Configuration Instruction for Process Automation

applications & TOOLS

Minimal Configurations PCS 7 V7.1

SIEMENS

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Preface

Purpose of this document

Typical PCS 7 systems have at least one ES (Engineering Station) on the PC side, one or more possibly redundant servers, as well as several OS clients (Operator Stations). Apart from the maximum availability of process control and data acquisition, the predominant option here is loading program changes or expansions quickly into the running process with out any interference.

In comparison, small systems or stand alone units tend to work with extremely little maintenance requirements after commissioning. To reaching a high efficiency requires being able to work with as few PC stations as possible. It therefore makes sense to use the rarely used ES as an OS in process mode, as it already contains all the necessary functionality and licenses.

This document is meant as a selection aid during research for the suitable PC configuration for small plants. Various minimal configurations (up to a maximum of three PCs) are compared regarding their functionality. Since the respective PCS 7 configuration is not a focus of the system documentation, the activities necessary for the setup are given in form of detailed step-by-step instructions.

Main contents

The main focus is on the following points:

- Configuration comparison regarding functionalitiy
- Activities for engineering of the various configurations

Reference to the Automation and Drives Service & Support

This article is from the Internet application portal of the Industry Automation and Drive Technologies Service & Support. The following link will take you directly to the download page of this document:

http://support.automation.siemens.com/WW/view/en/24023824

Table of Contents

1 Minimal Configurations - An Overview

Based upon using the Engineering Station as an Operator Station in process mode, or realizing several OS with as few PCs as possible, various constellations are possible. The following variants were selected according to feasibility and sensibility within the context of PCS 7.

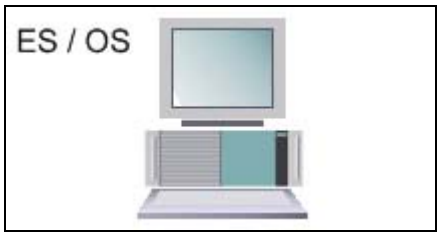
In connection with the configurations shown here, possible solutions are described, where the configurations do not differ considerably.

Generally, when using the engineering computer as OS, certain functionality losses must be taken into account, as for certain activities the OS project must be closed. This will also be discussed below in more detail.

1.1 ES/OS Stand-alone Systems

The smallest of all possible configurations requires only one PC station.

Figure 1-1



Process mode / functionality

Since version 6.1 of PCS 7, the OS project can also be compiled while Runtime is activated (delta compilation). This provides the operator function and archiving functions permanently.

NOTE The description and configuration instruction for this configuration is available in chapter 3 ES/OS Stand-alone Systems.

Alternatives / variations

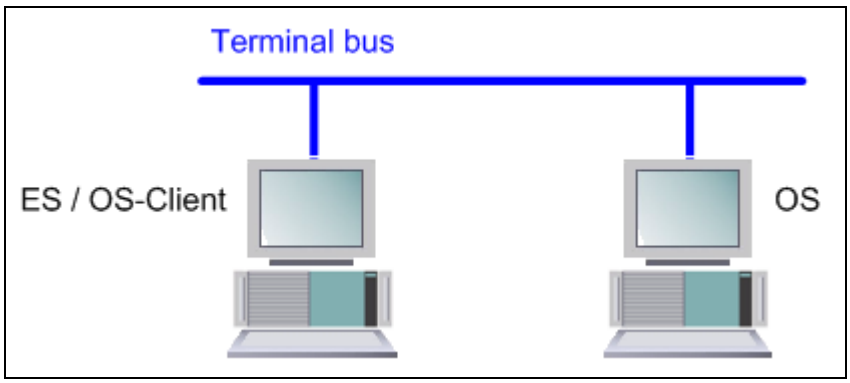
Alternatively, the complete SIMATIC PCS 7 BOX package is also an option. It combines the AS, the OS and the ES in a compact PC system. A PROFIBUS interface for connecting the decentralized process periphery is also integrated.

NOTE The stand-alone system ES/OS can also be expanded by the PCS 7 OS Web Server functionality. The respective instruction can be found in chapter 7 "Expansion by PCS 7 Web Option"

1.2 ES/OS Client and OS Server

With an additional PC station as the OS server, there is the option of using the ES as the OS client. It accesses the data of the OS server in process mode and visualizes the data.

Figure 1-2



Process mode / functionality

For PCS 7, the OS server can be used for operator functions if a maximum of four OS clients are connected. During server failure, however, the complete OS functionality fails in this example. Furthermore, the OS client must be closed for later OS project changes. However, the OS server continues working during compiling/loading of changes.

Note The description and configuration instruction for this configuration is available in chapter 4 “ES/OS Client and OS Server”.

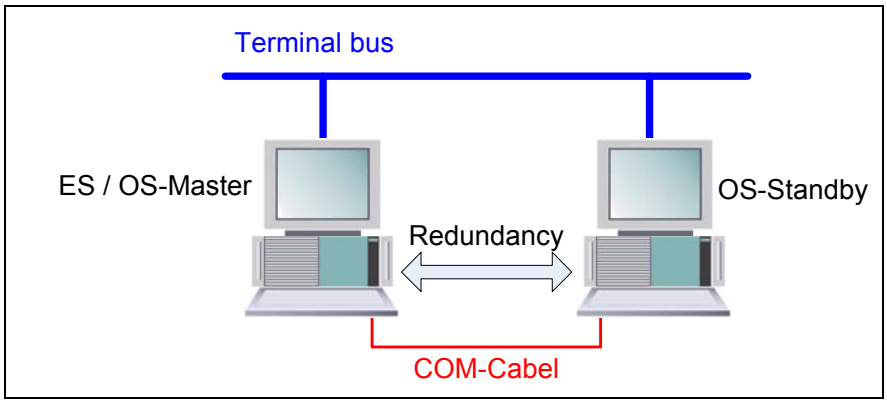
Alternatives / variations

Another advantage of this configuration is the option of connecting further clients to the OS server in a relative simple and cost-effective way.

1.3 ES/OS-Master and OS-Standby

As a further constellation option with two PC stations, the ES is used as OS stand-alone station again, similar to the first variant, with only one PC. However, it uses the same OS project, which was previously loaded to a further OS stand-alone station. Before the OS project is activated on both stations, the mutual redundancy parameterization is performed.

