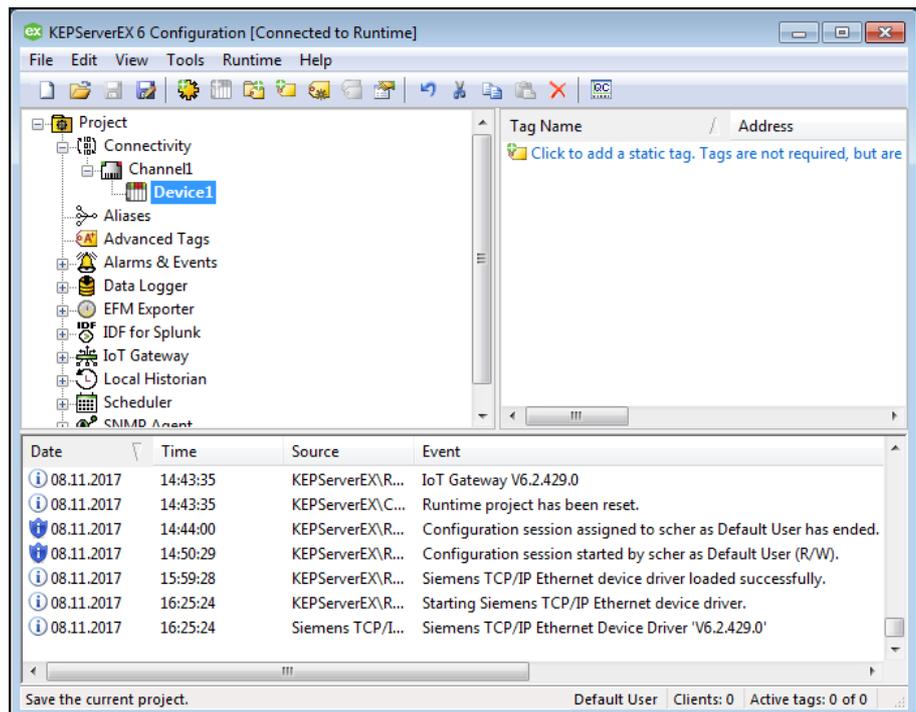


“Finish” the device settings.

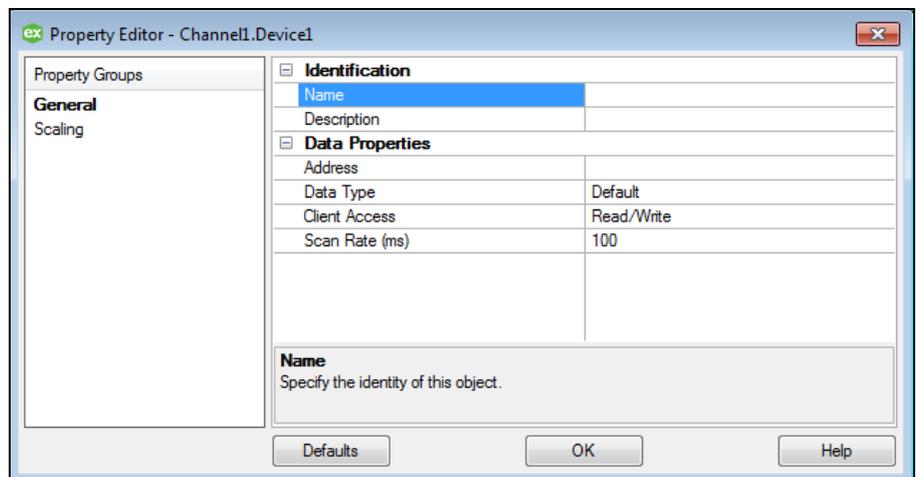


The following steps are provided as an example only and are not obligatory for customer applications. They serve as a visual check whether data exchange is taking place.

By clicking “Click to add a static tag” in this example, only one item will be assigned.



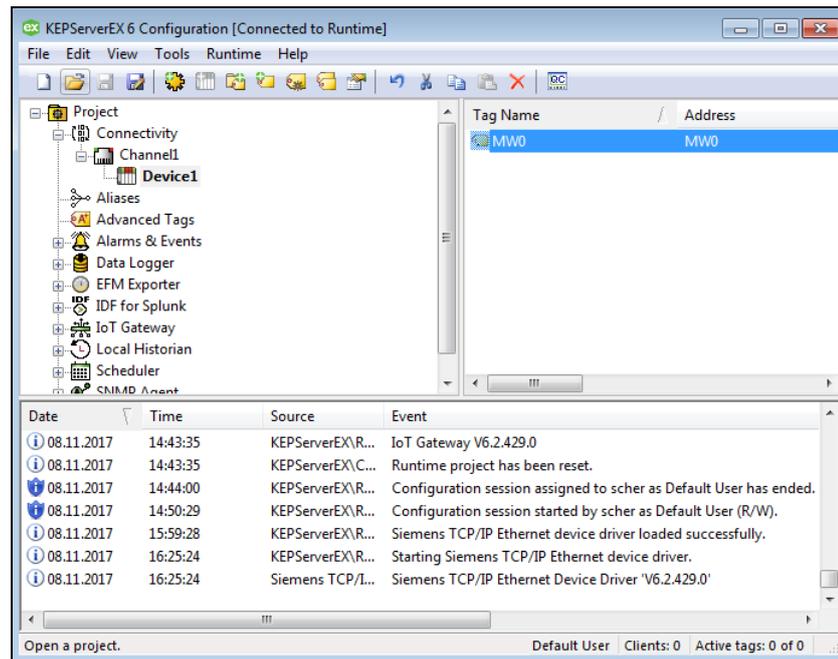
The flag word zero will be processed in the sequential program of the connected CPU.



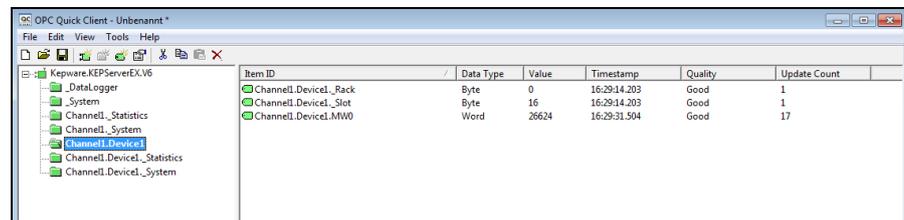
Complete with “Apply” and “OK”

7.2 Starting the OPC quick Client

The Quick Client can be started via the marked icon:



The program module *OPC Quick Client* opens and the status of the item is displayed by marking the channel and device you previously created

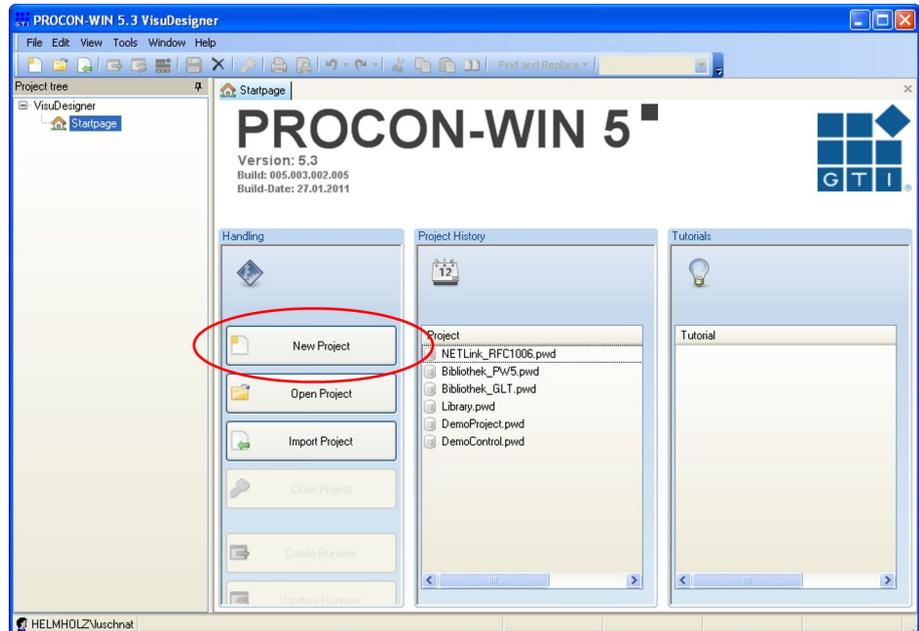


8 PROCON-Win V3.2 (GTI Control)

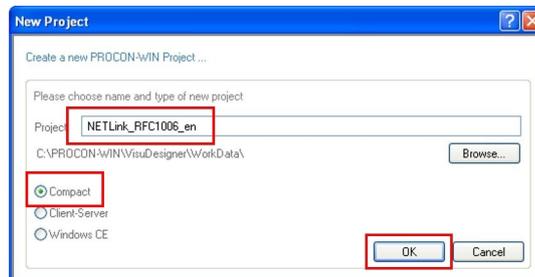
The following steps must be performed in the described sequence (Version July 2011):

