

service
& SUPPORT

S7 communication via Industrial Ethernet

SIEMENS

FAQ



Table of Contents

Table of Contents	2
Question	2
How do I configure a S7 connection for a user application via Industrial Ethernet with the SIMATIC NET PC Software?	2
Answer.....	2
The instructions and notes listed in this document provide a detailed answer to this question.	2
1 Assignment of tasks.....	3
1.1 Condition.....	3
2 Configuration of the PC station.....	4
There are two possibilities for downloading the configuration on your PC station:.....	16
2.1 Configuration and download from STEP7 or NCM PC	16
2.2 Configuration and Download via "Import Station"	16
2.3 Setting the Access Point in the configuration console	19
3 History	22

This entry is from the Internet offer of Siemens AG, Automation and Drives, Service & Support. Clicking the link below directly displays the download page of this document.

<http://support.automation.siemens.com/WW/view/en/17532609>

Question

How do I configure a S7 connection for a user application via Industrial Ethernet with the SIMATIC NET PC Software?

Answer

The instructions and notes listed in this document provide a detailed answer to this question.

1 Assignment of tasks

In this example, a commercially available Ethernet adapter is used that allows S7 communication for a user application to a S7 controller on Ethernet.

NOTE The method described in these instructions also applies to the CP 1613, CP 1512, and CP 1612 communications processors.

1.1 Condition

It is assumed that one of the two following configuration tools is installed:

- **NCM PC**
NCM PC is supplied with the SIMATIC NET CD and allows you to create PC projects and open STEP 7 projects. It is, however, not possible to edit S7 blocks in the STEP 7 project with this software.
- **STEP 7**
STEP 7 is a separate software package with which you can create S7-400, S7-300 and PC projects. S7 blocks can be edited with this software.

Only one of these tools can be installed.

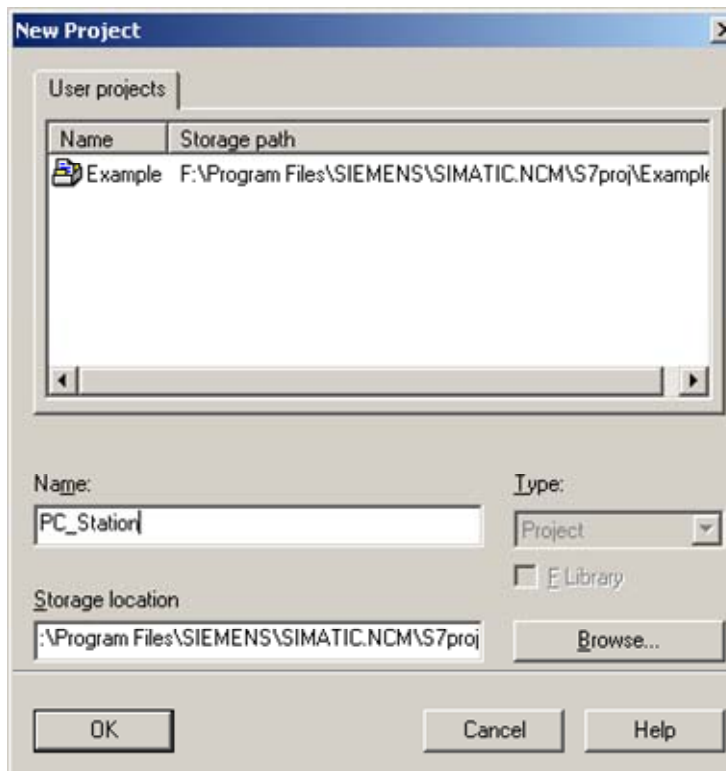
In chapter 2 “Configuration of the PC station” is described the configuration of PC station so that you can use the S7 communication via Industrial Ethernet to exchange data between PC station und S7

2 Configuration of the PC station

After successful completion of the hardware and software installation of the SIMATIC NET CD and the configuration tool and after restarting your computer, you start NCM PC or STEP 7 with "Start → (in Windows XP: All Programs→) SIMATIC → SIMATIC Manager or SIMATIC NCM PC Manager or using the desktop icon of the same name.

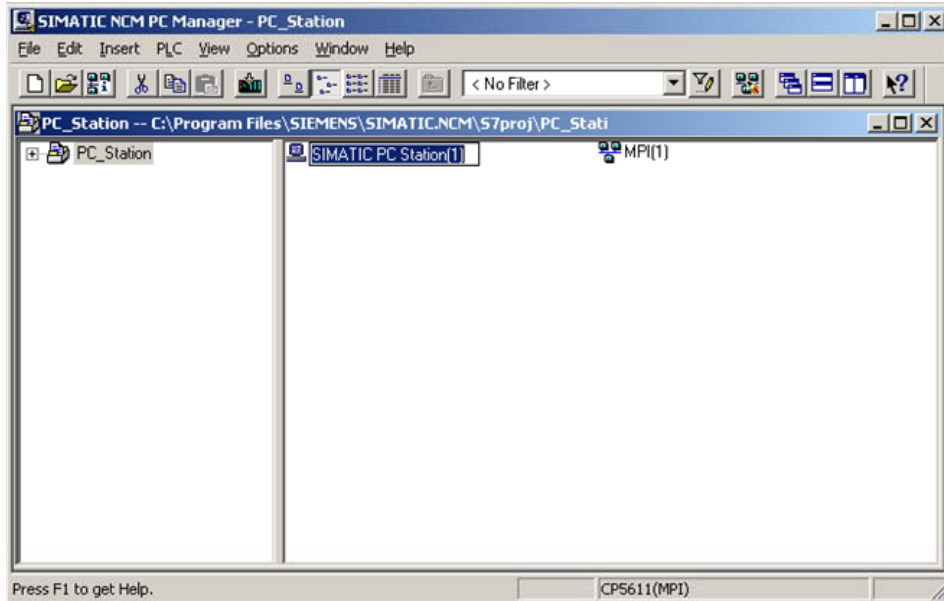
Create a new project with "File → New"

