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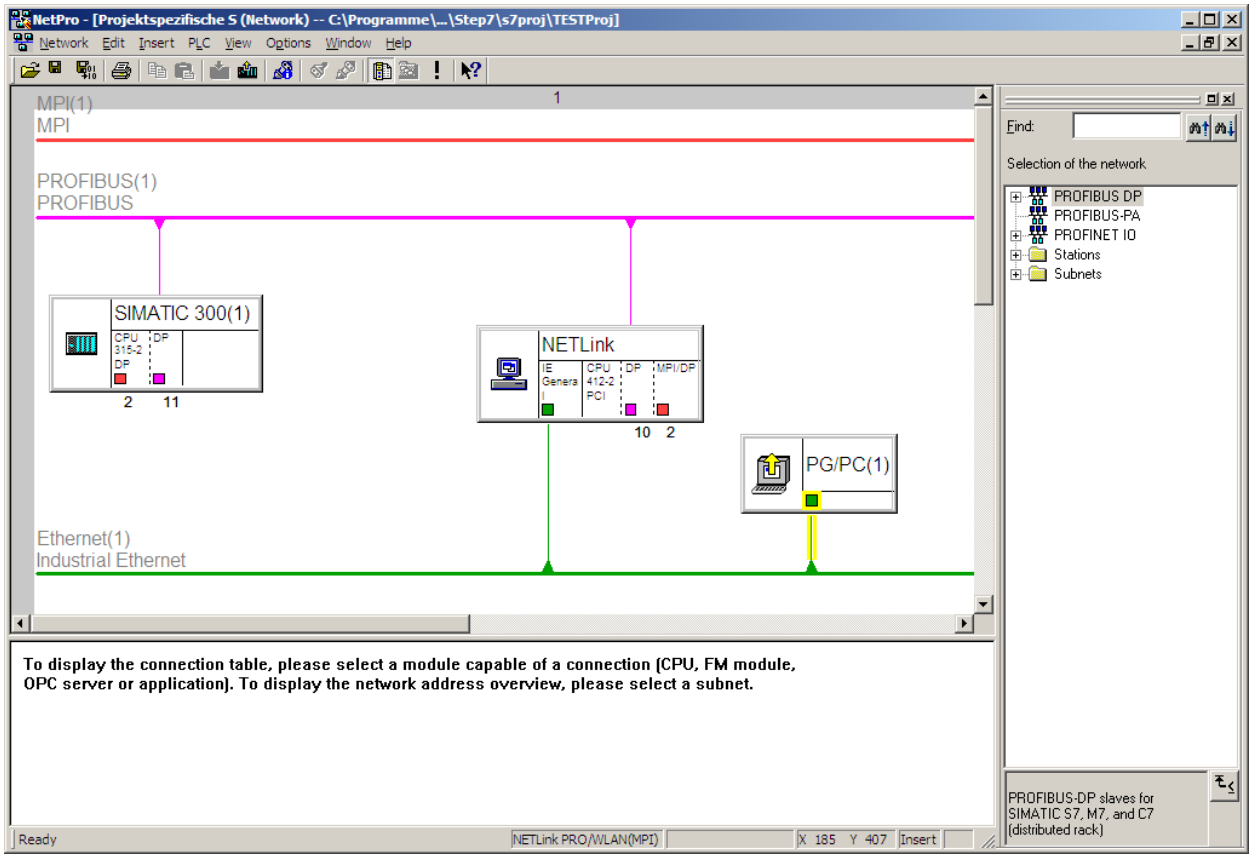
NETLink® PRO Family

Example of Expanded NETLink® Functions

Project-Specific Interface

Edition 4 / 13.10.2016



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Notes

To download the latest version of this manual, please visit our website at www.helmholz.com. We welcome all ideas and suggestions.

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Revision history of this document:

Edition	Date	Revision
1	13.07.2009	First edition
2	07.04.2010	Customize the PRO family
3	14.11.2011	Added TIA example
4	13.10.2016	Customize IP-Address

Contents

1 Overview

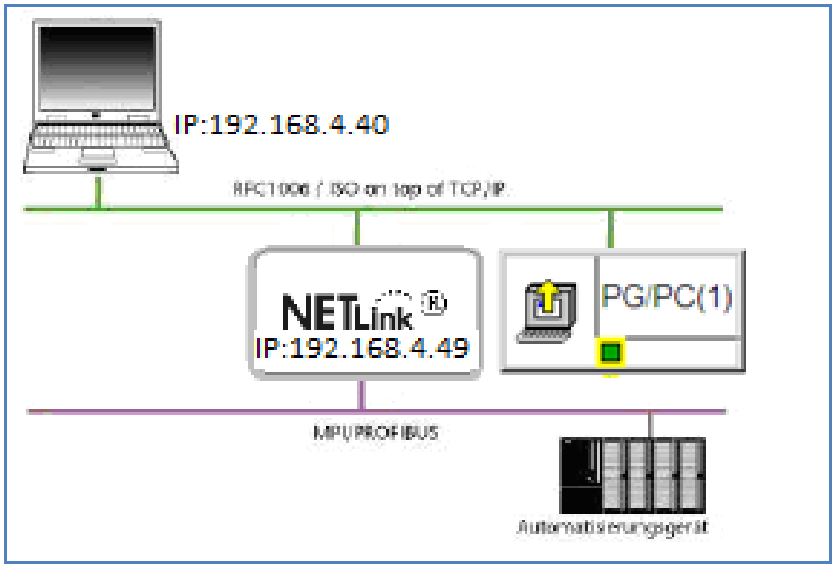
1.1 Application and function description

This document is intended as a supplement to NETLink® PRO family products.

You frequently come across applications that demand permanent installation of a NETLink® in an Ethernet. Access to the various permanently installed controllers from one central point is complicated because the access point has to be altered in the NETLink® S7 Net driver every time.

A new integrated function has been provided to make this easier. The interface can now be stored in the project from the NETLink® firmware releases 1.56 or 2.14, so that the PG/PC settings depend on the project in question.

The following pages describe how you can implement this kind of connection. The instructions refer to a structure with the here shown components and the used example IP addresses.



It is a precondition of using the project-specific interface that the RFC1006 function has been activated in the web interface (see Section 2).

In some newer firmware versions of the NETLink® product line the *"RFC 1006"* function is always active. What versions are effected, can be found in the appropriate historical texts of the adapter.

1.2 Information in the figures

Please pay attention to the 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

All the examples described here require the prior activation of the RFC 1006 functionality.

A detailed description is also given in the NETLink® manual! Maybe there is already a firmware installed in your NETLink® for which this manual setting is no longer necessary.

2.1 Requirements

The NETLink® Ethernet gateway is connected to the PC via a network card. The STEP 7 software is also installed on this PC. The function of the web interface must be activated (by default). It is accessed via one of Internet browsers (for example, Mozilla Firefox, Opera, Konqueror).

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 3.

2.2 Adapting the configuration side

As of NETLink firmware version 2.30 the RFC 1006 function is always active!