8.1 Configuring the driver and connection

- Open *PROCON-WIN 5 VisuDesigner*.
- Create a new project by pressing „New Project“

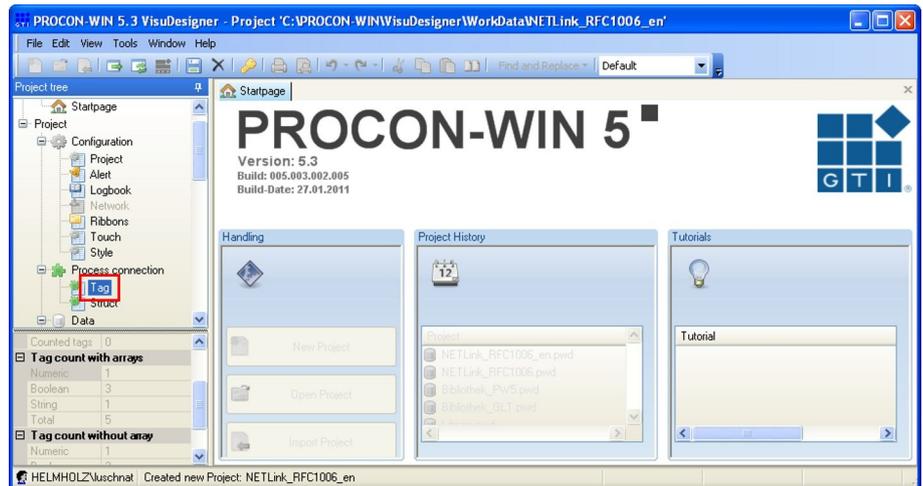


- Choose “Compact” and name the project.
- Confirm with “OK”.

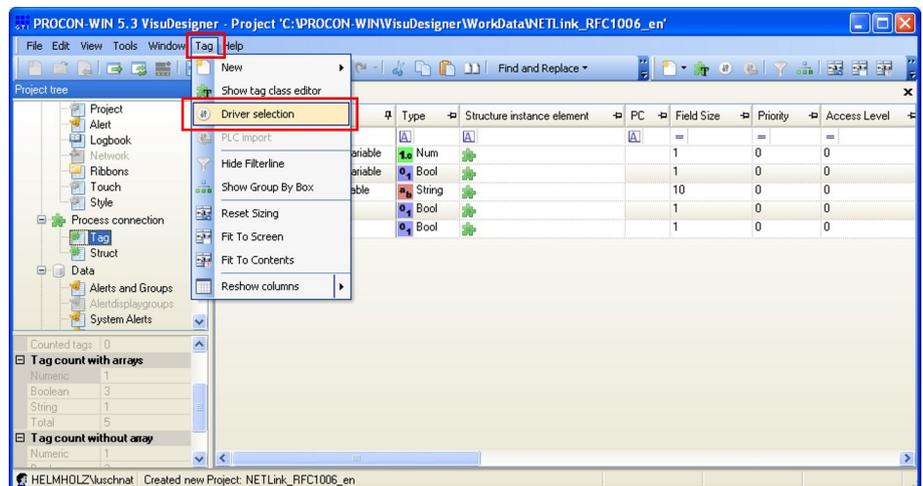


A new project is created and opened immediately.

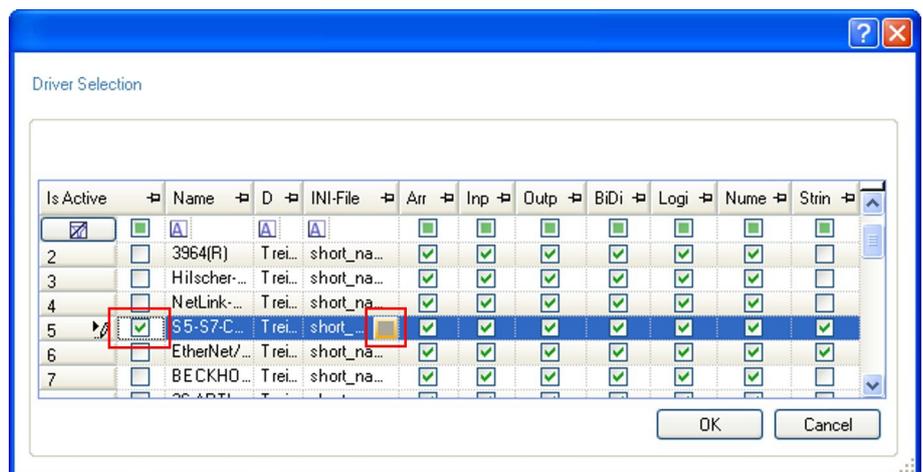
- Double-click „Tag“.



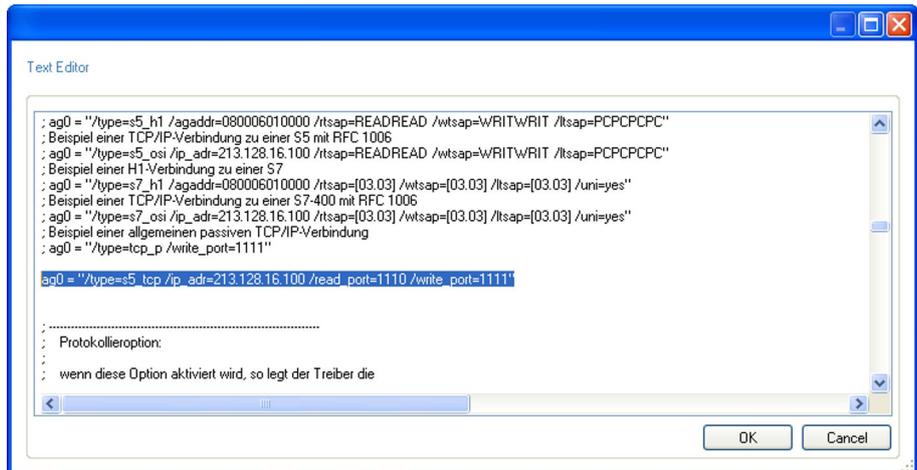
- From the menu bar click on “Tag” -> “Driver selection”



- Select „S5-S7-COMBI RFC 1006“.
- Click the button contained in the cell under the column “INI-File”.



- A text editor opens.
- Search for this in color highlighted line:

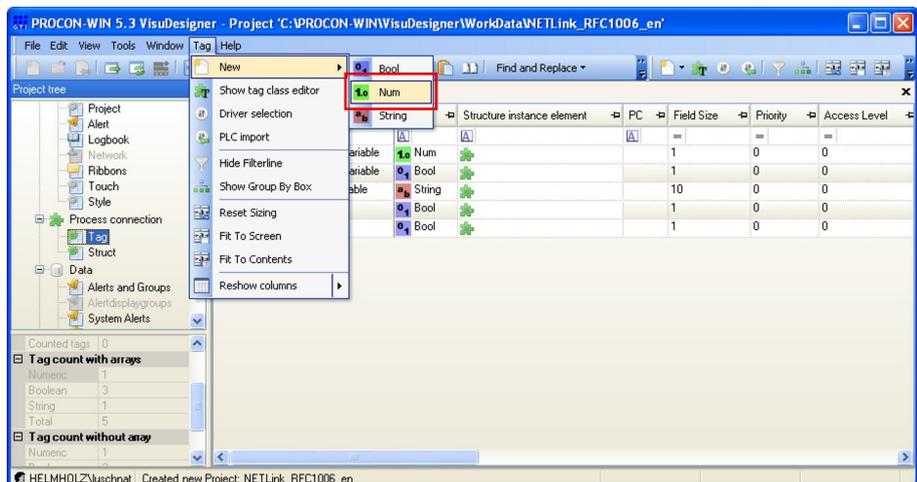


- The highlighted line is to be replaced with the following:
`ag0 = "/type=s7_osi /ip_adr=XXX /rtsap=[02.OY] /wtsap=[02.OY] /ltsap=[02.OY] /uni=yes"`

- In place of the "XXX" enter the IP address of the NETLink
- Replace every "Y" with the MPI address of the PLC connected to the NETLink
- The resulting string should look something like this:



- Close the text editor and driver selection screen by pressing "OK"
- From the menu bar press „Tag“ -> „New“ -> „Num“.