Figure 2-1 Giving the Project a Name



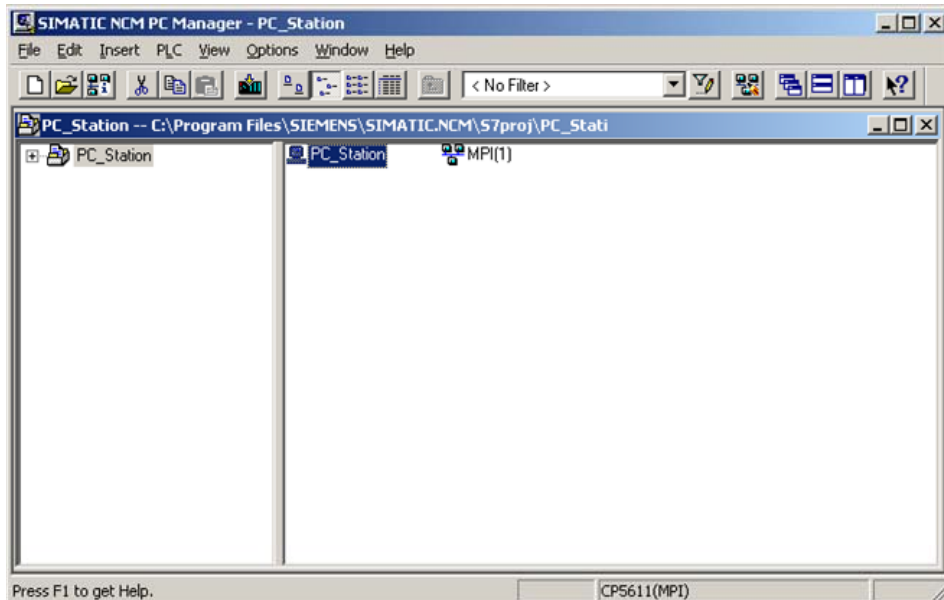
Confirm the project name you have entered (in the example: "PC_Station") with OK. An empty STEP 7 or NCM PC project is then created.

Figure 2-2 Inserting the PC Station



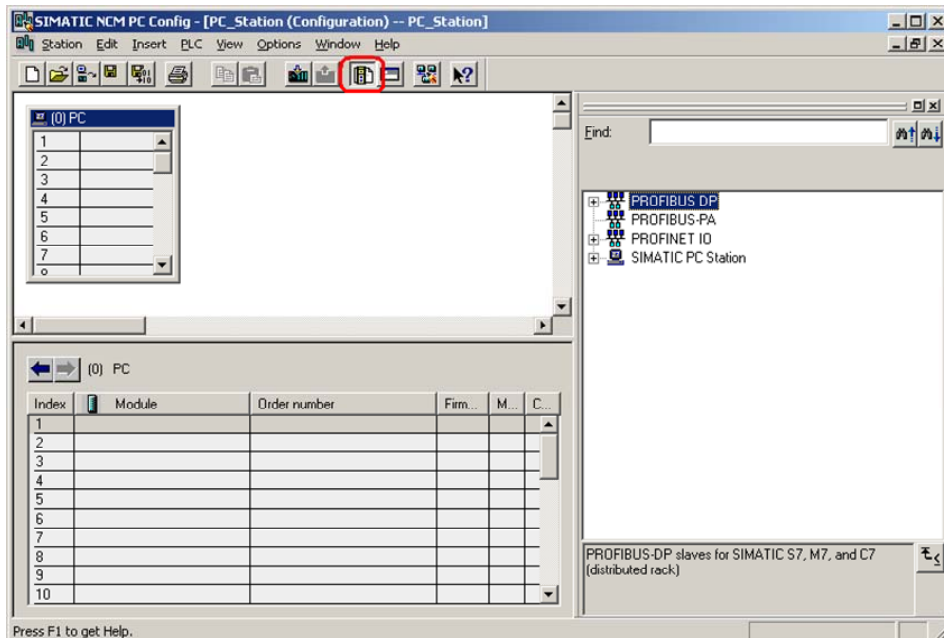
With the menu command "Insert → Station → SIMATIC PC Station", you insert the PC station.

Figure 2-3 Changing the Name of the PC Station



Give the PC station you have just inserted the same name as your computer (in the example: "PC_Station").
Now open the hardware configuration of the PC station by selecting the PC station, then pressing the right mouse button and selecting "Open Project" (STEP 7: "Open Object").

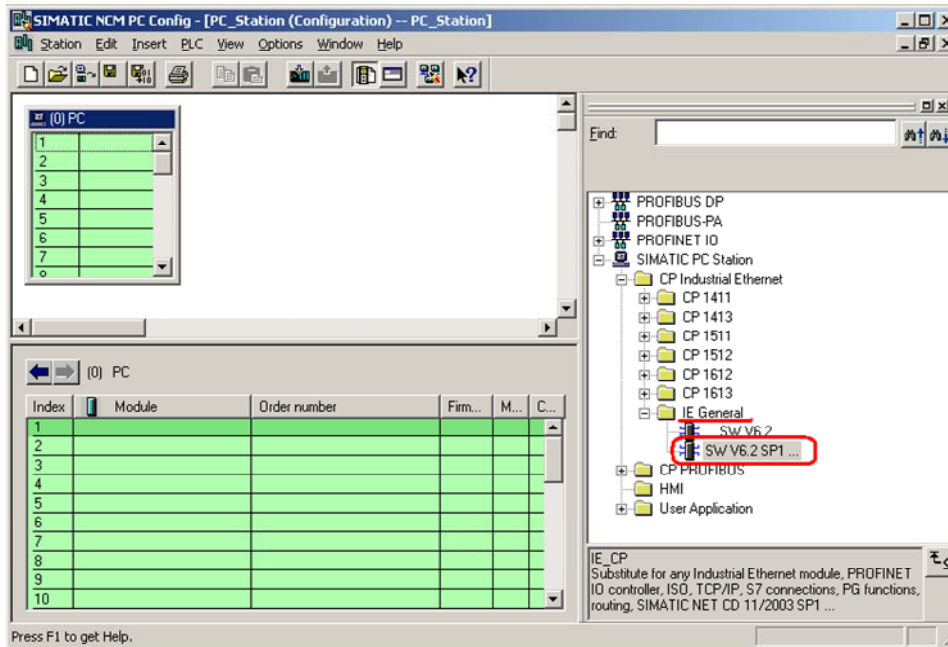
Figure 2-4 Hardware Configuration of the PC Station



Copyright © Siemens AG 2007 All rights reserved
Guide_S7_IE_App_e.doc

You will see an empty rack. If you cannot see the hardware catalog, click on the button marked in red.