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

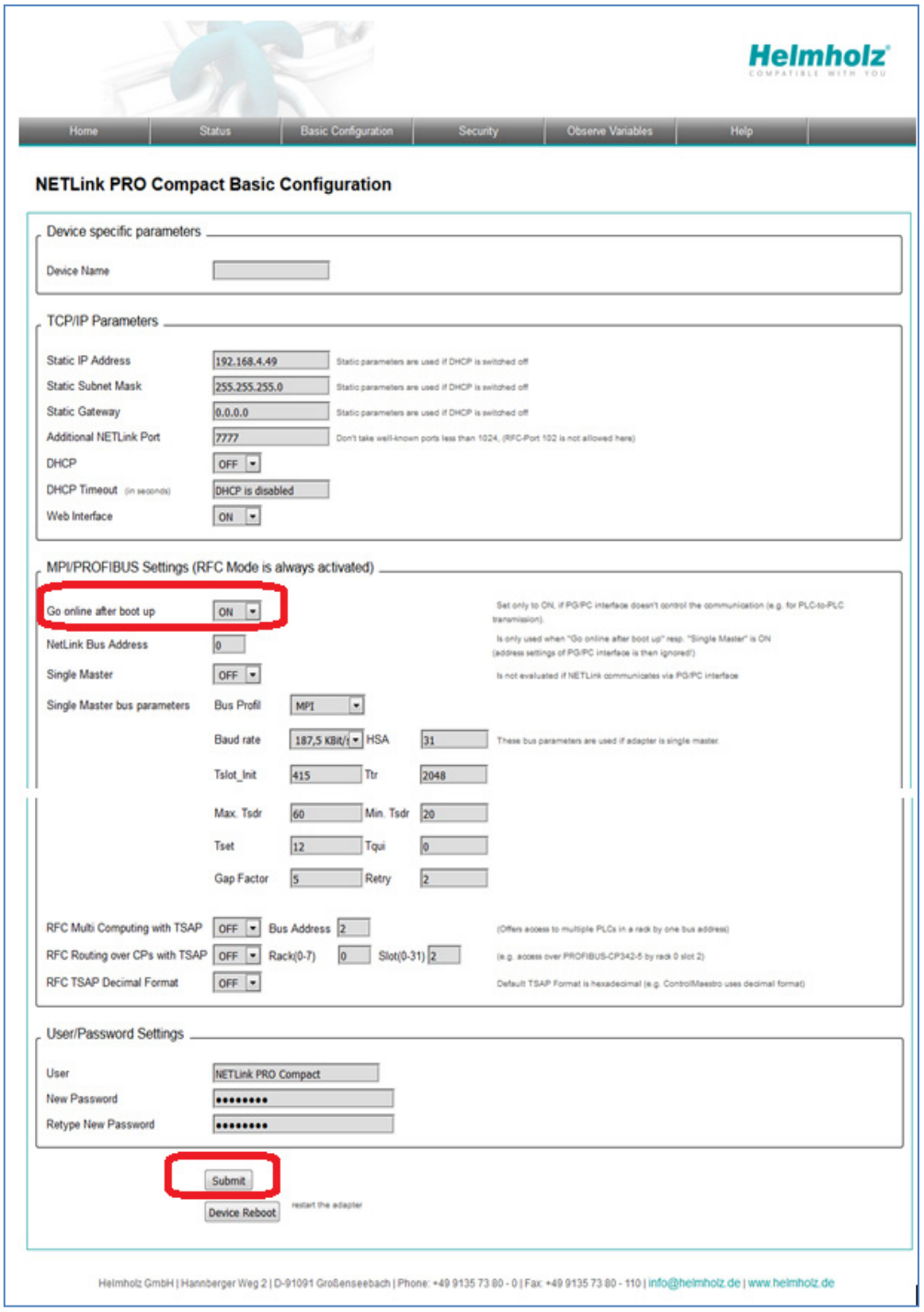
The *"RFC 1006 Interface ON/OFF"* option is activated by entering *"ON"* and confirming with the *"OK"* button (see Fig.)

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

The following screenshots were created with NETLink® PRO. The settings can also be made in all NETLink® Ethernet variants.

Configuration user interface of the NETLink® PRO:

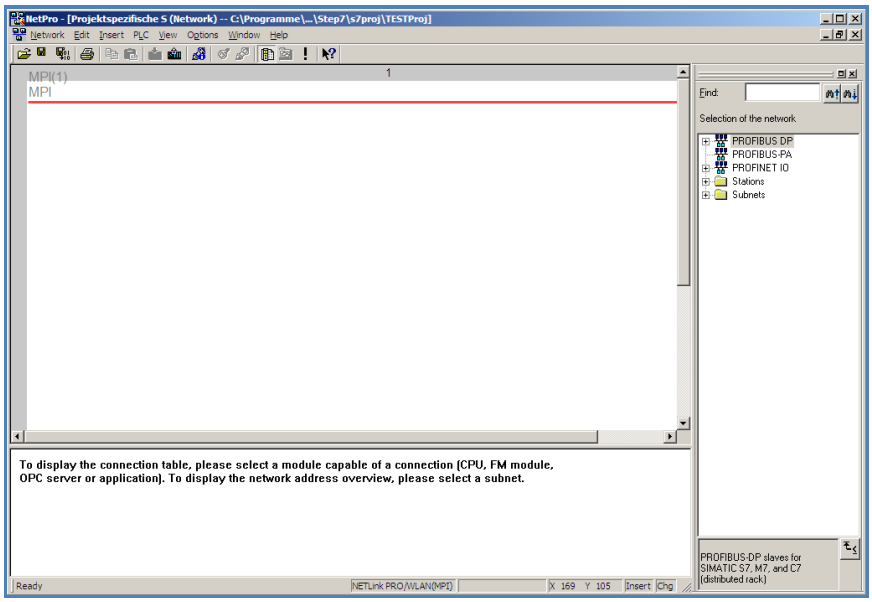
Rebooting can take up to 15 seconds.



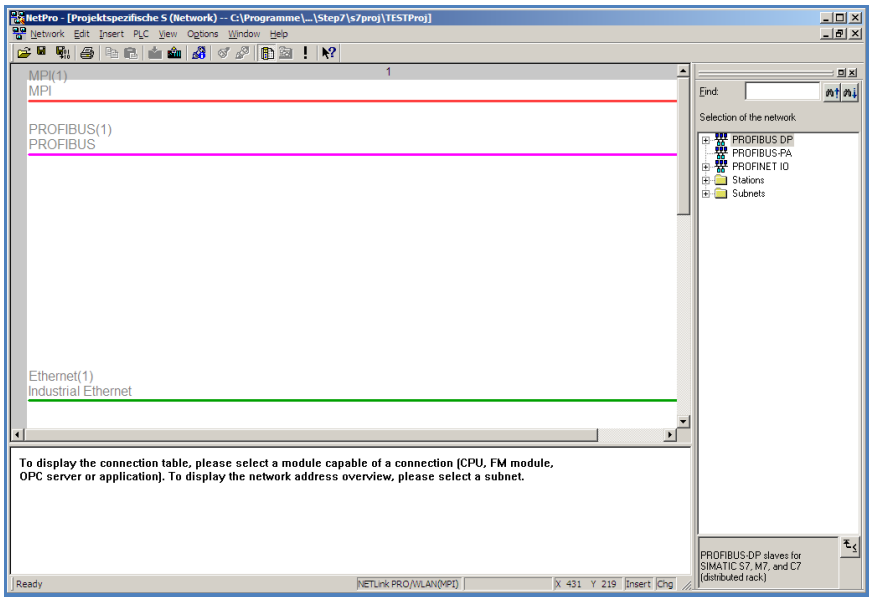
After the new parameterization data have been stored, the NETLink® PRO is restarted to activate the new configuration.

3 Settings in STEP 7 NETPro

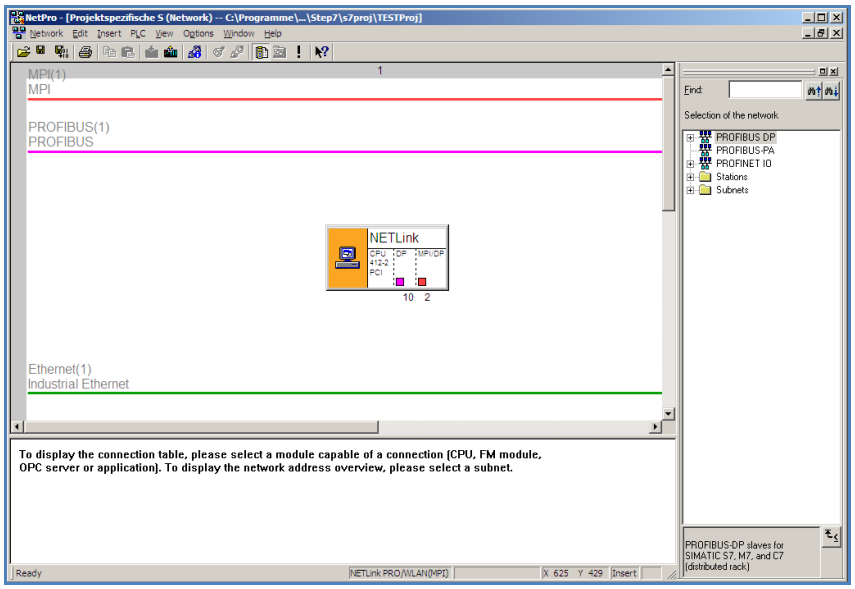
1. "*NETPro*" from Siemens is required for configuration, as shown below.



