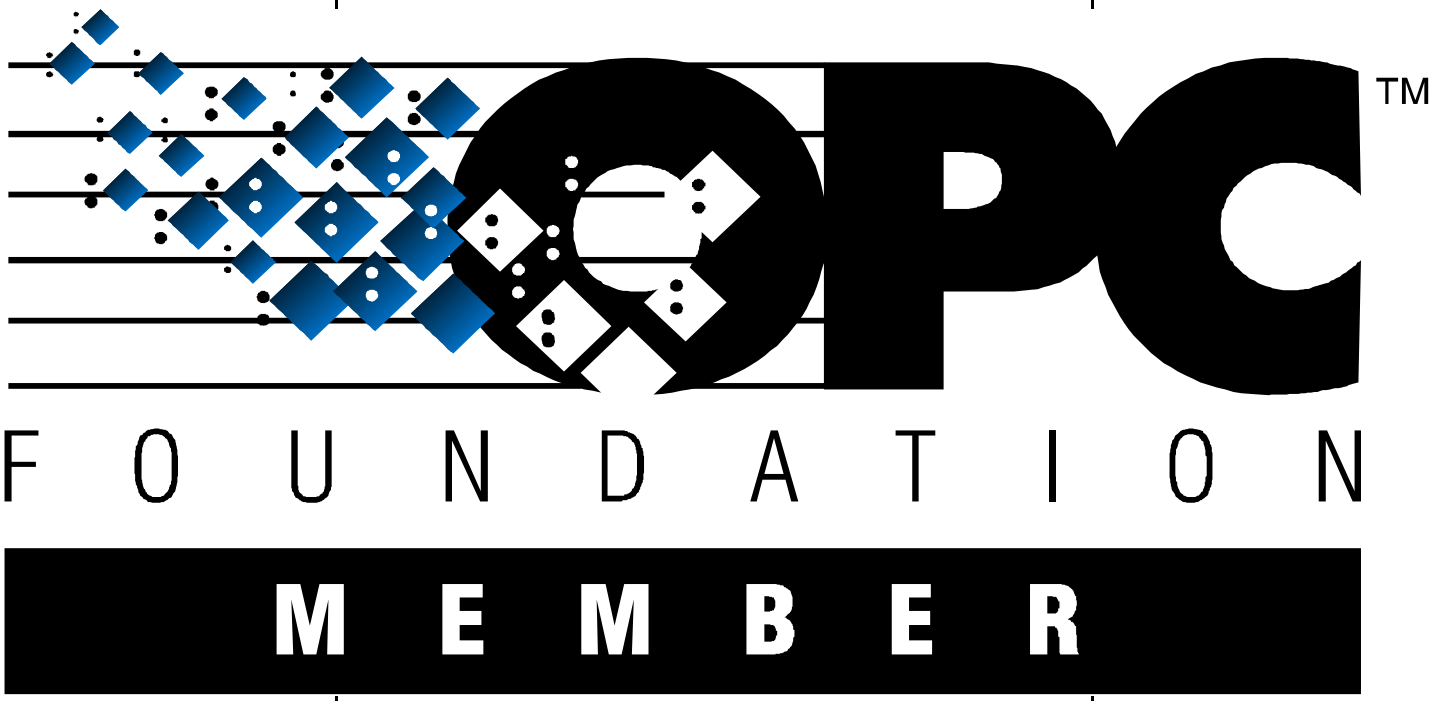
PC-Based Systems

HIMA OPC-Server 3.0
Rev. 2



HIMA Paul Hildebrandt GmbH + Co KG
Industrie-Automatisierung

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Basics of the HIMA OPC Server

1 Overview/Set-up

The HIMA OPC server acts as a transmission interface between HIMA PES H41q/H51q, HIMatrix, the HIMA Planar4 system and other manufacturers systems which have a corresponding OPC interface.The HIMA OPC server is interfaced via Ethernet to the HIMA systems. It is able to handle two Ethernet cards for the redundant connection to the HIMA PES H41q/H51q.
You can obtain further information on this in the chapter **Coupling of HIMA OPC Server and HIMA PES**
or **Coupling of HIMA OPC Servers and HIMA PLANAR 4.**

The OPC clients are usually coupled via Ethernet too.

Note:
If the client coupling is via Ethernet, the HIMA OPC server must have two network cards, as the coupling to the HIMA systems and the coupling to the OPC clients cannot be over the same network. Separate networks have to be set up.

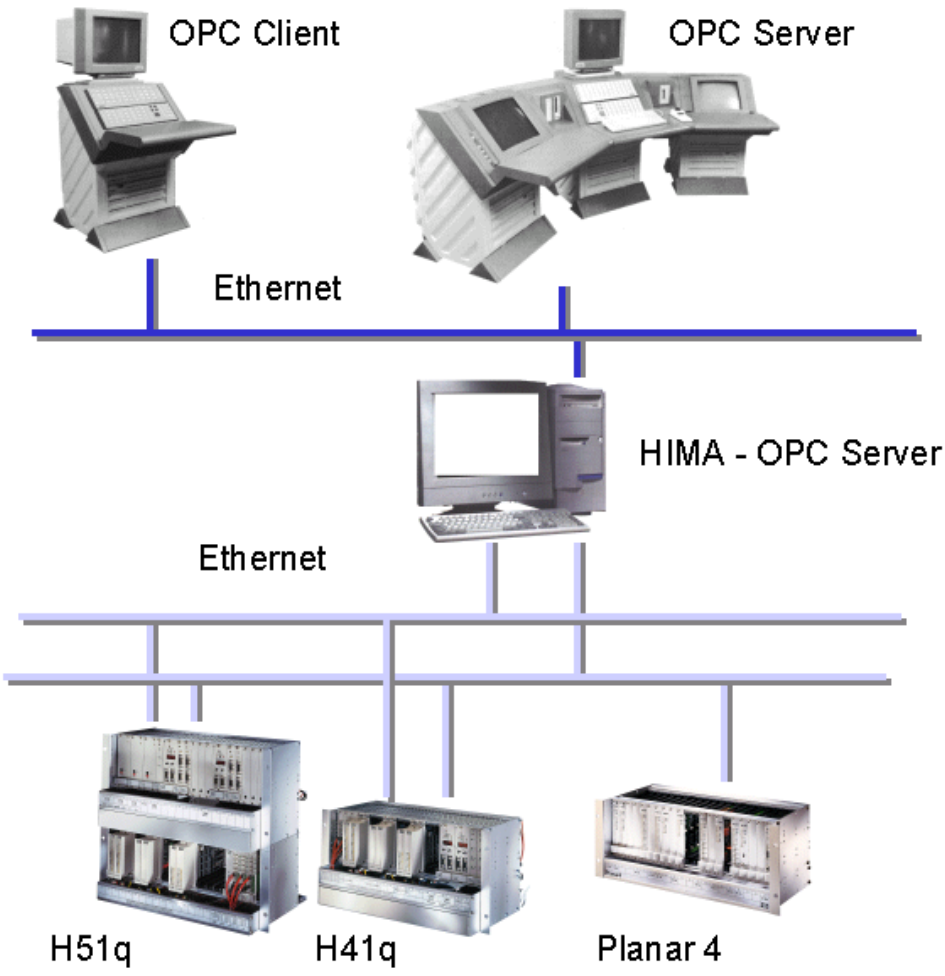


Figure 1: Schema for OPC server with resources and OPC clients

2 Systemrequirements

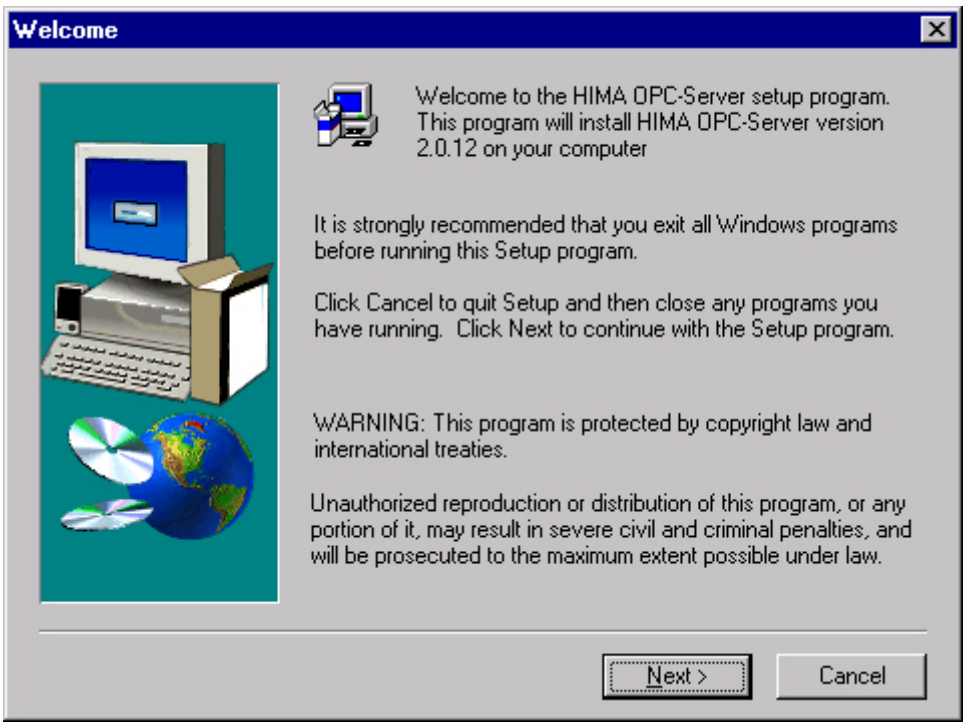
The HIMA OPC Server needs a computer system with the following minimum requirements:

- Pentium II 350 Mhz
- 128 MB RAM
- 10 MB free hard disk capacity
- Operating system Windows NT4 with service pack 4 or higher, Windows 2000 oder Windows XP
- Ethernet cards upto 4, configured with TCP/IP
- Micorsoft Internet Explorer since version 5.0 for the online-help.

Deactivate the Media Sense function, if you are using Windows 2000/XP. The deactivation can be done in the windows registration. Therefore the key: HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\DidableDHCPMediaSense [REG_DWORD] exists. 0 or the key does not exist means Media Sense is active, 1 means Media Sense is not active.

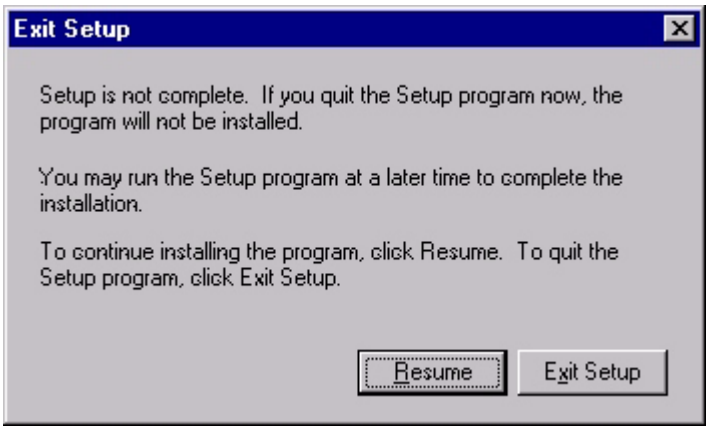
3 Installation of the HIMA OPC server

To install the HIMA OPC server on your computer, you need administrator rights. Take the following steps:
Open Windows NT Explorer, switch to the directory of the HIMA OPC server and start the installation program HOS_ENG.EXE with a double click.



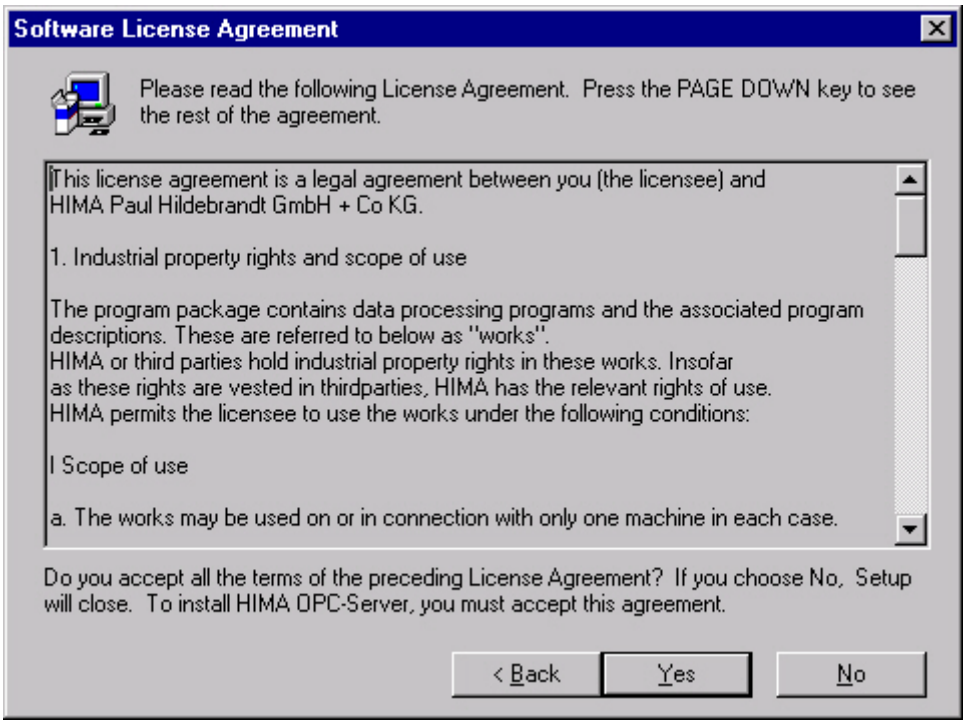
Initial screen of the HIMA OPC server installation

Now click on **Next** to proceed with the installation of the server. If you choose **Cancel**, the installation process is aborted.
However, this cancellation does not take place until you confirm once more that you wish to quit the Setup program. See the display below.



Cancel Installation

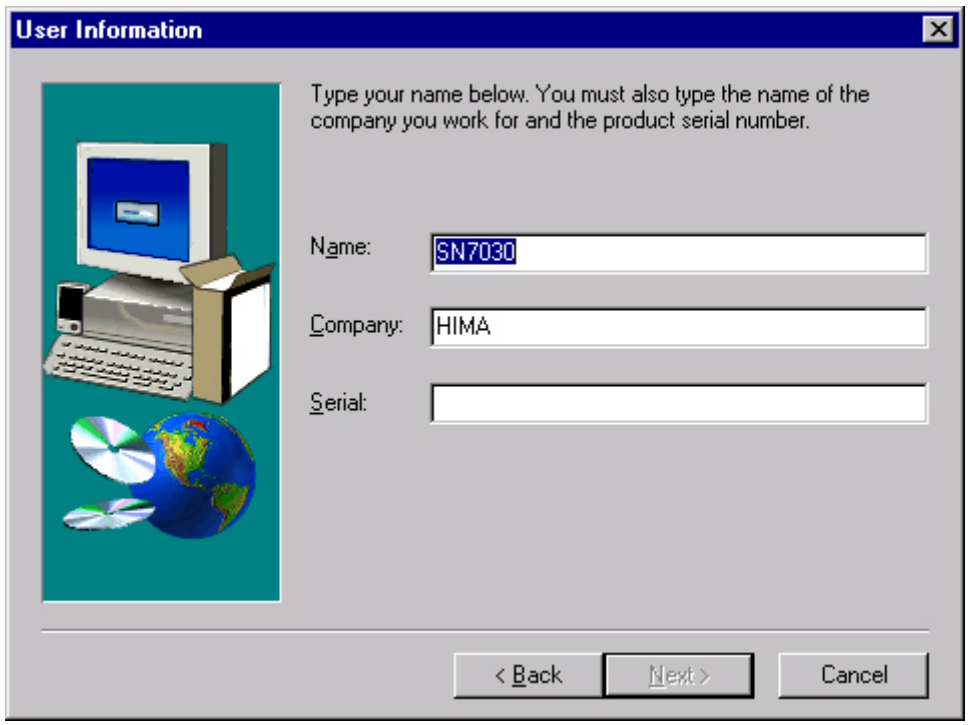
If you choose **Resume** you go back, the **Exit Setup** button terminates the installation.
The licence conditions are now displayed.



Licence agreement

Confirm the licence agreement by choosing **YES**. The **Back** button takes you a step back, With **No** you cancel the installation (see above)

You must now enter your serial number. You find your serial number on the licence agreement of the HIMA OPC server, which is delivered together with the software.

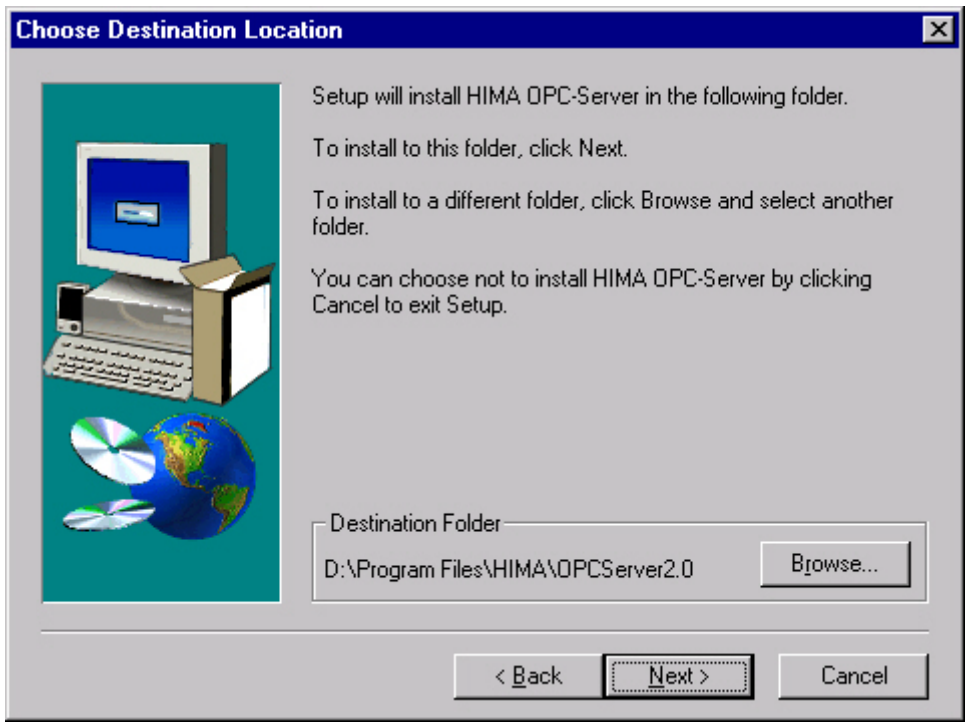


Serial number

Enter your computer name in the **Name** field and your company name in the **Company** field. These entries are taken from your computer configuration if present, so it is usually not necessary to make them. In the **Serial** field you must enter your serial number. You'll find this on your licence agreement.

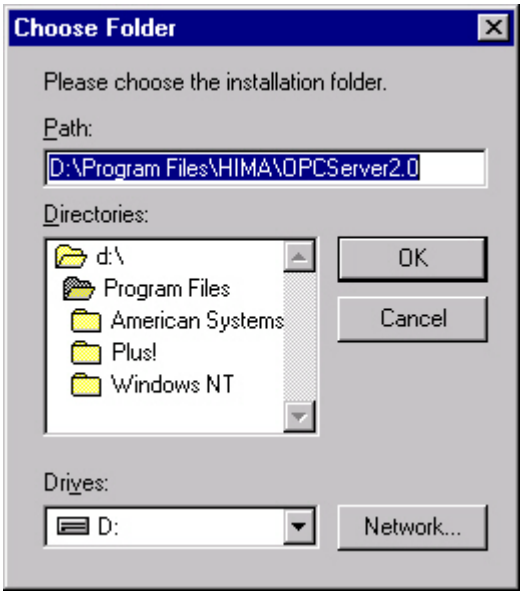
Confirm your serial number with **Next**.The **Back** button takes you a step back. Choose **Cancel** to cancel the installation (see above)

Now set the installation path



Destination Folder

If you choose **Browse** you get the chance to enter or select the installation path you want. Selection of the desired installation path.



Installation path

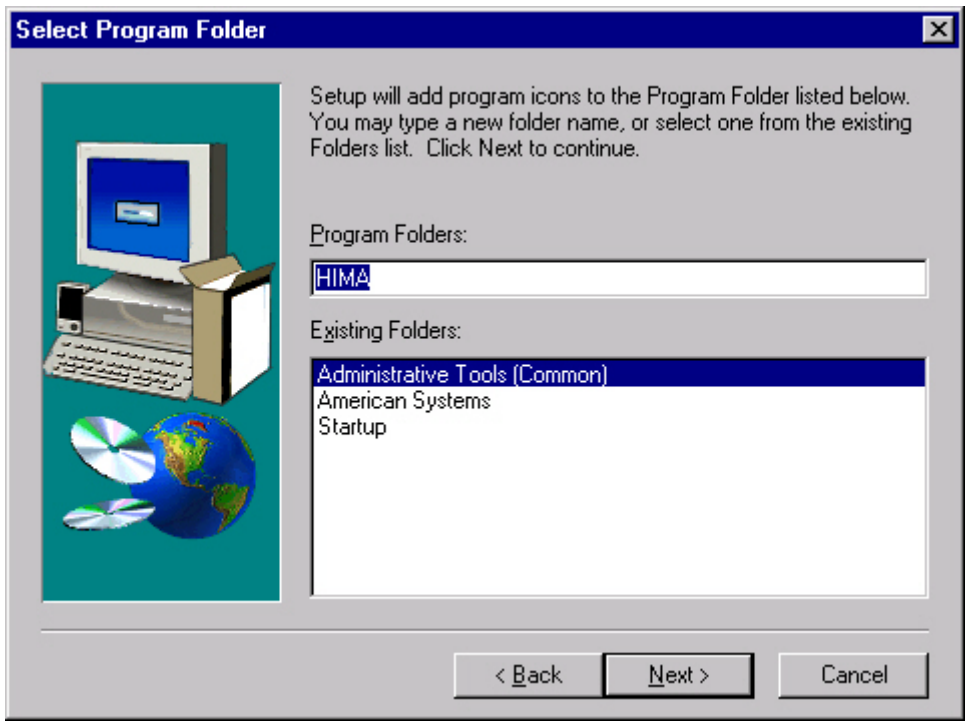
In the Path window you can enter your chosen installation path directly, while in the Directories and Drives windows you can select the path and the drive of your choice.
You can use the **Network** button to integrate a network drive. You'll find details of this in your Windows NT manual.
Choose **OK** to confirm the selected or entered path. Choose **Cancel** to abort, and return to the preceding screen.

As well as the installation directory, the installation also creates the directories **Bin, Config, Help** and **Log.**
The directory **Bin** contains the program files:

- ennt.exe
- himaopcs.exe
- p4info.dll
- gt-mt302.dll

The directory **Help** contains the files for the Online-Help and the directory **Log** is prepared for the Log-files of the HIMA OPC server.