- Fill the table with the following values:

Name	user-defined
Decimal places	0
Min PLC	-128
Max PLC	127
Min PC	0
Max PC	256
Driver	S5-S7-COMBI RFC 1006
IO	Input
Baustein-Typ	MERKER
Format	S7-BYTE

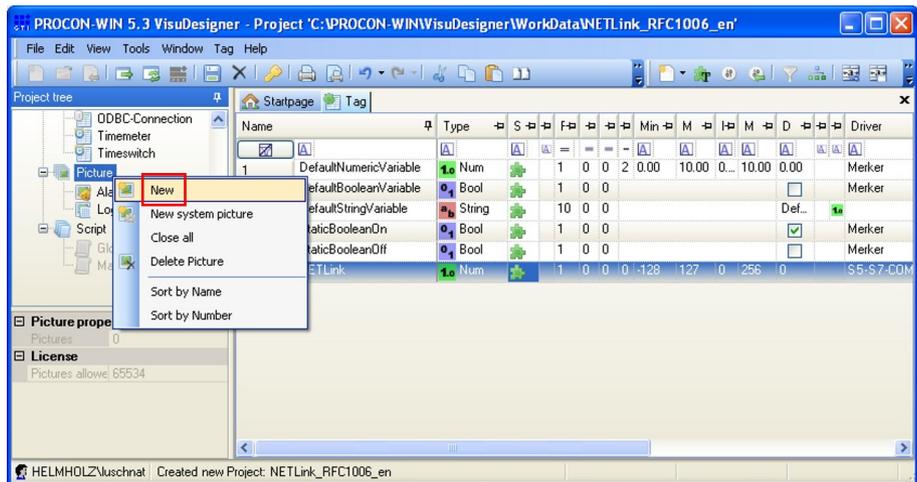
- Values not defined above are left at default.

Name	Type	S	F	Min	Max	Min	Max	Defa	Driver	I	O	[1]	[4]	[2]
1 StaticBooleanOff	Bool	1	0	0					Merker					
2 StaticBooleanOn	Bool	1	0	0					Merker					
3 DefaultStringVariable	String	10	0	0				Default	Merker					
4 DefaultBooleanVariable	Bool	1	0	0					Merker					
5 DefaultNumericVariable	Num	1	0	0	2	0.00	10.00	0.00	10.00	0.00				
6 NETLink	Num	1	0	0	0	-128	127	0	256	0				

- Save the project (STRG+S).

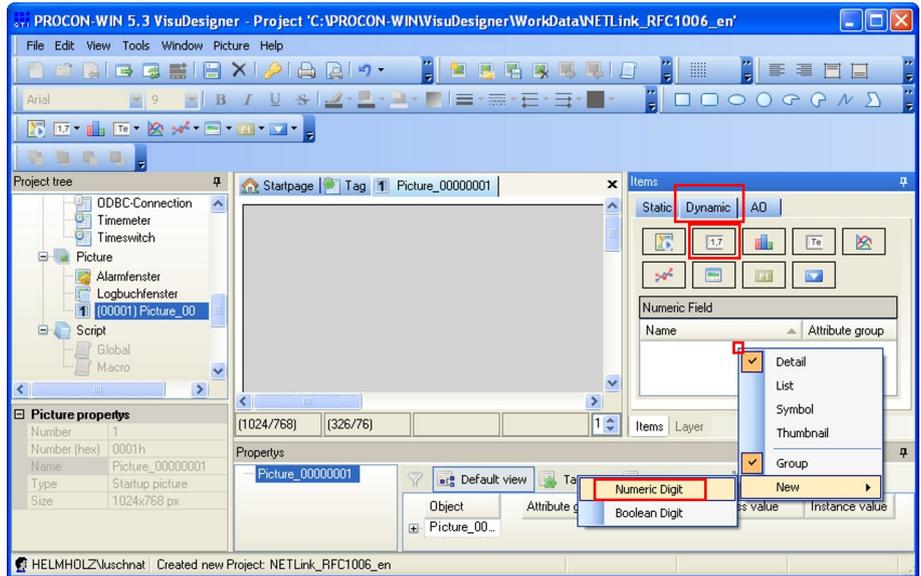
8.2 Creating a Picture

- Right-click on “Pictures” and select “New”.

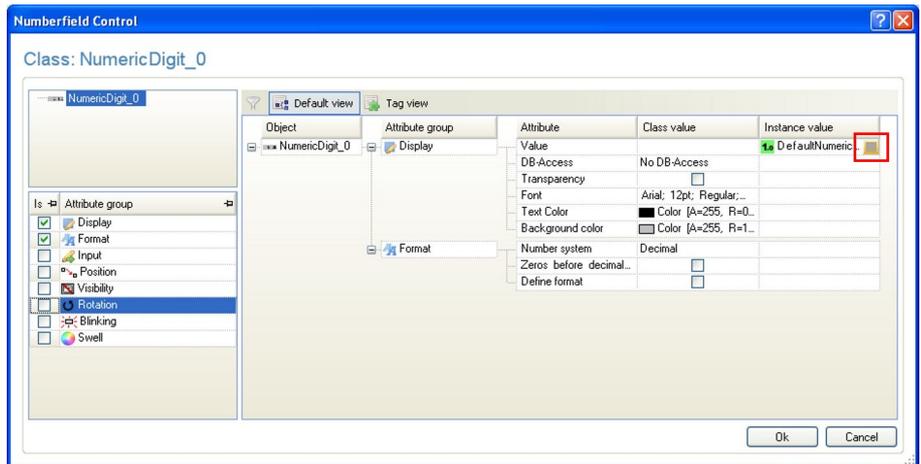


- A new Picture is created and displayed
- Click the tab “Dynamic” under “Items” and then “Numeric Field”

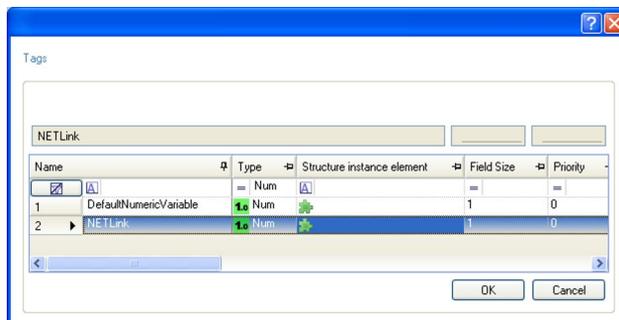
- Now right-click on the white area beneath “Dynamic Symbol” and choose “New” -> “Numeric Digit”



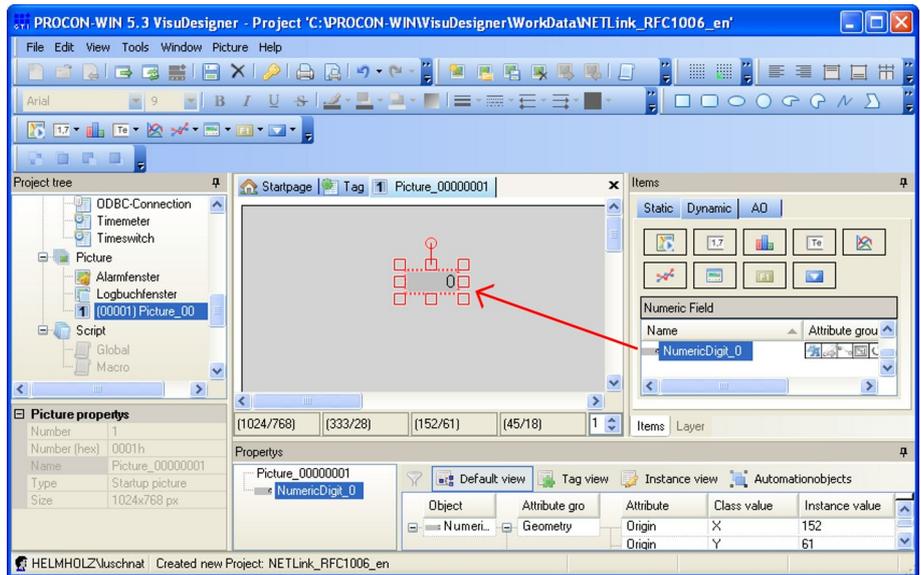
- Press the button contained in the cell under column “Instance Value” row “Value”.