Figure 2-5 Selecting the Modules from the Hardware Catalog

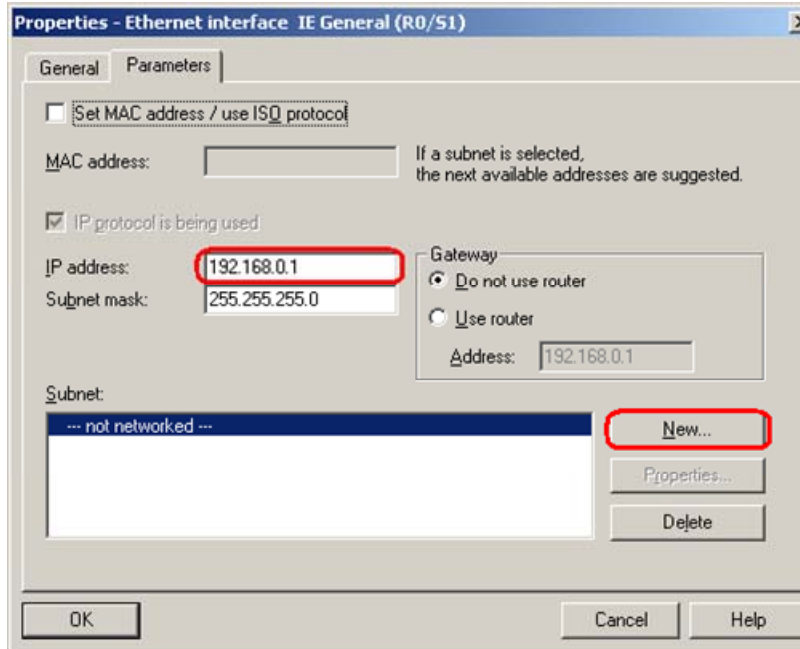


Now place your PC modules in this rack (for example by dragging them from the catalog).

If you want to use a CP 1613 (or CP 1512 or CP 1612), select the CP 1613 (or CP 1512 or CP 1612) instead of the IE General module.

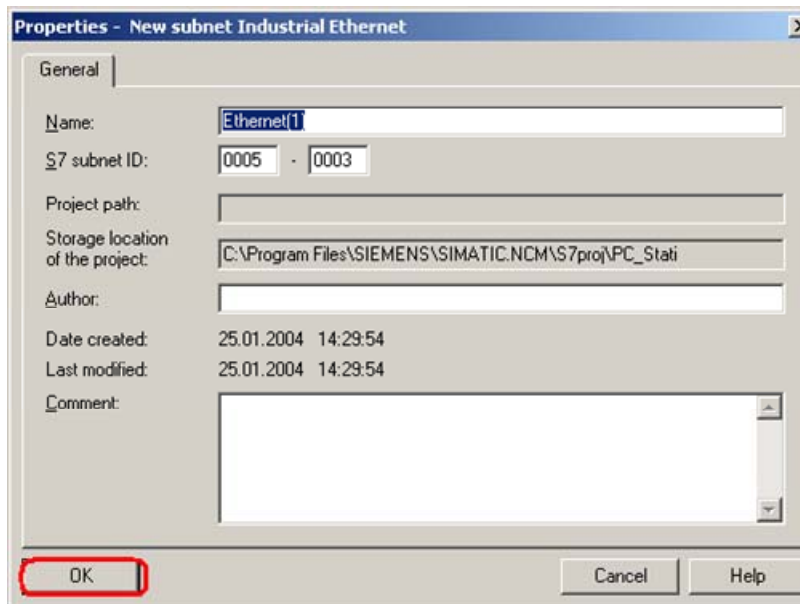
The following dialog appears automatically after you insert the module in the PC station:

Figure 2-6 Address Assignment Dialog



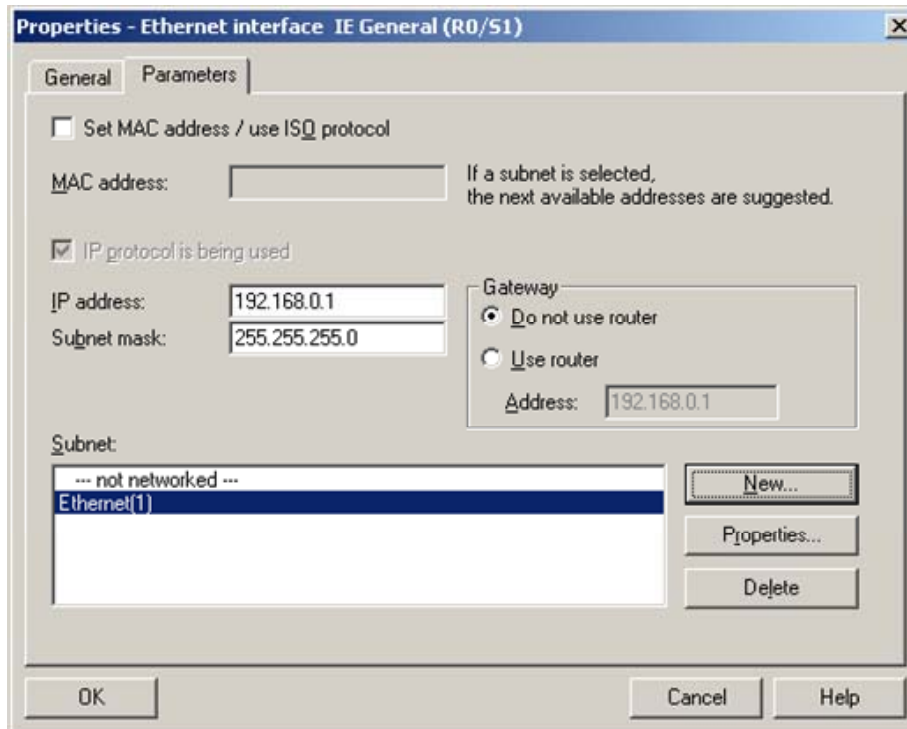
By clicking the "New" button, you can create a new Ethernet network:

Figure 2-7 Setting up an Ethernet Network in STEP 7 or NCM PC



Please enter the IP address of the network adapter in the box marked red in the screenshot (Figure 2-6 Address Assignment Dialog) and click the "New" button. Following this, a further window opens that you simply confirm with OK (Figure 2-7 Setting up an Ethernet Network in STEP 7 or NCM PC).