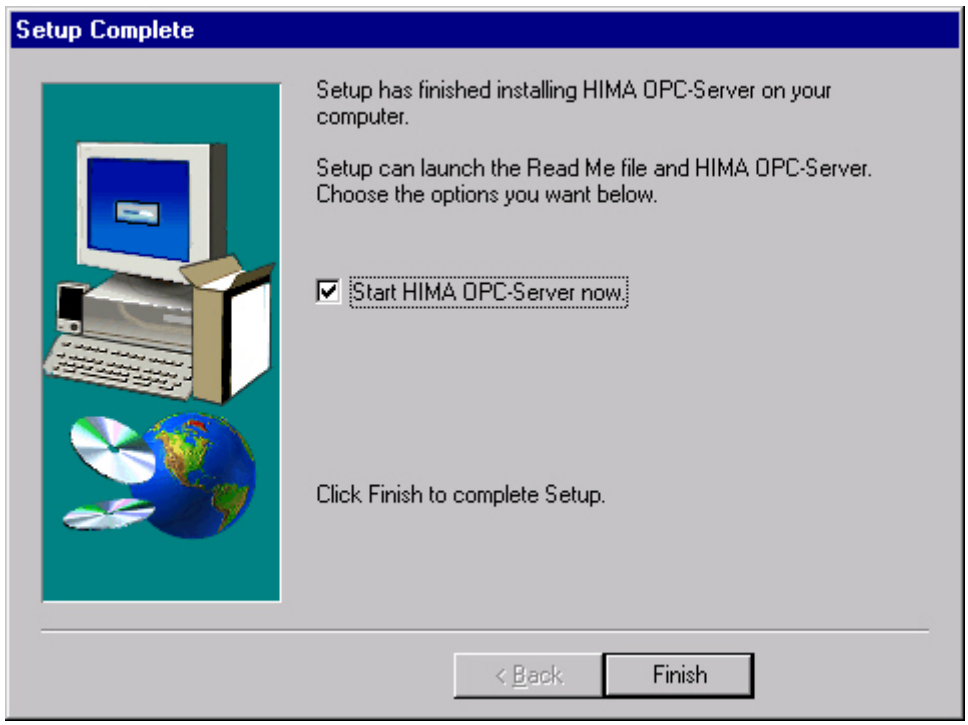
Now set the program folder for the HIMA OPC server.
Enter in the Program Folder window the name you want for the program folder. In the Existing Folders window you can see the program folders that already exist.



Program folder

Confirm your program folder with **Next**.The **Back** button takes you a step back. Choose **Cancel** to cancel the installation (see above)

After this the HIMA OPC server will be installed. After the complitation of the installation a message window appears with the following message



Registration

Now choose, if you want to start the HIMA OPC server and click the button **Finish** for closing the set-up.

4 Registration under Windows

Only for information

In order for the OPC clients to recognise the HIMA OPC server, entries are needed in the Windows NT registry. The entries are made by the Setup program. Below find the different entries:

4.1 HKEY_CLASSES_ROOT

Key	Value
\HIMA.OPCServer.3	HIMA OPC-Server
\HIMA.OPCServer.3\CLSID	CLSID of HIMA OPC-Server (ID)
\HIMA.OPCServer.3\CLSID\ID	HIMA OPC-Server
\HIMA.OPCSer-ver.3\CLSID\ID\ProgID	HIMA.OPCServer.3
\HIMA.OPCSer-ver.3\CLSID\ID\LocalServer32	Installation path \HIMAOPCS.EXE
\HIMA.OPCServer.3\OPC	
\HIMA.OPCServer.3\OPC\Vendor	HIMA Paul Hildebrandt GmbH + Co KG

Tabelle 1: HKEY_CLASSES_ROOT

4.2 HKEY_LOCAL_MACHINE\SOFTWARE\HIMA OPC-Server\3.x\

4.2.1 Key ENNT

Value name	Value
Location	Installation path \bin
Executablename	ENNT.EXE
NodeId	ID number HIMA OPC-Server Default: 107
Channels	0 = not valid 1 = channel 1 is used 2 = channel 2 is used 3 = both channels are used Default: 3

Tabelle 2: ENNT

Value name	Value
TokenDeliverDelay	smallest token running time, Default: 10 ms
DdTimeout	Data will be stored for this time, if there is no refresh for example in case of a connection break. The quality will be set directly to BAD. The value 0 means the last valid value will be stored. Default: 2000 ms
ConfigTimeout	Supervision time for configuration messages. Configuration messages, which are sent to ENNT, habe to be acknowledged. After the supervision time the configuration will be stopped, if there was no acknowledgement. ENNT will stop the communication to the connected systems. The time has to be checked, if later online-changes should be done. The time can be increased in case of problems. Default: 5000 ms

Tabelle 2: ENNT

With help of the TokenDeliverDelay, it is possible to decrease the CPU usage of the PC. With higher token running time, the CPU usage is lower.

4.2.2 Key FILES

Value name	Value
Logfilesize	Size of the Logfile Default: 64
Logfile	Name of the Logfile Default: ..\log\hoslog.txt
Backupfile	Name of the backup file Default: ..\log\hoslog2.txt
CfgFile	Configuration file Default: ..\config\hoscfg.txt

Tabelle 3: Files

4.2.3 Key OPC

Value name	Value
changeless update	0 = not active 1 = active Default: 0

Tabelle 4: OPC

In case the changeless update is active, the HIMA OPC server will send all values of one group to the client. The server uses the set scan time of the client.

4.2.4 Key USER

Value name	Value
Name	User name
Company	Company name
Serial	Serial number

Tabelle 5: User

4.2.5 Key Window

Value name	Value
ShowWindow	0 = Window is not displayed 1 = Window is displayed Default: 1
ShowIcon	0 = Icon is not visible 1 = Icon is visible Default: 1

Tabelle 6: Window

4.2.6 Key Help

Value name	Value
Directory	Directory of the help files Default: ..\help

Tabelle 7: Help

4.2.7 Key AutoConfig

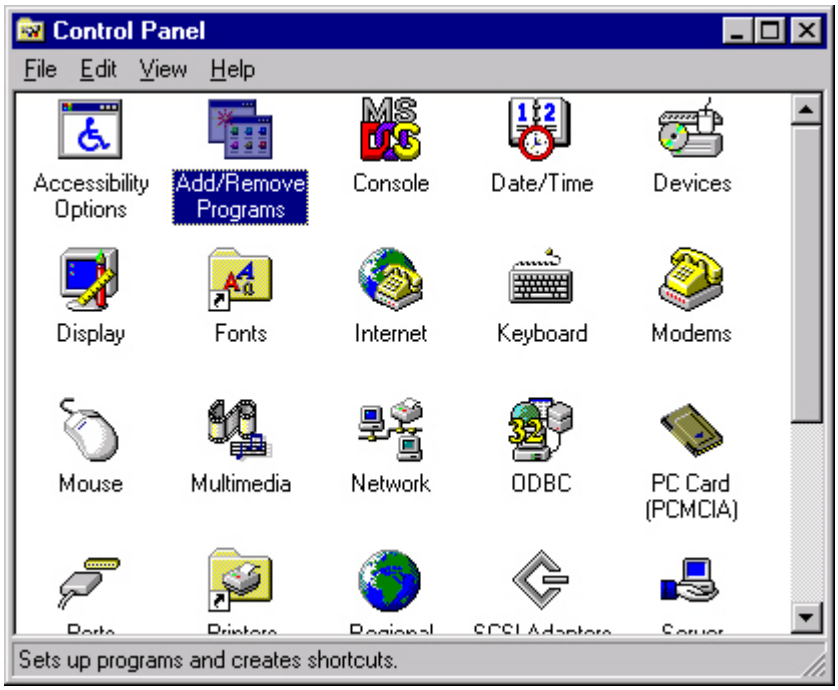
Value name	Value
LinkTimeout	General connection timeout in ms. The connection will be set to faulty, if the LinkTimeout expires three times in sequence. Then the ErrorLinkTimeout will become valid. In case of instable connections based on the complexibility of the network, this time can be increased. Default: 16 ms
ErrorLinkTimeout	This timeout is used, if the connection is set to faulty. See above Default: 3 ms
AloneIntertokenTimeout	Only used, if the OPC server is the only node in the token group. For example the OPC server is running in Passive Mode. This parameter can be used to decrease the CPU load. Higher values will decrease the CPU load, but will slow down the communication speed. This value should be the double of AloneTokealiveTimeout. Default: 100 ms
AloneTokenaliveTimeout	Only used, if the OPC server is the only node in the token group. This value is identical with the refresh rate of the OPC server. Together with the AloneIntertokenTimeout the CPU load and the data transmission speed can be influenced. Default: 50 ms

Tabelle 8: AutoConfig

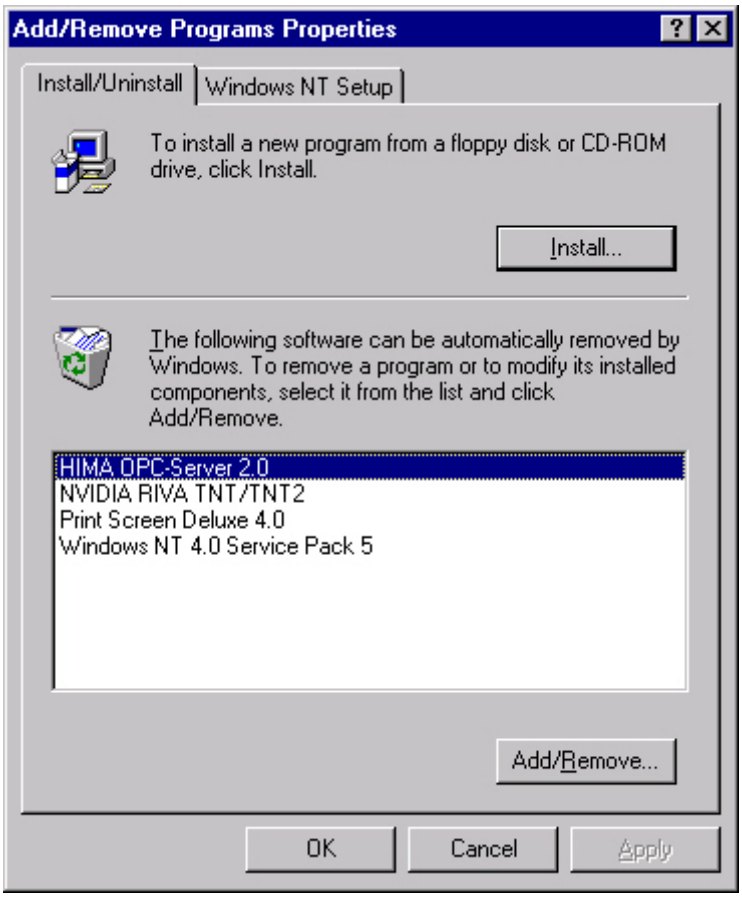
These values will be used, if the OPC server ueses the automatic configuration mode. The automatic configuration mode is used for PLANAR 4 and H41q/H51q.

5 The Uninstall

To uninstall the HIMA OPC server, open the Control Panel, and there open the Software Properties (Add/Remove Programs)

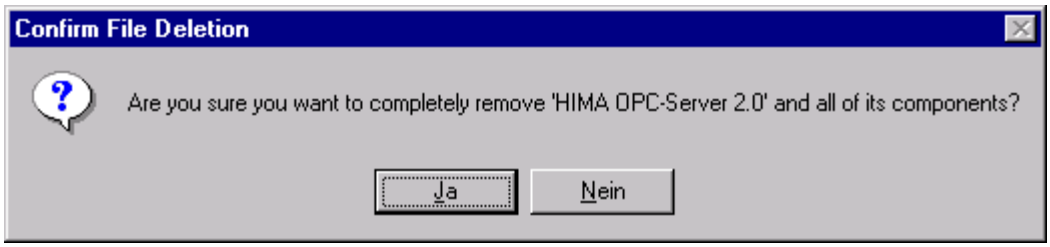


Control Panel



Software Properties

After selecting the HIMA OPC server, choose **Add/Remove**.



Confirmation

To uninstall the HIMA OPC server, choose **Yes**; to cancel the uninstall choose **No**.
The HIMA OPC server is now being uninstalled.

The subdirectories LOG and CONFIG will be not erased, because they contain files, which are created by the user.

6 Coupling of HIMA OPC Server and HIMA PES

6.1 Hardware Set-up

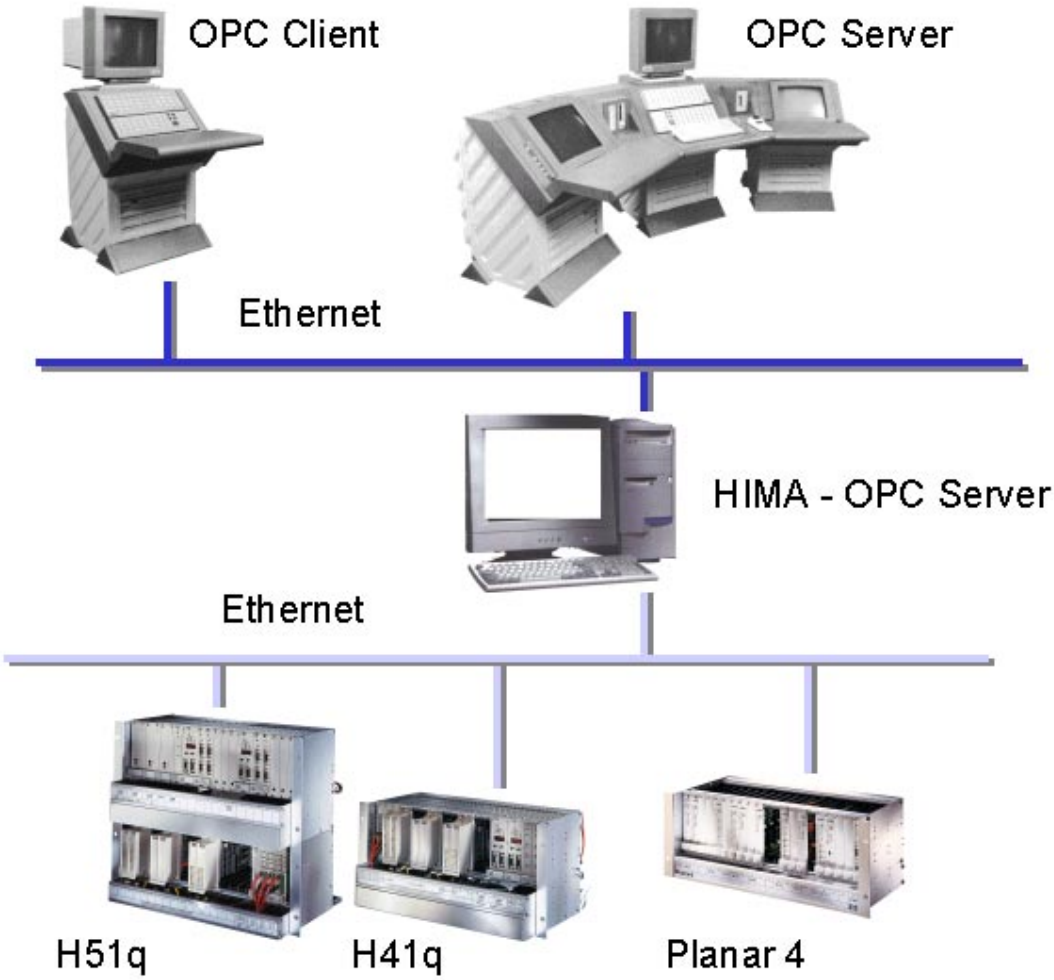
The HIMA OPC server is connected over a network to the HIMA PES. For this network you need an Ethernet card configured to TCP/IP in the computer on which the HIMA OPC server is running. The HIMA OPC server can use the addresses 192.168.0.215 to 192.168.0.222.
The HIMA OPC-Server uses the IP-adresses 192.168.0.215,...217,...219 and ...221 for the communication via channel 1 and the IP-adresses 192.168.0.216, ...218, ...220 and ...222 via channel 2.

The interface of the OPC server's Ethernet card is connected over a twisted-pair cable (RJ-45 plug) to a hub or switch. This in turn to the 10BaseT interfaces of the F 8625/27 (RJ-45 plug) in the individual PES systems.

It is allowed to use the HIMA OPC server and safe**ethernet** parallel. In case only the HIMA OPC server is used, set all ressources into passive mode (only possible with F 8627 and HIMA OPC server version equal or higher Version 3.2). The safety related communication can be switched off with the building block HK-COM-3 for the used communication card F 8627. The passive mode for the F 8627 can be switched on with the Switch S1/8, OFF = Passive Mode

If you are using the communication module F 8627 with an operation system version 3x or later upto 14 OPC server can be used. The valid IP-addresses reach upto 192.168.0.242. We recommend the direct mode and passive mode in this case.

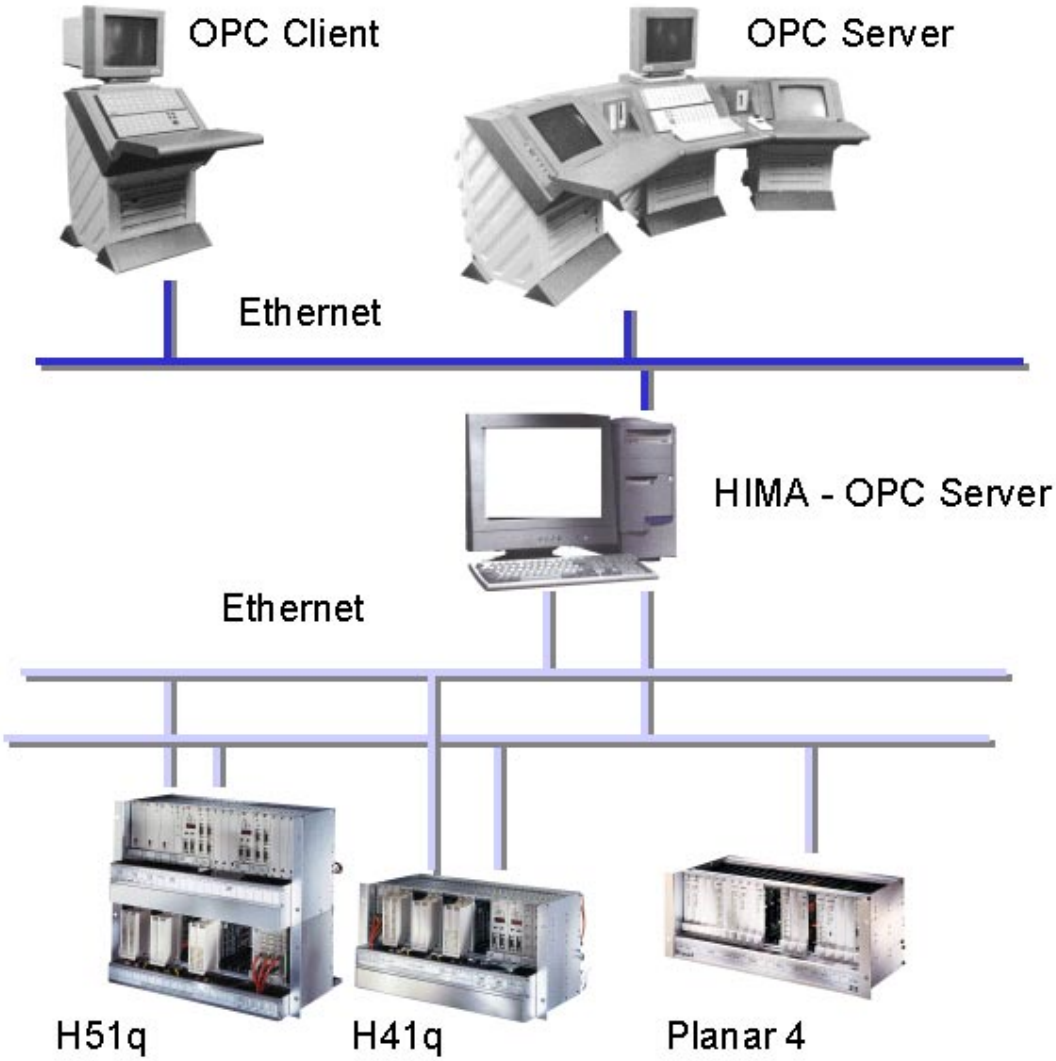
6.1.1 Single channel mode



Single channel mode

If you are using the HIMA OPC server in single channel mode the HIMA OPC server needs one Ethenet card. If the client is also connected via Ethernet you need a second Ethernet card in your computer.
In case that several HIMA PES are used, you have to establish a communication between each PES via safe**ethernet,** or you have to use the passive mode of the F 8627 and the HIMA OPC server.

6.1.2 Redundant channel mode



Redundant channel mode

In redundant mode the HIMA OPC server needs two Ethernet cards. If the HIMA OPC server cannot read or write datas via the first Ethernet card it will be switched to the second Ethernet card, therefore the HSR-cable between the Ethernet cards is necessary.

If the client is also connected via Ethernet, you need a third Ethernet card in your computer.

6.2 Configuration in PES

The data exchange is configured in ELOP II-NT. It is subdivided into the determination of the IP address and the definition of the variables which are exchanged via OPC.

6.2.1 Determining the IP address

The IP address is determined from the 7th and 8th digits of the resource name (possible numbers: 1 to 64), and the position of the first switch in the 2nd switch bank on the F 8625/27.

The IP address is calculated as follows:

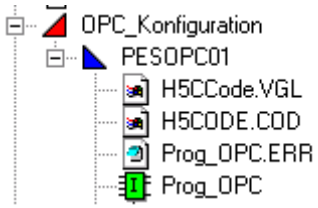
last two digits of the resource x 2 + 1 for module 1 (S 2/1 = ON), channel 1
last two digits of the resource x 2 + 2 for module 2 (S 2/1 = OFF), channel 2

The F 8625/27 can thus be configured in the address range 192.168.0.3 to 192.168.0.130.

Note:
You must use a ressource name with 8 charactes, where the last two characters are numbers in ELOP II-NT.

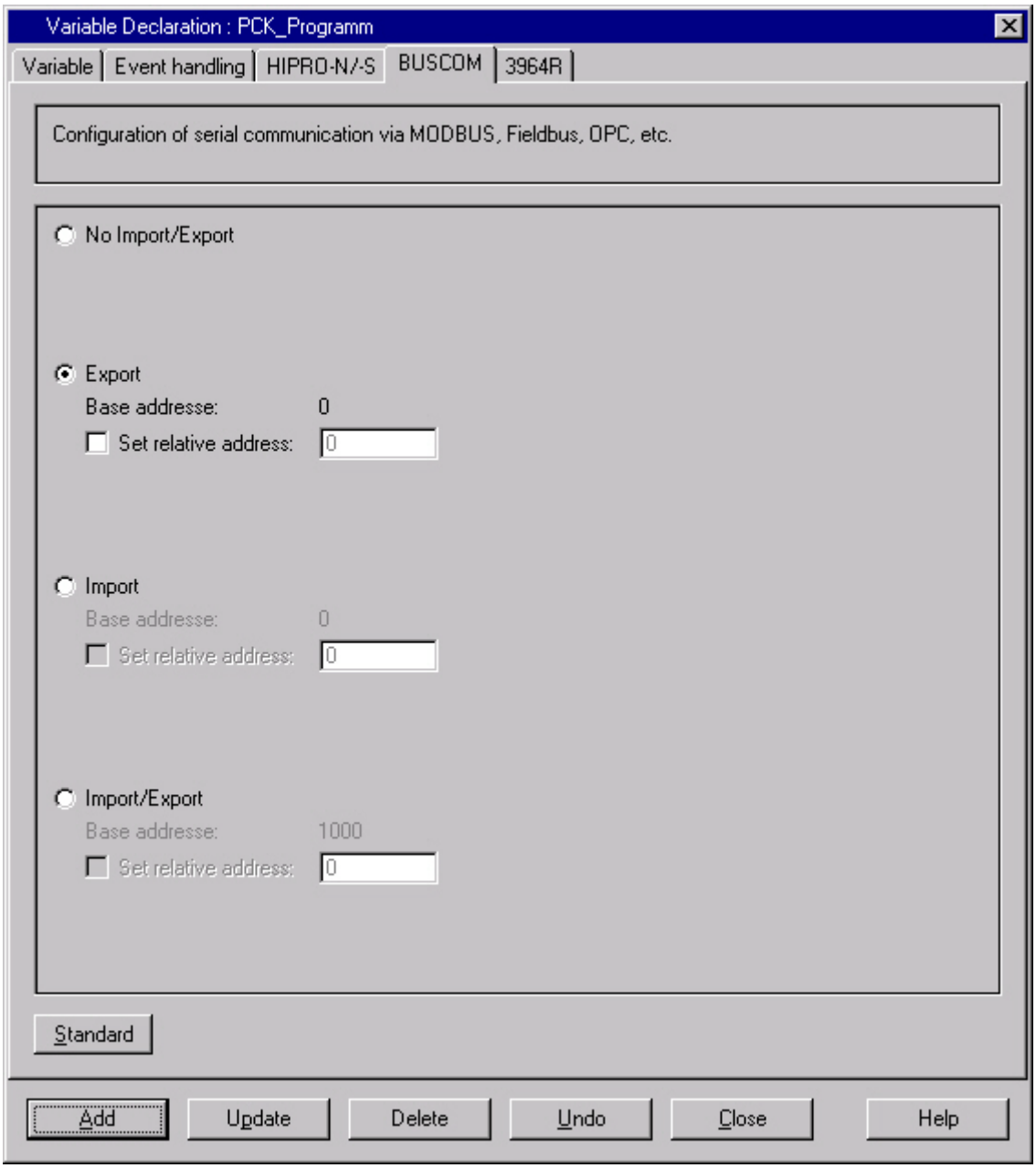
6.2.2 Configuration of the Variables

To define the variables for the data exchange with the HIMA OPC server, open the program instance. You'll find the program instance in the resource. The icon of the program instance is labelled with an **I**.