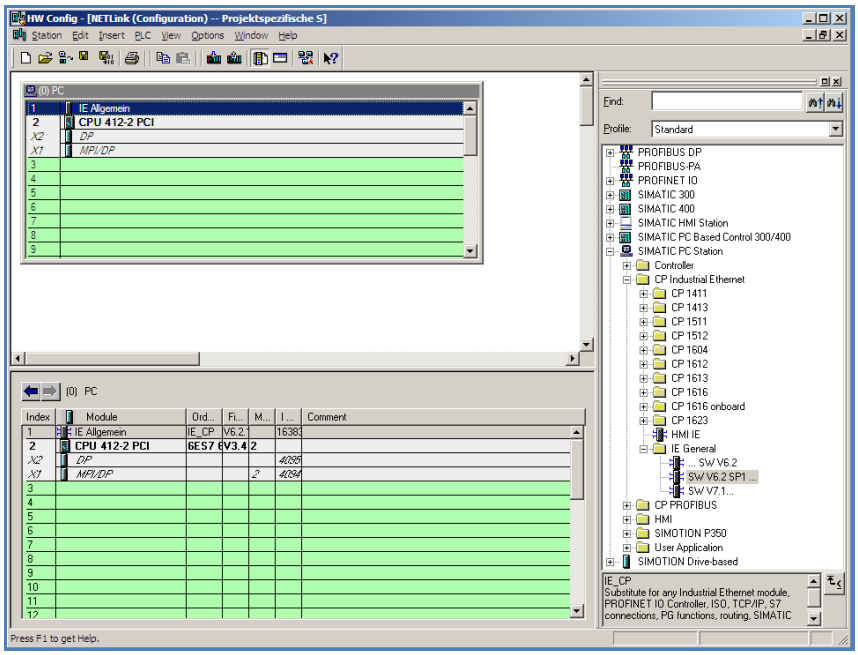
2. Now, a PROFIBUS and Industrial Ethernet subnet must be created.



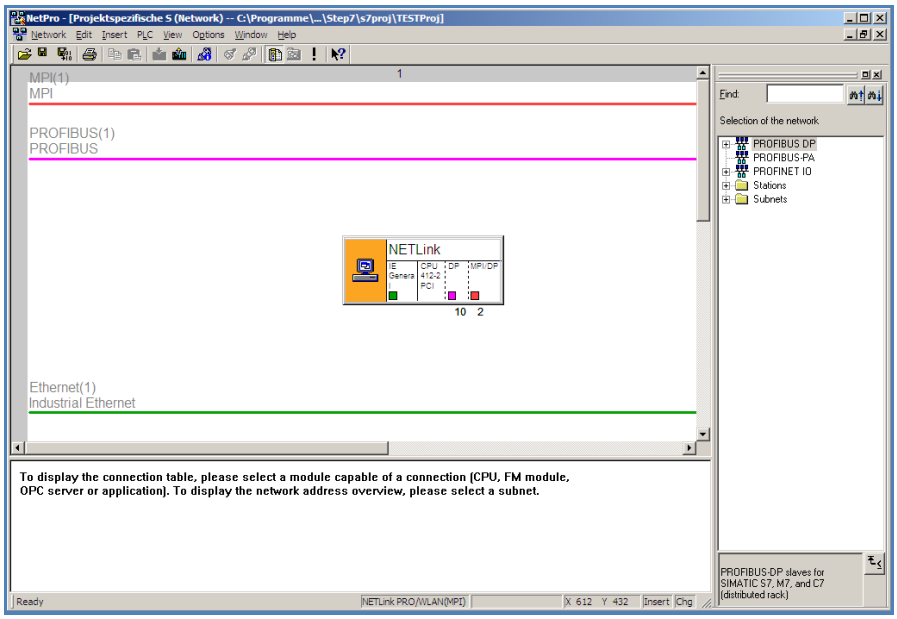
3. And now it is necessary to insert a “*PC station*”. This can be found under “*Stations -> Simatic PC Station*” in the catalog of NETPro. A CPU 412-2 PCI (6ES7 612-2QH00-0AB4 V3.4) must be integrated into this “*PC Station*”. You can also skip steps 3 to 4 if you use the import function of “*NETPro*”. You will find a ready-configured NETLink® Station on the NETLink product CD.



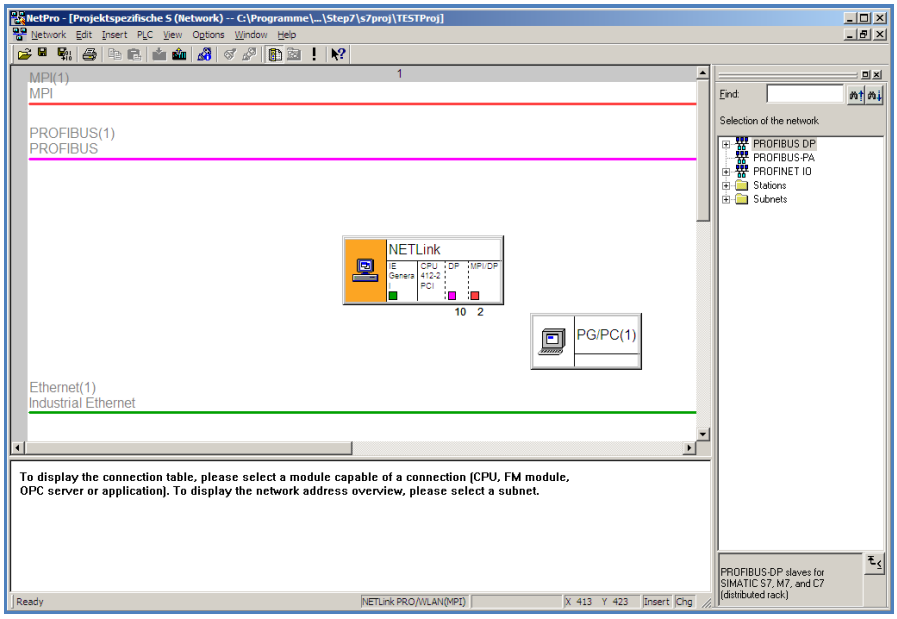
4. An “*IE_CP V6.2.1 (IE General)*” must be integrated into the “*PC station*”. This must be done using the hardware manager. You will find this under “*Simatic PC Station -> CP-Industrial Ethernet -> IE General -> IE_CP SW V6.2 SP1*”



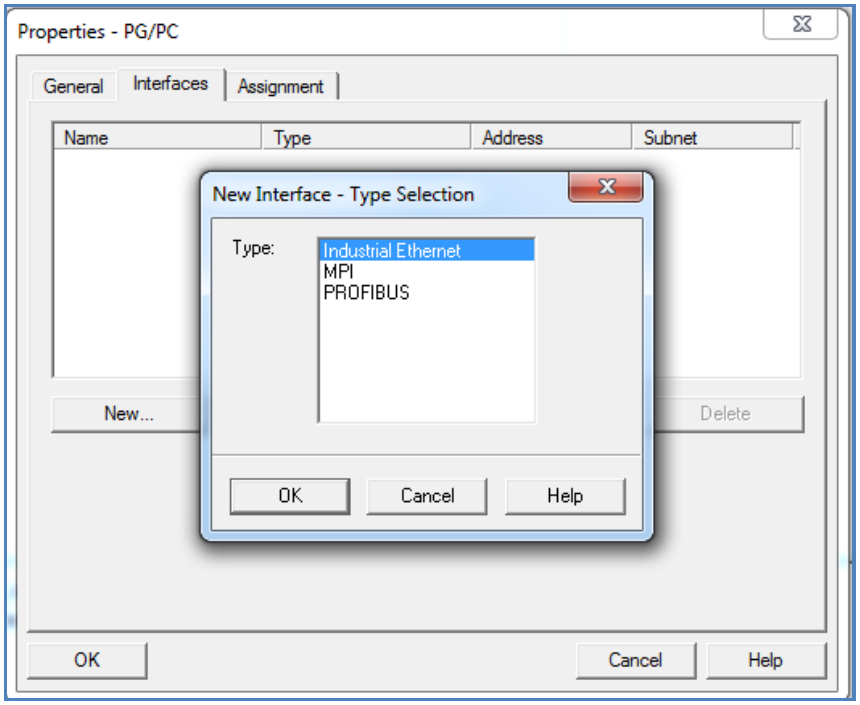
5. The completed station can now be saved and will appear in *"NETPro"*.