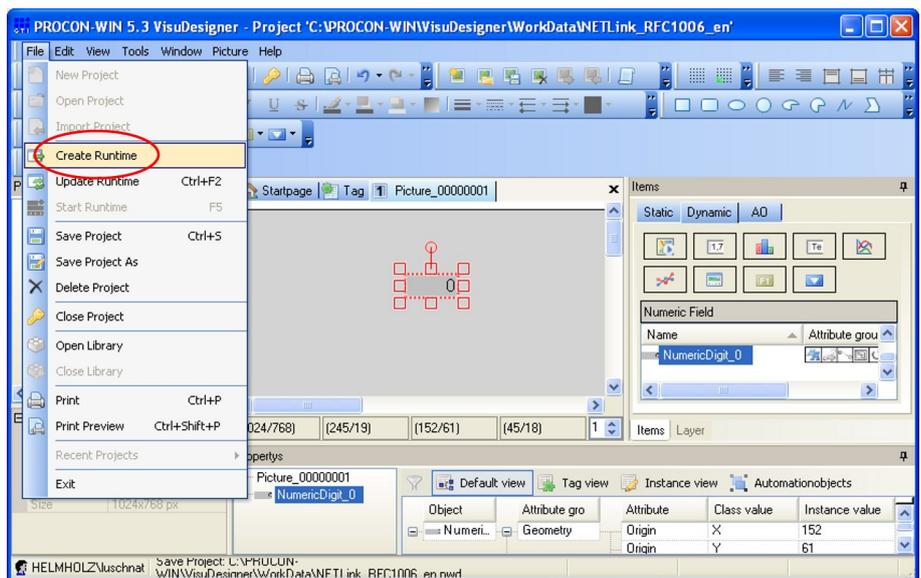
- Choose the afore created tag and close the window with “OK”.



- Close “Numberfield Control” by pressing “OK”.
- Create an instance of the newly created numeric digit by pulling it on the picture using drag & drop.

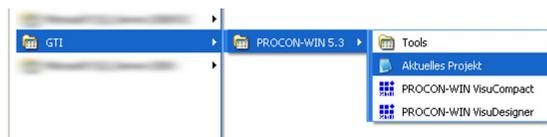


- Save the project (CTRL+S) and from the menu bar press “File” -> “Create Runtime”.

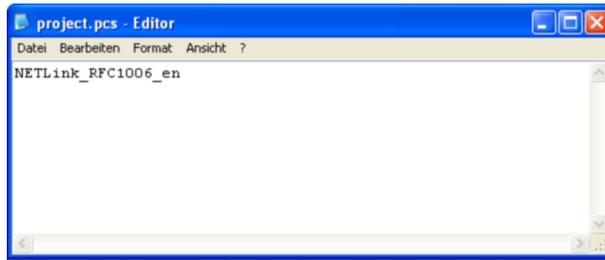


If no start menu entry exists, you can find the file “projects.pcs” in the folder “\PROCON\WIN\Projects”. It can be opened with a text editor!

- Open the Windows start menu and select “Aktuelles Projekt” under “All programs” -> “GTI” -> “PROCON-WIN 5.3”



- Enter the name of the project in the text file and save it.



- Now start „PROCON-WIN 5 VisuCompact“.
- A numeric field containing the content of the flag byte 0 in decimal format should be visible now.



- To close *VisuCompact* double tap “Esc”

9 VisAM Win32 (VISAM GmbH)

The following steps must be performed in the described sequence (status May 2008):

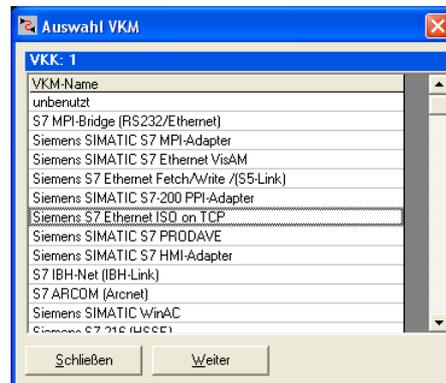
9.1 Configuring VisAM Win 32

Open the program module VisAM editor

- Communication -> Select channels
- Click assignment 1 in the communication channel selection.



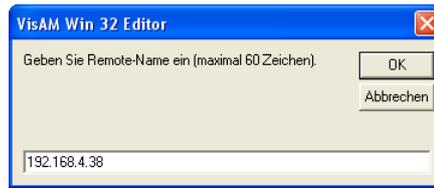
In the selection, select assignment “*Siemens S7 Ethernet ISO on TCP*” as the VKM name and confirm with “*Continue*”.



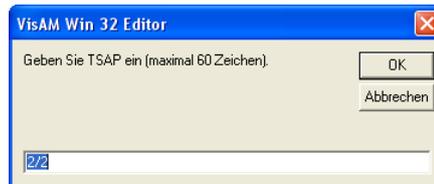
Click the remote name and...



...enter the IP address of the NETLink®

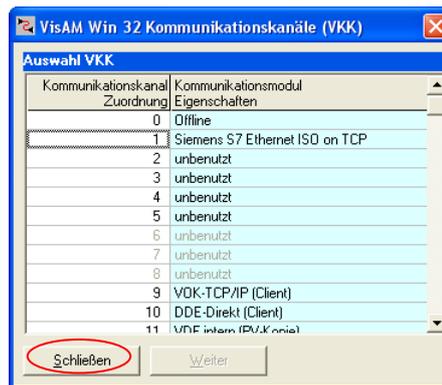


Confirm with "OK" and click TSAP...



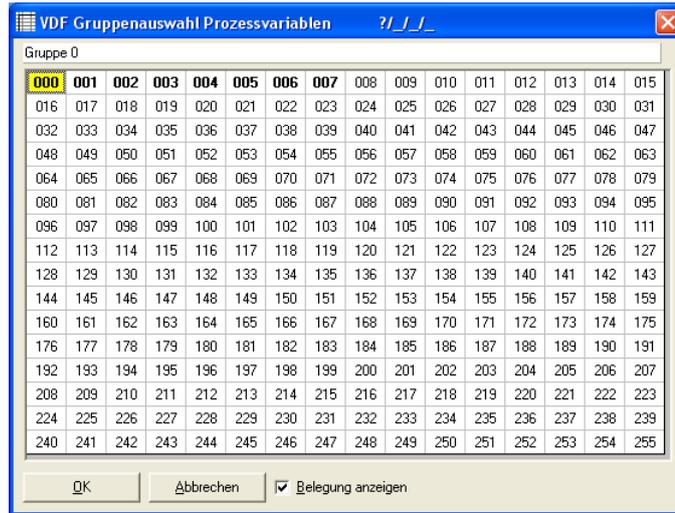
...and enter address. In this case 2/2 for bus address 2, rack 0, slot 2 (see the relevant chapters with the "Address conversion table" in the NETLink® manual).

Confirm with "OK".

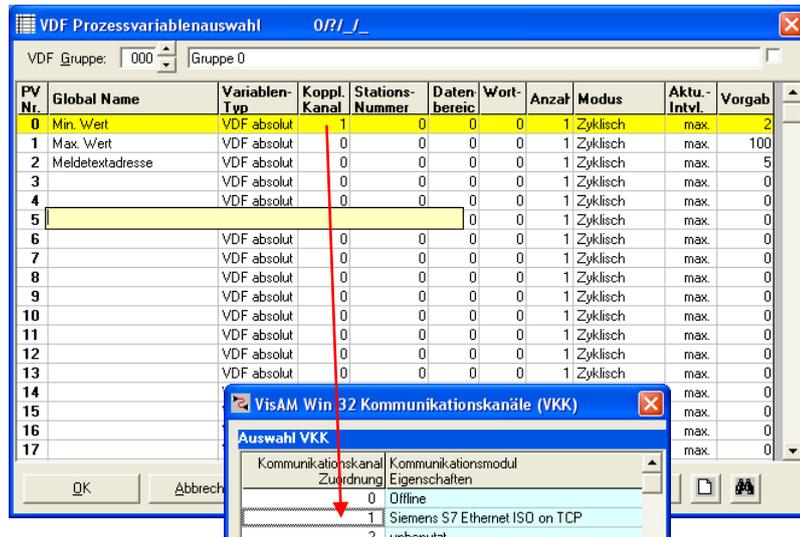


You have now created the communications channel and can apply the settings with "Close".

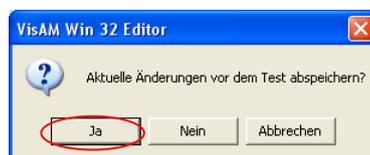
Select Communication -> VDF Data Field



Select Group 0 and click the "000" field to activate process variable selection.



Coupling channel 1 is referenced to the previously defined communications channel. Confirm with "OK".



Save the settings.

9.2 Starting visualization

Select Project -> Test (hotkey F5)



Select "Online UL" and click "Start"

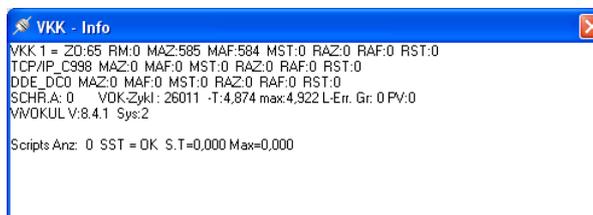
Process visualization opens and the communications link is started.



The connection monitor switches from "offline" to "online" mode.



The transmission information can be displayed in Info.