Programm instance

In the Variables definition, choose the BUSCOM page and decide there what should happen with these variables.



Buscom

BUSCOM

- Export: is read by the HIMA OPC server
- Import is written by the HIMA OPC server
- Import/Export is written and read by the HIMA OPC server

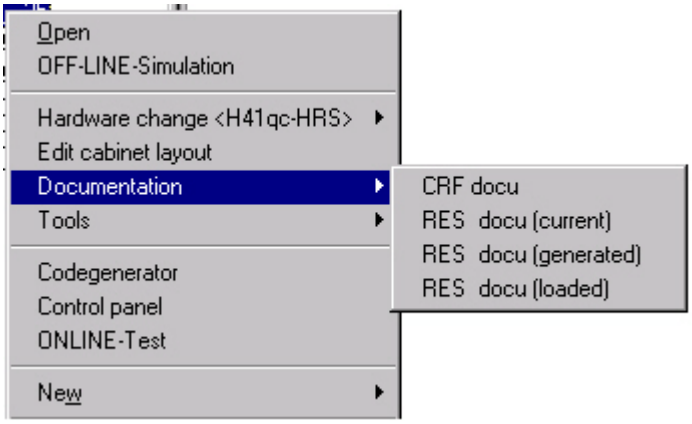
Addresses are assigned for all BUSCOM variables. The address assignment can be automatic or manual, each address assignment being derived from the base address. You'll find the base address setting in the Resource properties. On the BUSCOM page you set the base addresses separately for Import, Export and Import/Export.
In automatic address assignment, the addressing is in alphabetical order. If you generate non reloadable code, the addressing is reset.

To preset the relative address manually, select "Preset relative address" and enter the required relative address. The address is then formed from the base address + relative address.

Note:
On performance grounds you should take care that no address gaps are created in manual address assignment.
If you have done changes in the BUSCOM configuration, you have to create non-reloadable code. Choose this in the properties of the resource.

6.2.3 Variable list for the HIMA OPC server

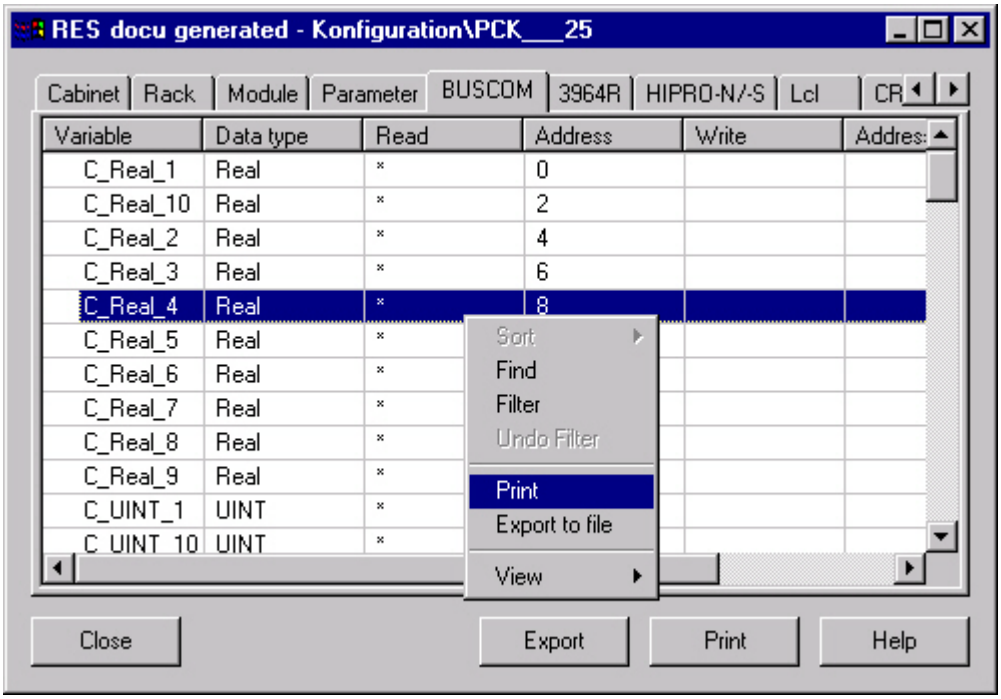
The HIMA OPC server needs the BUSCOM list for the resource. To generate the BUSCOM list, choose **Documentation** from the context menu of the resource and then the **Res-docu (generated)**.



Context menu of resource

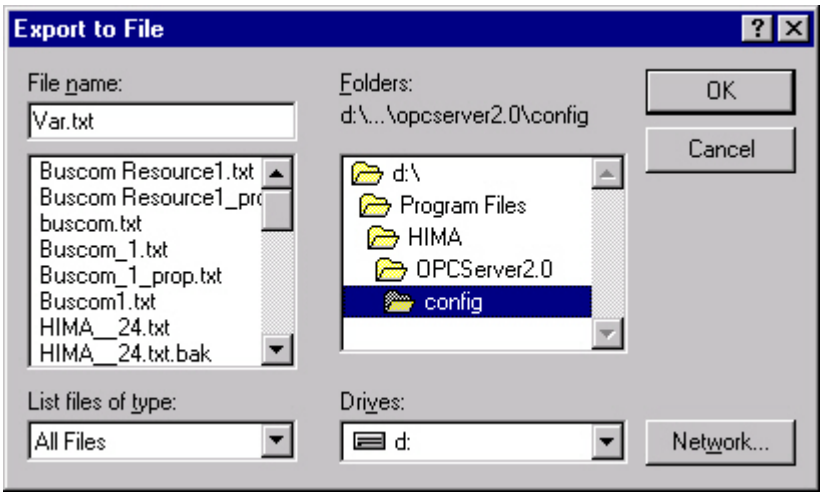
In the **Res-docu (generated)** choose the BUSCOM page. To export only the BUSCOM variables into a list, call up the context menu for this page and there choose **Export in file**.

Note:
Do not use the communication via Siemens 3964R, if you use OPC.
Do not use the filter function during export the BUSCOM variables.



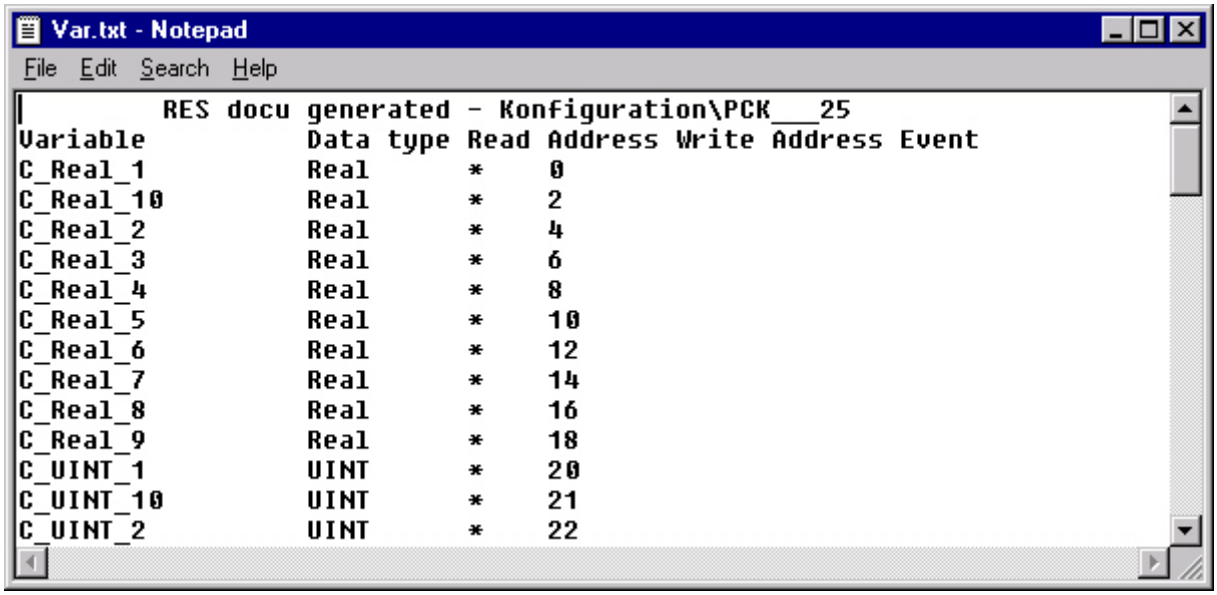
RES Docu generated

Now specify where the list should be stored.



File selection

The list now generated has the following appearance and is used by the HIMA OPC server.



Buscom list for HIMA OPC server

The start of each column is determined by the heading. The types **BOOL**, **UINT** and **REAL** can be used for the transfer.

7 Coupling of HIMA OPC Servers and HIMA PLANAR 4

7.1 Hardware Set-up

The HIMA OPC server is connected over a network to the HIMA PLANAR4 system. For this network you need an Ethernet card configured to TCP/IP in the computer on which the HIMA OPC server is running,. The HIMA OPC server can use the addresses 192.168.0.215 to 192.168.0.222.

Server IDs higher than 110 are not supported together with PLANAR 4.

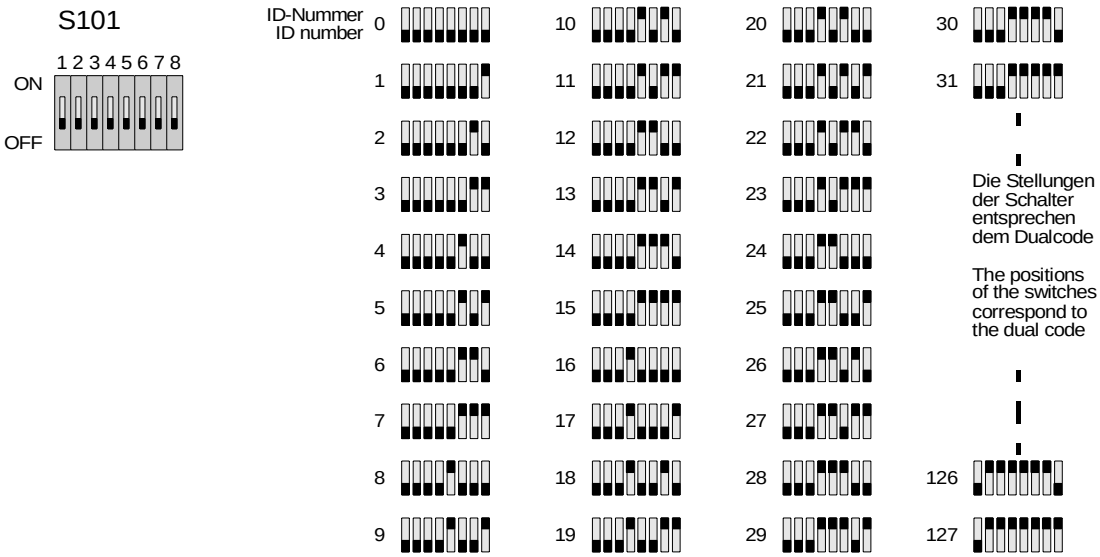
The interface of the OPC server's Ethernet card is connected over a twisted-pair cable (RJ-45 plug) to a hub. This in turn to the 10BaseT interfaces of the 80102, 80107 (RJ-45 plug) in the individual PLANAR 4 card racks.

7.2 Configuration in PLANAR 4

In each PLANAR4 rack the module 80102, 80107 is used as coupling module. The module supplies all information to the modules used in the card rack.
The IP-Address for the PLANAR 4 rack will be defined on the card 80102, 80107

7.2.1 Determining the IP address on the 80102, 80107

With switch bank 1 and its DIP switches 2 to 8 you set the ID number of the 80102, 80107, from which the IP address is determined. The ID number is set binary-coded from 1 to 126, where switch 8 corresponds to the low-value bit. See the following chart:

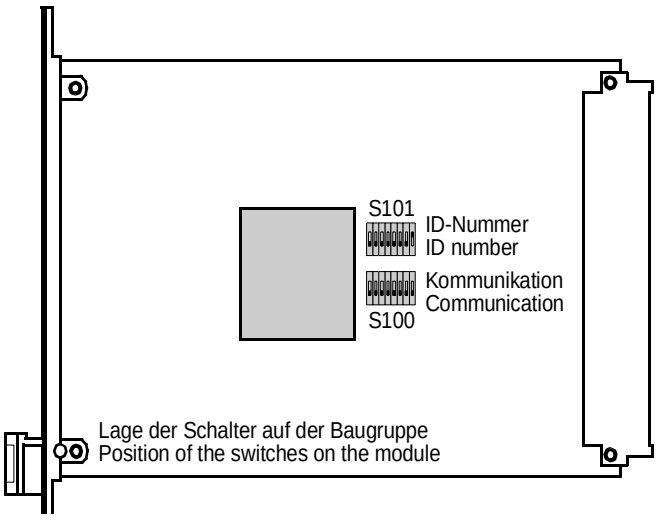


Switches on card 80102, 80107

The IP address is calculated as follows:
ID number x 2 + 1 for channel 1
ID number x 2 + 2 for channel 2
The channel is set with switch S100/8, see data sheet.
Hence odd IP addresses are always produced. Possible IP addresses are in the range: 192.168.0.3 to 192.168.0.255

The ID number should be given in the configuration of the HIMA OPCserver.

You'll find the switches on the module as shown below:



Location of the switches

For the Ethernet communication you must also move switch 6 of S100 to the OFF position.

8 HIMatrix, ALLXml Parametrization

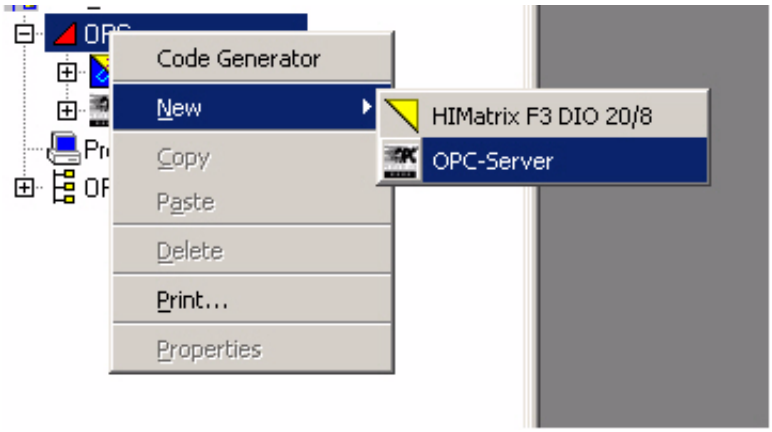
The HIMA OPC-Server can be connected to the HIMatrix systems. Therefore the existing network of the HIMatrix systems is used.
The network card has to be configured for TCP/IP inside the computer.
The complete configuration for the network will be done with ELOP II - Factory. ELOP II - Factory will create a XML-file for the HIMA OPC Server. This file can be used directly in the HIMA OPC Server

Note:
It is not possible to mix HIMA H41q/H51q, PLANAR4 and HIMatrix systems.

In case, that the ALLXml parametrization is used, the configuration via the GUI is not available any longer.

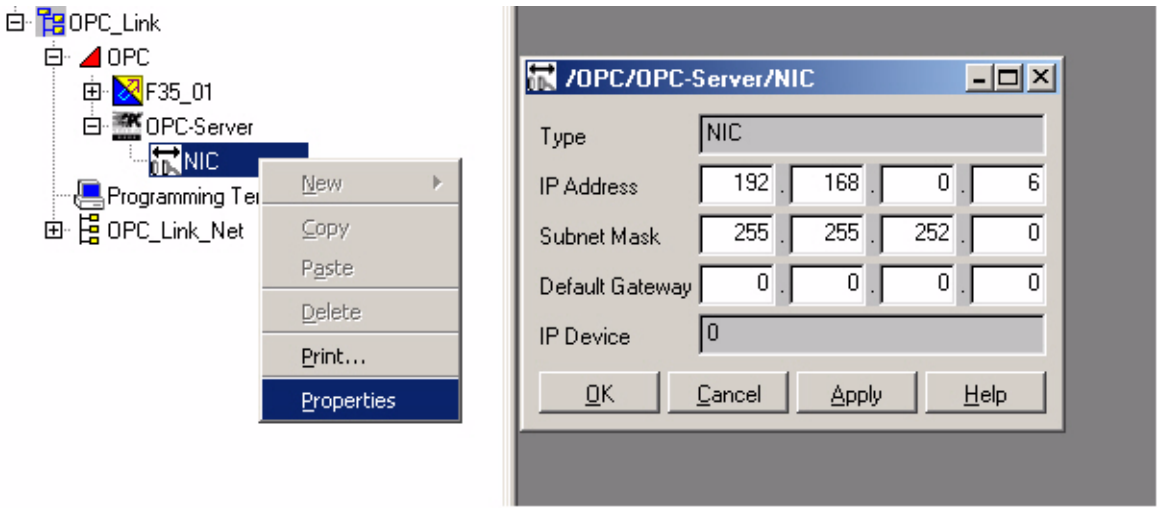
8.1 Configuration in ELOP II Factory

First add an OPC server in the configuration, where the OPC server will run later. Select the configuration and press the right mouse button. Use the function New and add the OPC-Server.



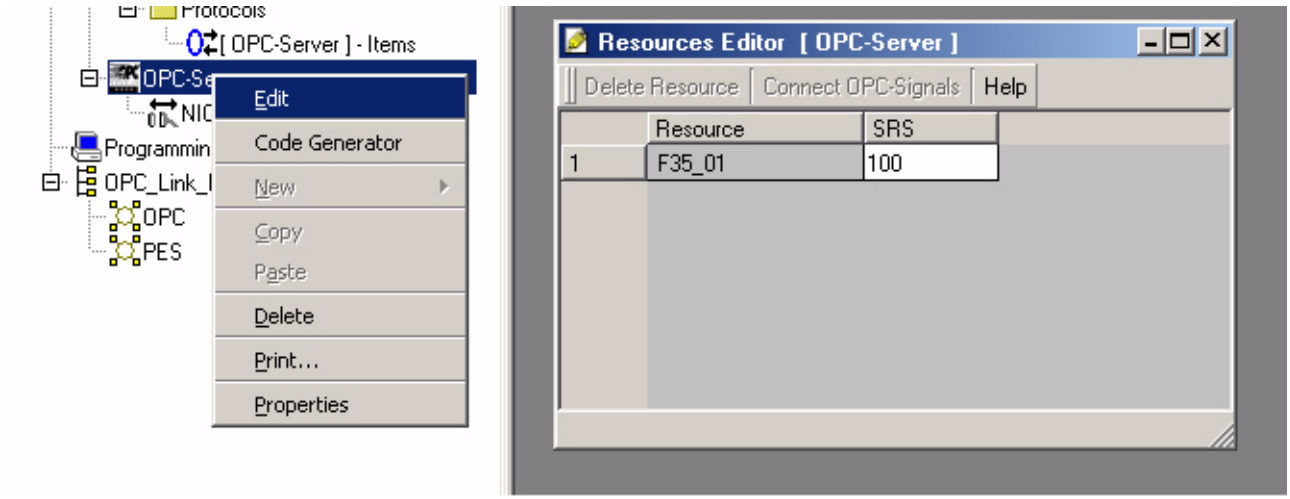
Add OPC Server

After adding the OPC server, you have to configure the network connection.
Open the properties of the network connection (NIC) and put in the IP address and Subnet Mask of the used network card of the PC.



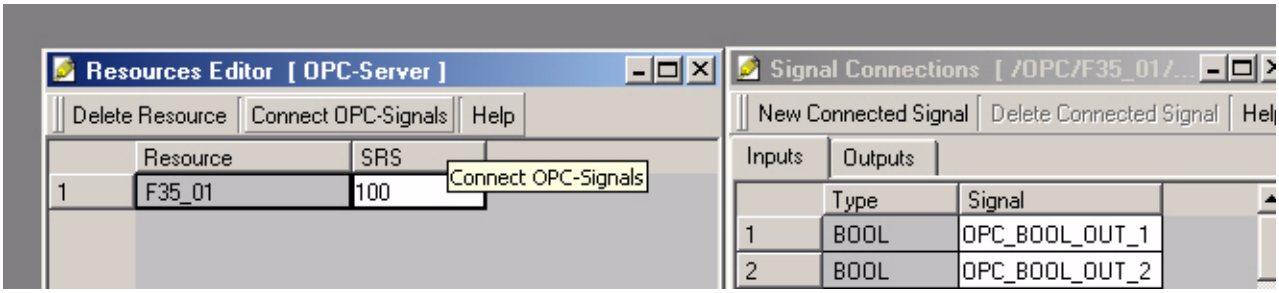
Network configuration

Now you can configure the PES systems for the OPC communication. Open the Ressource Editor and move the ressources via drag and drop into the ressource OPC-Server window.



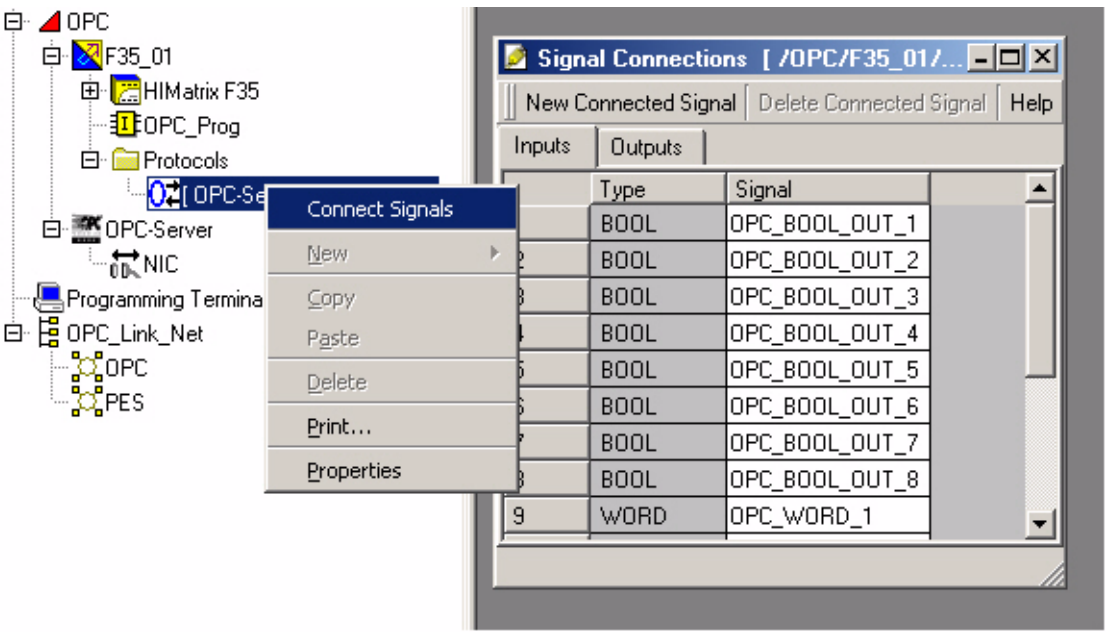
PES configuration for OPC communication

After this you configure the signals for the communication. Therefore you have two possibilities to open the signal connections window. First you select the ressource inside the Ressource Editor and you open the connection window with the button Connect OPC-Signals.