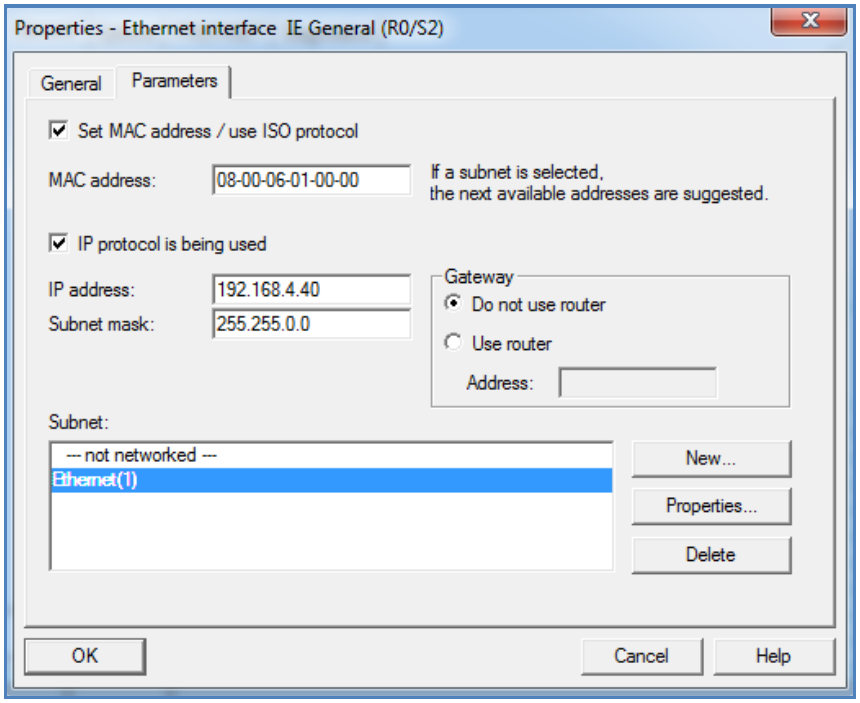
6. Now a *"PG/PC Station"* is inserted that can be found under *"Stations -> PG/PC"*.



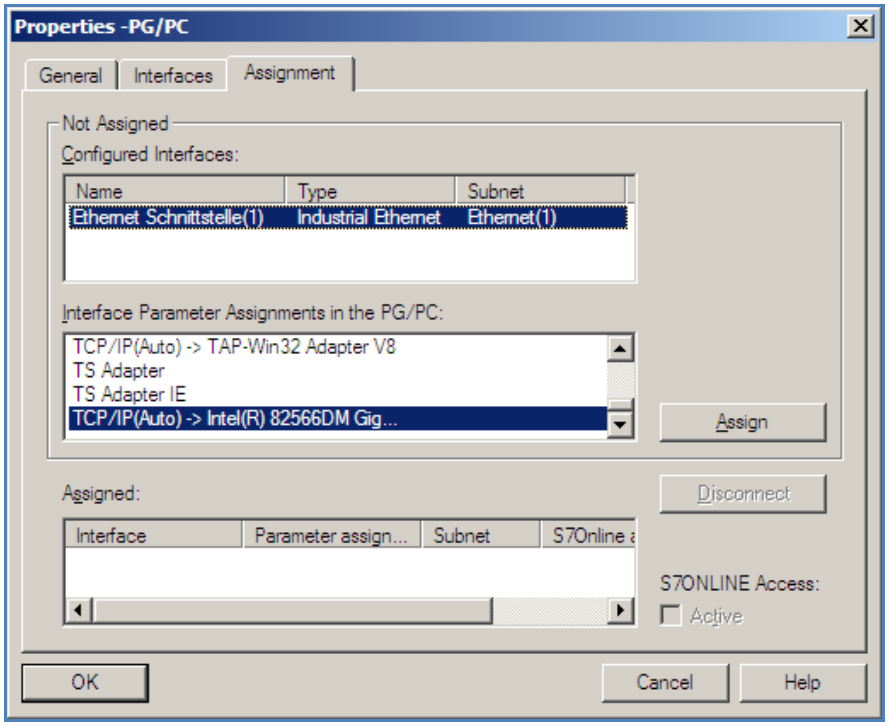
7. Double-clicking the "*PG/PC station*" displays its properties window. This interface must be added there under "*Interfaces -> New… -> Industrial Ethernet*".



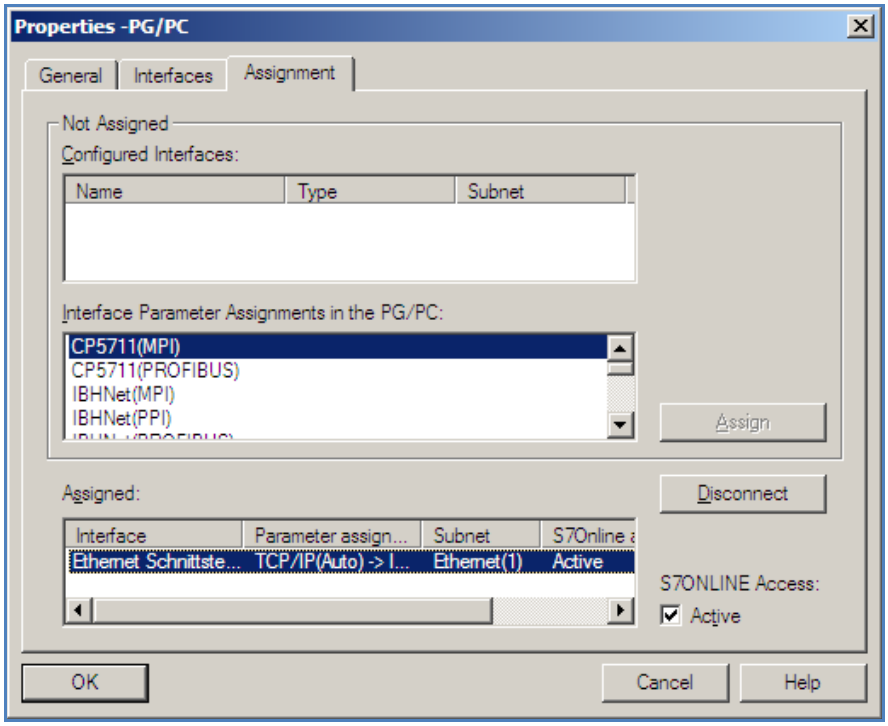
8. A window then appears in which the "*Industrial Ethernet*" settings must be made for the PC (IP / subnet mask). The subnet must also be set ("*Industrial Ethernet*", to which the NETLink® is connected)



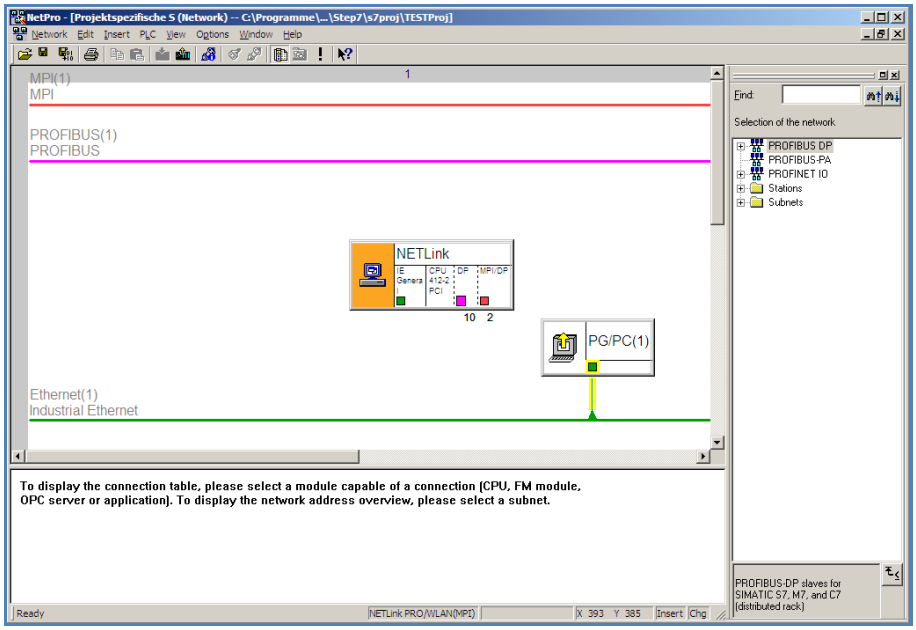
9. Now look for the configured interface Ethernet Interface on the "*Assignment*" tab card and link it with "*TCP/IP(Auto) -> xxx*" (LAN card used) using the "*Assign…*" button.