Figure 1-3



Process mode / functionality

In this example, both PC stations work as redundant stand-alone OS stations in process mode, which mutually synchronize each other during operation as well as after failure of one of the partners. This also becomes relevant during later OS project changes for which the master OS needs to be terminated. In this case, the standby OS takes on the master role. It continues working during compiling/downloading of the changes and updates the redundancy partner after its return.

The COM-Cabel (RS 232 Connection) is used for optimization of internal communication between both OS Single Stations.

From PCS 7 V7.0 it is also possible to implement the redundancy connection via an Industrial Ethernet connection (BCE or CP1613) instead of the COM connection.

For a complete download, the OS project must be deactivated and closed on both stations. During this time, no OS functionalities are available.

Note

This architecture does not provide the full PCS 7 functionality because the redundancy is setup based on WinCC tools.

The respective restrictions during process operation and differences in system behavior can be found together with description and configuration instruction in chapter 5 "ES/OS-Master and OS-Standby".

Alternatives / variations

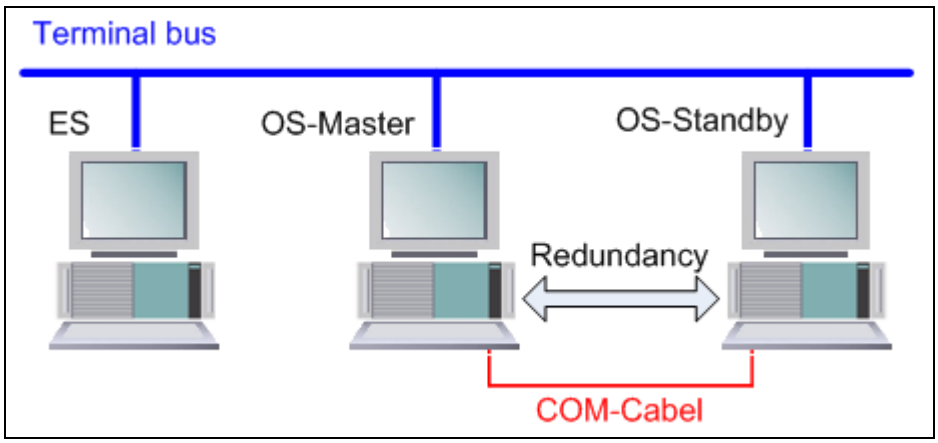
As an alternative, the redundancy could be omitted here. Regarding costs, however, you only cut down on the redundancy license. Furthermore, it must be noted, that during process mode, the parallel usage of the OS project of another station is not PCS 7 conform.

Note The stand-alone system ES/OS can also be expanded by the PCS 7 OS Web Server functionality. The respective instruction can be found in chapter 7 "Expansion by PCS 7 Web Option".

1.4 ES, OS-Master and OS- Standby

The PCS 7-conform realization of the OS redundancy requires three PC stations. The ES then only fulfills engineering tasks and is only used for testing OS functions during that time.

Figure 1-4



Process mode / functionality

Since the ES is not involved in the process mode, the operator functions of both OS stand-alone stations are permanently available. Even during a complete download of project changes, one OS always remains active. The redundancy provides for mutual synchronization. Online as well as after failure of one of the partners.

The COM-Cabel (RS 232 Connection) is used for optimization of internal communication between both OS Single Stations.

From PCS 7 V7.0 it is also possible to implement the redundancy connection via an Industrial Ethernet connection (BCE or CP1613) instead of the COM connection.

Note The description and configuration instruction for this configuration is available in chapter 6 “ES, OS-Master and OS-Standby”.

Alternatives / variations

The low-maintenance systems focused on in this documentation often do not require a permanent ES. If a temporary ES is hired for configuration, commissioning and project changes.

The theoretical expansion with additional OS clients is not possible without problems in this example, as the two OS have not been installed server operating systems.

2 General/Optional System Settings

The relevant cross-configuration system settings are suggested below.

2.1 Bus Connection of the PC Stations

Plantbus (system bus)

In the ES as well as in each server, a network card in “Configured Mode” is employed for the plantbus. On this network card, only the ISO protocol is activated for Windows. If a CP 1613 exists, it is used as access to the plantbus. The configuration occurs in SIMATIC NetPro and HW Config.

Terminal bus

Apart from the configuration with only one ES/OS single station, all other PC stations are also linked with the terminal bus. The required second network card of ES and the server is set to “PG operation”. In SIMATIC NetPro and HW Config this card is not configured. PCS 7 finds this network access via the computer names or the paths for the target computer, which must be entered at the Object Properties of the PC station. For this network card, only the TCP/IP protocol (no ISO) is activated for Windows.

Client-PC stations are generally only equipped with a network card that connects them to the terminal bus. For this network card, only the TCP/IP protocol (no ISO) is activated for Windows.

2.2 WinCC Autostart

This document contains the step-by-step instructions, that the OS project in the WinCC Explorer is opened on the OS servers and clients for the purpose of activating Runtime.

In the system this should be avoided, as normally no configuration licenses (RC licenses) exist on the OS. If the WinCC Explorer is hereby opened for more than an hour, WinCC goes into demo mode and must be closed entirely for further configuration steps (incl. Runtime) and be opened again.

In order to activate Runtime automatically with the computer start-up without opening the WinCC Explorer, an autostart for the project can be configured.

In conjunction with SIMATIC NET Edition 2005 (as from WinCC V6.0 SP3) the WinCC tool `"AutoStartRT"` should be configured in `"Set SIMATIC NET Configuration Console PC station"` in order to configure the WinCC Autostart:

http://support.automation.siemens.com/WW/view/en/23061262

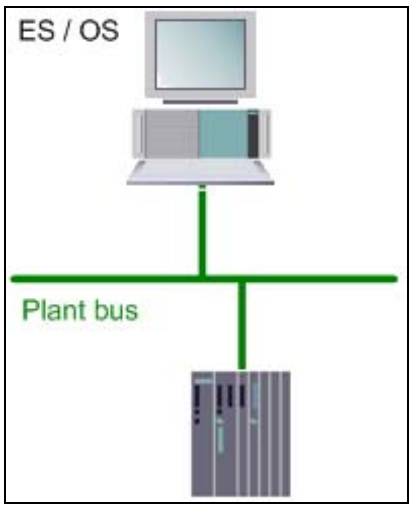
3 ES/OS Stand-alone Systems

3.1 Configuration Description

The stand-alone system is the smallest possible configuration. The same PC is used for ES and OS functionalities.