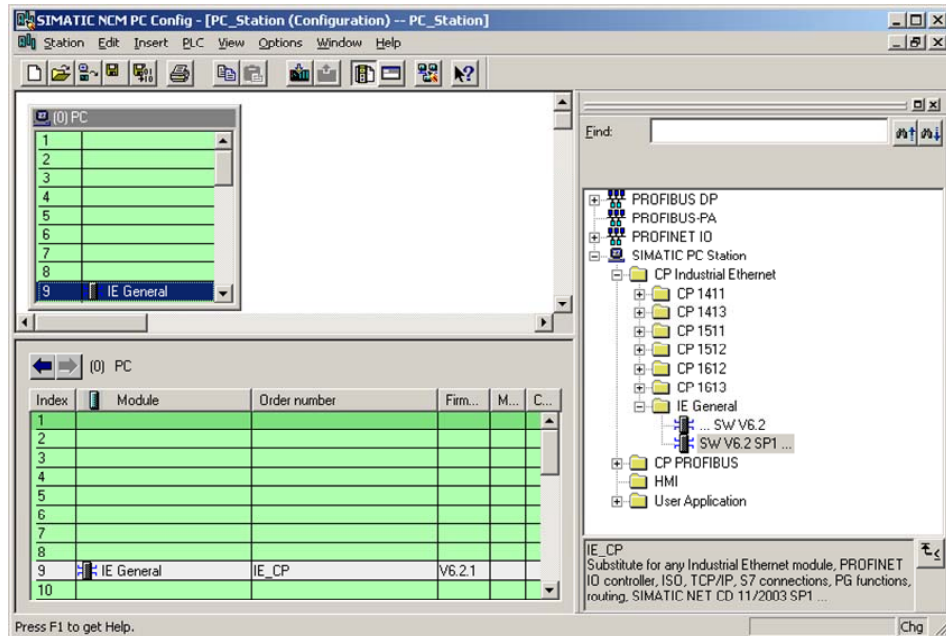
Figure 2-8 Network Adapter with Parameters Assigned



Copyright © Siemens AG 2007 All rights reserved
Guide_S7_IE_App_e.doc

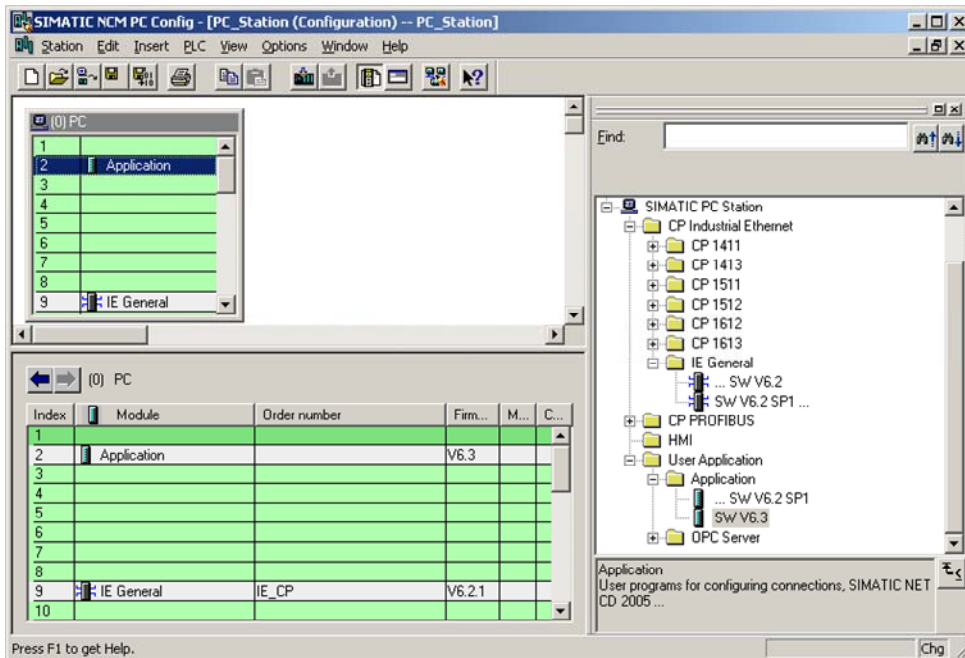
The network adapter is now fully configured and networked. Confirm the parameter assignment with OK.

Figure 2-9 Network Adapter Placed in the PC Station.



The module is now placed in a PC slot.

Figure 2-10 Configuring the application



Select the application in the hardware catalog and then drag it to any slot.