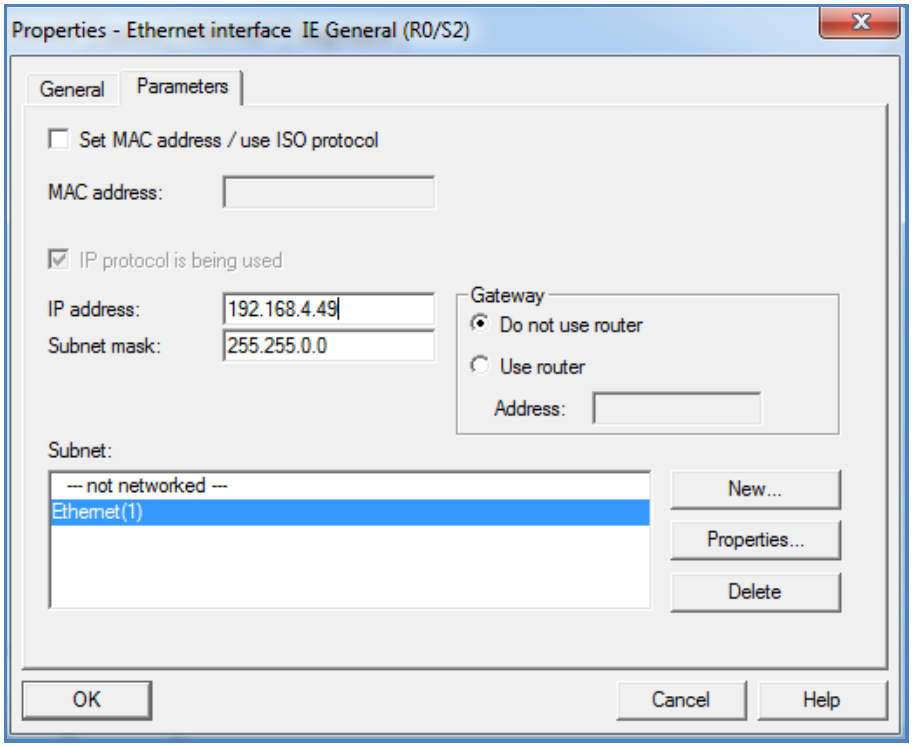
10. After the configured interface as been assigned, the window should look like this.



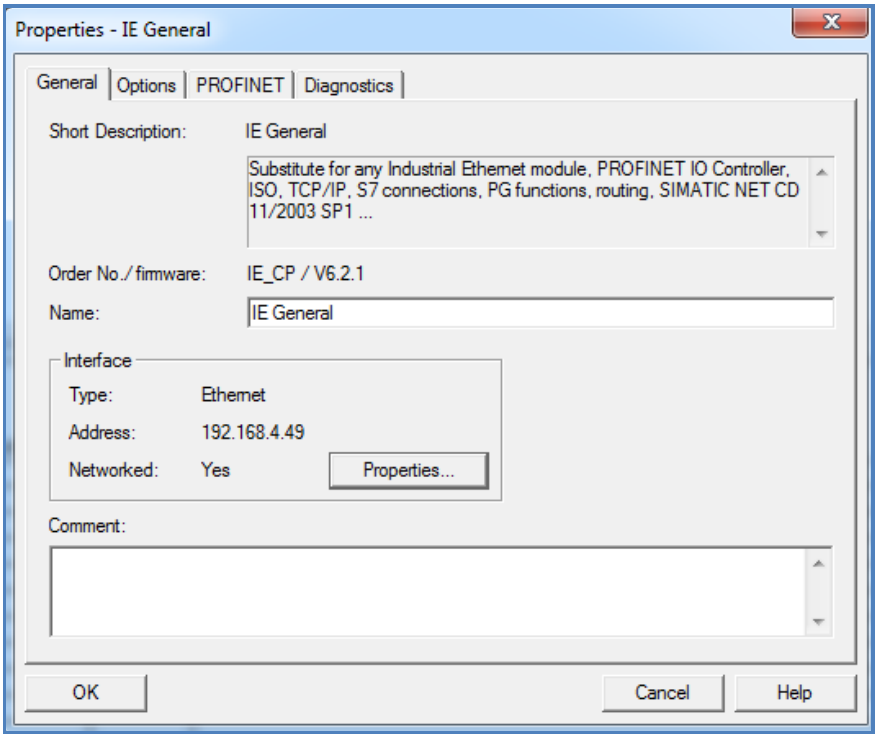
11. Now the “*Industrial Ethernet*” is connected to the “*PG/PC*”.



12. Then the PC station (in this case: NETLink®) must be configured by double-clicking “*IE General*”.

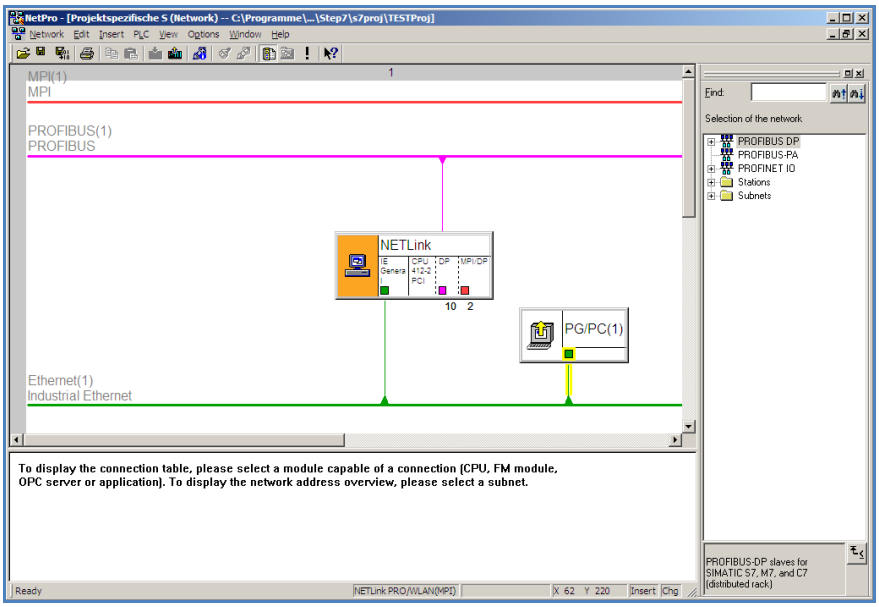


13. A click on “*Properties…*” parameterizes the interface. The IP and subnet mask have to be entered here. The subnet to which the “*PG/PC*” is connected must also be selected.



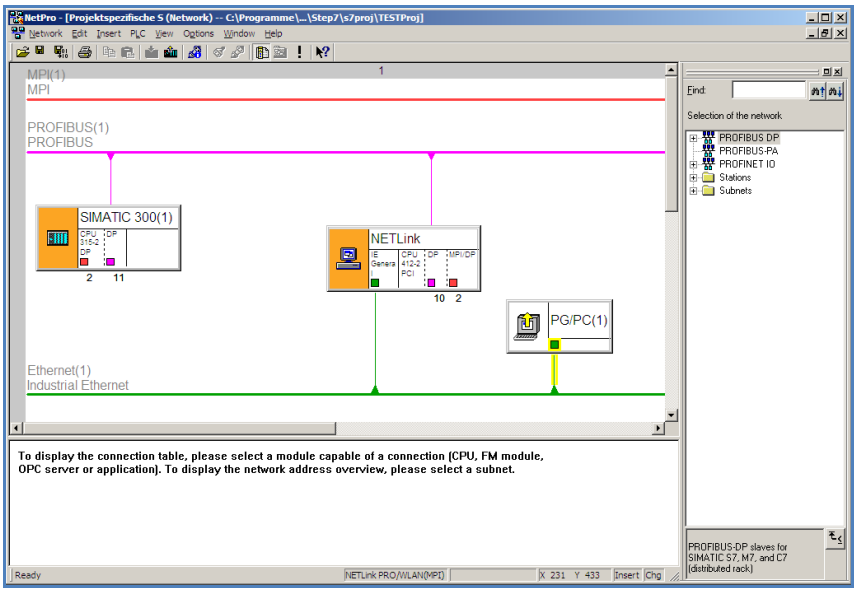
The IP-Address of NETLink adapter must be parameterized here.