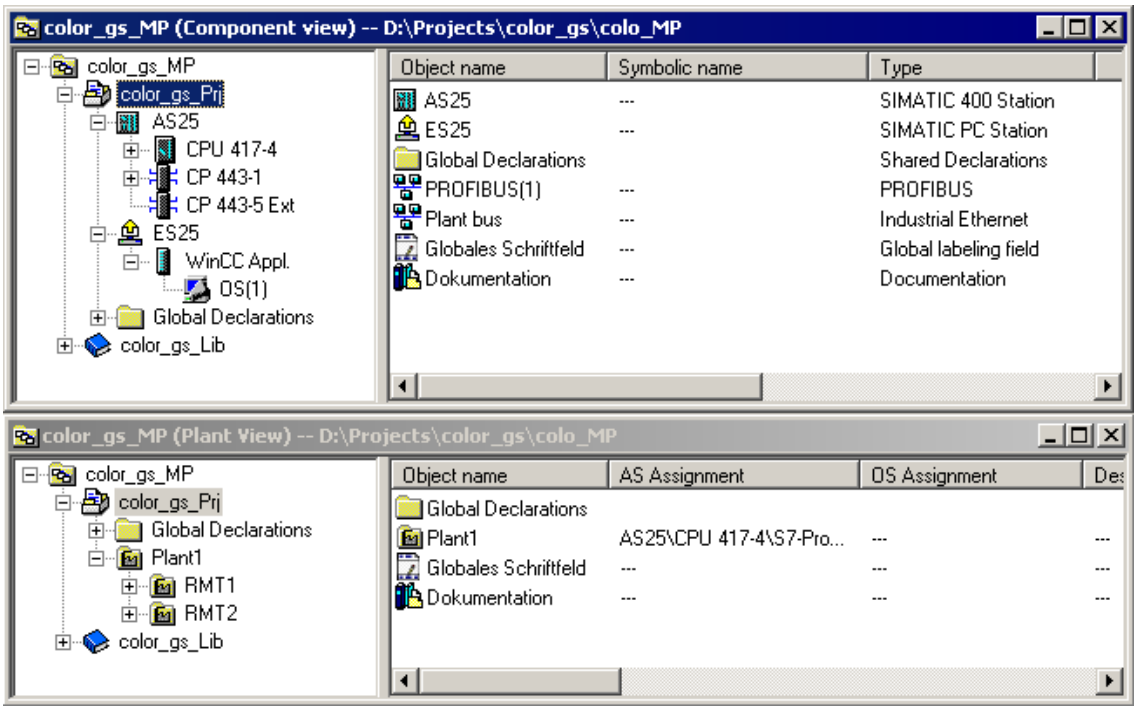
Hardware configuration

Figure 3-1



PCS 7 configuration

Figure 3-2



3.2 Required Hardware and Software Licenses

Hardware

The following hardware is recommended for this configuration and can be ordered via the Siemens mall. Your selected operating system and the system software SIMATIC PCS 7 are then preinstalled accordingly.

Table 3-1

Component	Product information	Operating system	Plantbus transition
1 x ES	SIMATIC PCS 7 ES/OS IL 547B BCE WXP	Windows XP SP3	RJ45 network card
	SIMATIC PCS 7 ES/OS IL 547B IE WXP	Windows XP SP3	CP1613 A2

Software licenses

In the following please find the software/license package necessary for this configuration selection.

In the selected configuration as a stand-alone system, the number of the POs is restricted to no more than 2000.

Table 3-2

Software	Name
1 x Engineering Software for combined stations	SIMATIC PCS 7 Engineering Software V7.1 AS/OS Runtime license • 250 PO • 1000 PO • 2000 PO

Note The “Rental License”, which is restricted to 30 operating days or 50 hours, provides additional licenses for engineering of short-term projects.

3.3 Step-by-step Configuration

Note The following instruction was generated on the basis of Windows XP SP3 and PCS 7 V7.1.

For the plantbus transition a CP1613 is used as an example.

3.3.1 ES Configuration

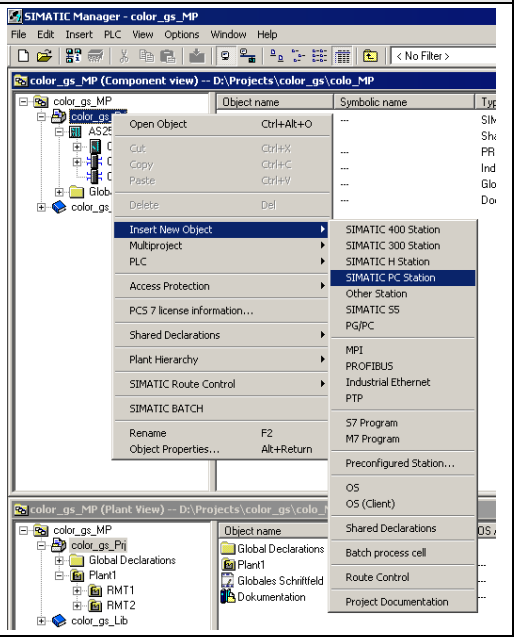
Generating the multiproject

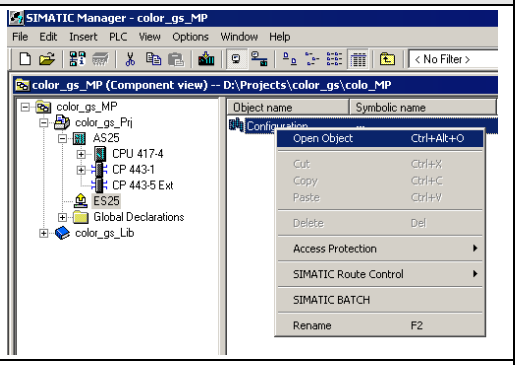
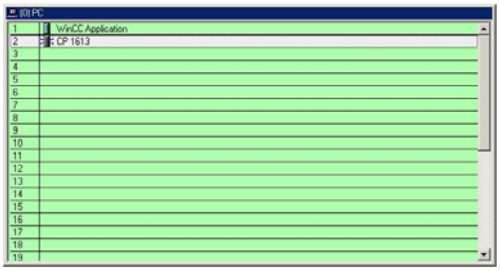
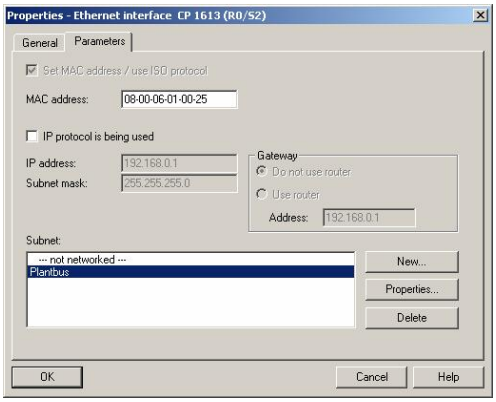
As a basis for the following instruction, all PC stations must be physically networked according to Figure 4-1 (S.12). Furthermore, a multiproject must have been created on the ES in which the AS has already been configured regarding hardware and software.