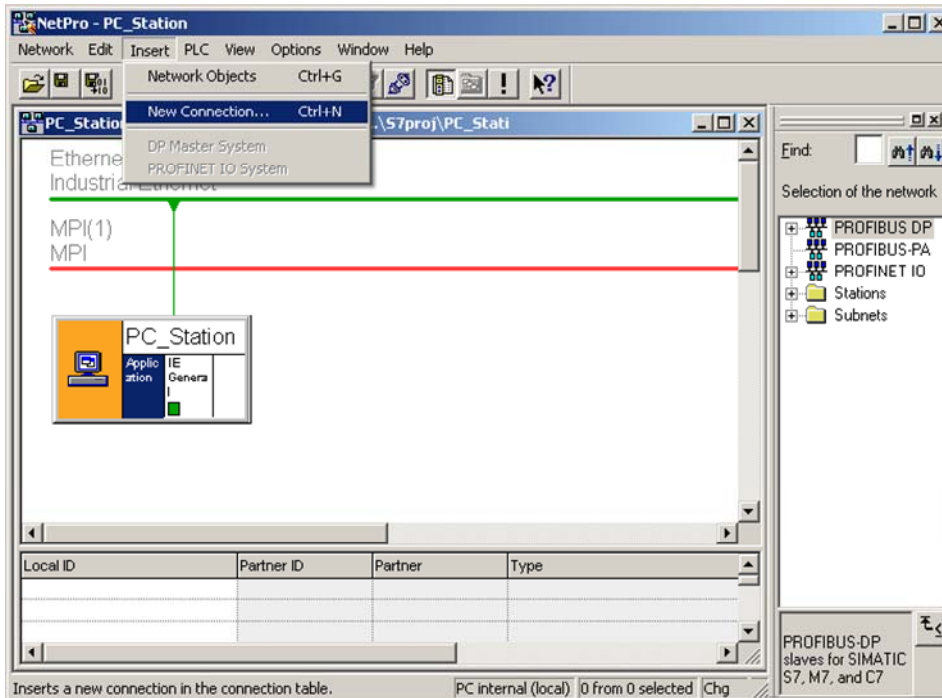
Figure 2-11 NetPro Button



Now open the NetPro program. Use the button marked red in the toolbar in Figure 2-11 NetPro Button.

In NetPro, you can create the connection between the user application and the S7 AS.

Figure 2-12 Creating connections in NetPro



Copyright © Siemens AG 2007 All rights reserved
Guide_S7_IE_App_e.doc

To insert a connection, select the application.

With "Insert → New Connection", you create a connection.

Figure 2-13 Inserting a New Connection in NetPro

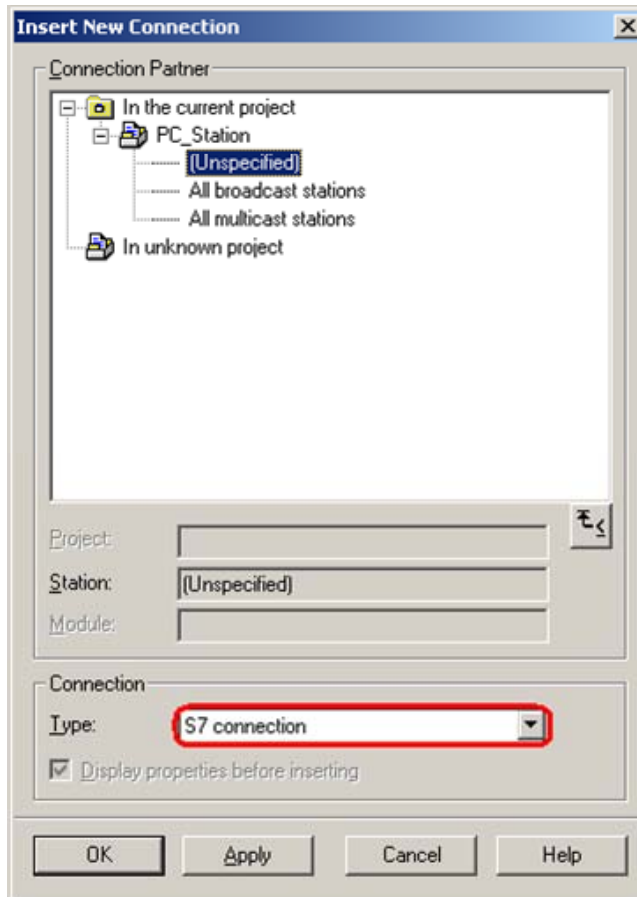
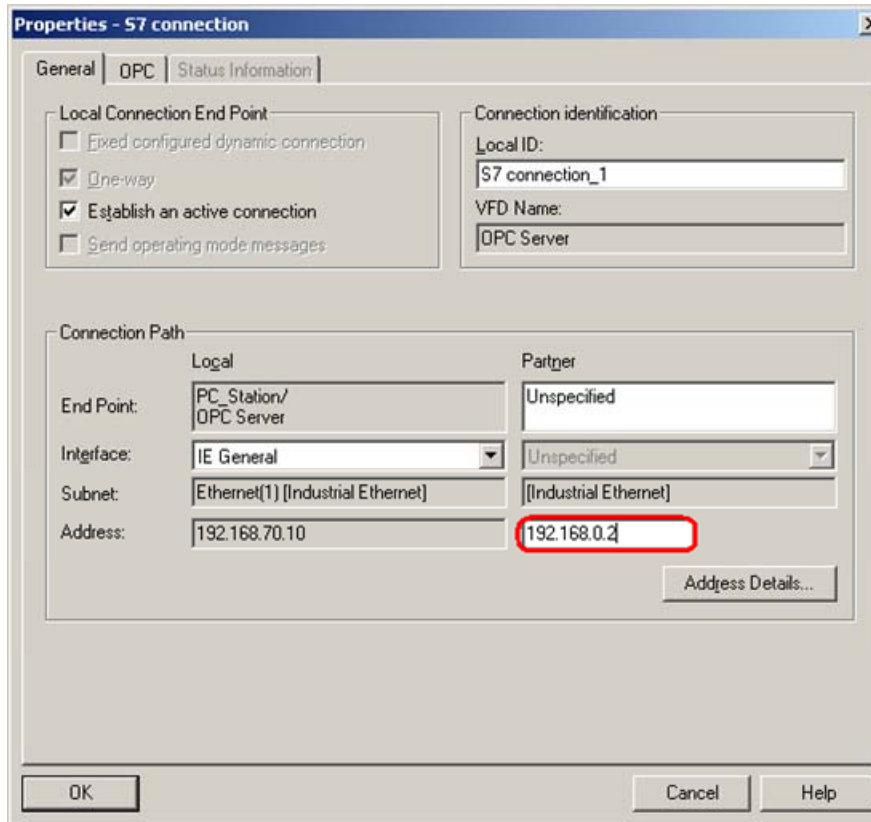


Figure 2-14 Object Properties of the S7 connection



Copyright © Siemens AG 2007 All rights reserved
Guide_S7_IE_App_e.doc

Because the connection is created "unspecified", further steps are necessary. In the marked box, enter the IP or MAC address (depending on the selected protocol type) of the partner.