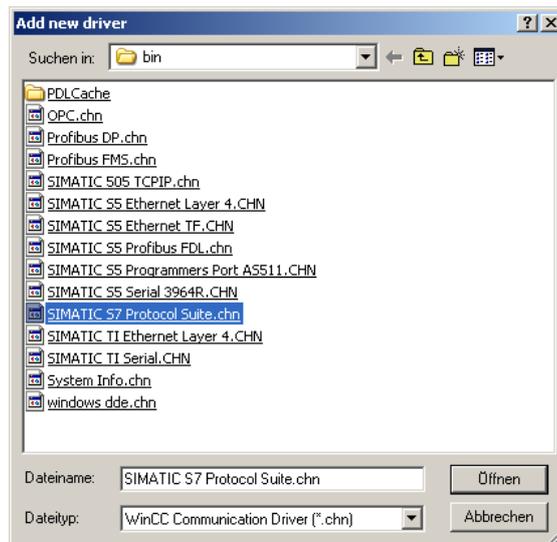
10 WinCC V7.4 (Siemens AG)

The following steps must be performed in the described sequence (Version November 2017):

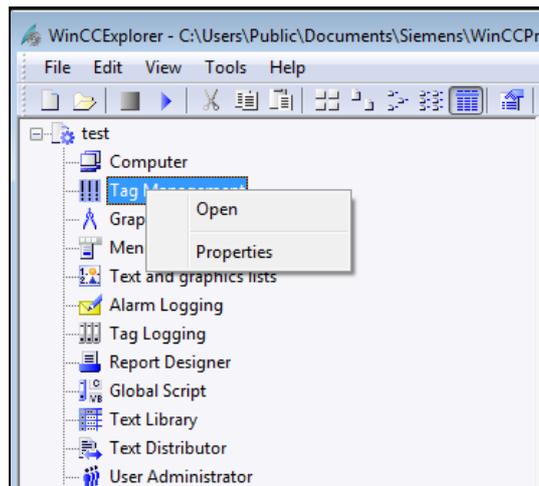
10.1 Add the protocol driver

To parameterize a RFC1006 link in a WinCC project, a new TCP/IP link must first be created in the 'SIMATIC S7 PROTOCOL SUITE.'

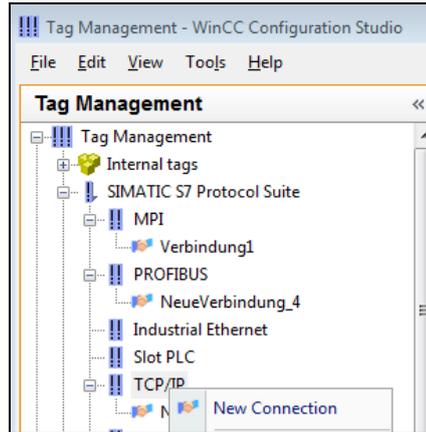
- Right click: Tag Management -> Add new driver...
- Select: ',SIMATIC S7 Protocol Suite.chn'



- create a new TCP / IP connection in ',SIMATIC S7 PROTOCOL SUITE'
- 'Open' the Tag management.



With right-click: TCP / IP -> System parameter you have to select the correct logical device name in the 'Unit' tab.



In this case, the NETLink® Gateway has the IP address 172.16.0.49

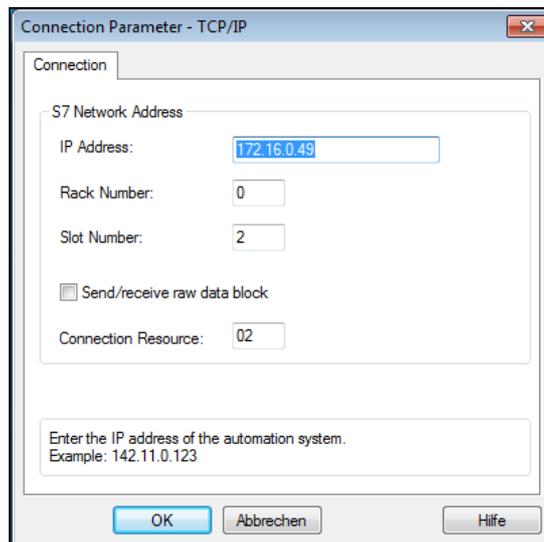


All NETLink have the IP address 192.168.4.49 on delivery from the factory.

- click on 'Properties'
- type in the IP address of the NETLink device
- Enter the rack/slot combination of the end device

Here 172.16.0.49 and 0, 2.

The destination CPU with which we want to communicate has the bus address 2.



10.2 Creating a variable

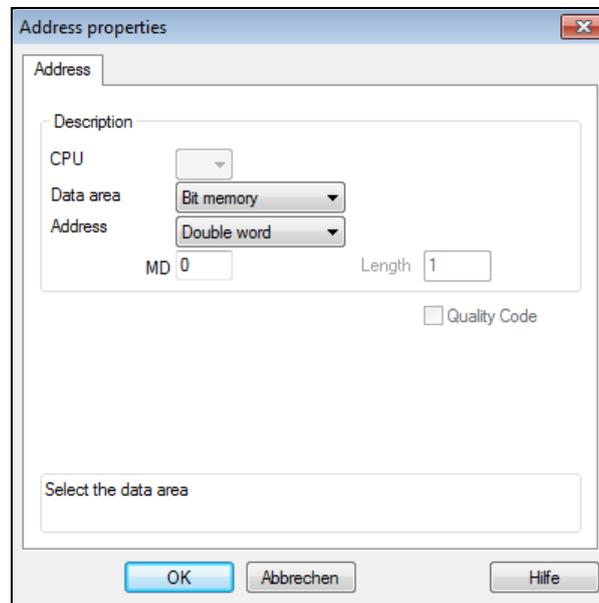
Under this connection we have just configured, we now have to create a variable.

This is done by right-clicking to open the context menu of the new connection and selecting 'New variable...'

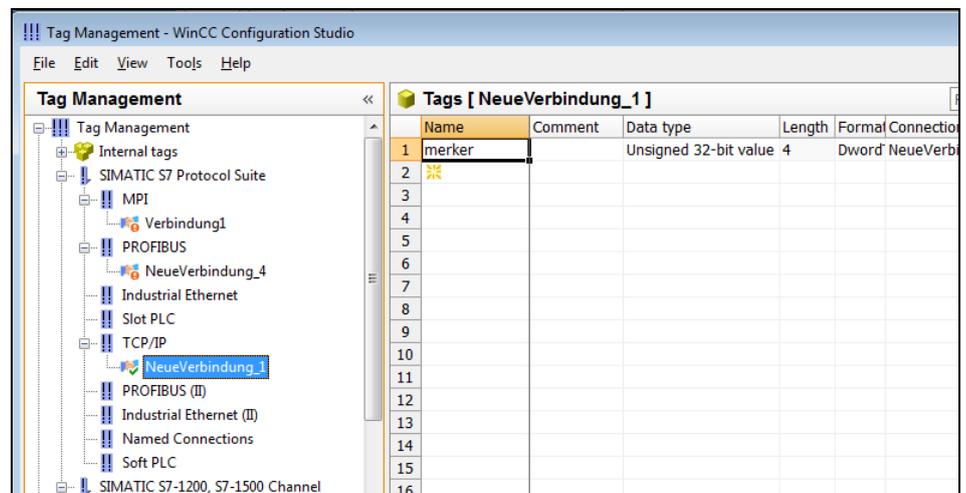
Tags [NeueVerbindung_1]							Find
Name	Comment	Data type	Length	Format	Connection	Group	
1 merker		Unsigned 32-bit value	4	Dword	NeueVerbindung_1		

- In the properties window of the variable, which was named 'merker' in this case, we can now select the type of variable by clicking the 'Select' button.

Marker byte 0 is configured here.



The following screenshot shows that a variable named 'merker' now exists under the 'newconnection_1' connection.



If this variable is now included in the initial screen of the WinCC project, for example, a connection will be established to the CPU with address 2 via the NETLink® Gateway to read or write marker byte 0 from this address.

Further variables of different types can, of course, be created and used according to the same scheme.

It is also possible to create additional TCP/IP connections in order to communicate not only with the CPU with bus address 2 but also with other CPUs.