Generating a PC station

In the PCS 7 project, the PC station is generated, which represents the ES as well as the OS.

Table 3-3

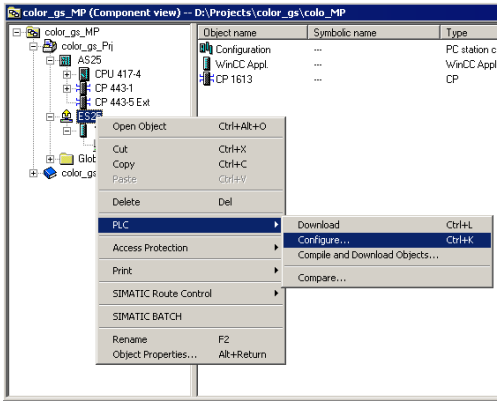
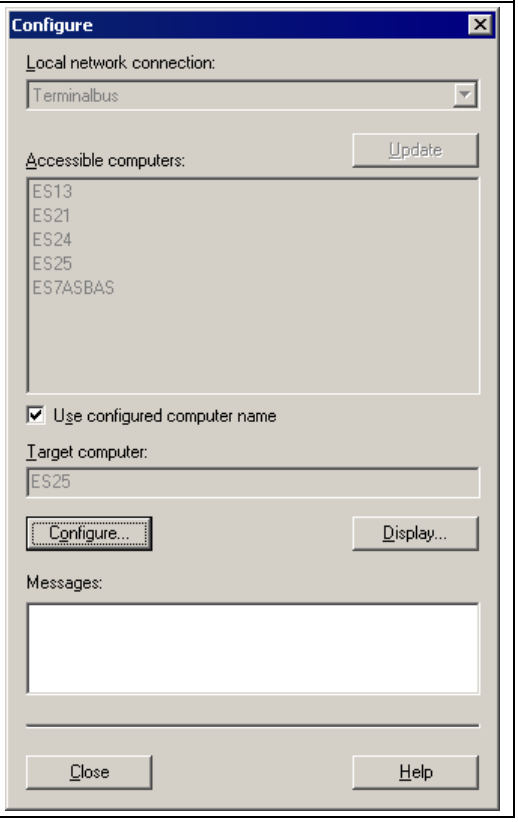
Step	Activity	Screenshot
1.	In the "Component view", open the context menu of the project and insert a new PC station via "Insert New Object > SIMATIC PC Station". Change the name of the PC station so that it corresponds to the name of the local computer in the network.	

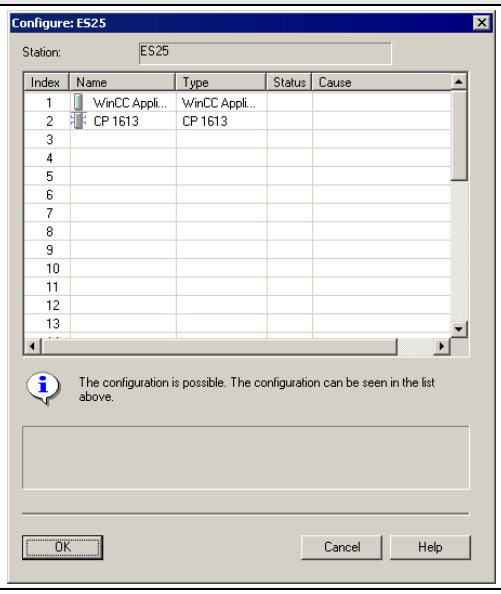
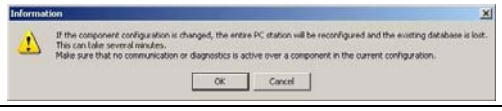
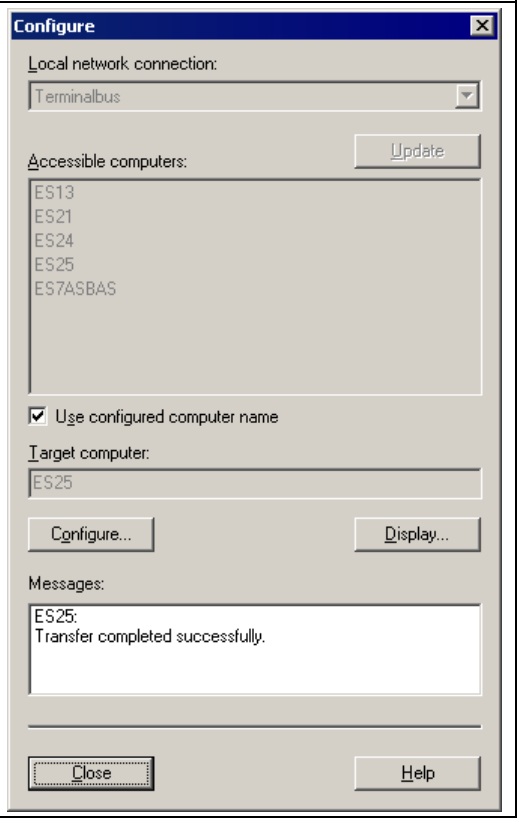
Step	Activity	Screenshot
2.	Open the HW Config of the PC station of the OS server.	
3.	From the object catalog (“View > Catalog”), add a “WinCC Application” and a network card of the type “CP1613”.	
4.	Under “Subnet”, select the plantbus or create it with the button “New…” Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	
5.	Save and compile via menu item “Station > Save and Compile”. Close the HW Config.	

Configuring the PC station

The function "**Configure PC station**" transfers the project configuration to one or more target stations.

Table 3-4

Step	Activity	Screenshot
1.	Configure the component configurator of the ES. Select the PC station of the ES and choose "PLC > Configure…" from the context menu.	
2.	Under "Accessible computers", choose choose the PC which is provided for configuration. **NOTE** If you chose the option "Computer name identical to the PC station name" in the component view "Object Properties" for the PC station, the component configurator directly displays the target computer to be configured. With "Display", you can have the current configuration of the PC station displayed. Hit the "Configure…" button.	