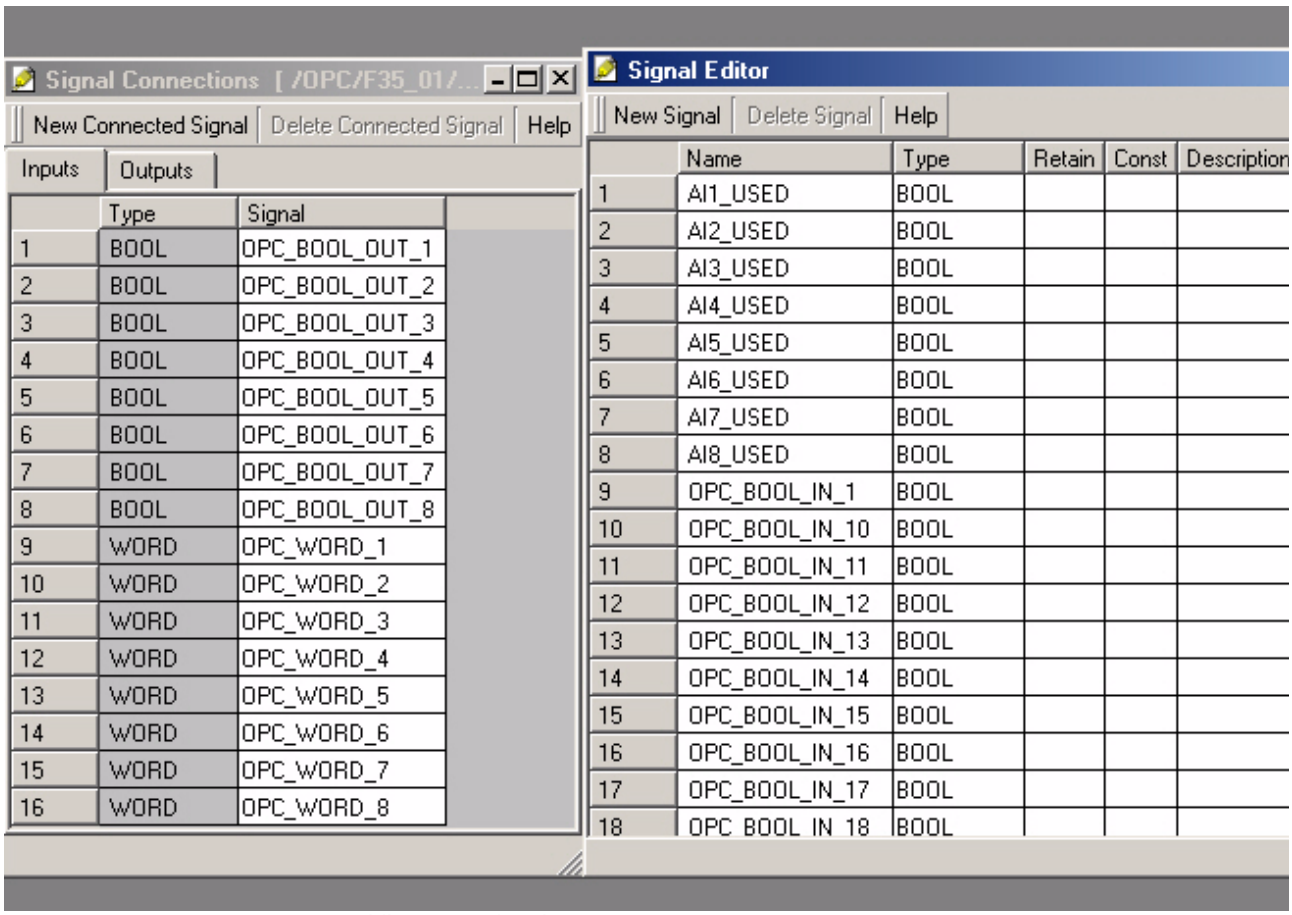
Signal connection, Ressource Editor

The second possibility is to open the Signal connections window via the Protocols.



Protocols, Connect Signals

The signals will be added via drag and drop from the signal list.

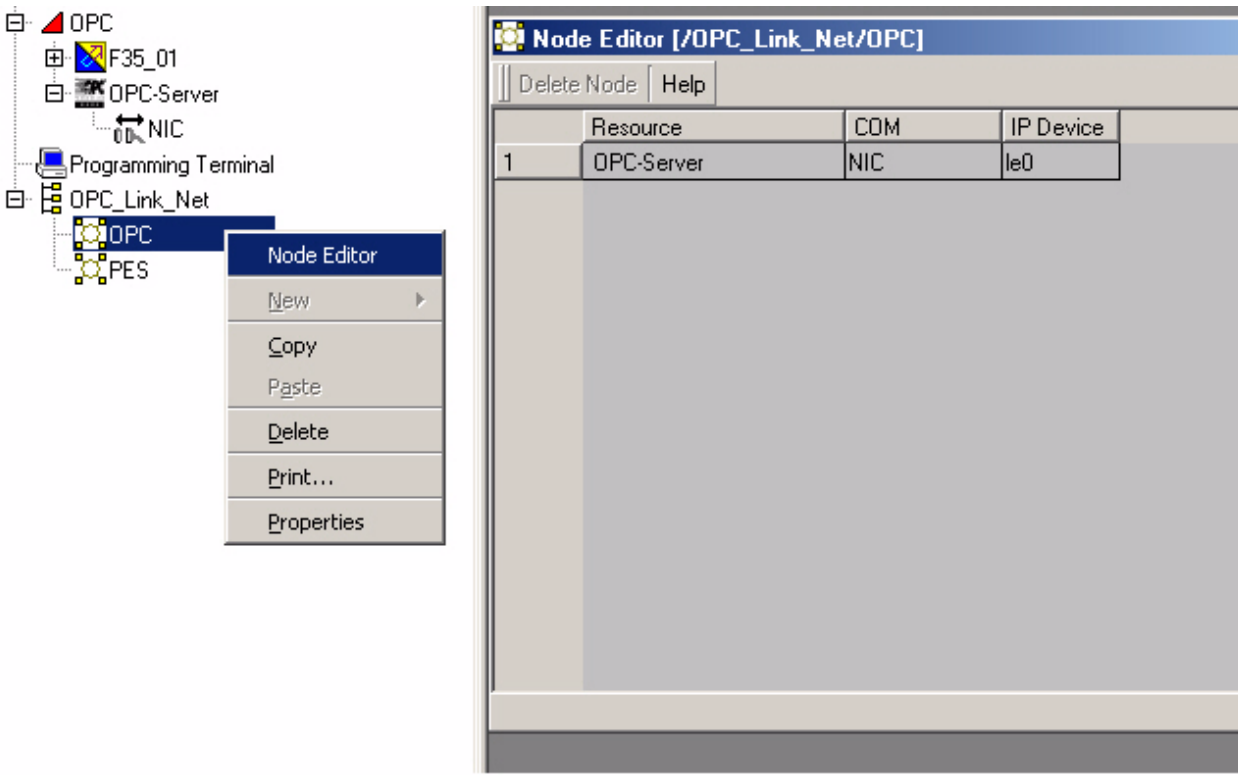


Adding OPC signals

Now you have to configure the communication network. Create a Token Group for the PES communication and another one for the OPC Communication. See pictures below.

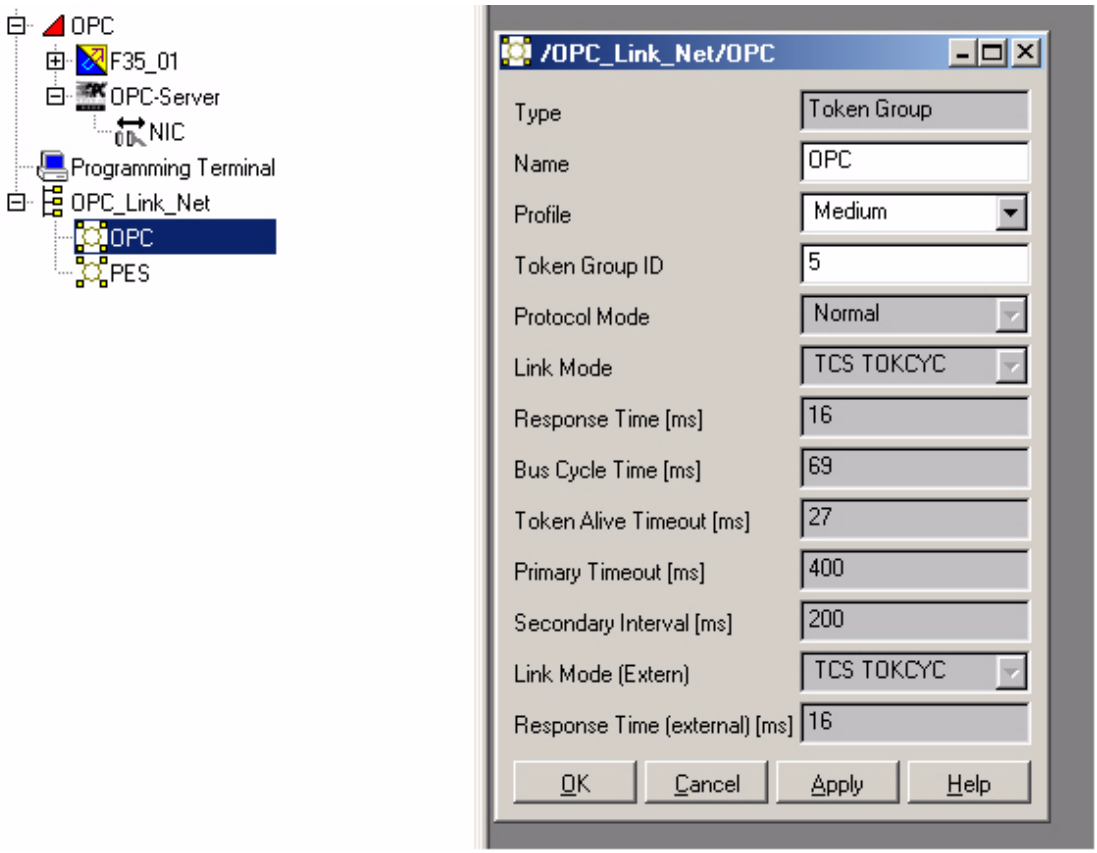
Token Groups

Open the Node Editor for the OPC token Group and add the OPC server into this group.



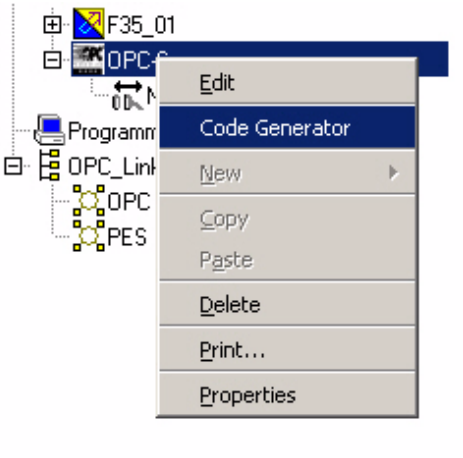
OPC Token Group configuration

After this make the settings for this token group (Properties)



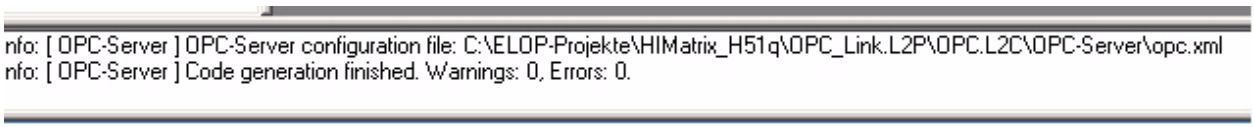
Properties of the OPC token group

Now you have to generate the code for the OPC server.



Start of the Code Generator

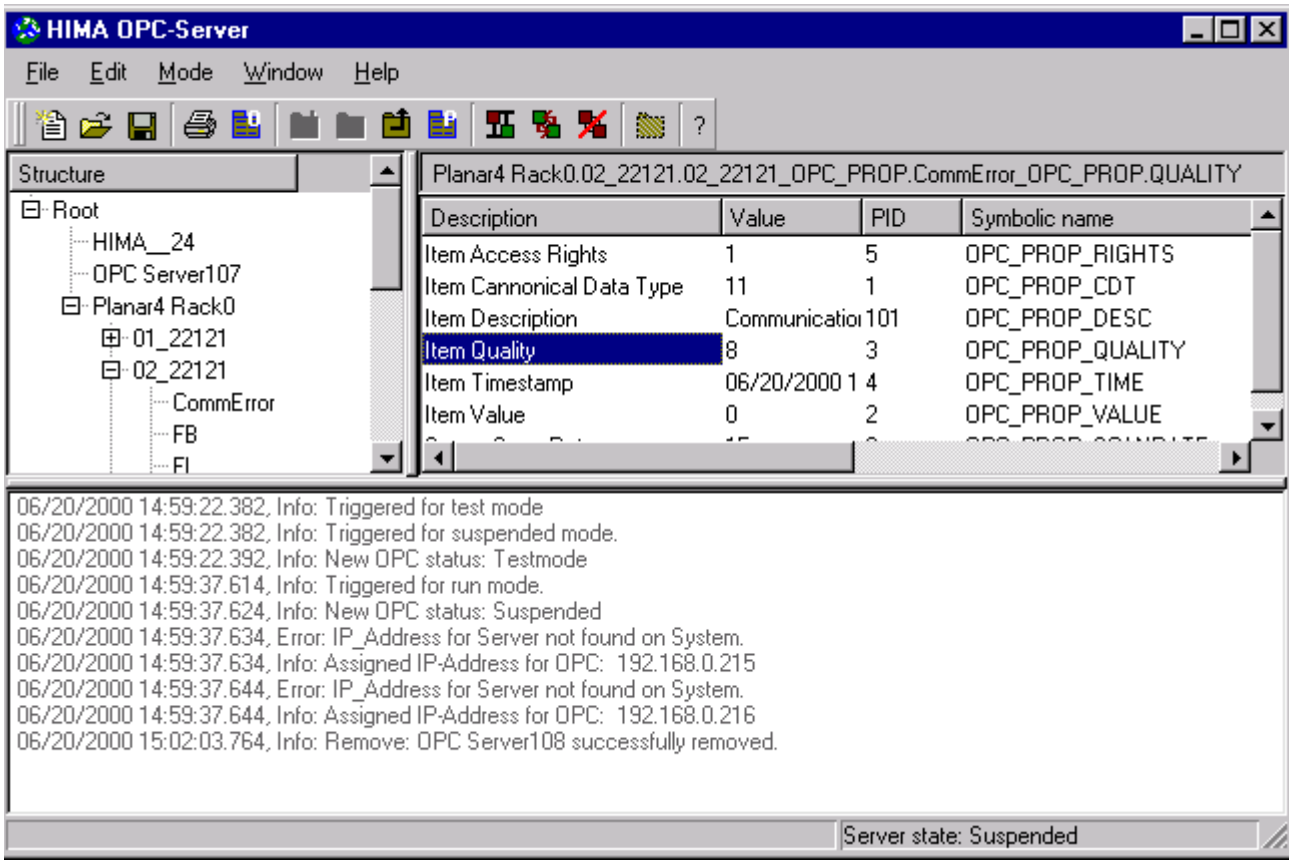
The result of the Code Generator is the XML-File for the HIMA OPC server. The file is located inside the project path of the ELOP II Factory project.



XML-File

Open this file with the HIMA OPC server.

Use of the HIMA OPC Server



User interface

The HIMA OPC server has the menu Items:

- File
- Edit
- Mode
- Window
- Help

The GUI is not usable, in case of using ALLXml parametrization. Also the saving of the configuration will be not possible.

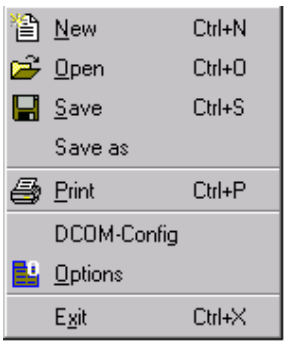
The quick access bar includes the following functions:

- New
- Open
- Save
- Print configuration
- Options
- Insert
- Update
- Remove
- Property
- Test mode
- Connect
- Disconnect
- Hide
- Product info

The window of the HIMA OPC server is divided in three sections. Section one displays the configuration tree. Section two displays the contents of the selected item of the configuration tree and section three displays the messages of the HIMA OPC server.

Menu File

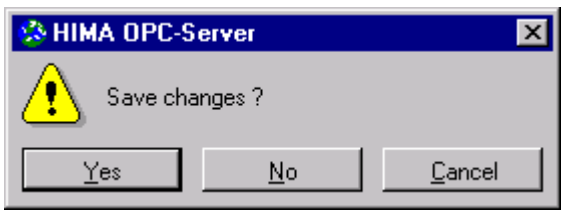
You find the functions **New**, **Open, Save**, **Save as**, **Print**, **DCOM-Config**, **Options** and **Exit** in the menu **File**.



Menu File

9 New

With the function **New** you close the current configuration of the HIMA OPC server and you create a new configuration. After choosing the function **New**, you have to confirm, if the old configuration is not stored.

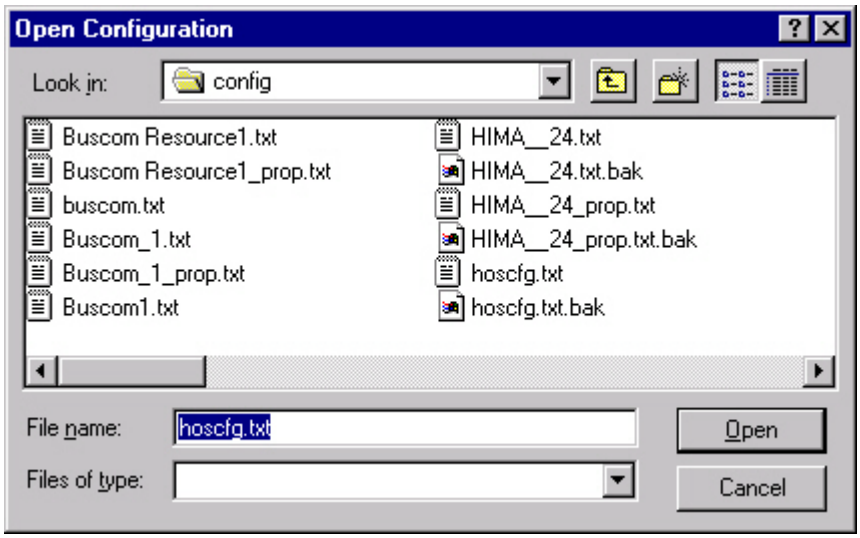


Save configuration

To create a new configruation and save the old one, choose **Yes**, to close the current configuration without saving choose **No** and to cancel the creation choose **Cancel**

10 Open

Open a existing configuration. A window opens for choosing your configuration.



Choose configuration

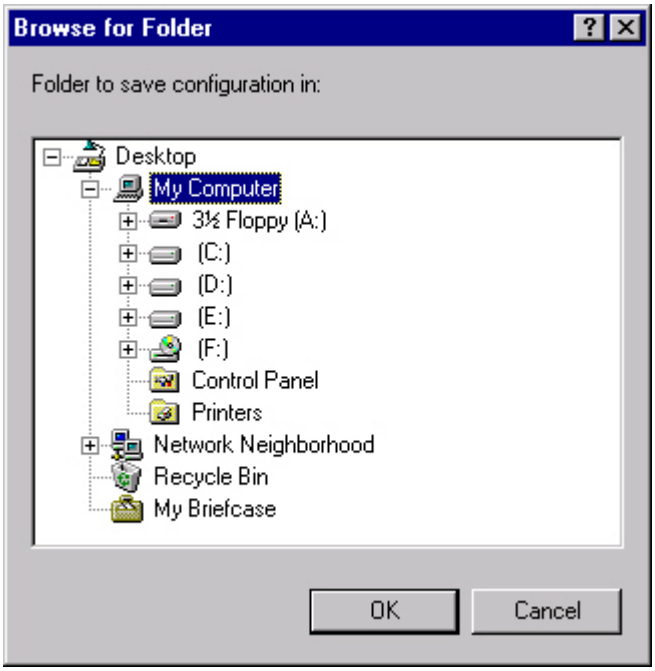
Choose the directory and the configuration file, use Open (Öffnen) for confirmation, use Cancel (Abbrechen) to cancel the opening of a configuration.

11 Save

Save the current configuration into the configuration file, which is defined in the Options of the HIMA OPC server

12 Save as

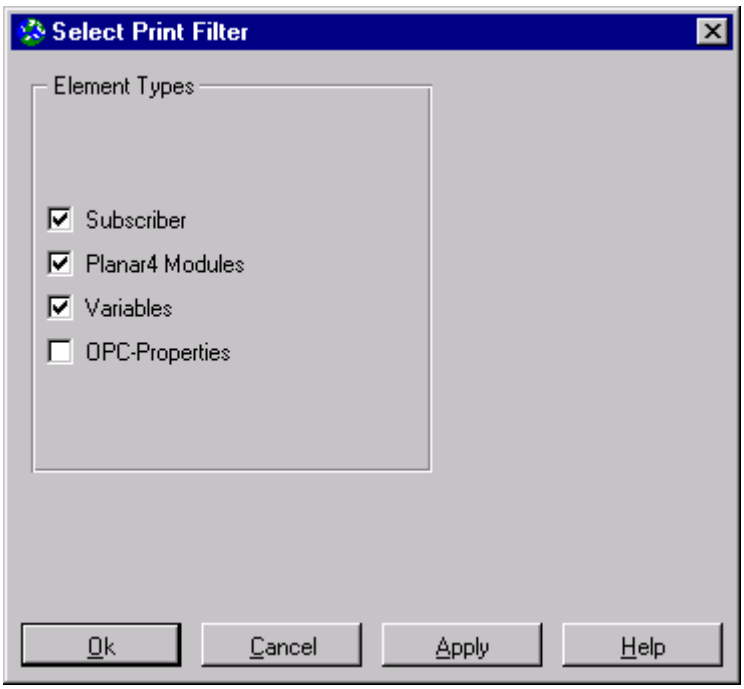
Save the current configuration into the file **root.txt** after choosing the sub-directory for the file. Furthermore all configuration files will be stored.



Choose directory

13 Print

Printout the current configuration of the HIMA OPC server. Before printing select the wished informations



Print

Subscriber prints the configuration file. The configuration file contains the resources and the servers with the path of their configuration files.

Planar 4 modules prints the configuration file of the Planar 4 rack. It contains the slots, the card numbers and the card names. You are able to use card names like you want, but the names must be different.