14. The main window of “*NETPro*” now likes like this:

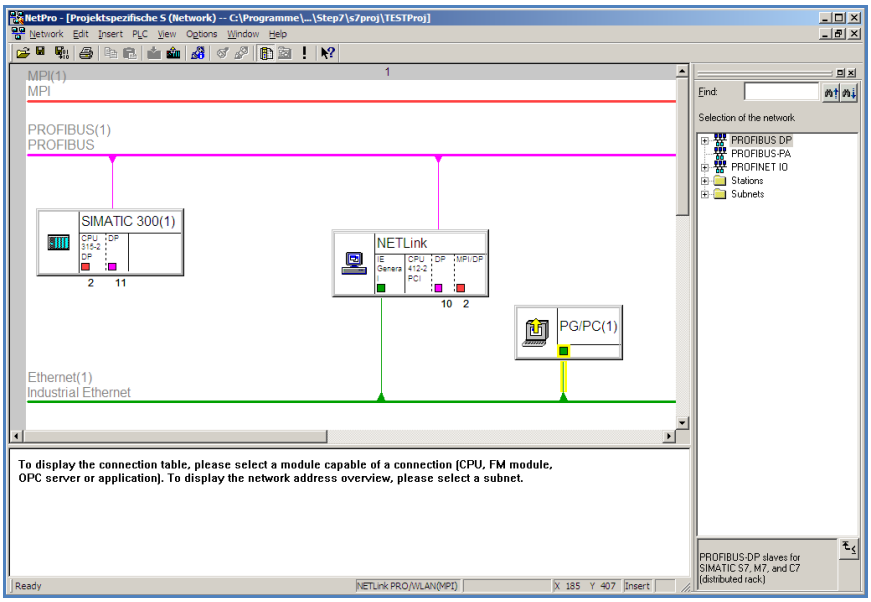


If everything has worked, (“*TCP/IP(Auto) -> xxx (network card*”) will be entered as the “*PG/PC*” interface on the bottom line. Now it is necessary to assign a bus address (PROFIBUS in this case) to the DP or MPI interface of the NETLink® and to connect this with the subnet.

15. Now a CPU can be added to the corresponding subnet as required. “*CPU 315-2 DP*” is this example



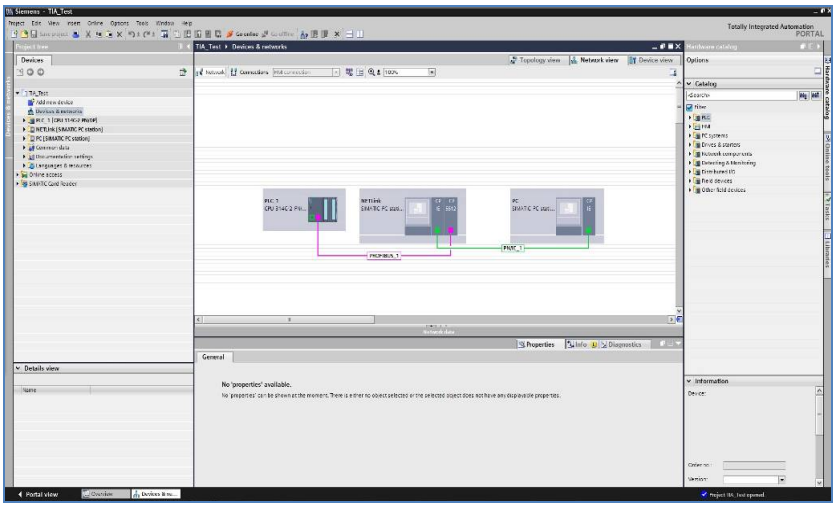
16. Then the project has to be saved and compiled.



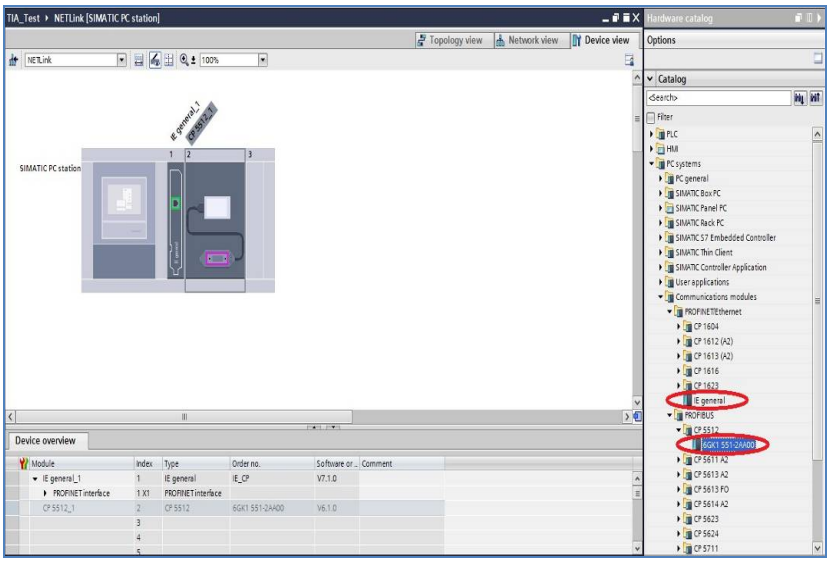
17. The connection to the CPU is possible from the STEP7 project.

4 Settings with the TIA-Portal Software

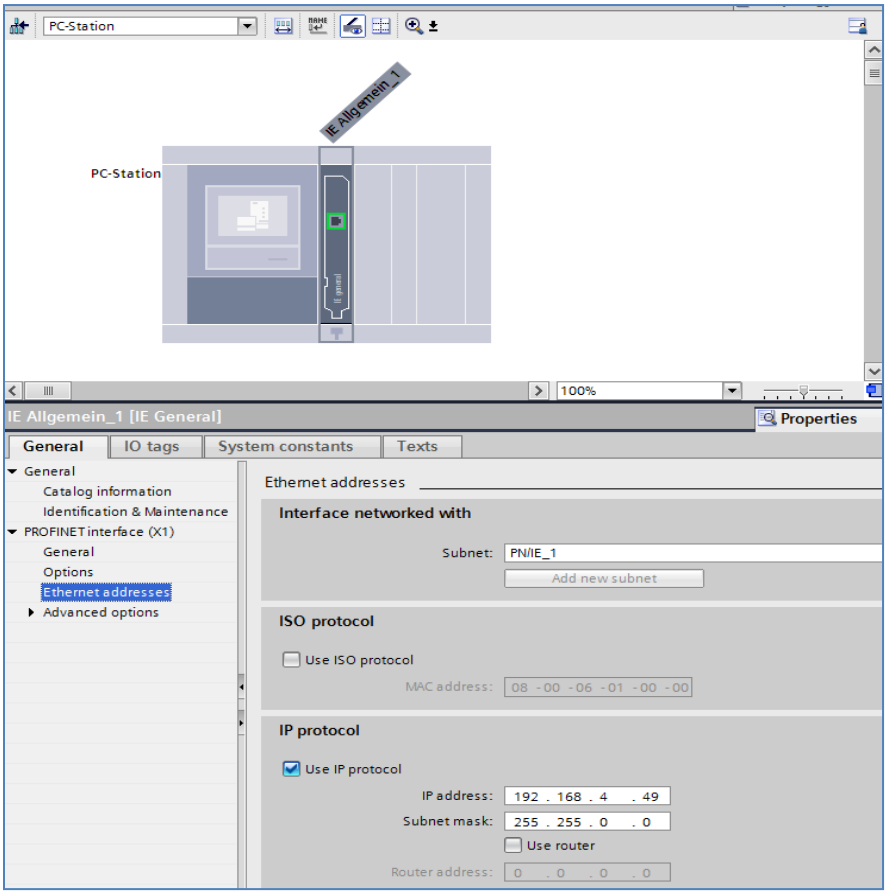
1. Before you begin with your configuration, a new project in TIA-Portal has to be created. After that you switch to the Project view (at bottom left-hand side). With a double-click Devices & networks the needed stations can be created and configured.



2. At first it is necessary to add a *"PC system"*, which can be found in the Hardware catalogue under *"PC systems -> Communications modules -> PROFINET/Ethernet -> IE general"*. Now a CP 5512 has to be added in the PC station. This CP (6GK1 551-2AA00) is in the Hardware catalogue under *"PC systems -> Communications modules -> PROFIBUS -> CP 5512"*.