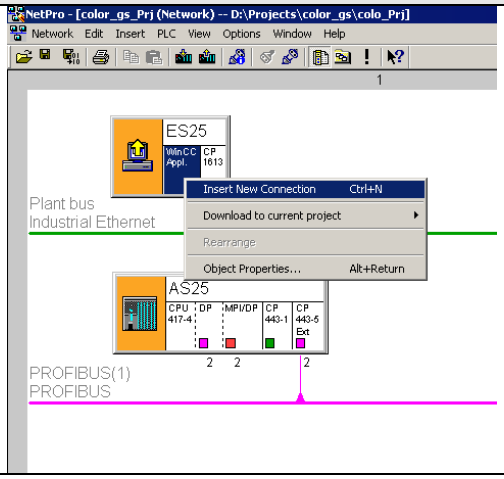
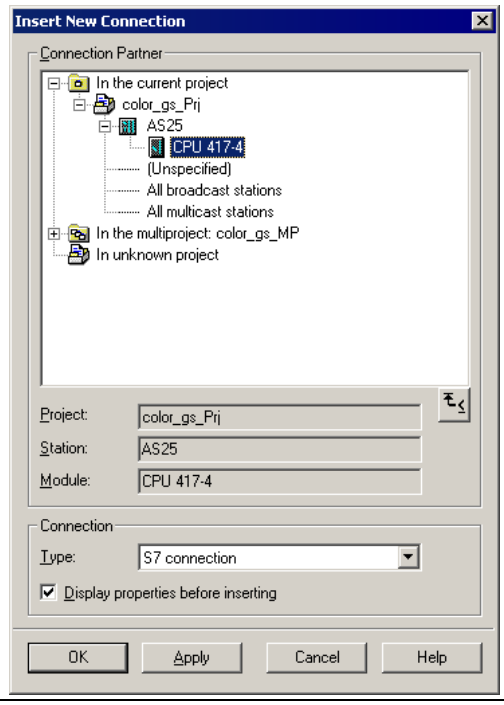
Step	Activity	Screenshot
3.	In the displayed window you see how the PC station is configured. Confirm this with “OK”.	
4.	Acknowledge the information with “OK”.	
5.	Finally, you receive the following message in the bottom window: “Transfer completed successfully.” Close the configuration dialog box.	

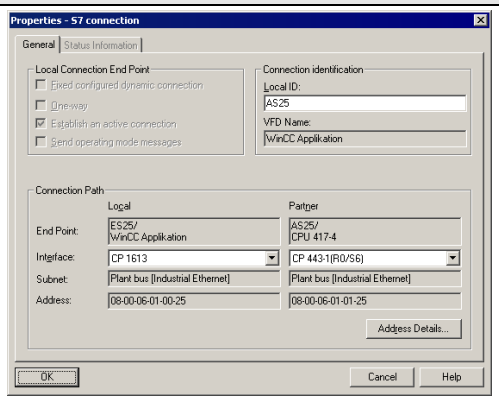
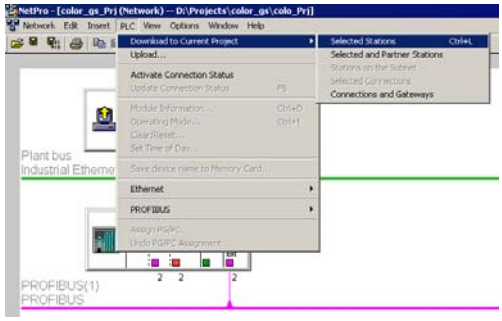
Configuration and download of the AS/OS communication

The connection with NetPro is configured below and loaded into the stations.

Note For station granular configuration, the subnets of the individual subprojects must be joined beforehand.

Table 3-5

Step	Activity	Screenshot
1.	Open NetPro. Select the WinCC application of the ES and open the context menu. Choose “Insert New Connection”.	
2.	In the “Connection Partner” window, select CPU of the AS. Make sure that in the “Connection” `field`, “S7 connection” has been selected. Confirm the setting with “OK”.	

Step	Activity	Screenshot
3.	In the “General” tab, in “Connection identification”, change the “Local ID” into a meaningful name, like AS25. Confirm the entry with “OK”.	
4.	Save and compile “Network” > “Save and Compile…”. Select “Compile and check everything”. Confirm the setting with “OK”.	
5.	Mark the ES and then, over the menu item load “`PLC > Download to Current Project > Selected Stations`”. Download the AS in the same way. Then close NetPro.	

Compile and download the user program

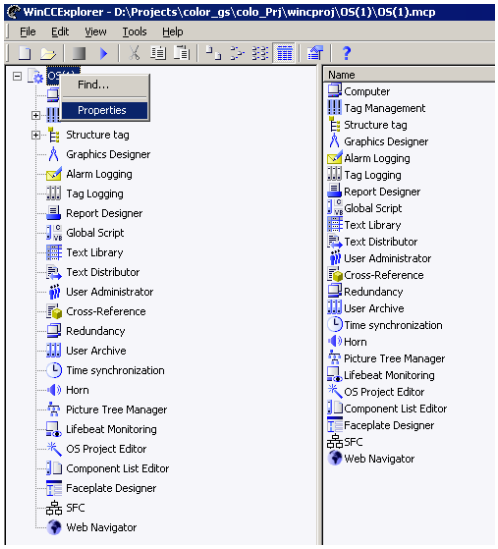
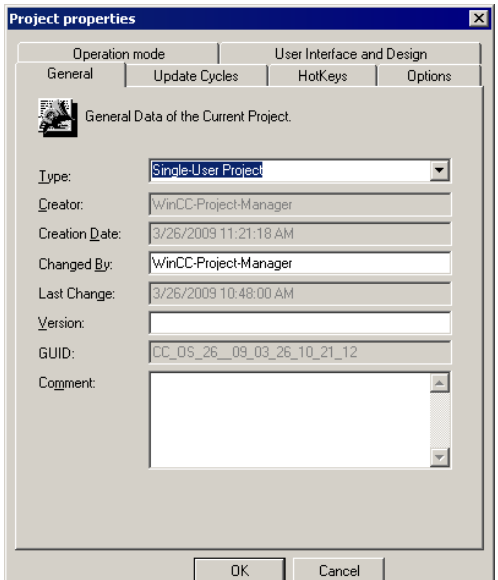
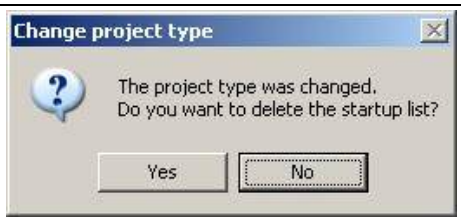
Compile the S7 program and download it into the AS.