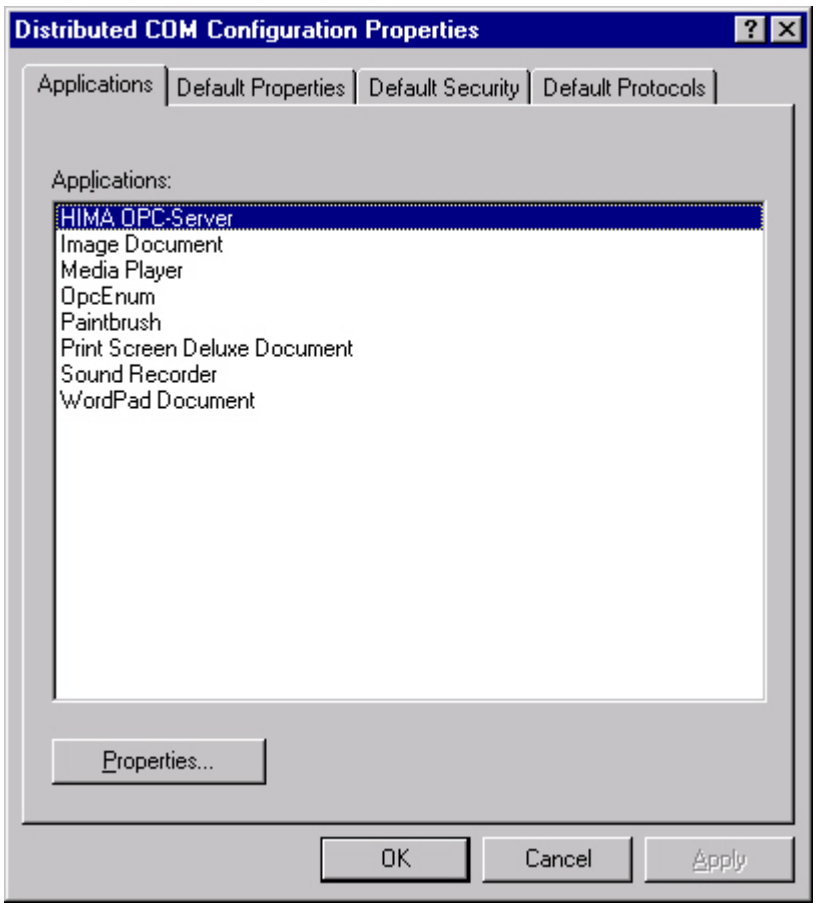
Variables prints a list of all defined variables. On the list you find the name, the data type, the rights and the description.

OPC-Properties prints the properties of all defined variables.

Make your choice and start the printout with **OK**.

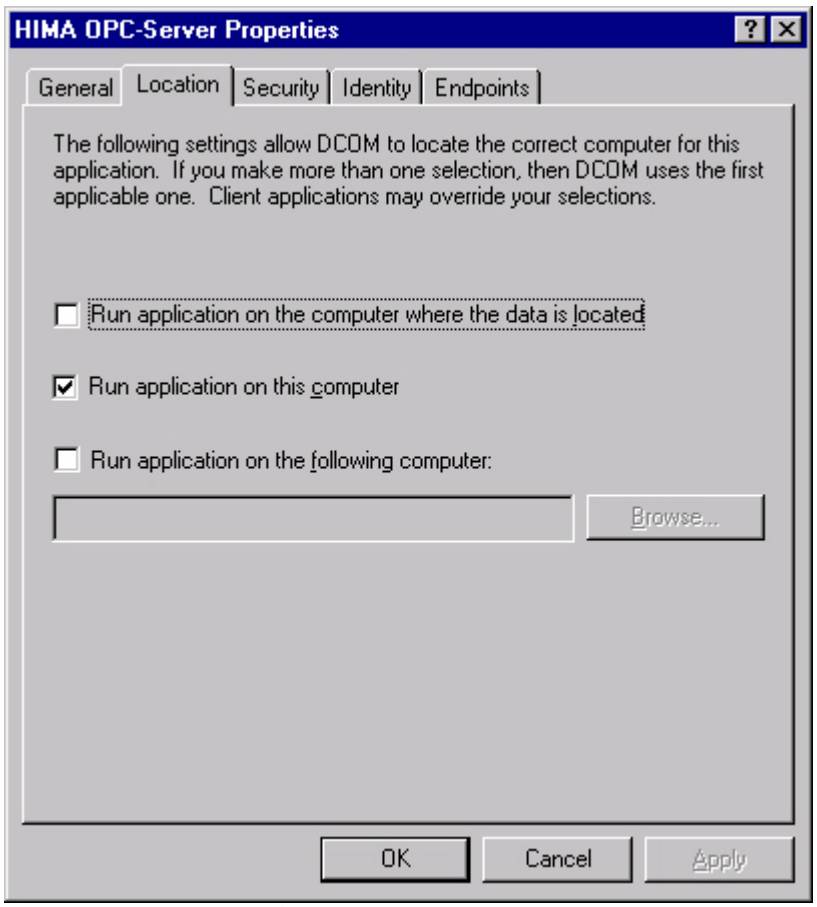
14 DCOM-Config

Open the DCOM configuration



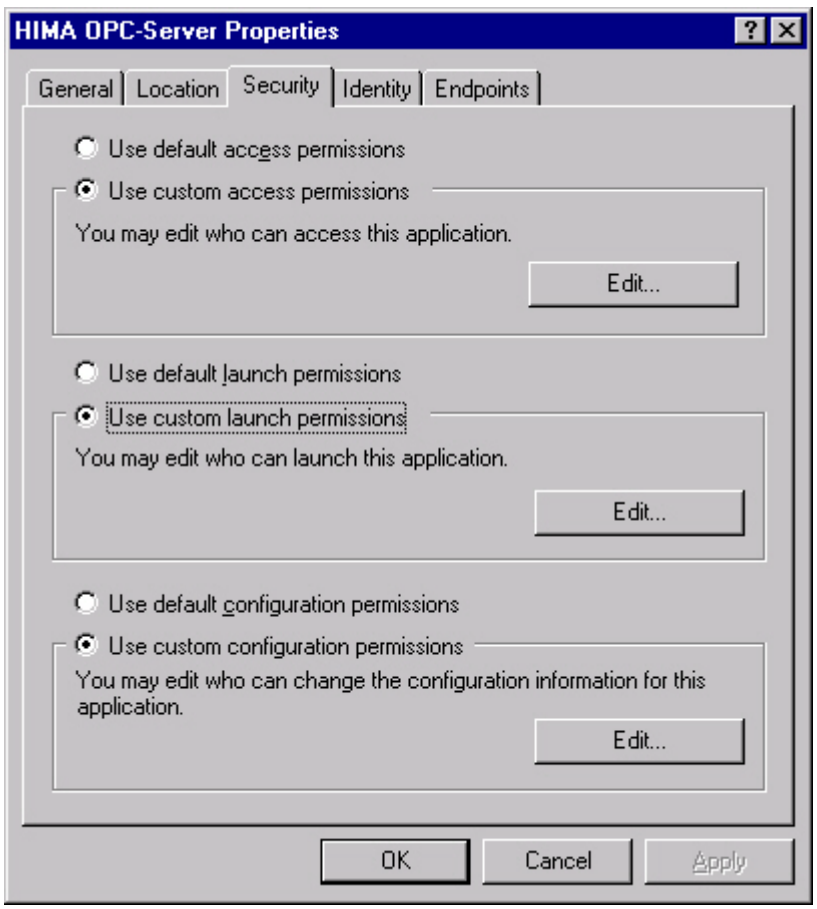
DCOM configuration

Open the properties (Eigenschaften) of the HIMA OPC-Server.



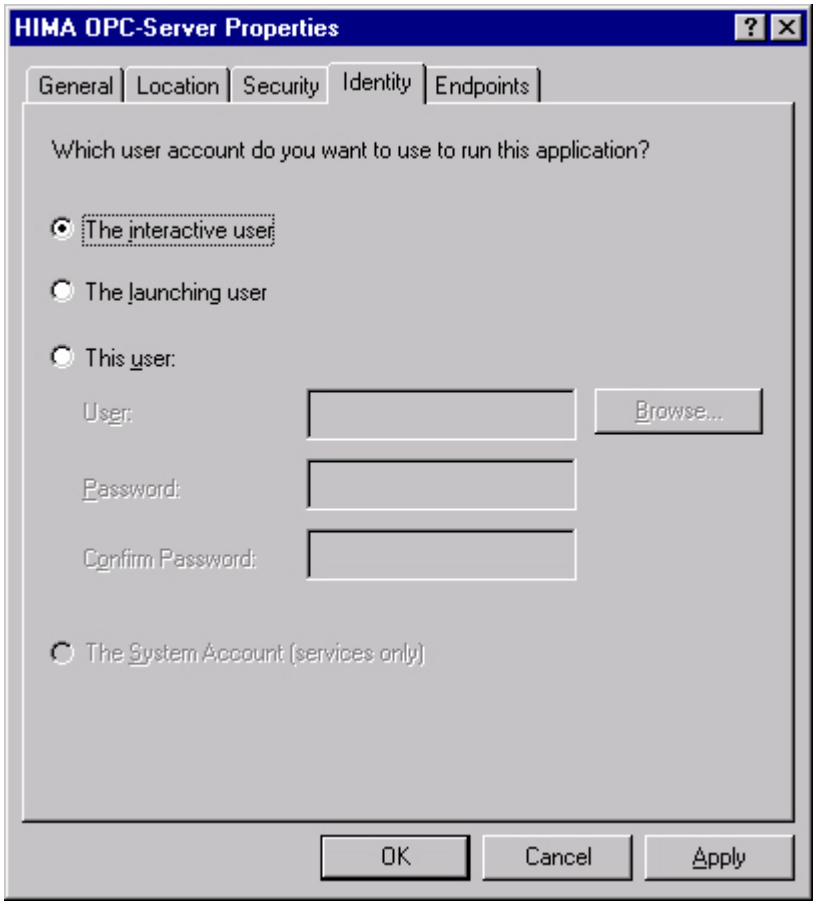
HIMA OPC-Server properties

The HIMA OPC-Server has to run on the computer, where it is installed.



Safety

In case the OPC Client is running on a different computer, make sure that the user of the OPC Client has the access rights and the start rights for the HIMA OPC-Server.

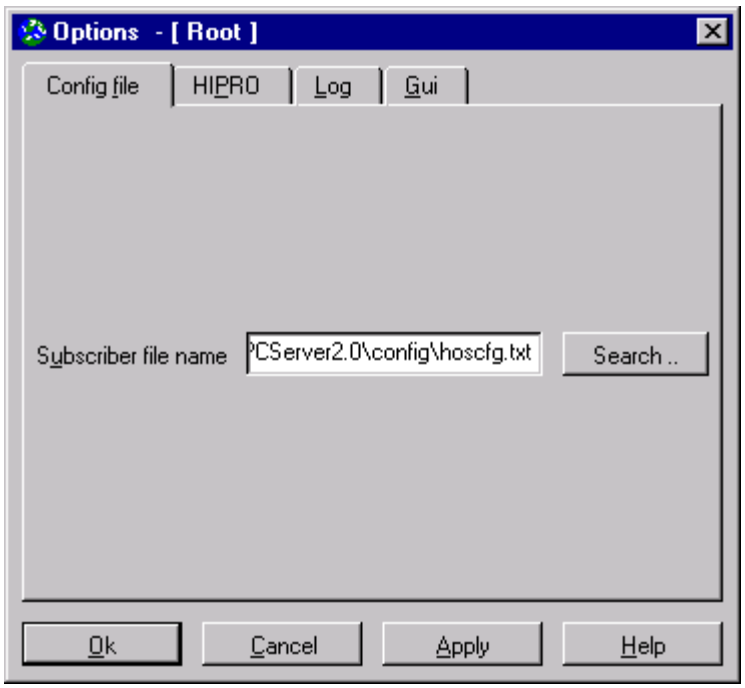


Identity

15 Options

Use the Options or open the properties of the Root.
OK stores the changes and will close the dialogue.
Cancel discard the changes and will close the dialogue.
Apply stores the changes, but the dialogue will not be closed.
Use **HELP** for entering the online-help.
This functionality is valid everywhere in the dialogue.

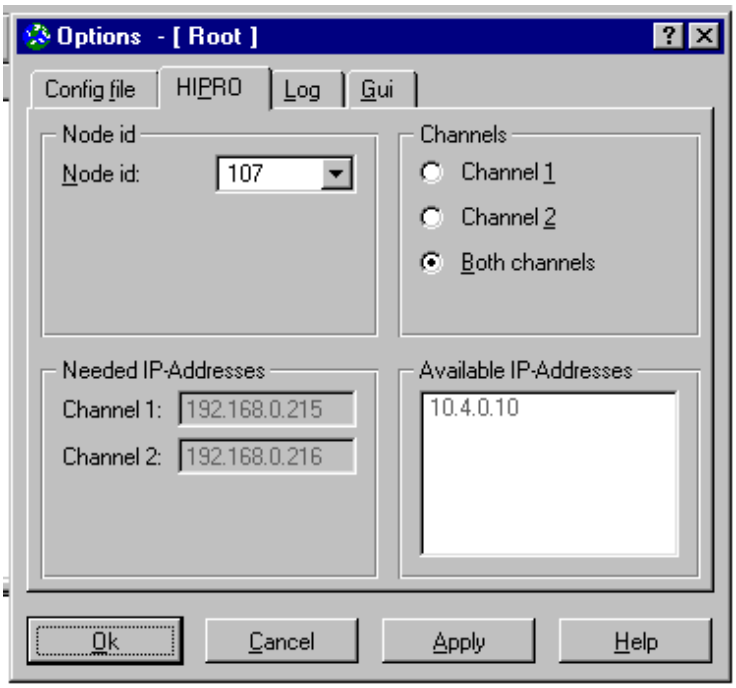
15.1 Config file



Root properties

Here you enter the path and the name of the HIMA OPC server configuration file. With **Search** a window opens for choosing the file.
The function **Save** from the menu **File** will store all configuration informations into this file.

15.2 HIPRO



Page HIPRO

Dependent on the available IP addresse you have to select the node ID for the HIMA OPC server. It is not possible to select node ID numbers, which are not according to the available IP addresses. Node IDs higher than 110 can only be used, if the communication module F 8627 with operating system version 3x or higher is used.

Node ID	IP address
107	192.168.0.215, channel 1
107	192.168.0.216, channel 2
108	192.168.0.217, channel 1
108	192.168.0.218, channel 2
109	192.168.0.219, channel 1
109	192.168.0.220, channel 2
...	...
120	192.168.0.241, channel 1
120	192.168.0.242, channel 2

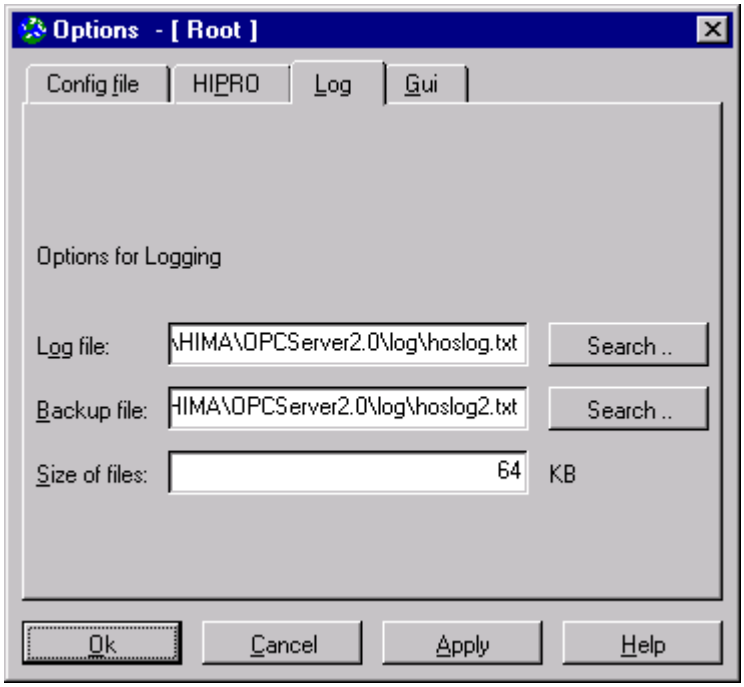
Tabelle 9: Node IDs for the HIMA OPC server

Also you have to select the channel, which the HIMA OPC server uses for communication and give the IP address to the channel. There are three different modes.

Note:
On one Ethernet segment, you can only use ethernet cards, which are

using the same channel

15.3 Log



Page Log

Enter the path and the name of the Log file in the window Log file, enter the path and the name of the Backup file in the window Backup file and enter the file size in the window Size of files.

The HIMA OPC server writes informations and errors into the Log file. If the entered size of the file is reached, the HIMA OPC server copies the Log file to the Backup file and creates an new Log file

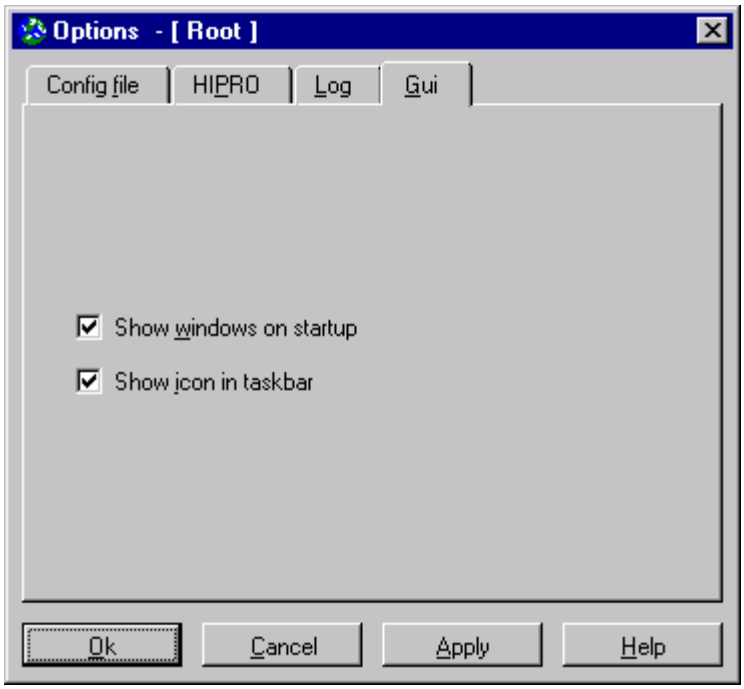
Informations:

- HIMA OPC-Server started, Version 2.0.12
- Assigned IP address 192.xxx.xxx.xxx for HIPRO channel x
- HIMA OPC-Server stopped
- Available IP-Address on system 192.xxx.xxx.xxx

Errors:

- Configuration aborted: Server node ID not found in OPC-Resources
- No IP-address for node ID found
- Ennt failed
  Communication program ennt is stopped
- Initialize of HIPRO-driver failed, switched into testmode
  There is no valid IP-address

15.4 Gui



Page Gui

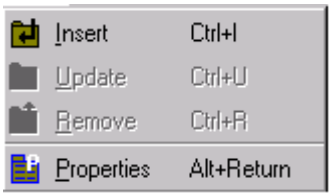
Choose **Show windows on startup**, if you want to see the program window of the HIMA OPC server after startup.
Choose **Show icon in taskbar**, if you want to have the icon in the taskbar.
With **OK** the HIMA OPC server takes over the settings and the option window will be closed.
With **Cancel** the option window is closed without saving the new settings.
Apply, the HIMA OPC server takes over the new settings, but the option window is not closed.

16 Exit

With Exit you close the HIMA OPC server.

Menu Edit

There are the functions:



- Insert
- Update
- Remove
- Properties

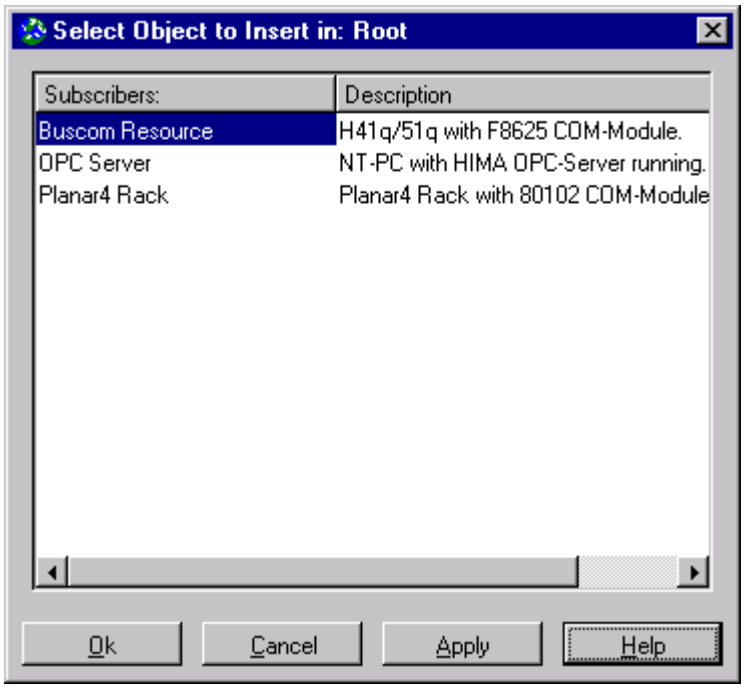
Dependent on the selection there is the possibility to use it or not.

17 Insert

Choose **Insert** for adding a new OPC server, buscom resource PLANAR4 resource or an additional property of an item. On the PLANAR4 resource you add the cards, which are supplied in the PLANAR4 rack.
If you have selected a variable, you add a new property of the variable.

17.1 Add an OPC Server

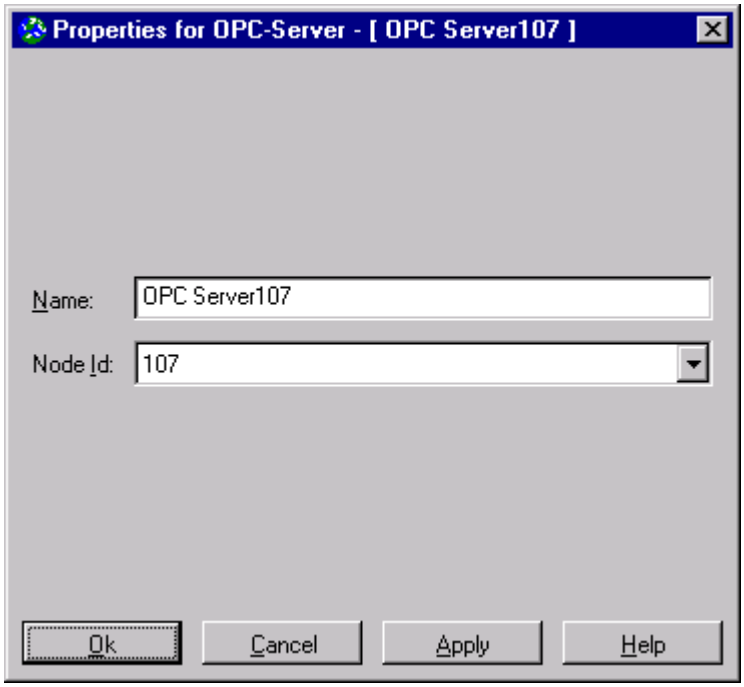
Select the root and use **Insert**. The following window is displayed:



Window insert

Choose OPC Server and confirm with **OK**. The new OPC Server is added directly. **Cancel** close the window without adding anything, **Apply** add the server lets the window open, **Help** opens the online help.
You can change the name of the server in the properties. There you choose also the ID-number.

Note:
You have to insert all HIMA OPC server, which are available in the network.