The "Address Details" button opens the next dialog.

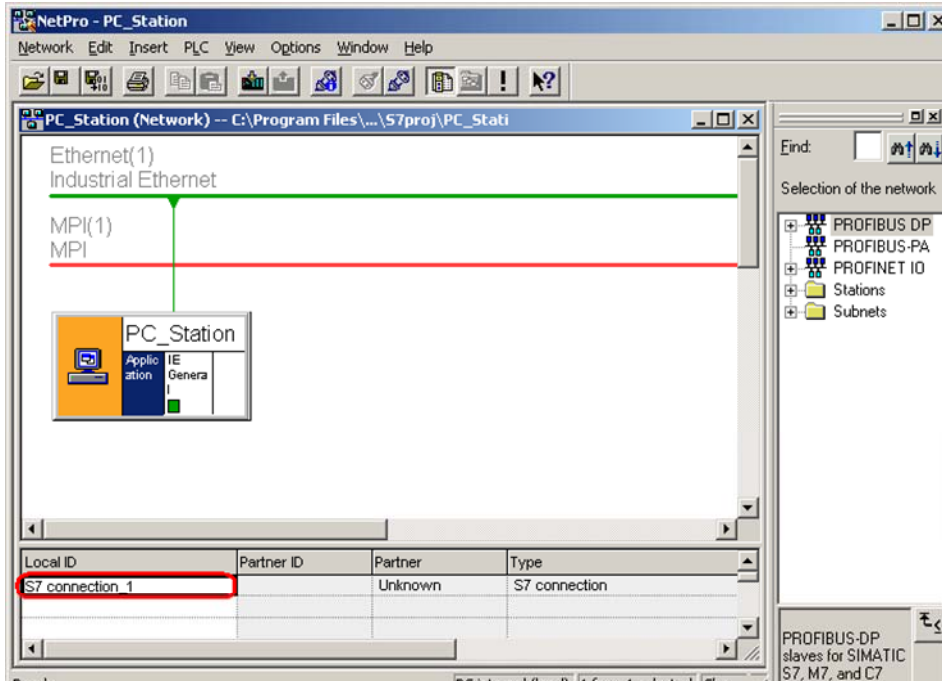
Figure 2-15 Address Details of the S7 connection

	Local	Partner
End Point:	PC_Station/ OPC Server	Unspecified
Rack/Slot:	0	2
Connection Resource (hex):	10	03
TSAP:	10.02	03.02
S7 Subnet ID:	0008 - 000A	-

Here, enter the slot of the CPU of the SIMATIC S7 partner controller. You can find out the slot of the CPU from the STEP 7 project of the partner controller (HW Config).

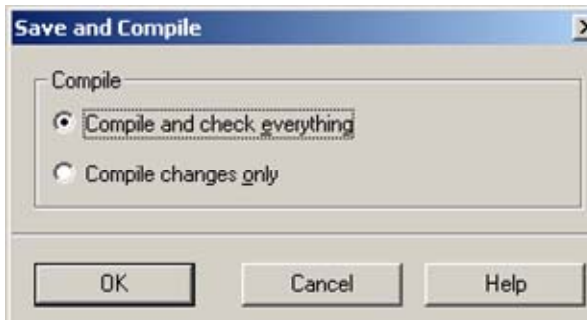
When you have specified the slot, click on the "OK" button. The main dialog appears again. By clicking "OK" again, the connection you have just created appears in the connection table of the PC station.

Figure 2-16 S7 connection created in NetPro



Now that you have created an S7 connection, connection configuration is complete. Now save and compile the project ("Network → Save and Compile"). This updates the information in the project.

Figure 2-17 Saving and Compiling



NOTE

Warning indications can be displayed while proceeding with the "Save and Compile" of a project. Warnings serve as piece of information and have no functional effect. In case error warnings occur, search for possible divergences in the previous steps of the instructions.

There are two possibilities for downloading the configuration on your PC station:

2.1 Configuration and download from STEP7 or NCM PC

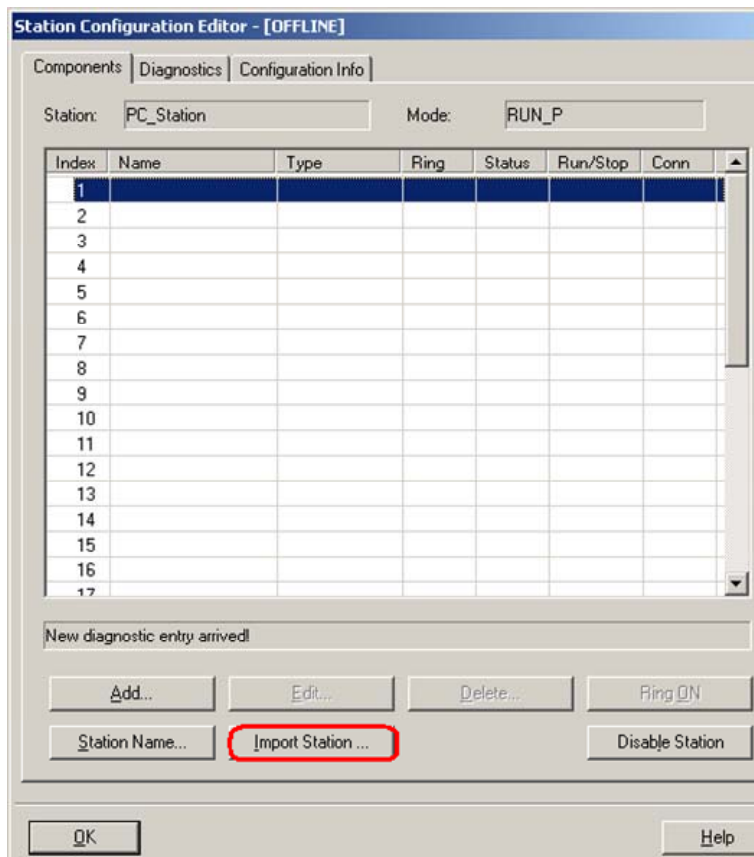
With this function it is possible to perform a configuration completely from a remote computer, if a network connection (standard Ethernet) to the target PC station is available. It is assumed that the PC station can be reached via network connection. The project engineering can be downloaded after that.