Compiling the OS project

Prior to that compile the OS project in the SIMATIC Manager.

3.3.2 OS configuration

Table 3-6

Step	Activity	Screenshot
1.	Open the OS project. In the opened WinCC Explorer, open the OS project and select “Properties” in the context menu.	
2.	In the “General” tab under “type:” select “Single-User Project”. Confirm the selection and the message that appears with the “OK” button.	 
3.	Prevent deleting the startup list by pressing the “No” button.	

Step	Activity	Screenshot
4.	Close the WinCC Explorer. **NOTE** The changes will only become effective when the WinCC Explorer has been closed and opened again.	

3.3.3 Activating Runtime

After the OS project has been closed, you can open it again and activate Runtime.

3.3.4 Particularities at downloading of OS Project Modifications

If OS and ES are operated in a computer, no load process must be performed as all of the required data already exists. Here, executing the “Compile OS“ function is sufficient.

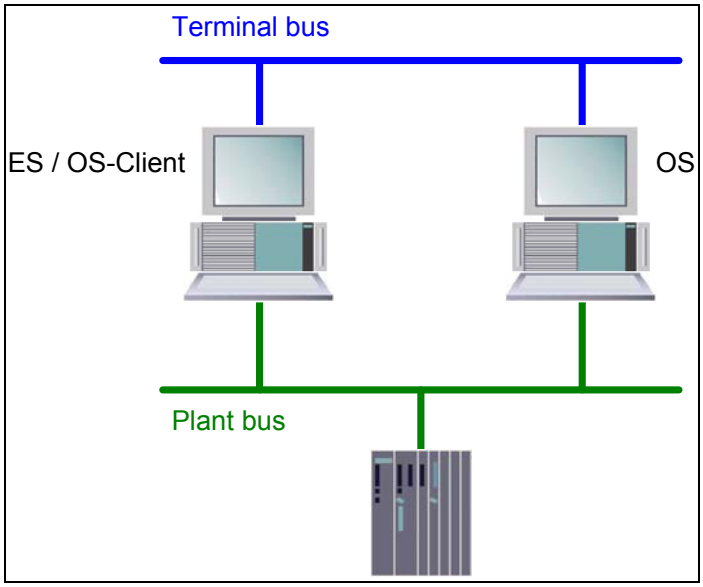
Analog to the “Download changes“ function, the “Compile changes“ function can be executed at stand-alone systems without terminating the process mode of the OS.

4 ES/OS Client and OS Server

4.1 Configuration Description

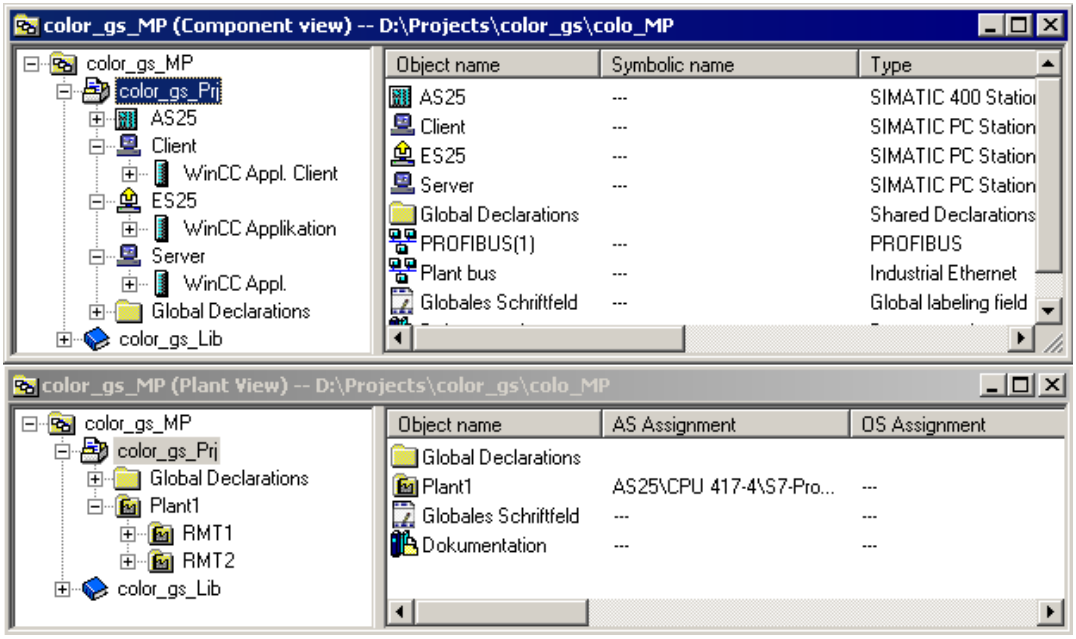
For a server-client structure with only two computers, the ES serves as the OS client at the same time. In the configuration, three PC stations are provided for.

Figure 4-1



PCS 7 configuration

Figure 4-2



4.2 Required Hardware and Software Licenses

Hardware

The following hardware is recommended for this configuration and can be ordered via the Siemens mall. Your selected operating system and the system software SIMATIC PCS 7 is then preinstalled accordingly.

Table 4-1

Component	Product information	Operating system	Plantbus transition
1 x ES	SIMATIC PCS 7 ES/OS IL 547B BCE WXP	Windows XP SP3	RJ45 network card
	SIMATIC PCS 7 ES/OS IL 547B IE WXP	Windows XP SP3	CP 1613 A2
1 x OS server	SIMATIC PCS 7 OS server IL 547B BCE SRV03	Windows server 2003 (R2)	RJ45 network card
	SIMATIC PCS 7 OS server IL 547B IE SRV03	Windows server 2003 (R2)	CP 1613 A2

Software licenses

In the following the different software/license packages required for this configuration selection have been listed.

An OS server can provide up to 8500 POs with the respective software package - depending on the scope of the project. In addition to the Engineering Software, an OS client software must be installed on the ES.