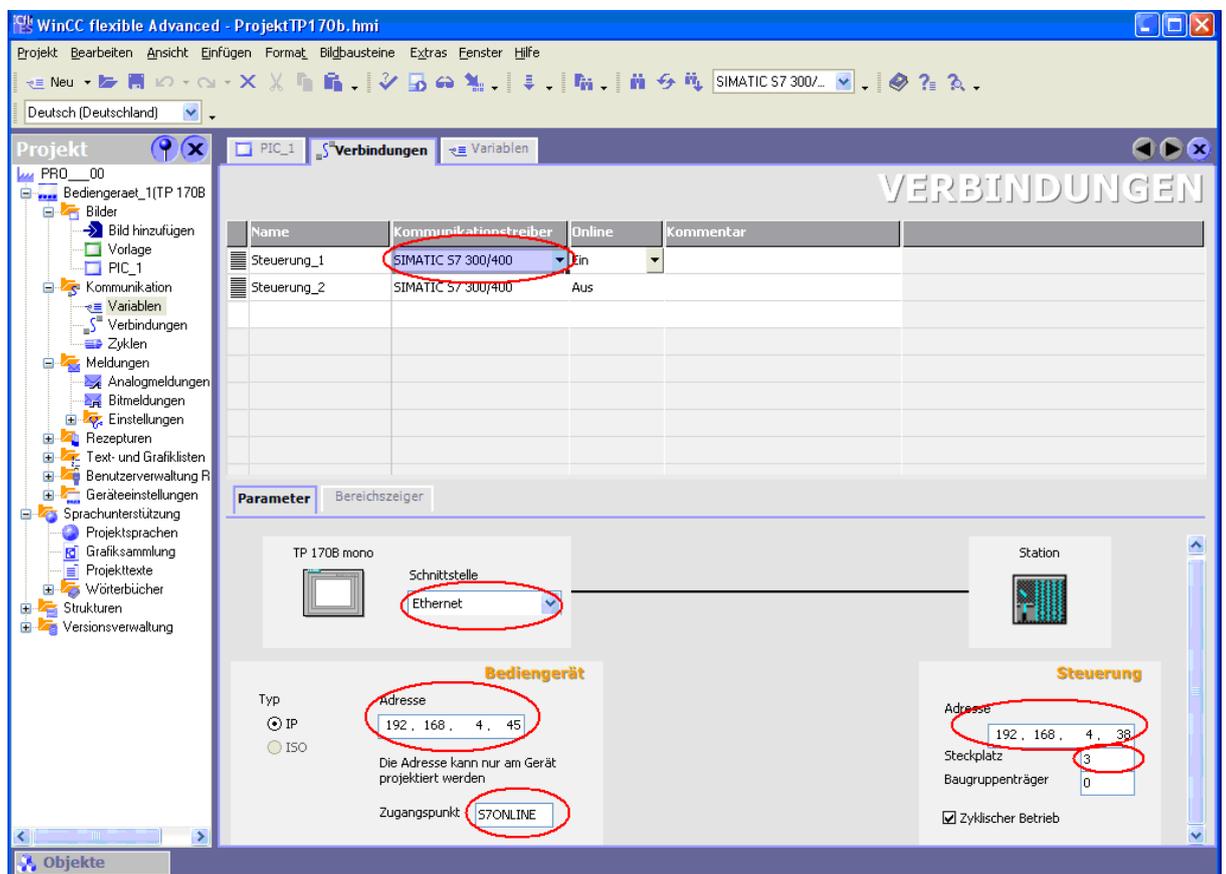
11 WinCC flexible 2005/2007 (Siemens AG)

The following steps must be performed in the described sequence (status April 2008):

11.1 Configuring connections

Start WINCC flexible Project and open the connections in the communications register:

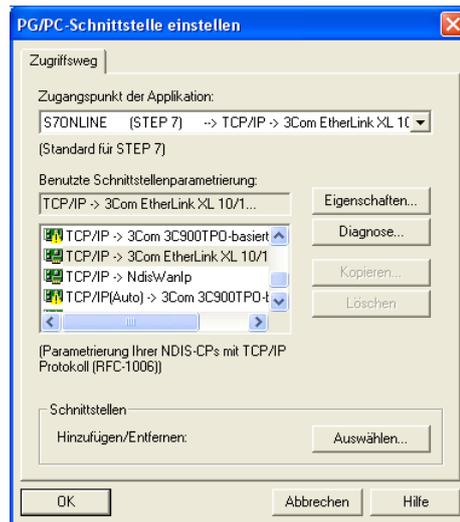
- Select communications driver "SIMATIC S7 300/400"
- Interface: Ethernet
- The operator panel address is the local IP address of the computer network card
- Access point: S7ONLINE
- The Control address is the IP address set in NETLink®
- The Slot is the MPI address of the CPU to be addressed



11.2 Configuring the PG/PC interface

In the control panel, open the “*Setting the PG/PC Interface*” module.

- Select the network card with protocol “*TCP/IP*” installed in the computer system as the “*Used Interface Parameterization*”.
- Check whether “*S7ONLINE (Step7) --> TCP/IP -->...*” is active for “*Access point of application*”
- Confirm with “*OK*”.



All variables that are linked to “*Controller_1*” can now be accessed via the RFC 1006 protocol.

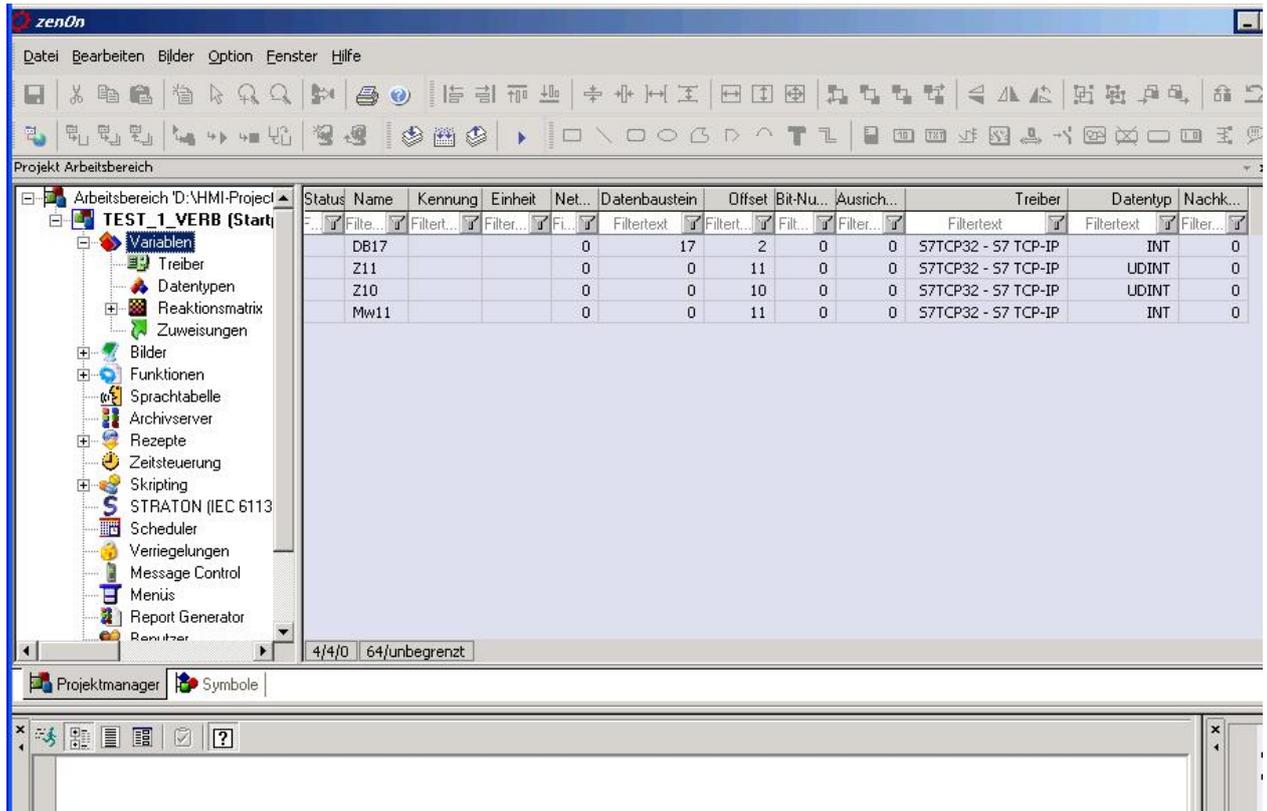
12 ZenOn V6.2 (COPA-DATA)

The following steps must be performed in the described sequence (status August 2007):