2.2 Configuration and Download via "Import Station"

With this function it is possible to download the configuration and project engineering at once also without a connection to the target PC station. Depending on the application, other configurations can be loaded.

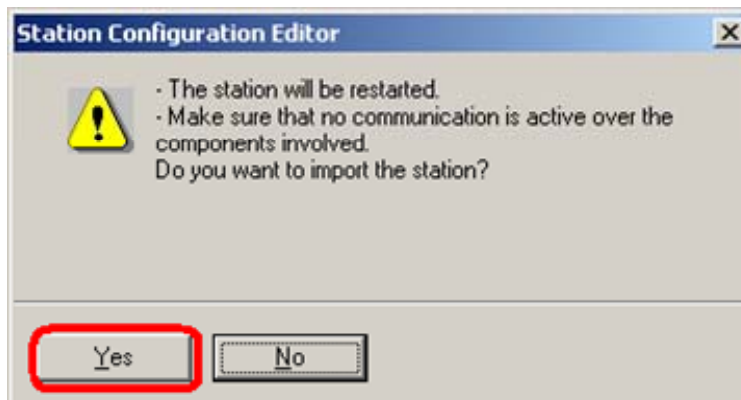
Open the "Station Configuration Editor". You will find its icon on your desktop and also in the system tray.

Figure 2-18 Station Configuration Editor



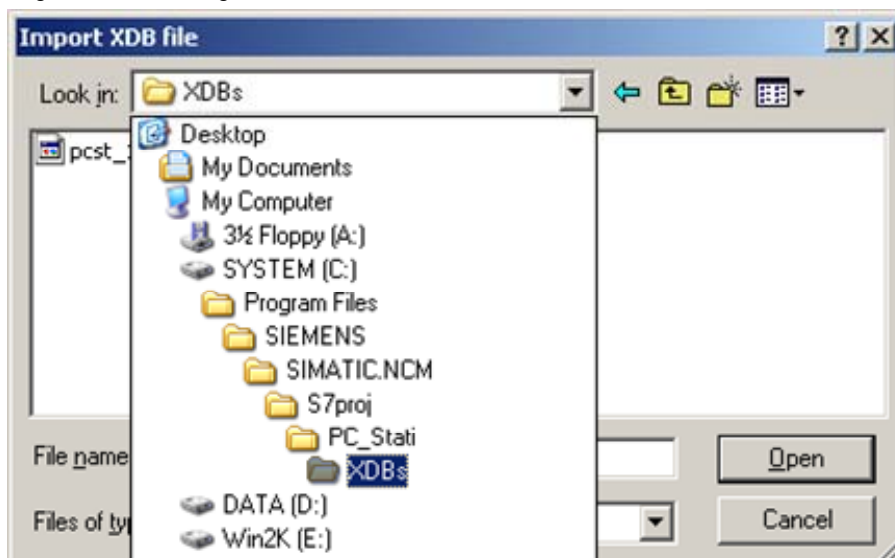
Click on the "Import Station..." button marked red in the screenshot.

Figure 2-19 Message about restarting the PC Station



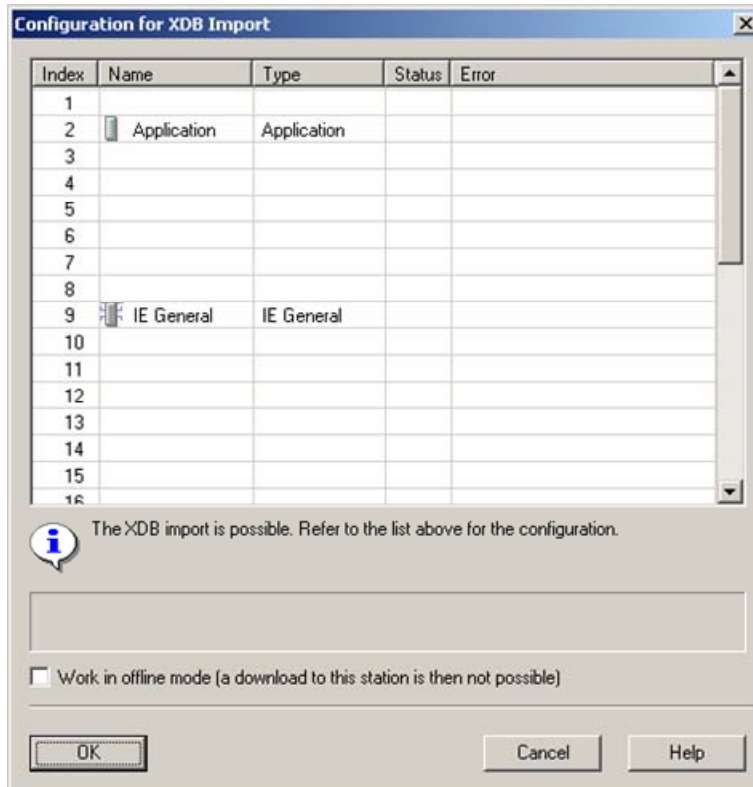
Confirm the message with "Yes".