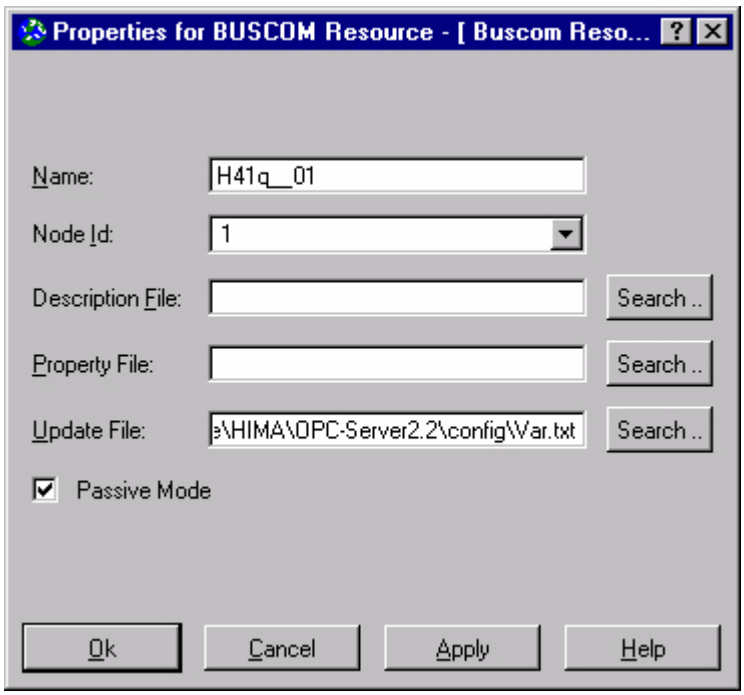


Properties of the OPC-Server

You have to choose the ID-number, which is prepared for the HIMA OPC server in the **Options**.

17.2 Add an Buscom resource

Select the root and use the function **Insert** and add the buscom resource. The new buscom resource is added directly. Open the properties of the new buscom resource and define the configuration files.

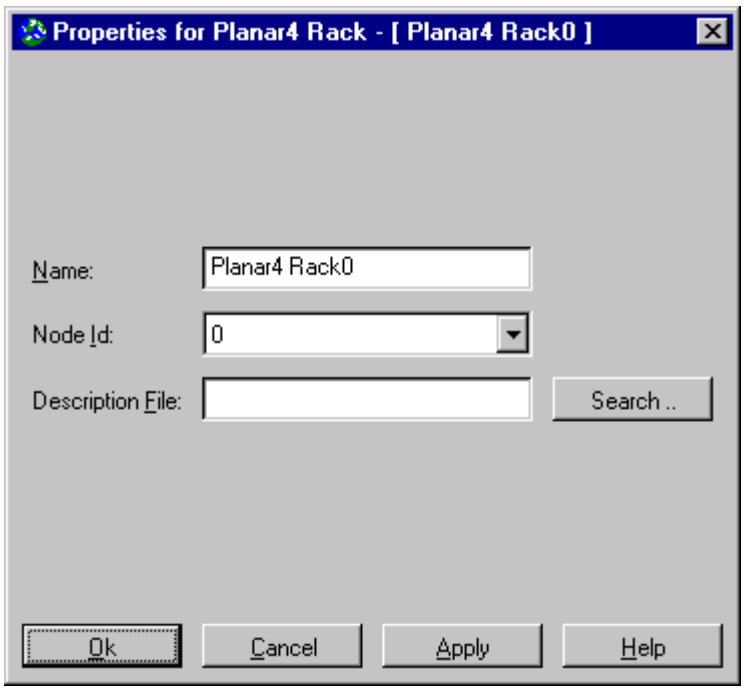


Properties of the buscom resource

Enter the Buscom resource name in the window **Name.** Use any name you want,
Enter the Buscom ressourc ID-number in the window **Node ID.** This ID must be identical with the 7th and 8th character of the resource name, which is used in ELOP II-NT.
Enter the path and the name for the configuration file in the window **Description File**. With **Search** you are able to select the file. The HIMA OPC server save all changes into this file. If there is not entered a name, the HIMA OPC server takes the name of the Buscom resource with the extension TXT.
Enter the path and the name for the property file in the window **Property File**. The HIMA OPC server writes all properties informations of the items into this file. With **Search** you are able to select the file.f there is not entered a name, the HIMA OPC server takes the name of the Buscom resource _prop with the extension TXT.
Enter the path and the name for the update file in the window **Update File.** This is the file, which is generated by ELOP II-NT. It contains all Buscom variables. With **Search** you are able to select the file.
See also PES configuration.
Passive Mode has to be used, if it exists only a communication between the HIMA PES and the HIMA OPC server. Only possible with the module F 8627 und the HIMA OPC server Version 3.2 or higher.

17.3 Add PLANAR4 Rack

Select the root and use the function **Insert** and add the Planar4 Rack.
The PLANAR4 rack is added directly. Open the properties of the new PLANAR4 resource.



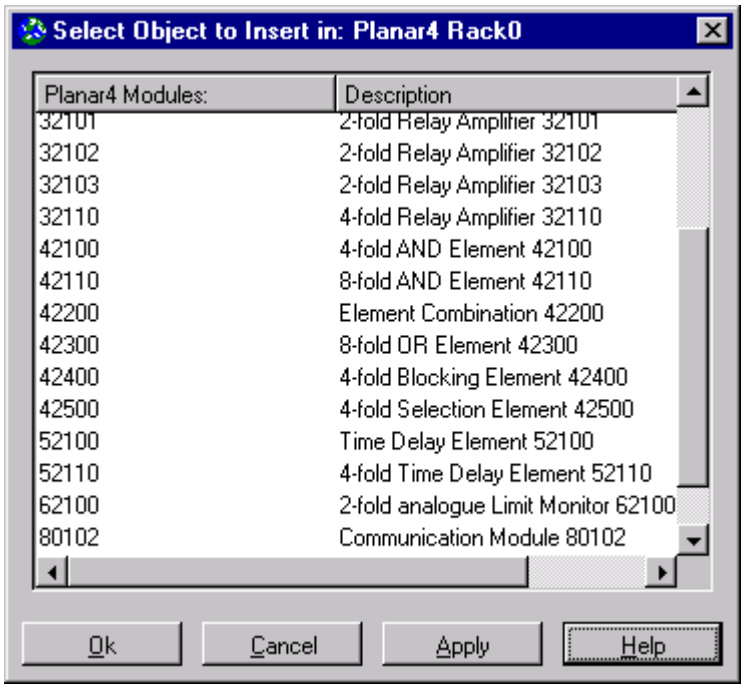
Properties of the PLANAR4 resource

Enter the name for the PLANAR4 rack in the window **Name**.
Choose the ID-number in the window **Node-ID**. The ID must be identical with the ID, which is configured on the communication card 80102
Enter the path and name for the configuration file in the window **descrip-**

tion File. If there is not entered a name, the HIMA OPC server takes the name of the PLANAR4 resource with the extension TXT.
See also PLANAR4 configuration.

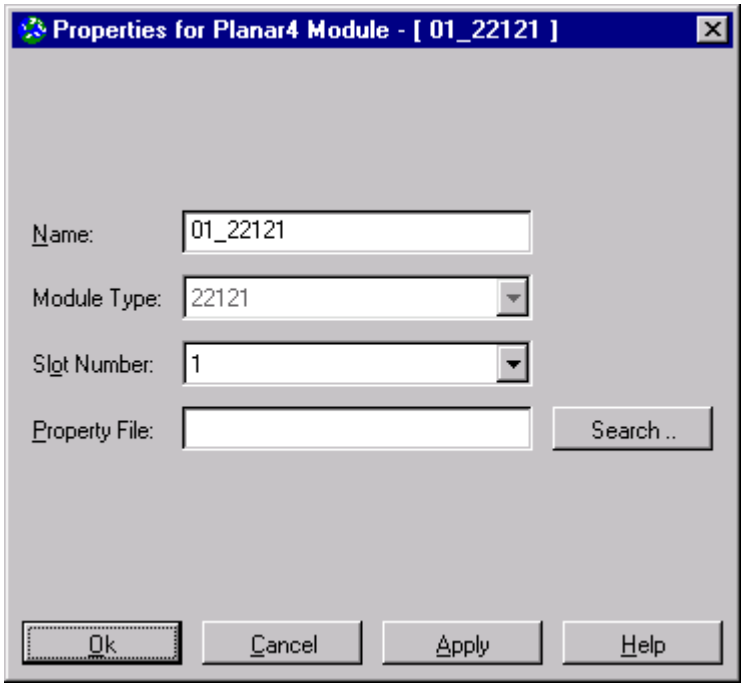
17.4 Add PLANAR4 cards

Select the Planar4 resource and choose **Insert** for adding PLANAR4 cards.



Add new PLANAR4 card

With a double click on the Planar4 module you insert the new card, or select the card and use the button **Apply**. With **Ok** the selected card is added and the window will be closed. With **Cancel** the window will be closed without adding a new card



card properties

Open the properties of the card and enter the name in the window **Name**.
You see the card type in the window **Module Type**.
Chooses the slot number of the card in the window **Slot Number**.
Enter the path and name for the property file in the window **Property File**.
If there is not entered a name, the HIMA OPC server takes the name of the card with extenstion TXT.

The variables are inserted automatically.

17.4.1 Variables definition

Definition of the variables is not necessary. The possible variables are defined by the module used. You'll find the supplied information in the following.
The following abbreviations and terms are used here:
U: Voltage monitor operating voltage too low
FB: Module fault
FL: Line fault
UL: Contact voltage fault
NoResponse: Module not available
ComErr: No communication to module
Ready: Module available and communication OK

17.4.1.1 4-fold input module 12100

with line diagnostics

Name	Type	Value/Description
Signature	WORD / VT_I4	11h, 17 decimal
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
z22	BOOL / VT_BOOL	Y1, output z22
d22	BOOL / VT_BOOL	Y2, output d22
z24	BOOL / VT_BOOL	Y3, output z24
d24	BOOL / VT_BOOL	Y4, output d24

Table10: Data 12100

17.4.1.2 2-fold input module 13110, (Ex)i

with line diagnostics

Name	Type	Value/Description
Signature	WORD / VT_I4	12h, 18 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
z22	BOOL / VT_BOOL	Y1, output z22
d22	BOOL / VT_BOOL	Y2, output d22

Table11: Data 13110

17.4.1.3 4-fold output module 22100

Outputs 25 V = / 3 W

Name	Type	Value/Description
Signature	WORD / VT_I4	21h, 33 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
d4	BOOL / VT_BOOL	Input d4
z6	BOOL / VT_BOOL	Input z6
d6	BOOL / VT_BOOL	Input d6
z8	BOOL / VT_BOOL	Input z8
d8	BOOL / VT_BOOL	Input d8
d14	BOOL / VT_BOOL	Y1, Output d14
d16	BOOL / VT_BOOL	Y2, Output d16
d18	BOOL / VT_BOOL	Y3, output d18
d20	BOOL / VT_BOOL	Y4, output d20

Table12: Data 22100

17.4.1.4 Output module 22120

Output 25 V = / 24 W

Name	Type	Value/Description
Signature	WORD / VT_I4	22h, 34 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
d4	BOOL / VT_BOOL	Input d4
d10	BOOL / VT_BOOL	Latching, d10
d18	BOOL / VT_BOOL	Y0, output d18

Table13: Data 22120

17.4.1.5 Output module 22121

Output 60 V = / 24 W

Name	Type	Value/Description
Signature	WORD / VT_I4	23h, 35 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4

Table14: Data 22121

Name	Type	Value/Description
d4	BOOL / VT_BOOL	Input d4
d10	BOOL / VT_BOOL	Latching circuit
d18	BOOL / VT_BOOL	Y0, output d18

Table14: Data 22121

17.4.1.6 2-fold relay amplifier 32100

Switching voltage 24 V =

Name	Type	Value/Description
Signature	WORD / VT_I4	31h, 49 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Input z18
d18	BOOL / VT_BOOL	Input d18
z20	BOOL / VT_BOOL	Input z20
d20	BOOL / VT_BOOL	Input d20
z22	BOOL / VT_BOOL	Input z22
d22	BOOL / VT_BOOL	Input d22
z24	BOOL / VT_BOOL	Latching circuit, z24
d4	BOOL / VT_BOOL	Contact assembly, d4
d24	BOOL / VT_BOOL	Latching circuit, d24
d10	BOOL / VT_BOOL	Contact assembly, d10

Table15: Data 32100

17.4.1.7 2-fold relay amplifier 32101

Switching voltage 48/60 V =, 60 V ~

Name	Type	Value/Description
Signature	WORD / VT_I4	32h, 50 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Input z18
d18	BOOL / VT_BOOL	Input d18
z20	BOOL / VT_BOOL	Input z20
d20	BOOL / VT_BOOL	Input d20
z22	BOOL / VT_BOOL	Input z22
d22	BOOL / VT_BOOL	Input d22
z24	BOOL / VT_BOOL	Latching circuit z24
d4	BOOL / VT_BOOL	Contact assembly, d4
d24	BOOL / VT_BOOL	Latching circuit d24
d10	BOOL / VT_BOOL	Contact assembly, d10

Table16: Data 32101

17.4.1.8 2-fold relay amplifier 32102

Switching voltage 110 V =, 127 V ~

Name	Type	Value/Description
Signature	WORD / VT_I4	33h, 51 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Input z18
d18	BOOL / VT_BOOL	Input d18
z20	BOOL / VT_BOOL	Input z20
d20	BOOL / VT_BOOL	Input d20
z22	BOOL / VT_BOOL	Input z22
d22	BOOL / VT_BOOL	Input d22
z24	BOOL / VT_BOOL	Latching circuit, z24
d4	BOOL / VT_BOOL	Contact assembly, d4
d24	BOOL / VT_BOOL	Latching circuit, d24
d10	BOOL / VT_BOOL	Contact assembly, d10

Table17: Data 32102

17.4.1.9 2-fold relay amplifier 32103

Switching voltage 220 V =, 230 V ~

Name	Type	Value/Description
Signature	WORD / VT_I4	31h, 49 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE

Table18: Data 32103

Name	Type	Value/Description
FL	BOOL / VT_BOOL	TRUE
UL	BOOL / VT_BOOL	TRUE
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Input z18
d18	BOOL / VT_BOOL	Input d18
z20	BOOL / VT_BOOL	Input z20
d20	BOOL / VT_BOOL	Input d20
z22	BOOL / VT_BOOL	Input z22
d22	BOOL / VT_BOOL	Input d22
z24	BOOL / VT_BOOL	Latching circuit, z24
d4	BOOL / VT_BOOL	Contact assembly, d4
d24	BOOL / VT_BOOL	Latching circuit d24
d10	BOOL / VT_BOOL	Contact assembly, d10

Table18: Data 32103

17.4.1.10 4-fold relay amplifier 32110

fail-safe, AK 1...4, SIL2

Name	Type	Value/Description
Signature	WORD / VT_I4	35h, 53 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z22	BOOL / VT_BOOL	Input z22
d22	BOOL / VT_BOOL	Input d22
z24	BOOL / VT_BOOL	Input z24
d24	BOOL / VT_BOOL	Input d24
K1	BOOL / VT_BOOL	Contact relay 1
K2	BOOL / VT_BOOL	Contact relay 2
K3	BOOL / VT_BOOL	Contact relay 3

Table19: Data 32110

Name	Type	Value/Description
K4	BOOL / VT_BOOL	Contact relay 4

Table19: Data 32110

17.4.1.11 4-fold AND element 42100

fail-safe, AK 1...7, SIL4

Name	Type	Value/Description
Signature	WORD / VT_I4	41h, 65 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
d4	BOOL / VT_BOOL	Input d4
z6	BOOL / VT_BOOL	Input z6
d6	BOOL / VT_BOOL	Input d6
z8	BOOL / VT_BOOL	Input z8
d8	BOOL / VT_BOOL	Input d8
z10	BOOL / VT_BOOL	Input z10
d10	BOOL / VT_BOOL	Input d10
z12	BOOL / VT_BOOL	Input z12
d12	BOOL / VT_BOOL	Input d12
z14	BOOL / VT_BOOL	Input z14
d14	BOOL / VT_BOOL	Input d14
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Input z18
d18	BOOL / VT_BOOL	Input d18
z20	BOOL / VT_BOOL	Input z20
d20	BOOL / VT_BOOL	Input d20

Table20: Data 42100

Name	Type	Value/Description
z22	BOOL / VT_BOOL	Y1, Output z22
d22	BOOL / VT_BOOL	Y2, Output d22
z24	BOOL / VT_BOOL	Y3, Output z24
d24	BOOL / VT_BOOL	Y4, Output d24

Table20: Data 42100

17.4.1.12 8-fold AND element 42110

fail-safe, AK 1...7, SIL4

Name	Type	Value/Description
Signature	WORD / VT_I4	42h, 66 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
d4	BOOL / VT_BOOL	Input d4
z6	BOOL / VT_BOOL	Input z6
d6	BOOL / VT_BOOL	Input d6
z8	BOOL / VT_BOOL	Input z8
d8	BOOL / VT_BOOL	Input d8
z10	BOOL / VT_BOOL	Input z10
d10	BOOL / VT_BOOL	Input d10
z12	BOOL / VT_BOOL	Input z12
d12	BOOL / VT_BOOL	Input d12
z14	BOOL / VT_BOOL	Input z14
d14	BOOL / VT_BOOL	Input d14
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Y1, Output z18

Table21: Data 42110

Name	Type	Value/Description
d18	BOOL / VT_BOOL	Y2, output d18
z20	BOOL / VT_BOOL	Y3, output z20
d20	BOOL / VT_BOOL	Y4, output d20
z22	BOOL / VT_BOOL	Y5, output z22
d22	BOOL / VT_BOOL	Y6, output d22
z24	BOOL / VT_BOOL	Y7, output z24
d24	BOOL / VT_BOOL	Y8, Output d24

Table21: Data 42110

17.4.1.13 Element combination 42200

fail-safe, AK 1...7, SIL4

Name	Type	Value/Description
Signature	WORD / VT_I4	46h, 70 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
d4	BOOL / VT_BOOL	Input d4
z6	BOOL / VT_BOOL	Input z6
d6	BOOL / VT_BOOL	Input d6
z8	BOOL / VT_BOOL	Input z8
d8	BOOL / VT_BOOL	Input d8
z10	BOOL / VT_BOOL	Input z10
d10	BOOL / VT_BOOL	Input d10
z12	BOOL / VT_BOOL	Input z12
d12	BOOL / VT_BOOL	Input d12
z14	BOOL / VT_BOOL	Input z14
d14	BOOL / VT_BOOL	Input d14

Table22: Data 42200

Name	Type	Value/Description
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Y1, output z18
d18	BOOL / VT_BOOL	Y2, output d18
z20	BOOL / VT_BOOL	Y3, output z20
d20	BOOL / VT_BOOL	Y4, output d20
z22	BOOL / VT_BOOL	Y5, output z22
d22	BOOL / VT_BOOL	Y6, output d22
z24	BOOL / VT_BOOL	not Y7, output z24
d24	BOOL / VT_BOOL	Y7, output d24

Table22: Data 42200

17.4.1.14 8-fold OR element 42300

fail-safe, AK 1...7, SIL4

Name	Type	Value/Description
Signature	WORD / VT_I4	43h, 67 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
d4	BOOL / VT_BOOL	Input d4
z6	BOOL / VT_BOOL	Input z6
d6	BOOL / VT_BOOL	Input d6
z8	BOOL / VT_BOOL	Input z8
d8	BOOL / VT_BOOL	Input d8
z10	BOOL / VT_BOOL	Input z10
d10	BOOL / VT_BOOL	Input d10
z12	BOOL / VT_BOOL	Input z12

Table23: Data 42300

Name	Type	Value/Description
d12	BOOL / VT_BOOL	Input d12
z14	BOOL / VT_BOOL	Input z14
d14	BOOL / VT_BOOL	Input d14
z16	BOOL / VT_BOOL	Input z16
d16	BOOL / VT_BOOL	Input d16
z18	BOOL / VT_BOOL	Output z18
d18	BOOL / VT_BOOL	Output d18
z20	BOOL / VT_BOOL	Output z20
d20	BOOL / VT_BOOL	Output d20
z22	BOOL / VT_BOOL	Output z22
d22	BOOL / VT_BOOL	Output d22
z24	BOOL / VT_BOOL	Output z24
d24	BOOL / VT_BOOL	Output d24

Table23: Data 42300

17.4.1.15 4-fold blocking element 42400

fail-safe, AK 1...7, SIL4

Name	Type	Value/Description
Signature	WORD / VT_I4	44h, 68 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
d2	BOOL / VT_BOOL	Input d2
d4	BOOL / VT_BOOL	Input d4
d6	BOOL / VT_BOOL	Input d6
d8	BOOL / VT_BOOL	Input d8
d18	BOOL / VT_BOOL	Y1, Output d18
z18	BOOL / VT_BOOL	not Y1, output z18
d20	BOOL / VT_BOOL	Y2, output d20
z20	BOOL / VT_BOOL	not Y2, output z20

Table24: Data 42400

Name	Type	Value/Description
d22	BOOL / VT_BOOL	Y3, output d22
z22	BOOL / VT_BOOL	not Y3, output z22
d24	BOOL / VT_BOOL	Y4, output, d24
z24	BOOL / VT_BOOL	not Y4, output z24

Table24: Data 42400

17.4.1.16 4-fold selection element 42500

fail-safe, AK 1...7, SIL4

Name	Type	Value/Description
Signature	WORD / VT_I4	45h, 69 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Input z2
d2	BOOL / VT_BOOL	Input d2
z4	BOOL / VT_BOOL	Input z4
z6	BOOL / VT_BOOL	Input z6
d6	BOOL / VT_BOOL	Input d6
z8	BOOL / VT_BOOL	Input z8
z10	BOOL / VT_BOOL	Input z10
d10	BOOL / VT_BOOL	Input d10
z12	BOOL / VT_BOOL	Input z12
z14	BOOL / VT_BOOL	Input z14
d14	BOOL / VT_BOOL	Input d14
z16	BOOL / VT_BOOL	Input z16
z22	BOOL / VT_BOOL	Y1, output z22
z18	BOOL / VT_BOOL	Discrepancy, z18
d22	BOOL / VT_BOOL	Y2, output d22
d18	BOOL / VT_BOOL	Discrepancy, output d18
z24	BOOL / VT_BOOL	Y3, output z24

Table25: Data 42500

Name	Type	Value/Description
z20	BOOL / VT_BOOL	Discrepancy, output z20
d24	BOOL / VT_BOOL	Y4, output d24
d20	BOOL / VT_BOOL	Discrepancy, output d20

Table25: Data 42500

17.4.1.17 Time delay element 52100

fail-safe AK 1...6, SIL3

Name	Type	Value/Description
Signature	WORD / VT_I4	E1h, 225 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
d2	BOOL / VT_BOOL	Input d2
d4	BOOL / VT_BOOL	Input d4
Duration	WORD / VT_I4	Time
d24	BOOL / VT_BOOL	Y, output d24
d22	BOOL / VT_BOOL	not Y, output d22

Table26: Data 52100

17.4.1.18 4-fold time delay element 52110

fail-safe AK 1...7, SIL 4

Name	Type	Value/Description
Signature	WORD / VT_I4	51h, 81 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
d2	BOOL / VT_BOOL	Input d2

Table27: Data 52110

Name	Type	Value/Description
d4	BOOL / VT_BOOL	Input d4
d6	BOOL / VT_BOOL	Input d6
d8	BOOL / VT_BOOL	Input d8
d18	BOOL / VT_BOOL	Y1, output d18
d20	BOOL / VT_BOOL	Y2, Output d20
d22	BOOL / VT_BOOL	Y3, Output d22
d24	BOOL / VT_BOOL	Y4, output d24