12.1 Configuring Zenon

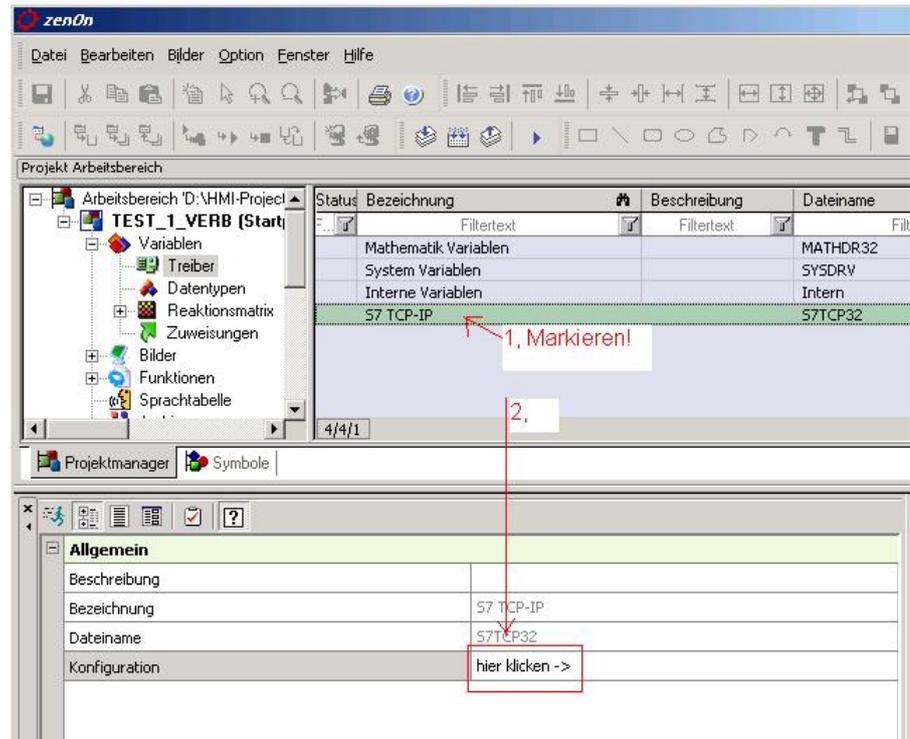
Start Zenon and create a new project or adapt an existing one and define variables.

Configuring variables:



12.2 Setting the driver

- Mark “S7 TCP-IP”
- Press “Click here->” in the configuration

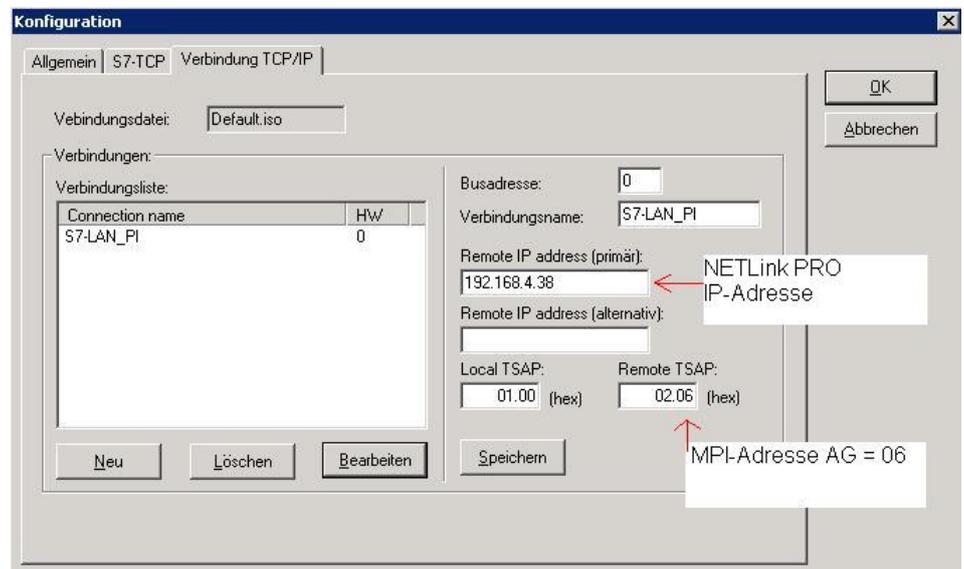


12.3 Driver configuration

- “New” button:
- Enter data
- (remote IP address = IP address from NETLink®
Remote TSAP = MPI address of PLC)
- First the “Save” button
- Then “OK” button

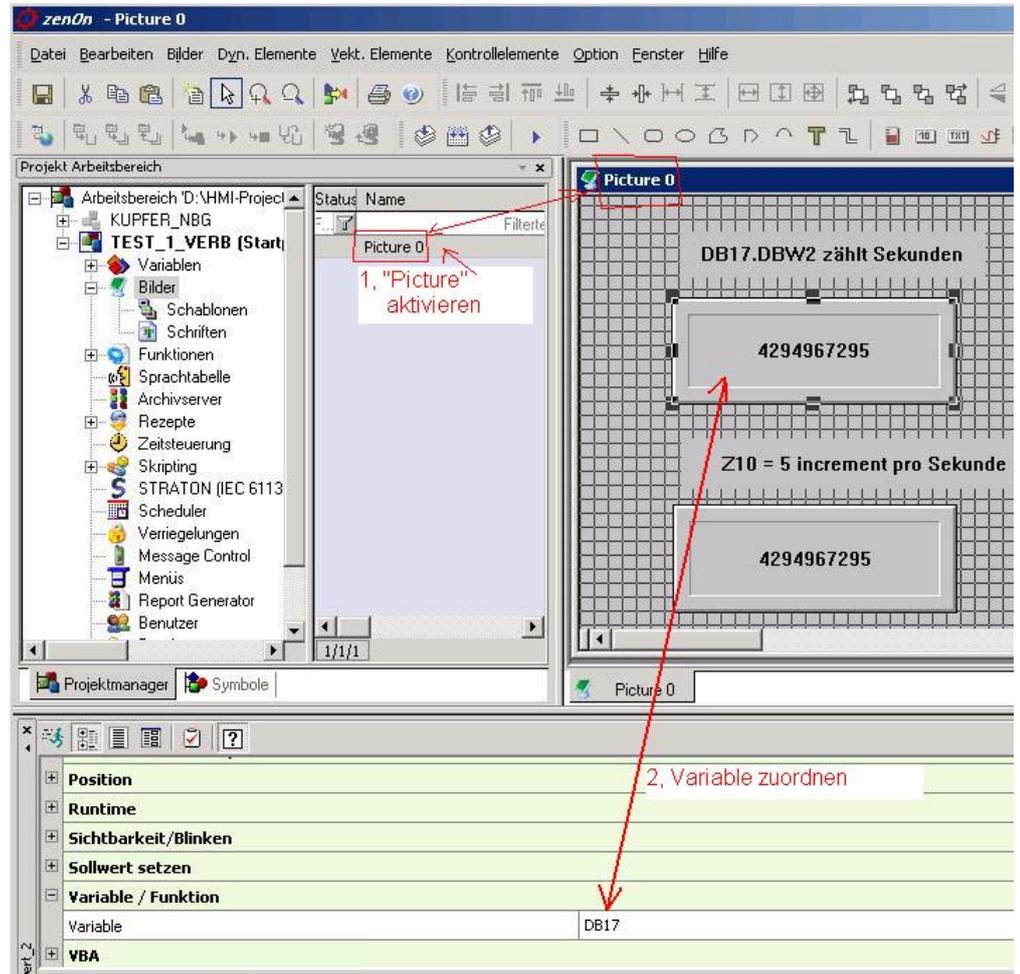


First the “Save” button
and only then confirm
“OK”.

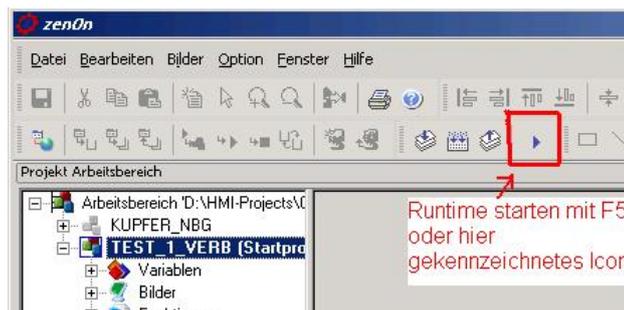


12.4 Integrating variables in images

Configuring images



Finally, start the runtime:



13 Address conversion table

The following table is a parameterization aid for fining the correct settings for Routing over RFC or for remote TSAP in addressed mode. Please note that the rack and slot together fill only one byte which is divided as follows:

- Rack fills the upper three bits (11100000_{bin})
- Slot fills the lower five bits (00011111_{bin})