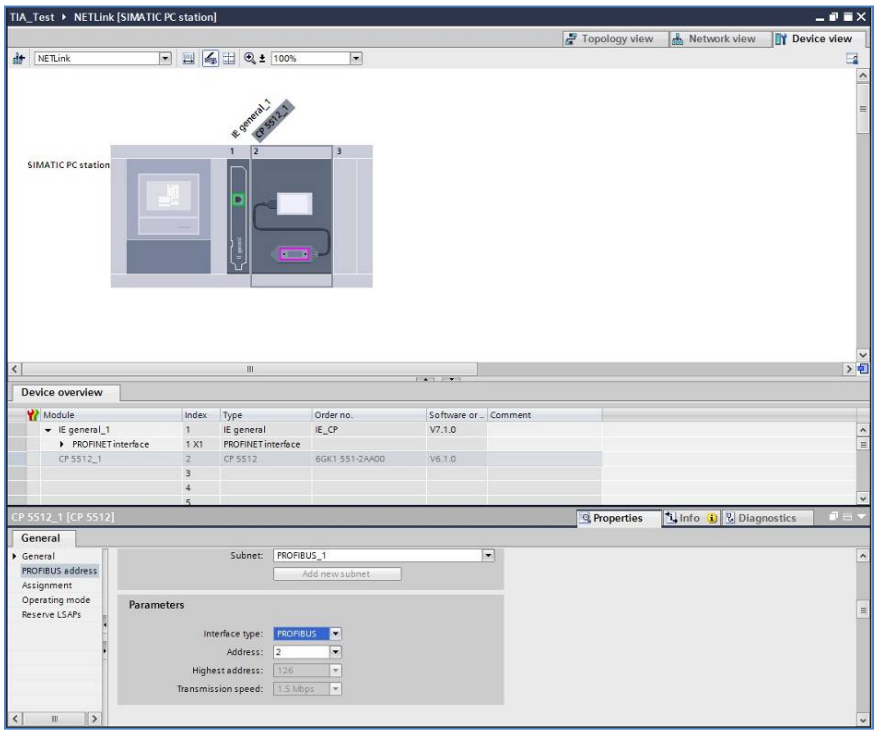


3. After step 2 the Ethernet interface is configured. Here the IP-address of your NETLink Device is entered. Then the Ethernet interface has to be connected with the Ethernet subnet. But you have to add first a new Ethernet subnet and then you can choose it.



Here the IP-address of the NETLink device has to be entered.

4. With a click on the PROFIBUS/MPI interface of the CP you can configure this interface. At the Interface type you can choose the type you want and enter the bus address your NETLink.

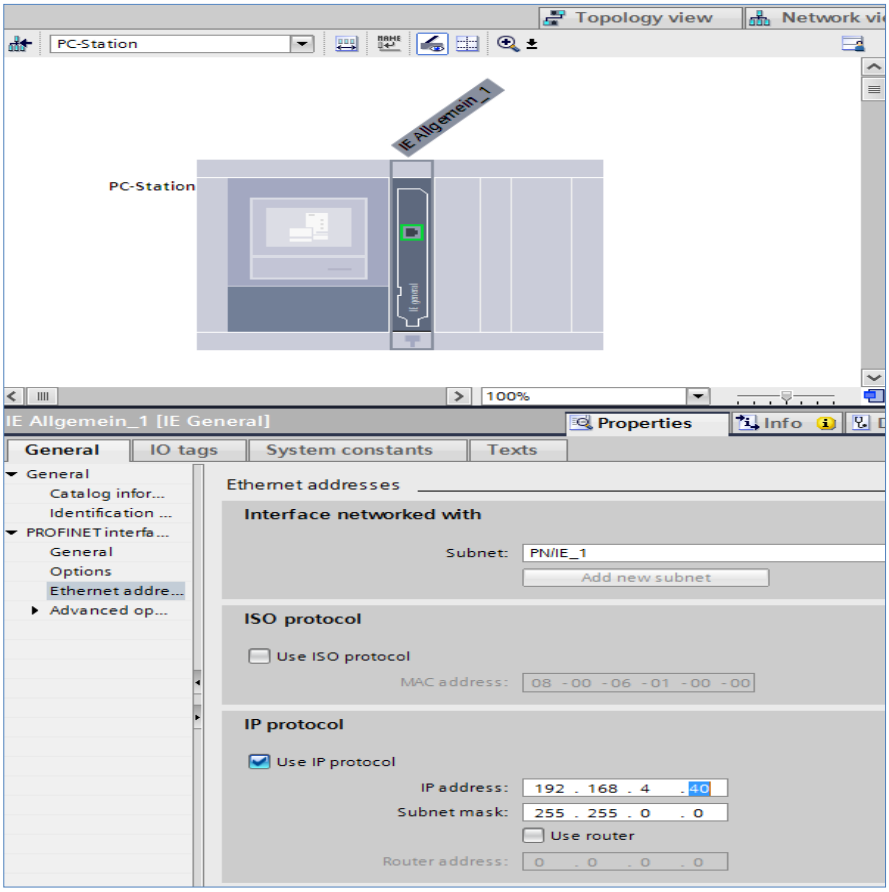


Here the PROFIBUS/MPI-address of your NETLink device has to be inserted.

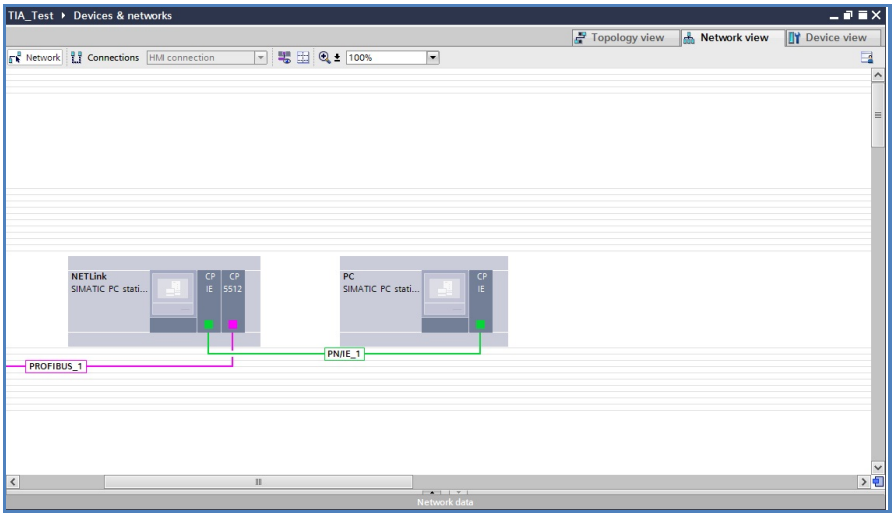
5. Next the PC itself with which you connect on the PLC is being added. This happens again with a PC station *"IE general"* (see step 2 where it is found in the Hardware catalogue).

6. Now the Ethernet interface can be configured under *"Properties"*. After entering the IP-address of the PC, you have to connect this interface with the subnet.

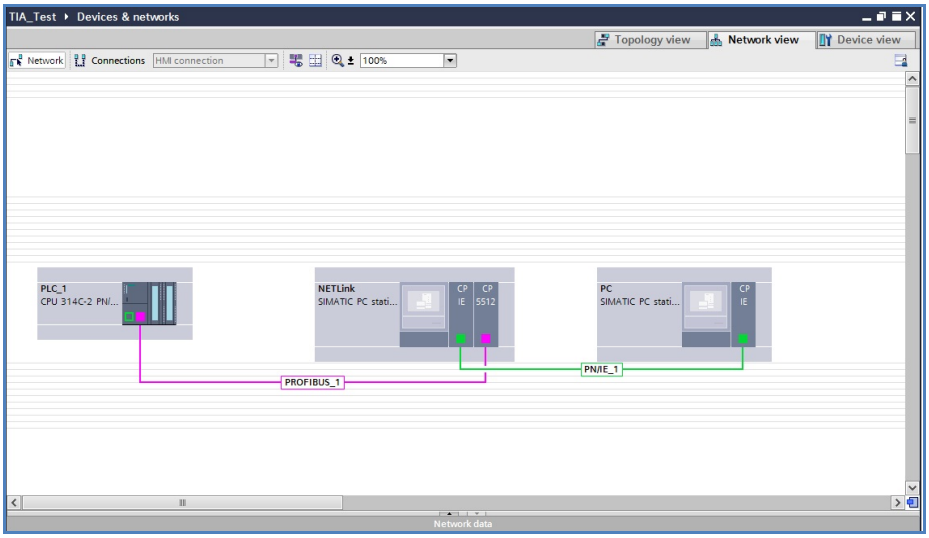
You have to pay attention that the IP-addresses of the NETLink device and your PC are in the same range.