Table 4-2

Software	Name
1 x OS software server	SIMATIC PCS 7 OS Software Server V7.1 • 250 PO • 1000 PO • 2000 PO • 3000 PO • 5000 PO • 8500 PO
1 x engineering software	SIMATIC PCS 7 Engineering Software V7.1 AS/OS • PO "unlimited"
1 x OS software client	SIMATIC PCS 7 OS Software Client V7.1

Note The “Rental License”, which is restricted to 30 operating days or 50 hours, provides additional licenses for engineering of short-term projects.

4.3 Step-by-step Configuration

Note The following instruction was generated on the basis of Windows XP SP3 and PCS 7 V7.1.

For the plantbus transitions, CP1613 is used as an example. A clock synchronization is activated.

The PC stations in the test setup are called:

- ES/OS client (“ES25”): ES25
- OS server (“Server”): ES21

4.3.1 Preparatory Steps

Create a project folder in the OS server and release it. You can then transmit OS data configured on the Engineering Station to the OS.

4.3.2 ES Configuration

Generating the multiproject

As a basis for the following instruction, all PC stations must be physically networked according to Figure 4-1 (S.22). Furthermore, a multiproject must have been generated on the ES in which the AS has already been configured regarding hardware and software.

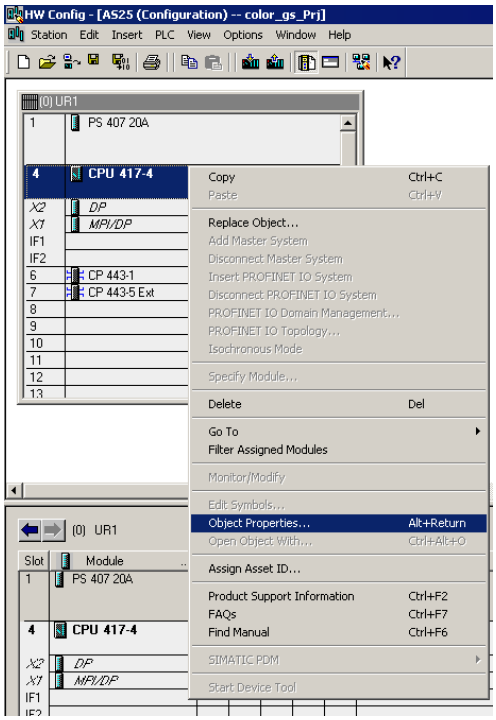
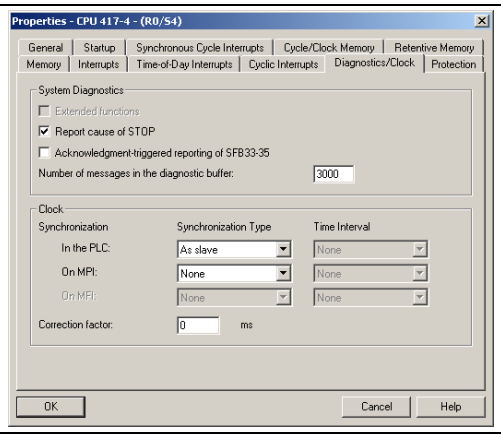
Then you can start with the following CPU and CP settings.

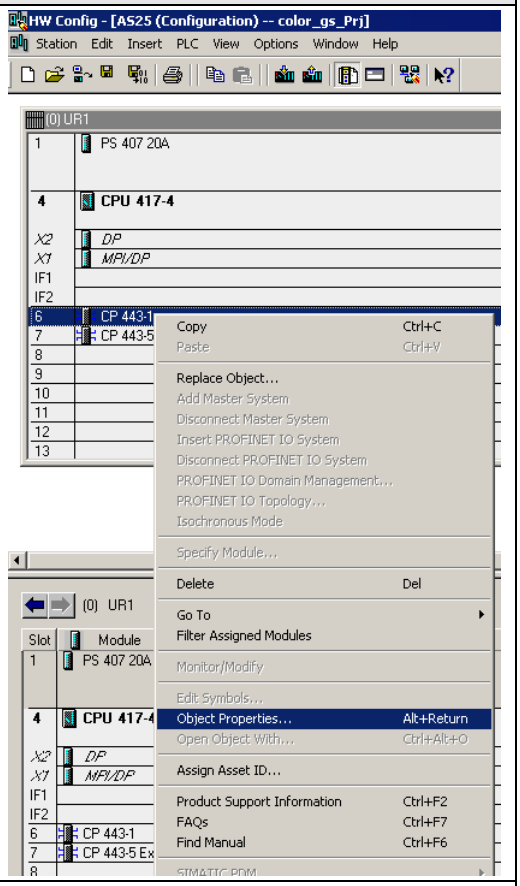
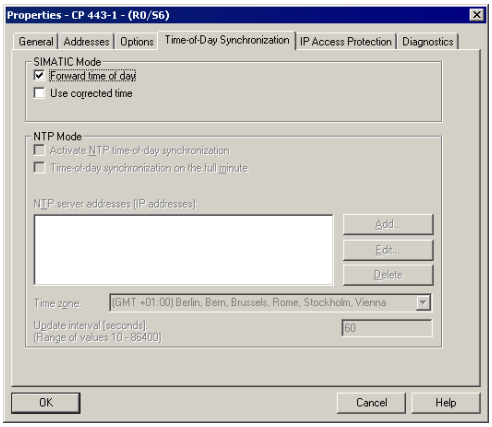
AS settings

This example describes a path where the OS server defines the master time.

Note Further options of clock synchronization are described in detail in the Manual “PCS 7 – Configuration Manual Operator Station, clock synchronization and life signal monitoring”.