Figure 2-20 Browsing for the XDB File



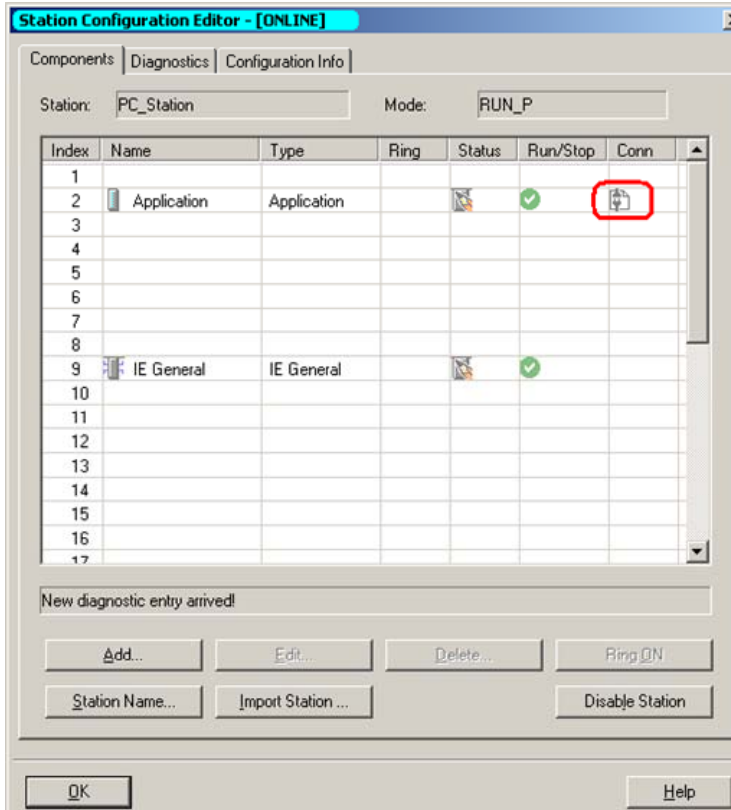
In the browser dialog, you specify the path in which the XDB file is located. The XDB file is always created in the project by NCM PC / STEP 7 (see Figure 2-1 Giving the Project a Name).

Figure 2-21 Information from the XDB File



As information, you can see once again which modules and applications are configured in the XDB file.

Figure 2-22 The PC station is configured



Copyright © Siemens AG 2007 All rights reserved
Guide_S7_IE_Appl_e.doc

The import is now complete and the project engineering is loaded. In the "Conn" column (red marker), you can see that the connections have also been loaded.

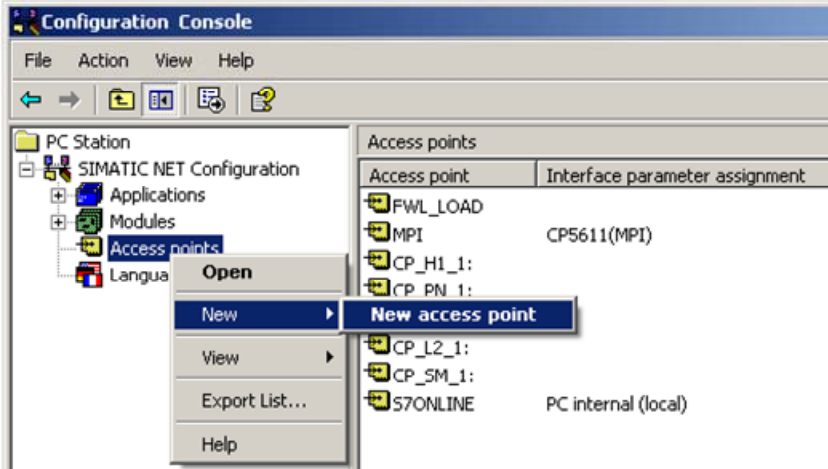
2.3 Setting the Access Point in the configuration console

Open the "Configuration Console". Check the access point of the user application by selecting "Access points".

NOTE The access point can be freely selected.

In this case a new access point is created for the application with the right mouse button "New → New access point"

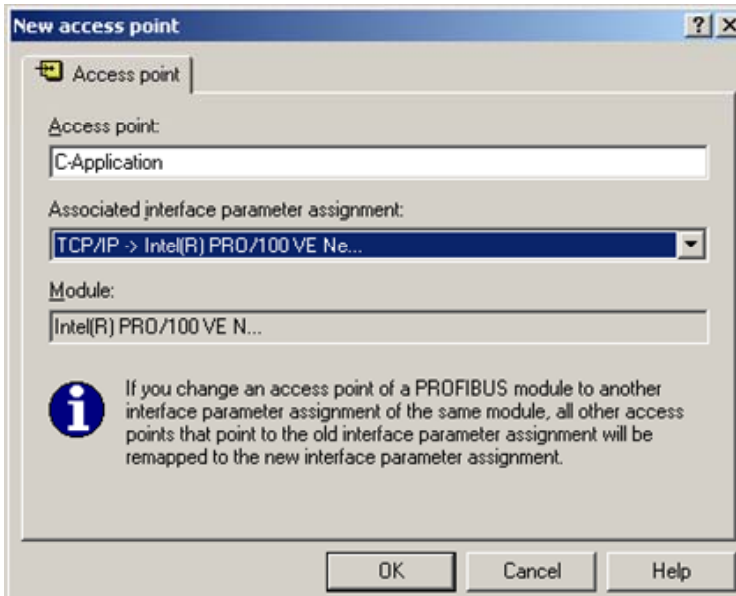
Figure 2-23 Configuration Console – Setting the access point



Enter a name for the access point and under "Associated interface parameter assignment", select the entry "TCP/IP → network adapter being used".

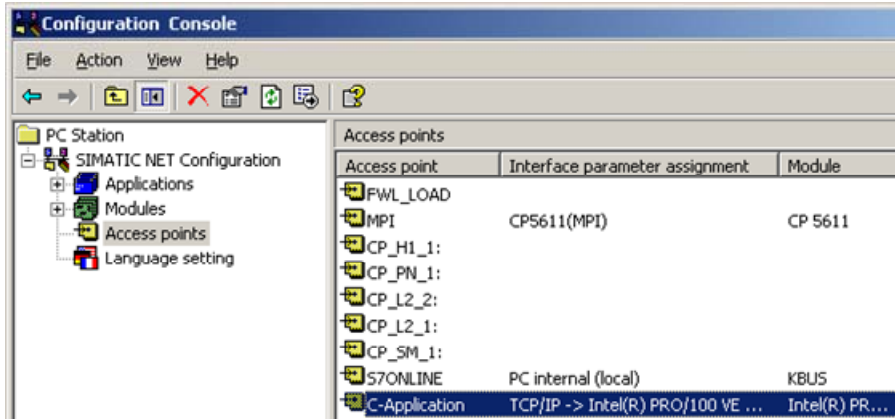
You must also enter this access point as the access point in your user application.

Figure 2-24 setting a new access point



Check the interface parameter assignment for the access point in the Configuration Console

Figure 2-25 Configured access point



Now you can operate S7 communication in your user application with this access point.

3 History

Version	Date	Changes
V 1.0	12.12.2007	First issue