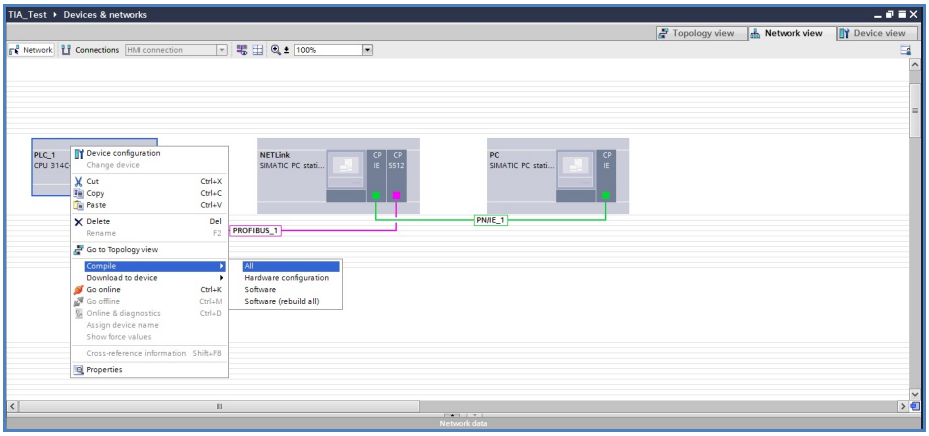
7. After all your *"Device & network"* window should look like the following:



8. Finally you add your PLC model that will be used. The different PLC's can be found in the Hardware catalogue under *"PLC"*. After adding it, the interface of the PLC has to be configured with the right bus address and then connected to the subnet. In this example it is a CPU314C-2 PN/DP (with a power supply), which is connected via PROFIBUS.



9. At last all 3 stations have to be compiled and the project saved. You do this by right-clicking on the appropriate station and choosing *"Compile -> All"*.



The Hardware configuration has to be downloaded only on the PLC! It is essential to ensure that the NETLink device is plugged on the correct interface port of the PLC.

5 Troubleshooting

The points described here show some typical situations 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 Helmholz GmbH & Co. KG will gladly help you to solve the problem.

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

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

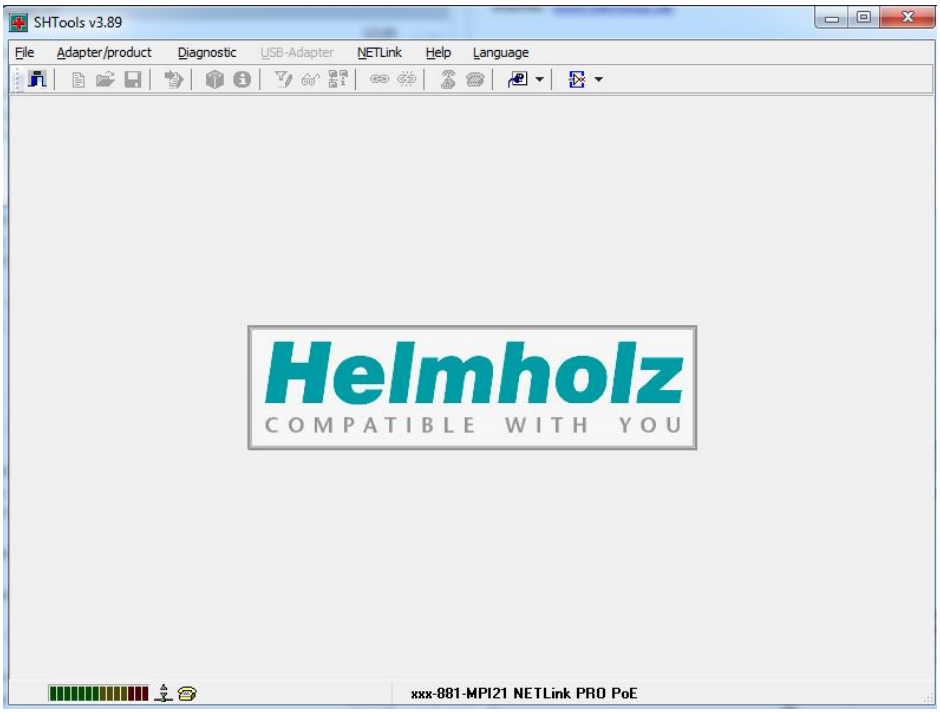
A: The following steps must be performed:

1) Download the up-do-date "*SHTools*" software from the Helmholz GmbH & Co. KG web site:

- www.helmholz.com -> Download -> NETLink® PRO (or analog NETLink® Ethernet gateway)

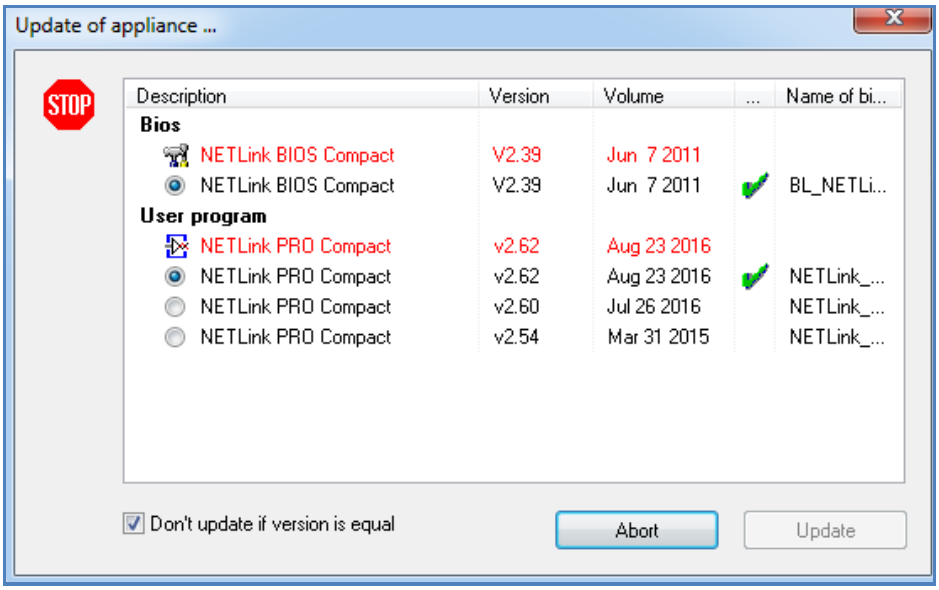
and install this on your computer.

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: 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® PRO 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.

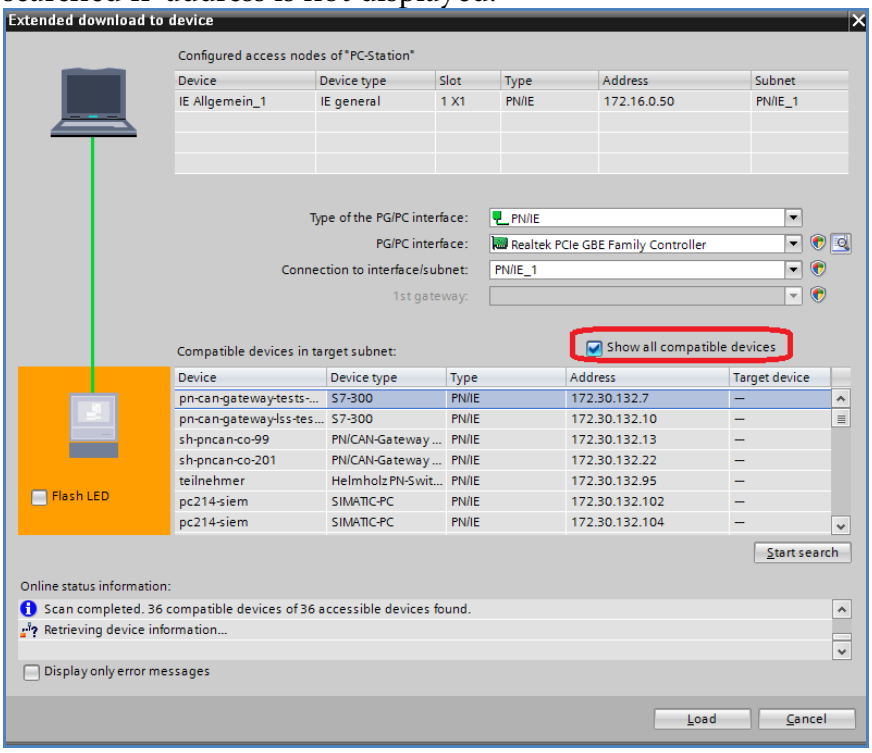
Q: My adapter can't go online. Why?

A: Is the online LED on the adapter lit? If not, check the BUS parameters with which the adapter is to go online via RFC. You will find the parameters in the web interface in section *"Configuration."*

Q: When the users are reachable, they are not displayed.

A: This function is not supported via the project-specific interface, but a variable table or the module status can be used to ensure that the connection to the controller has been established.

Q: When browsing the network in the TIA Online Diagnostics, the searched IP address is not displayed.



A: At this point, not all IP addresses are listed.

Q: What should I do if I want to call your technical support?

A: Please keep all relevant data of your system installation with the connected participants and program modules ready when you contact the technical support of Helmholz GmbH & Co. KG.

6 Directory of Sources

You can download all NETLink® manuals for free in German and English language at http://www.helmholz.com.