Table27: Data 52110

17.4.1.19 2-fold limit monitor 62100

fail-safe AK 1...6, SIL3

Name	Type	Value/Description
Signature	WORD / VT_I4	F1h, 241 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
CurrentValue1	WORD / VT_I4	Value 1
CurrentValue2	WORD / VT_I4	Value 2
d18	BOOL / VT_BOOL	Limiting value output 1.1,
d20	BOOL / VT_BOOL	Limiting value output 1.2
d22	BOOL / VT_BOOL	Limiting value output 2.1
d34	BOOL / VT_BOOL	Limiting value output 2.2
z16	BOOL / VT_BOOL	Interrupt output, z16
LimitValue1_1	WORD / VT_I4	Lower limit 1
LimitValue1_2	WORD / VT_I4	Upper limit 1
LimitValue2_1	WORD / VT_I4	Lower limit 2
LimitValue2_2	WORD / VT_I4	Upper limit 2

Table28: Data 62100

17.4.1.20 4-fold fuse module 90100

Fuse monitoring and LED display

Name	Type	Value/Description
Signature	WORD / VT_I4	91h, 145 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
FL	BOOL / VT_BOOL	TRUE
F1-L	BOOL / VT_BOOL	TRUE F1 OK
F2-L	BOOL / VT_BOOL	TRUE F2 OK
F3-L	BOOL / VT_BOOL	TRUE F3 OK
F4-L	BOOL / VT_BOOL	TRUE F4 OK
d4	BOOL / VT_BOOL	Contact output F1
d8	BOOL / VT_BOOL	Contact output F2
d12	BOOL / VT_BOOL	Contact output F3
d16	BOOL / VT_BOOL	Contact output F4

Table29: Data 90100

17.4.1.21 2-fold bypass module 90300

LED display

Name	Type	Value/Description
Signature	WORD / VT_I4	92h, 146 decimal
U	BOOL / VT_BOOL	TRUE
NoResponse	BOOL / VT_BOOL	FALSE
ComErr	BOOL / VT_BOOL	FALSE
Ready	BOOL / VT_BOOL	TRUE
FB	BOOL / VT_BOOL	TRUE
z2	BOOL / VT_BOOL	Signal 1
z4	BOOL / VT_BOOL	Signal 2
S11	BOOL / VT_BOOL	Switch 1
S21	BOOL / VT_BOOL	Switch 2
d2	BOOL / VT_BOOL	Output signal 1

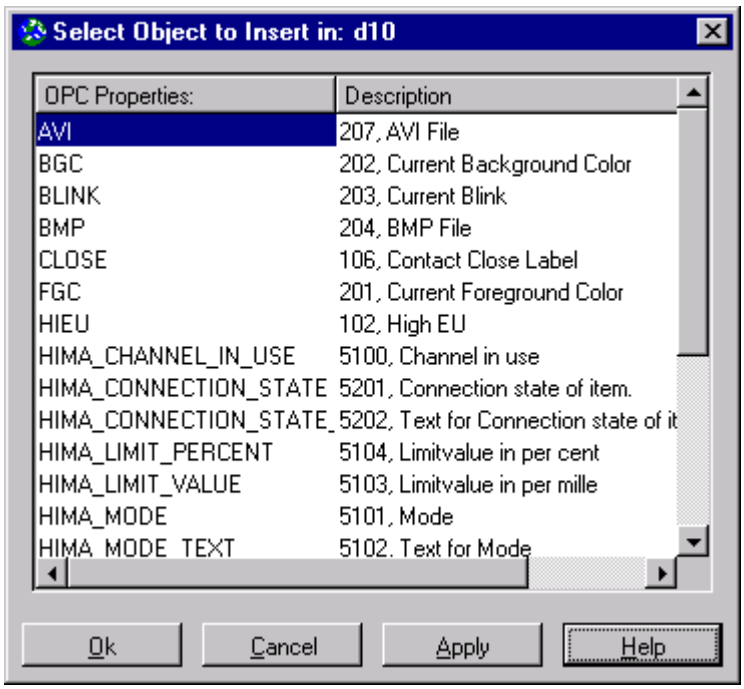
Table30: Data 90300

Name	Type	Value/Description
z6	BOOL / VT_BOOL	Switch position 1
z8	BOOL / VT_BOOL	Signal 1 jumpered
z10	BOOL / VT_BOOL	Group signal jumper
d4	BOOL / VT_BOOL	Output signal 2
d6	BOOL / VT_BOOL	Switch position 2
d8	BOOL / VT_BOOL	Signal 2 jumpered
d10	BOOL / VT_BOOL	Group signal jumper

Table30: Data 90300

17.5 Add Item Properties

Select an item and use **Insert**.



Add item properties

With a double click on the OPC properties you insert a new property, or select the property and use the button **Apply**. With **Ok** the property is added and the window will be closed. With **Cancel** the window will be closed without adding a new property.

PID	name	data type	description	
1	CDT	VT_I2	data type	dynamic
2	VALUE		item value	dynamic
3	QUALITY	VT_I2	item quality	dynamic
4	TIME	VT_DATE	item time stamp	dynamic
5	RIGHTS	VT_I4	item access rights	dynamic
6	SCANRATE	VT_R4	scan rate	dynamic
100	UNIT	VT_BSTR	engineering units	static
101	DESC	VT_BSTR	description	static
102	HIEU	VT_R8	High EU	static
103	LOEU	VT_R8	Low EU	static
104	HIRANGE	VT_R8		static
105	LORANGE	VT_R8		static
106	CLOSE	VT_BSTR	label for close	static
107	OPEN	VT_BSTR	label for oben	static
108	TIMEZONE	VT_I4	time zone	dynamic
201	FGC	VT_I4	foreground colour	static
202	BGC	VT_I4	background colour	static
203	BLINK	VT_BOOL	blink	static
204	BMP	VT_BSTR	bmp-file	static
205	SND	VT_BSTR	sound-file	static
206	HTML	VT_BSTR	HTML-file	static
207	AVI	VT_BSTR	AVI-file	static
5100	HIMA_CHANNEL_IN_USE	VT_BOOL	channel in operation	dynamic
5101	HIMA_MODE	VT_BSTR	mode	dynamic
5102	HIMA_MODE_TEXT	VT_BSTR	text for mode	dynamic
5103	HIMA_LIMIT_VALUE	VT_I4	limit in 0.1 %	dynamic
5104	HIMA_LIMIT_VALUE_PERCENT	VT_R4	limit in %	dynamic
5105	HIMA_VALUE_PERCENT	VT_R4	current value in %	dynamic
5201	HIMA_CONNECTION_STATE	VT_R4	connection state	dynamic

PID	name	data type	description	
5202	HIMA_CONNECTION_ STATE_TEXT	VT_BSTR	test for the connec-tion state	dynamic
5300	AS_BINARY	VT_BSTR	value in binary for-mat	dynamic
5301	AS_HEX	VT_BSTR	value in hex format	dynamic
5302	AS_TIME	VT_BSTR	time in ms	dynamic
5400	LOPROCESS	VT_R8	min. process value	Statisch
5401	HIPROCESS	VT_R8	max. process value	Statisch
5402	PROCESS_VALUE		process value	dynamic

17.5.1 OPC_Quality and Priority

OPC_Quality_	description
OUT_OF_SERVICE	Item or group is not active
CONFIG_ERROR	Item was erased out of the confi-guration
NOT_CONNECTED	no connection to resource
CONFIG_ERROR	configuration of the communica-tion faulty
COMM_FAILURE	no communication between 80102 and the modules
CONFIG_ERROR	wrong PLANAR 4 module
GOOD	OK or testmode

Tabelle 31: Quality

17.5.2 Writing of tags

Quality	HRESULT
item quality is config error	C0041000
item quality is comm failure	C0041001
item quality is device failure	C0041002
item quality is not connected	C0041003
item is removed	C0041004
item quality is not good	C0041005

Tabelle 32:

17.5.3 HIMA Item Properties General

OPC_PROP_HIMA_ CONNECTION_STATE	OPC_PROP_HIMA_ CONNECTION_STATE_TEXT
0	not connected
1	Connected on channel 1
2	Connected on channel 2
3	Connected on both channels

Tabelle 33: Connection state

17.5.4 HIMA Items Properties Planar 4 (62100)

OPC_PROP_HIMA_CHANNEL_IN_USE
0 = channel not active
1 = channel is active

Tabelle 34: 62100 channel in use

OPC_PROP_HIMA_MODE	OPC_PROP_HIMA_MODE_TEXT
0	actuating direction of the limit value: L (LOW)
1	actuating direction of the limit value: H (HIGH)

Tabelle 35: 62100 mode

OPC_PROP_HIMA_MODE	OPC_PROP_HIMA_MODE_TEXT
4	positive gradient
5	negative gradient
6	absolute gradient

Tabelle 35: 62100 mode

OPC_PROP_HIMA_LIMIT_VALUE
limit value in 0.1 %

Tabelle 36: 62100 limit value

OPC_PROP_HIMA_LIMIT_VALUE_PERCENT
limit value in %

Tabelle 37: 62100 limit value in %

OPC_PROP_HIMA_VALUE_PERCENT
current value in %

Tabelle 38: 62100 current value

17.5.5 Deadband

There exist two item properties for analog values.
These are:

- OPC_PROP_HIEU
- OPC_PROP_LOEU

These are the HIGH-Limit and the LOW-Limit value of an analog values. The value are used for the calculation of the Deadband.

DEADBAND= (HIEU - LOEU) * (DEADBAND of the GROUP)/100

A new analog value will be displayed if the difference of the old value and the new analog value is bigger than the calculated DEADBAND.

17.5.6 Scaling of process values

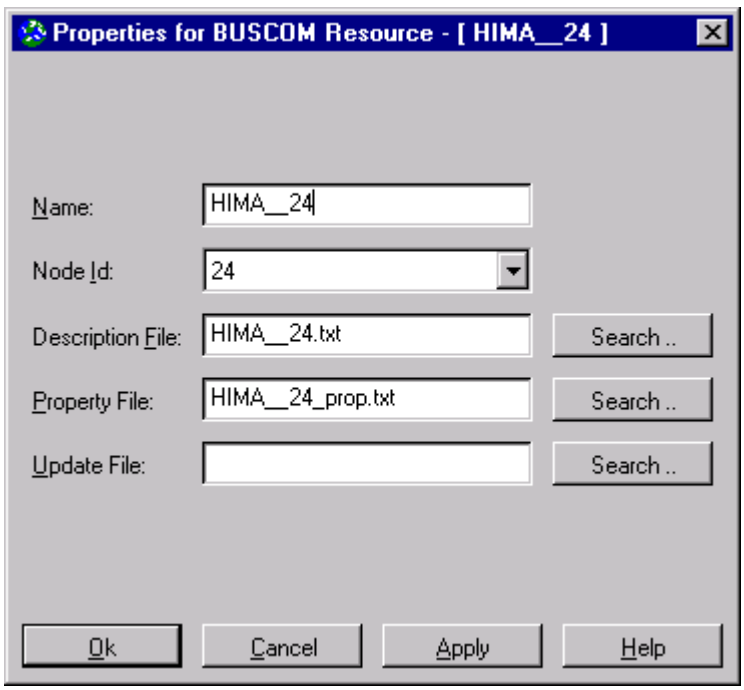
The HIMA OPC Server allows to convert the process values into EU (engineering units). Use the item properties LOPROCESS and HIPROCESS for the limits of the process value, and the item properties LOEU and HIEU for the limits of the EU.
In case the LOPROCESS and HIPROCESS properties are 0, no calculation will be done. The current process value, you can find in the item property PROCESS_VALUE. The scaling is not working for time values.

17.5.7 Display of values in binary of hex format

The HIMA OPC-Server can display the data types VT_I1, VT_UI1, VT_I2, VT_UI2, VT_I4 and VT_UI4 as text strings in binary and hex format. For not supported data types the „?“ is displayed.

18 Update

The update function works only for the buscom resources. If there are changes in the buscom list of a resource, export the buscom variables out of ELOP II-NT into a file and use this file for the update.
Open the properties of the buscom resource.



Property buscom

Enter the file name of the export file in the window **Update File** choose **OK** and then start the update.

IF you add new Buscom variables in ELOP-II-NT, generate a not reloadable code.

19 Remove

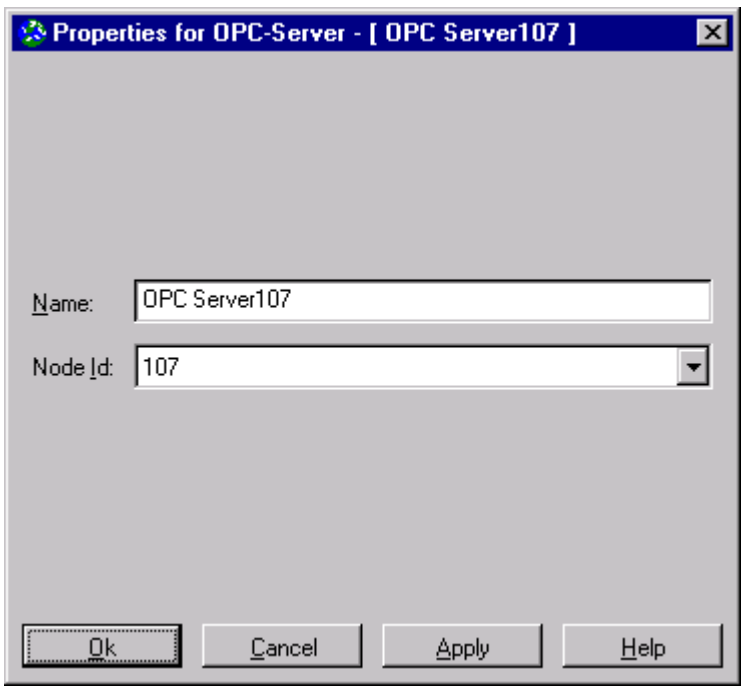
With remove you erase the selected thing from the tree. This can be a server, buscom resource, PLANAR4 resource or a PLANAR4 card. Before it is removed, you have to confirm the deletion.

Confirmation deletion

For deletion of an item property, you have to select the item property which you want to delete.

20 Properties

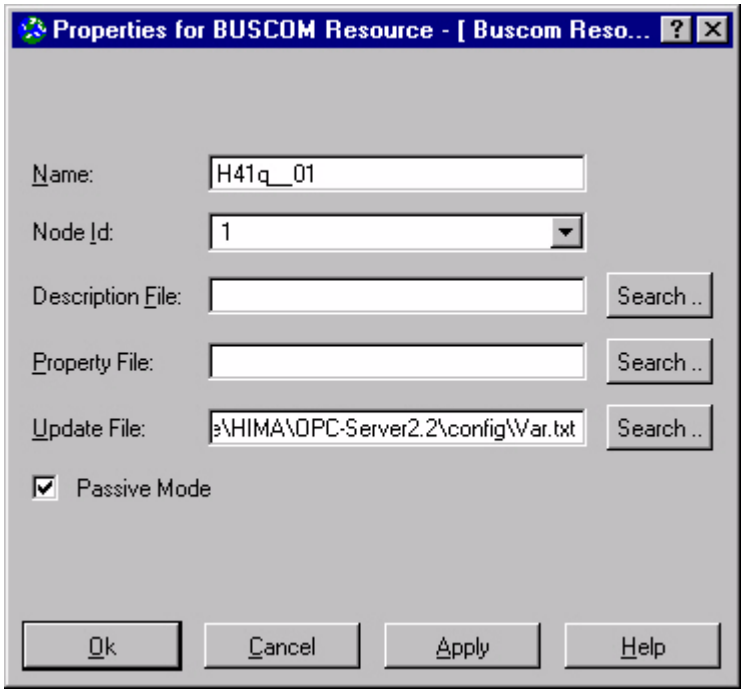
20.1 OPC Server Property



OPC Server Property

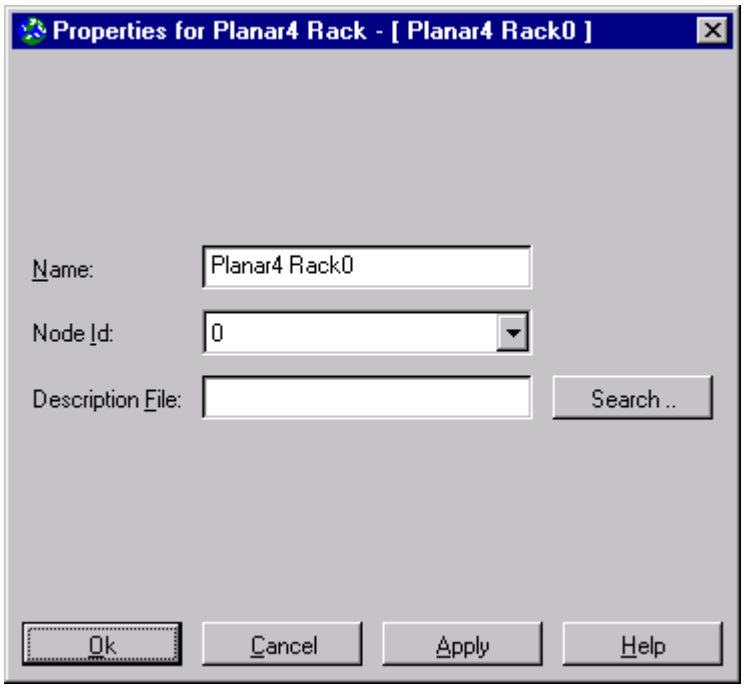
Enter name and node ID of the HIMA OPC server. See also Options.

20.2 Buscom Resource Property



Buscom Property, see above

20.3 PLANAR4 Property



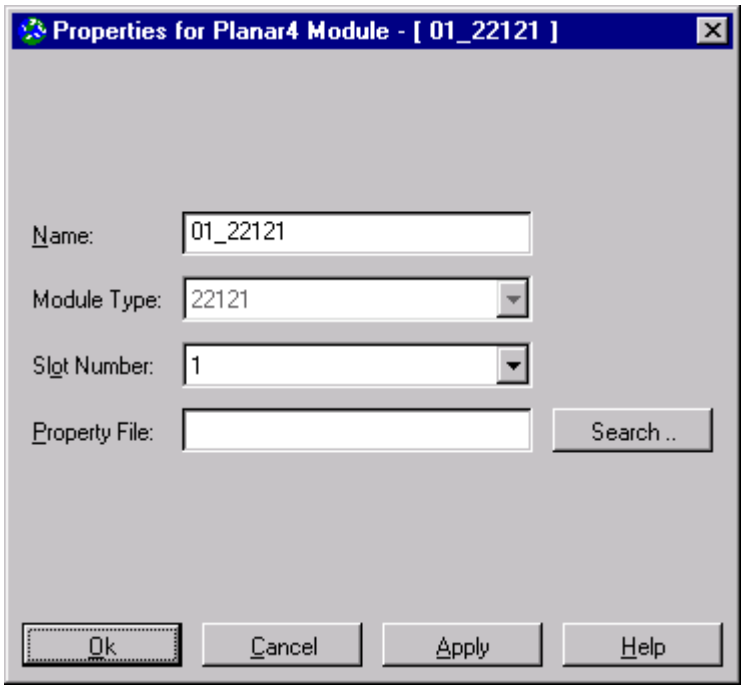
PLANAR4 Property

Enter the name for the PLANAR4 rack in the window **Name**.

Choose the ID-number in the window **Node-ID**. The ID must be identical with the ID, which is configured on the communication card 80102

Enter the path and name for the configuration file in the window **description File.** If there is not entered a name, the HIMA OPC server takes the

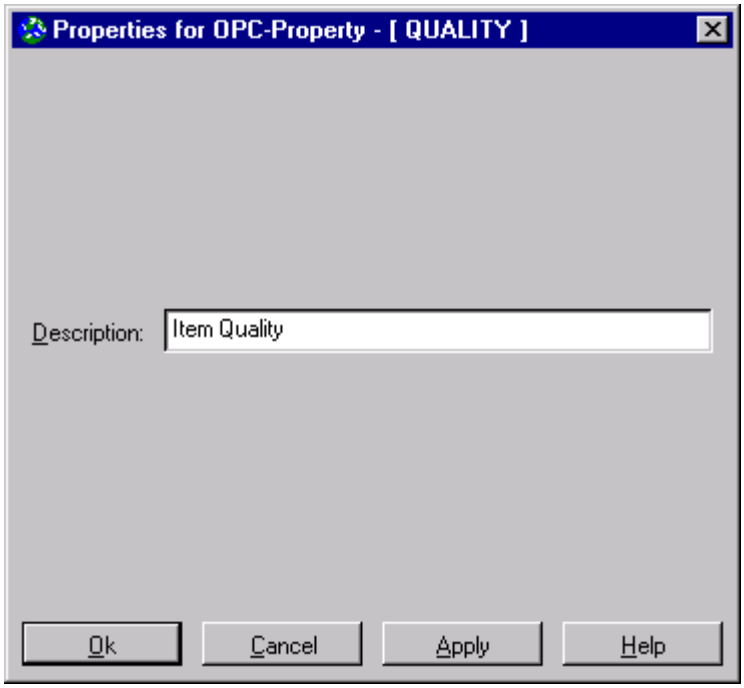
name of the PLANAR4 resource with the extension TXT.



PLANAR4 Card Property

Open the properties of the card and enter the name in the window **Name**.
You see the card type in the window **Module Type**.
Choose the slot number of the card in the window **Slot Number**.
Enter the path and name for the property file in the window **Property File**.
If there is not entered a name, the HIMA OPC server takes the name of the card with extenstion TXT.

20.4 Item Property



Item Property

Here you have the possibility to change the description of the selected Item property.

Menu Mode

21 Test

Set the HIMA OPC server into the test mode. You have to confirm it before.

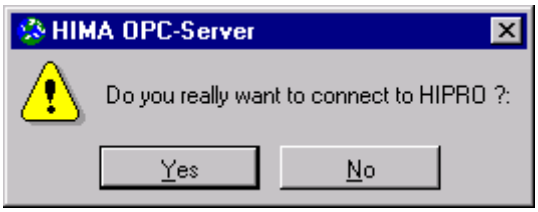
Confirmation test mode

Choose **Yes** for test mode, **No** for cancel.

Clients get the information that the HIMA OPC server is running.

22 Run

Set the HIMA OPC server into the run mode. The HIMA OPC server connects itself with the configured resources. You have to confirm it before.

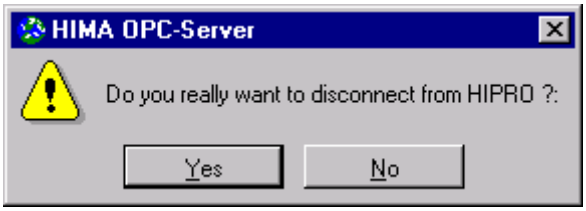


Confirmation run mode

Choose **Yes** for run mode, **No** for cancel.

23 Suspend

Disconnect the HIMA OPC server from the resources.
You have to confirm it before.



Confirmation suspend mode

Choose **Yes** for disconnect, **No** for cancel.

Menu Window

24 Hide

The window closes, but there is an icon in the task bar.

25 Minimize

The window closes, but there is an icon in the task bar and a button.

26 Normal

The window get the standard size.

27 Maximize

The window is set to the maximum size of the screen.

28 Clear message window

Delete all message in the message window.

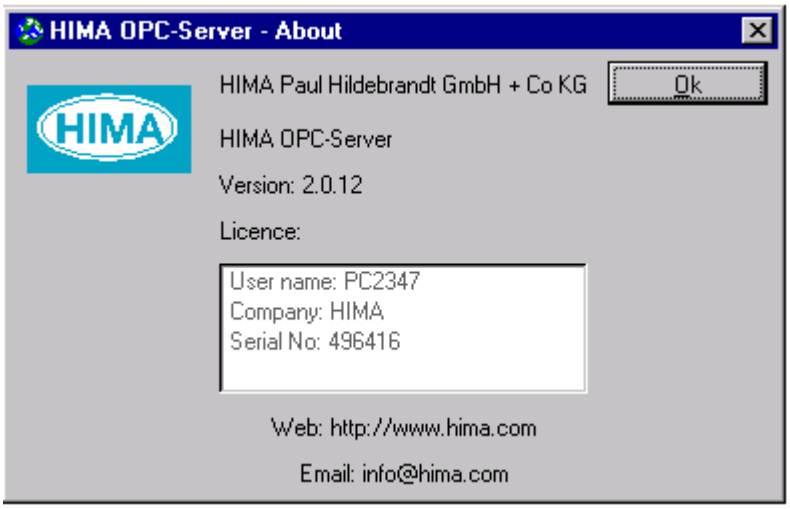
Menu Help

29 Online Help

Open the Online Help.