Bus-addr.	Rack	Slot	TSAP												
0	0	0	0200	32	1	0	0220	64	2	0	0240	96	3	0	0260
1	0	1	0201	33	1	1	0221	65	2	1	0241	97	3	1	0261
2	0	2	0202	34	1	2	0222	66	2	2	0242	98	3	2	0262
3	0	3	0203	35	1	3	0223	67	2	3	0243	99	3	3	0263
4	0	4	0204	36	1	4	0224	68	2	4	0244	100	3	4	0264
5	0	5	0205	37	1	5	0225	69	2	5	0245	101	3	5	0265
6	0	6	0206	38	1	6	0226	70	2	6	0246	102	3	6	0266
7	0	7	0207	39	1	7	0227	71	2	7	0247	103	3	7	0267
8	0	8	0208	40	1	8	0228	72	2	8	0248	104	3	8	0268
9	0	9	0209	41	1	9	0229	73	2	9	0249	105	3	9	0269
10	0	10	020A	42	1	10	022A	74	2	10	024A	106	3	10	026A
11	0	11	020B	43	1	11	022B	75	2	11	024B	107	3	11	026B
12	0	12	020C	44	1	12	022C	76	2	12	024C	108	3	12	026C
13	0	13	020D	45	1	13	022D	77	2	13	024D	109	3	13	026D
14	0	14	020E	46	1	14	022E	78	2	14	024E	110	3	14	026E
15	0	15	020F	47	1	15	022F	79	2	15	024F	111	3	15	026F
16	0	16	0210	48	1	16	0230	80	2	16	0250	112	3	16	0270
17	0	17	0211	49	1	17	0231	81	2	17	0251	113	3	17	0271
18	0	18	0212	50	1	18	0232	82	2	18	0252	114	3	18	0272
19	0	19	0213	51	1	19	0233	83	2	19	0253	115	3	19	0273
20	0	20	0214	52	1	20	0234	84	2	20	0254	116	3	20	0274
21	0	21	0215	53	1	21	0235	85	2	21	0255	117	3	21	0275
22	0	22	0216	54	1	22	0236	86	2	22	0256	118	3	22	0276
23	0	23	0217	55	1	23	0237	87	2	23	0257	119	3	23	0277
24	0	24	0218	56	1	24	0238	88	2	24	0258	120	3	24	0278
25	0	25	0219	57	1	25	0239	89	2	25	0259	121	3	25	0279
26	0	26	021A	58	1	26	023A	90	2	26	025A	122	3	26	027A
27	0	27	021B	59	1	27	023B	91	2	27	025B	123	3	27	027B
28	0	28	021C	60	1	28	023C	92	2	28	025C	124	3	28	027C
29	0	29	021D	61	1	29	023D	93	2	29	025D	125	3	29	027D
30	0	30	021E	62	1	30	023E	94	2	30	025E				
31	0	31	022F	63	1	31	023F	95	2	31	025F				

14 Troubleshooting

The points described here show some typical errors that can occur when using the RFC 1006 function.

Please also refer to the descriptions for troubleshooting in the accordant NETLink® manual!

If a problem is not described here and this manual does not provide any information on how to remedy it, the support of Helmholtz GmbH & Co.KG will gladly help you to solve the problem.

Q: How can I specify the target station(s) for RFC 1006 communications in WinCC by using the Rack/Slot fields?

A: Since the RFC protocol does not have a default entry for specifying the PROFIBUS/MPI address of a target station (PLC), you will have to use the 2 byte-long TSAP field. The first byte of the TSAP ID is the rack value, while the second is the slot value (the value range for the slot field will often have a maximum value of 31, e.g., in WinCC).

This is why the NETLink unit will have to evaluate both of the TSAP field bytes in order to determine the address of the target station.

Scenario 1: Your application allows slot field values of up to 126

---> You will have to enter "0" into the Rack field and the PROFIBUS address of your CPU into the Slot field.

Scenario 2: Your application only allows slot field values of up to 31

---> You will have to enter a 32x multiplier into the Rack field and the missing remainder of the PROFIBUS address into the Slot field.

Address assignments using the Rack and Slot input fields:

Example 1: Entry for address 17 \triangleq

0	17
---	----

 Calculation: $(0 * 32 + 17)$

Example 2: Entry for address 34 \triangleq

1	2
---	---

 Calculation: $(1 * 32 + 2)$

Example 3: Entry for address 69 \triangleq

2	5
---	---

 Calculation: $(2 * 32 + 5)$

Q: Why do I get an address conflict when trying to communicate via Step 7 with the RFC 1006 mode activated even though the station-related address has been adapted in the driver?

A: You have probably changed your own address in the Web interface (default = 0). The NETLink® automatically tries to go online with this address on the bus in RFC mode. Conflicts will occur if another node uses the same address. In this case, the altered entry in Step 7 is ignored. Check the status of the active stations in the Web interface.

Q: How is a firmware update performed in a NETLink® adapter?

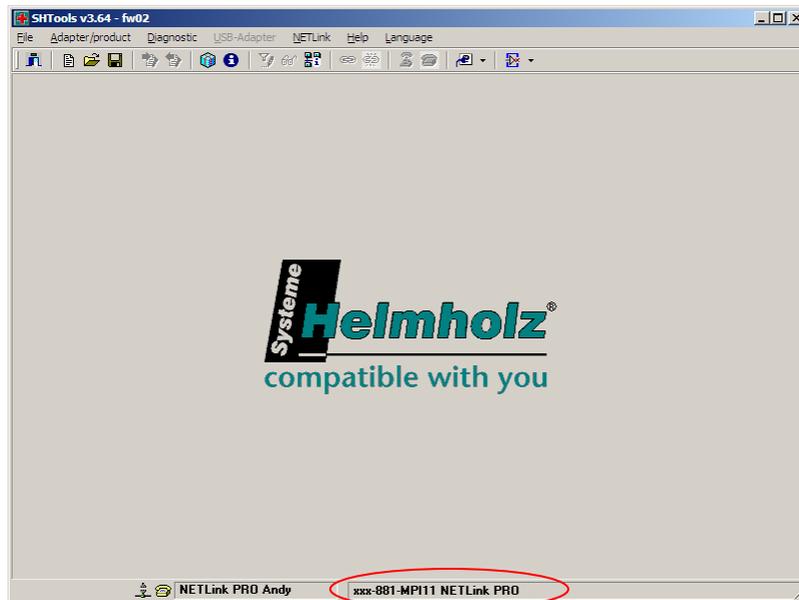
A: The following steps must be performed:

1) Download the up-do-date "SHTools" software from the Company Helmholtz web site and install this on your computer.



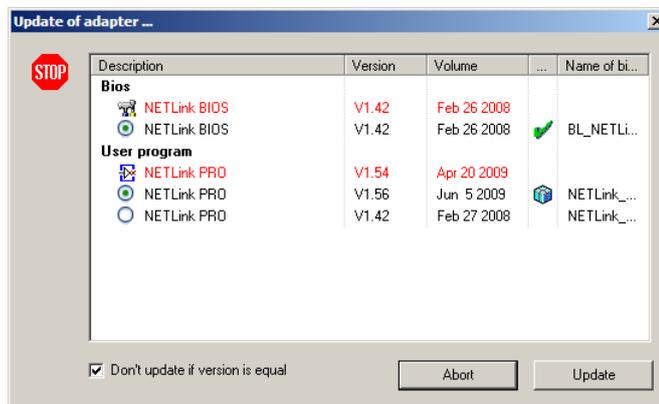
A firmware update on the NETLink® WLAN must always be performed via the network socket.

2) After “SHTools” has been started, make sure that the appropriate NETLink® product is activated on the status bar



If there appear another product, so simply press the right mouse button over the status bar and select the product based on its name and order number in the dialog box that then opens.

3) After you have pressed the “Adapter->Update adapter” menu, the dialog box shown below appears (example):



To perform an update from a firmware version lower than V1.42 to a version higher than V1.42, it is first necessary to update to version 1.42 as an intermediate step.

After that, an update to all higher versions can be performed in a further step.

Q: What must I observe when calling your technical support?

A: Please have all relevant data of your system constellation with the connected stations and program modules at hand when you contact technical support at Helmholz GmbH & Co. KG.

15 Directory of Sources

INAT-OPC-Server

(http://www.inat.de/index.php?18&backPID=18&tt_products_sof=236)

InduSoft Web Studio v7.0

(<http://www.indusoft.com/indusoftart.php?catid=1&name=IWS/webstudio>)

InTouch V9.5 (Wonderware GmbH)

(<http://global.wonderware.com/EN/Pages/WonderwareInTouch-HMI.aspx>)

KEPserverEx V5.4.135.0

(http://www.kepware.com/Products/OPC_Servers.html)

PROCON-Win V5.3 (<http://www.gti.de/index.php?id=45>)

S7/S5 OPC-Server

(http://www.helmholz.de/prod.d,18_30_34.html?p_id=39)

VisAM Win32

(http://www.visam.de/03_produkte/visam/index.php)

WINCC V7.0

(<http://www.automation.siemens.com/mcms/human-machine-interface/de/visualisierungssoftware/scada-wincc/Seiten/Default.aspx>)

WinCC flexible 2005/2007

(http://www.automation.siemens.com/hmi/html_00/products/software/wincc-flexible/index.htm)

ZenOn V6.2 (<http://www.copadata.at/de/ger/home.html>)