30 About

Display informations about the HIMA OPC server



About

The OPC Standard

See also www.opcfoundation.org

31 What is OPC?

OPC stands for OLE for Process Control and is based on the Microsoft-developed technology (COM/OLE) for exchanging data between different applications
The aim is to create a uniform software interface that is based on the familiar Microsoft technology and is therefore easy for users to work with. The final configuration should enable communication between very different systems from a wide range of suppliers.
The OPC Foundation was founded in the USA in September 1996 with this purpose. Today the OPC Foundation has more than 150 members from the field of automation.

32 Advantages

OPC offers a simple linking of applications in production and process engineering. With OPC it is easy to couple together process control systems, visualisation systems and controls extending to field devices, for exchanging data.

OPC offers a standard interface for this data exchange. For the PES manufacturer, for example, this means that he must supply an OPC server. Every software manufacturer who has a corresponding OPC client can then access the data of the OPC server.

A system operator can thus choose freely among the hardware and software component suppliers, and place the emphasis on the functional criteria.

33 OPC Standards used

The HIMA OPC server is based on the OPC Standard Version 2.0a. As OPC interface, the HIMA OPC server supplies the functions of the COM Custom Interface.

The following OPC interfaces of the COM Custom Interface are supported by the HIMA OPC server:

- IOPCServer
- IOPCBrowseServerAddressSpace
- IOPCGroupStateMgt

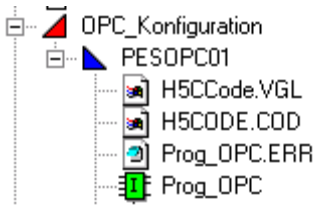
- IOPCSyncIO
- IOPCAsyncIO
- IDataobject
- IEnumOPCItemAttributes
- IAdviseSink (Interface of the OPC client)
- IOPCItemProperties
- IOPCAsyncIO2
- IOPCCommon
- IOPCShutdown

Getting Started

34 PES Systems

34.1 Preparations in ELOP II-NT

The resource name must have 8 characters in ELOP II -NT. The digits 7 and 8 must be a number between 01 and 64.

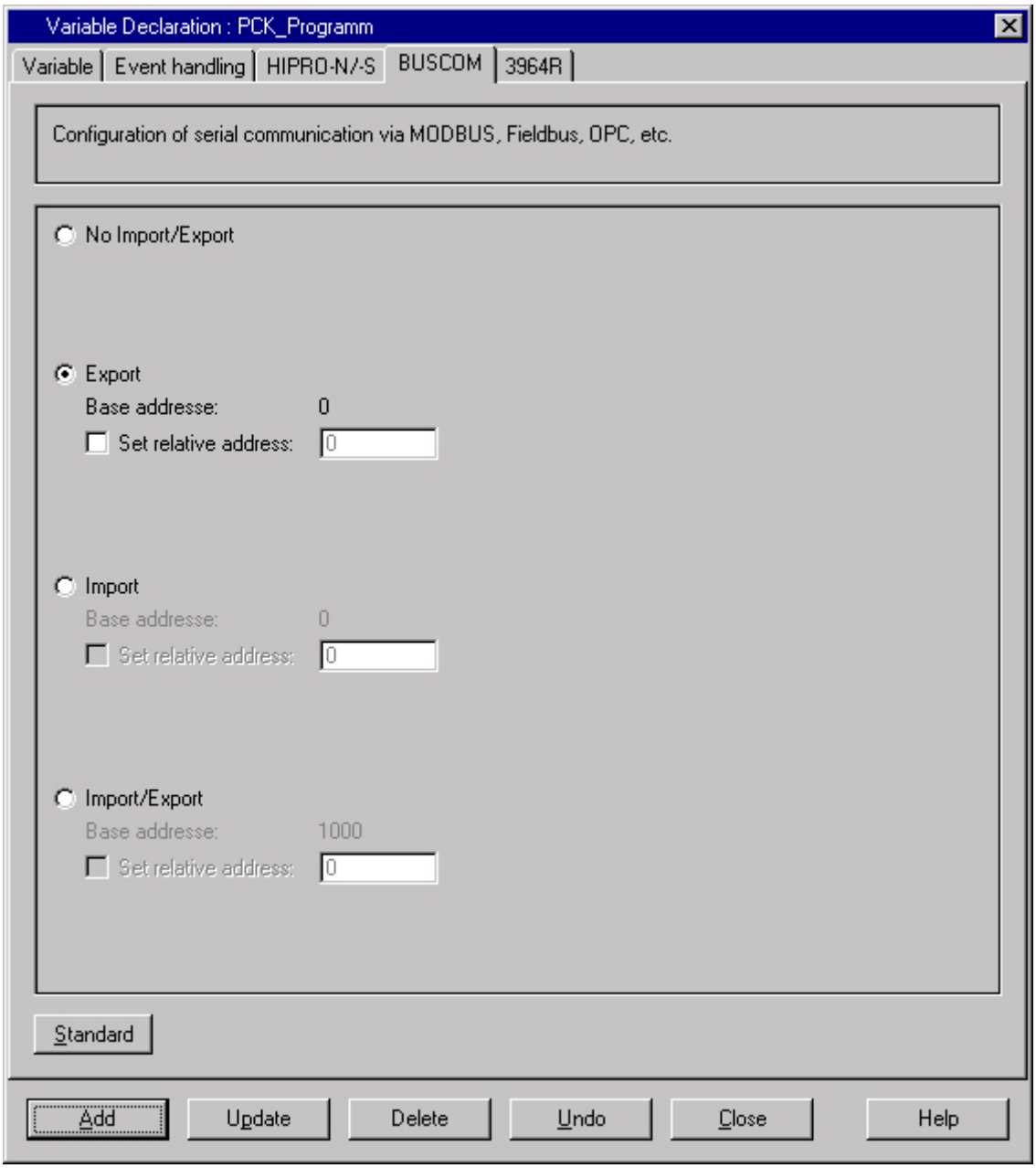


Resource name, Program instance

The variables for the OPC communication are defined inside the program instance. All communication variables get the attribute BUSCOM:

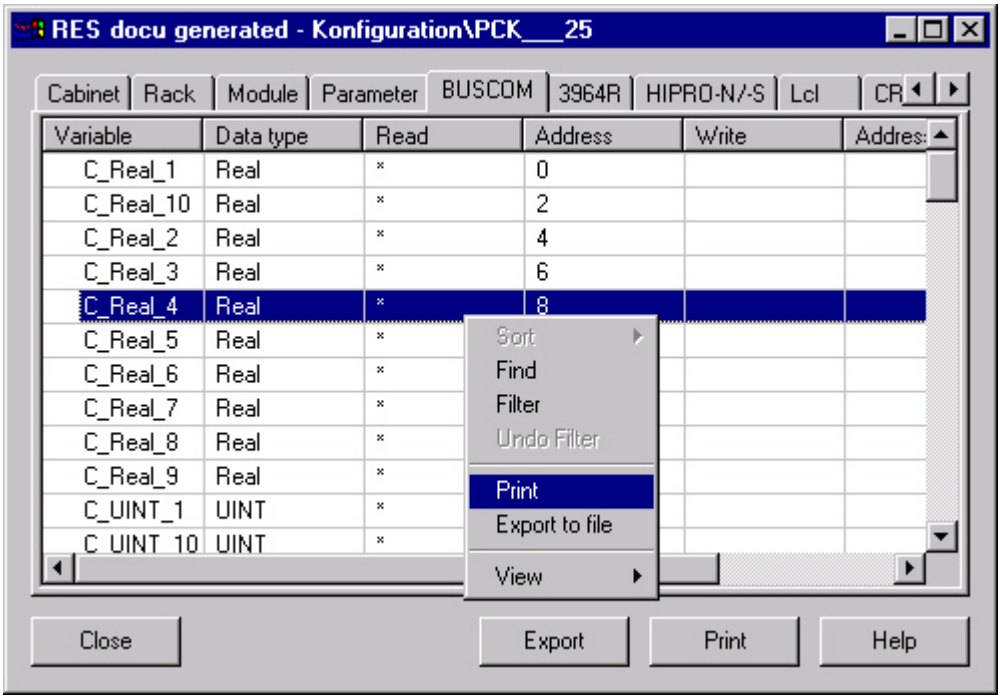
- Export: is read by the HIMA OPC-Server
- Import: is written by the HIMA OPC-Server
- Import/Export: is written and read by the HIMA OPC-Server

Usually the the attribute Export is given for variables which are read by the HIMA OPC server and the attribute Import/Export for variables which are written by the HIMA OPC server.



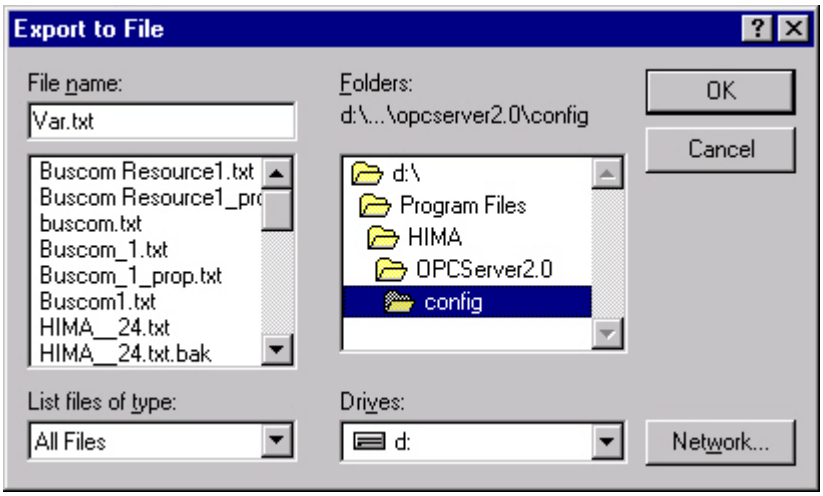
Variable declaration

After the code generation, you can export the BUSCOM-variables into a file out of the resource documentation RES-docu (generated). This file will be read from the HIMA OPC server.



RES-docu generated

Export the file directly into the configuration path of the HIMA OPC server.



Configuration path of the HIMA OPC-Server

34.2 Hardware Settings of the F 8625, F 8627

The computer, where the HIMA OPC server is running, is connected via Ethernet ot the HIMA PES system. So you have an Ethernet connection between the computer and a hub and the hub and the HIMA PES system. Inside the HIMA PES the module F 8625/27 is used for the communication.

The IP-address is calculated out of the resource name (digits 7 and 8) and the channel setting of switch 2/1 on the module F 8625/27.

The IP-address based on 192.168.0.xxx, the last part is calculated as below:
last two digits of resource name X 2 + 1 (S 2/1 = ON, channel 1)
last two digits of resource name X 2 + 2 (S 2/1 = OFF, channel 2)

A HIMA OPC server, which is using channel 1, can be connected only to F 8625/27 modules, which are configured for channel 1, the same is valid for channel 2.

The module F 8627 can be set into the passive mode. Switch S1/8 must be OFF. So it is possible to connect several HIMA PES to the HIMA OPC server without safety related communication. For switching off the safety related communication of a module F 8627 the building block HK-COM-3 is used.

35 PLANAR 4

On the module 80102, 80107 the ID-number is selected. Possible are numbers between 1 and 126.
The IP-address based on 192.168.0.xxx. The last number is calculated with help of the ID:
ID-number X 2 + 1 (channel 1)
ID-number X 2 + 2 (channel 2)

36 Configuration of the HIMA OPC server

36.1 OPC server

The HIMA OPC server needs one Ethernet card inside the computer for a communication via one line. A second card is necessary for a redundant connection.
In case of a redundant connection the Ethernet cards must have the same ID.

Node ID	IP addresses
107	192.168.0.215, channel 1
107	192.168.0.216, channel 2
108	192.168.0.217, channel 1
108	192.168.0.218, channel 2
109	192.168.0.219, channel 1
109	192.168.0.220, channel 2

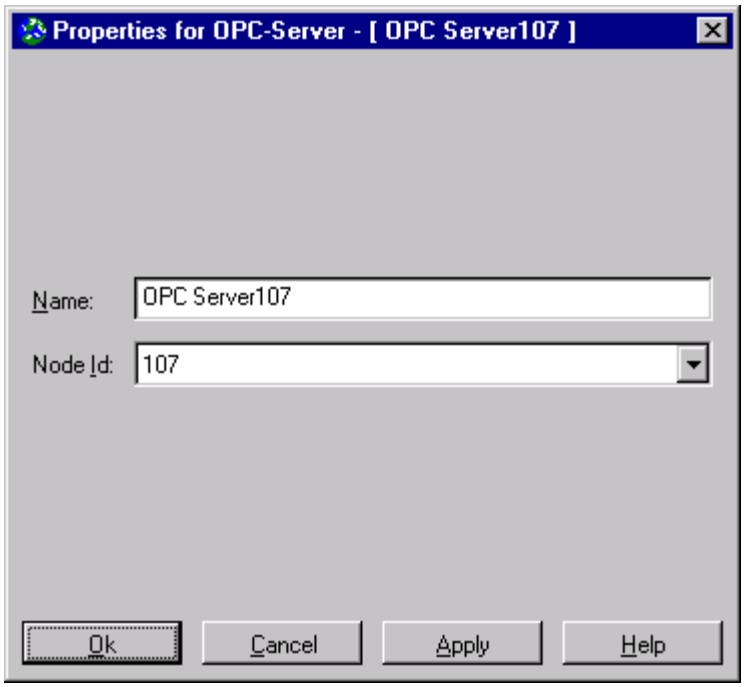
Tabelle 39: Node IDs of the HIMA OPC server

Node ID	IP addresses
110	192.168.0.221, channel 1
110	192.168.0.222, channel 2
...	...
120	192.168.0.241, channel 1
120	192.168.0.242, channel 2

Tabelle 39: Node IDs of the HIMA OPC server

Other IP-addresse as listed above are not allowed. Node IDs higher than 110 can only be used with the communication module F 8627 with operating system version 3x or higher (H41q/H51q).

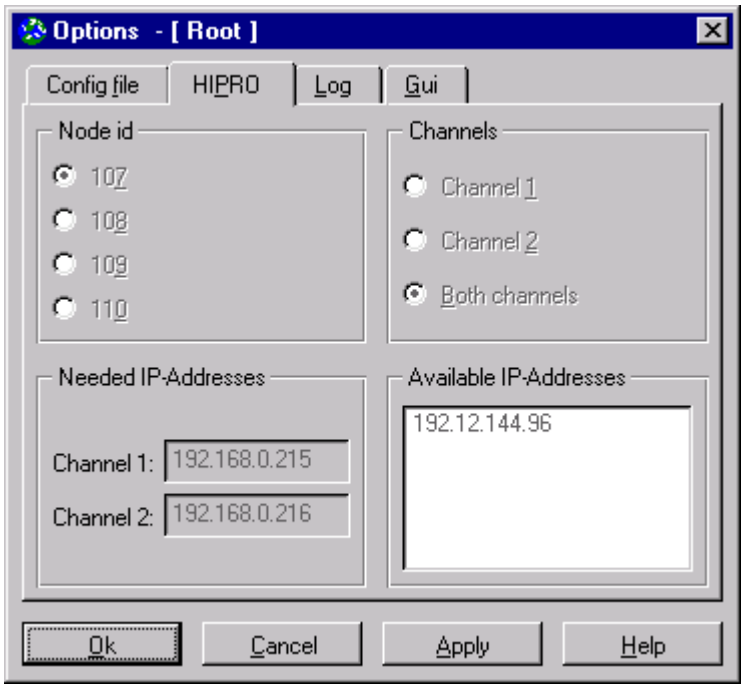
Start the HIMA OPC server and add a new OPC server (function **Insert**) Choose the OPC server and open the **Properties.**



Properties OPC server

Define the name of the OPC server in area **Name** and select the **Node_Id** for the OPC server. See table above. Configure this IP-address for your Ethernet card.

For the configuration of the HIMA OPC server open **Options**.



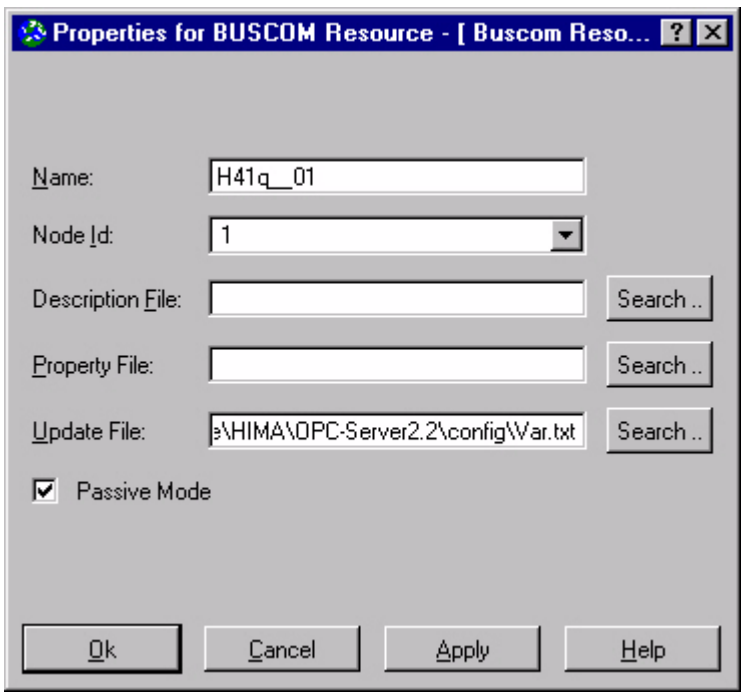
Options

Configure the Node ID and the IP-addresses on page HIPRO and selected the channels for the communication.

Close the **Options** with **Ok** and close the HIMA OPC server. After this start the HIMA OPC server again

36.2 Add a PES resource

Select the root and use the function **Insert** for adding a new Buscom Resource. Then select the new resource and open the **Properties.**

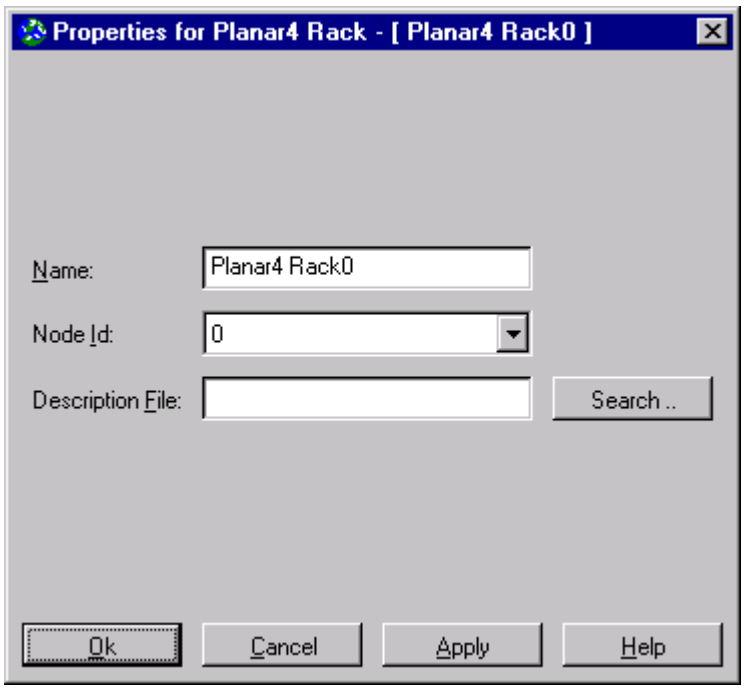


Properties Buscom resource

Put in the name in the area **Name**. Usually the resource name out of ELOP II-NT is used. But you can use any name you want.
In the area **Node Id** select the ID-number of the resource. This number must be identical with the last two digits of the resource name of ELOP II-NT.
In the area **Update File** put in the name and the path of the buscom export file. See above.
Close the window with Ok and use the function **Update**. The communication will start, if the connection to the PES exists.

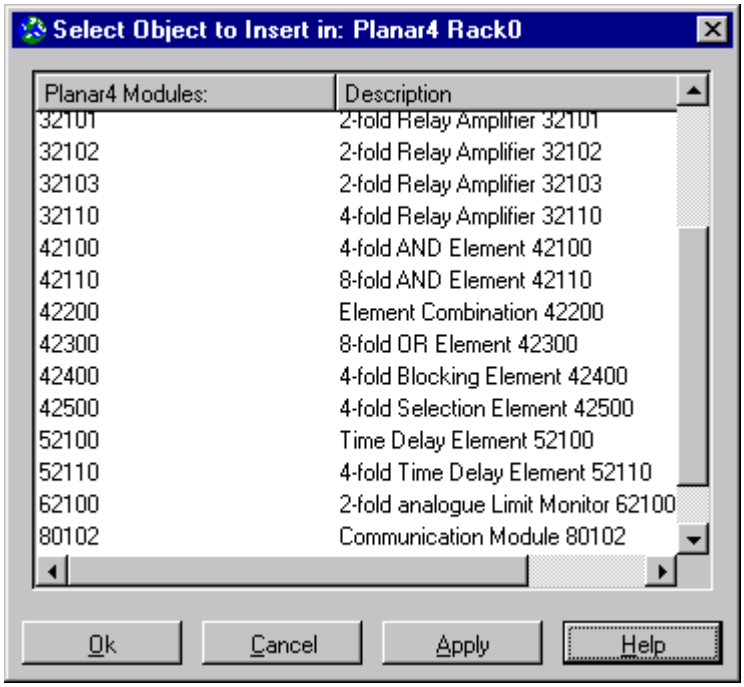
36.3 Add a PLANAR4 resource

Select the root and use the function **Insert** for adding a new Planar4 rack. Then select the new Planar4 rack and open the **Properties.**



Properties Planar 4 rack

Put in a name for the PLANAR 4 rack in the area **Name**. In the area **Node Id** choose the ID-number, which is selected on the module 80102, 80107.
Close the window with **Ok**.
Select the PLANAR4 rack and use the function **Insert** for adding a new modules.



Add a Planar4 module

Inside the **Properties** of the module, you define the name and the slot, where the module is inserted. All the variables of the module will be inserted automatically. The communication will be started. The communication will be initialized with a new start of the HIMA OPC server.

Note:
After adding new resources or planar 4 racks and modules, you must save the configuration before closing the HIMA OPC server.

37 General Notes

- One HIMA OPC server with several HIMA PES
  In case of using F 8625, a safety related communication between the HIMA PES is necessary.
  In cas of using F 8627, it is possible to set the module F 8627 (S1/8=OFF) into passive mode. Also the HIMA OPC server (properties of the ressource) has to set into passive mode
- Node IDs higher than 110 can only be used in the H41q/H51q together with the communication module F 8627 with the operating system version 3x or higher.
- HIMA OPC server and Siemens protocol 3964R
  It is not possible to use the Siemens protocol 3964 R and the communication to the HIMA OPC server.

From:
Company:

Name:
Dept.:
Address:

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Date

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Dear reader,

we are always eager to keep our manuals up to date and to avoid errors. But if you have found an error in this manual, or if you want to make suggestions for improvements, also for the HIMA products, we would be very grateful to you.
Please use therefore just this page or a photocopy of it and send it to us by post or by fax.
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