Table 4-3

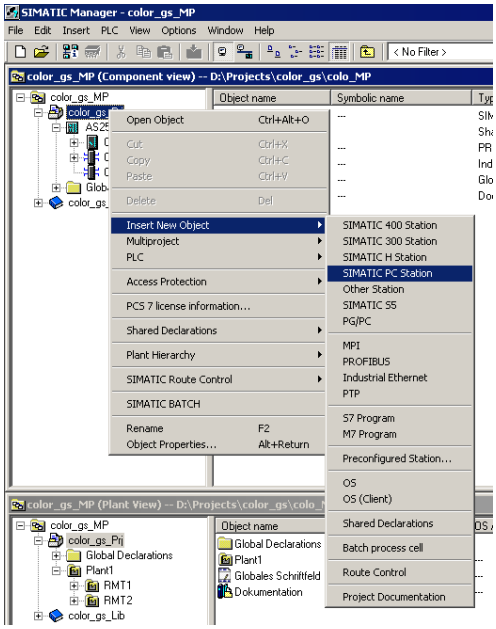
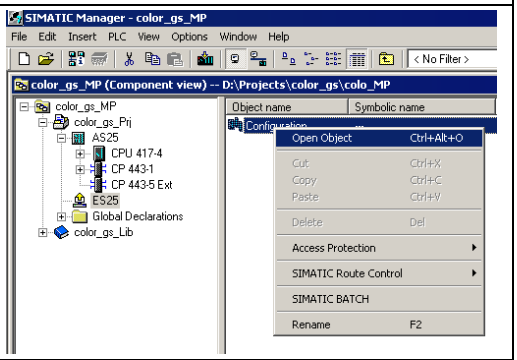
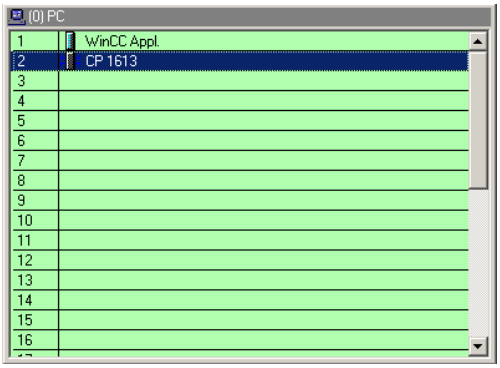
Step	Activity	Screenshot
1.	Open the HW Config of the AS. Select the CPU and choose “Object Properties…” from the context menu.	
2.	Go to the “Diagnostics/clock” tab. In the section under “Clock”, set “As slave” for the AS under “Synchronization Type”. Confirm the setting with “OK”.	

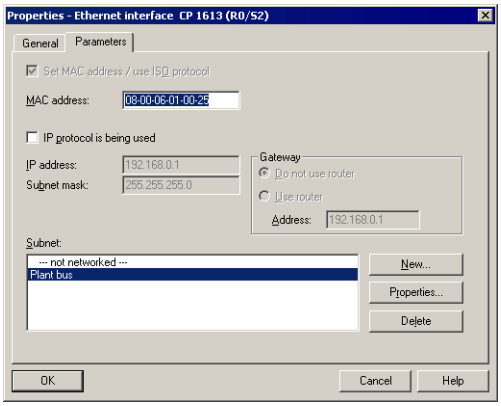
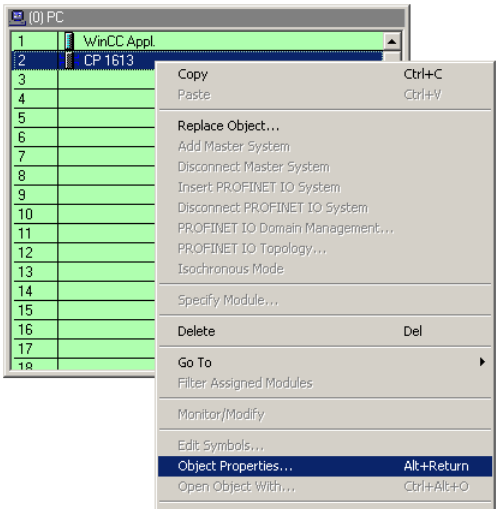
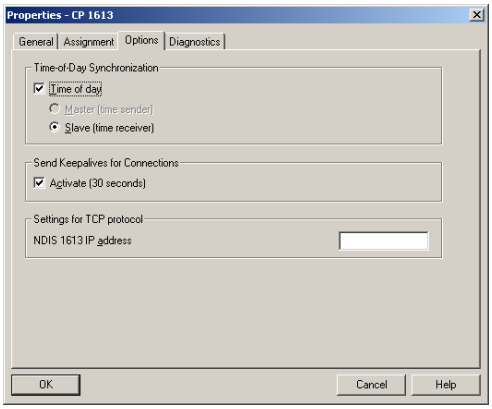
Step	Activity	Screenshot
3.	Open the context menu of the CP and select “Object Properties…”.	
4.	Go to the “Time-of-Day Synchronization” tab. Activate the option “Activate SIMATIC time-of-day synchronization”. Confirm the setting with “OK”.	
5.	Save and compile the configuration with “`Station > Save and Compile`”. Close the HW Config.	

Generating the ES PC station

In order to be able to test the OS project on the ES, generate a PC station for the ES with WinCC Application.

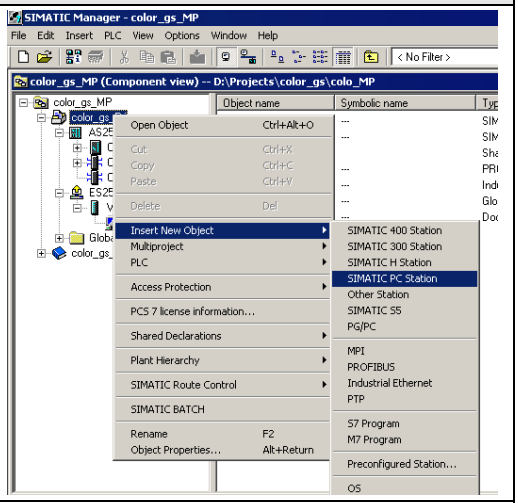
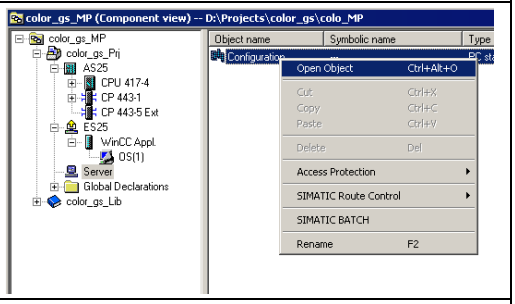
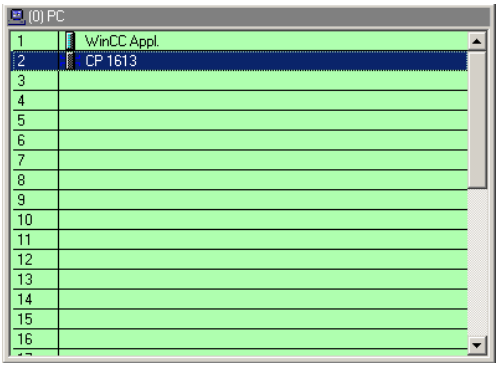
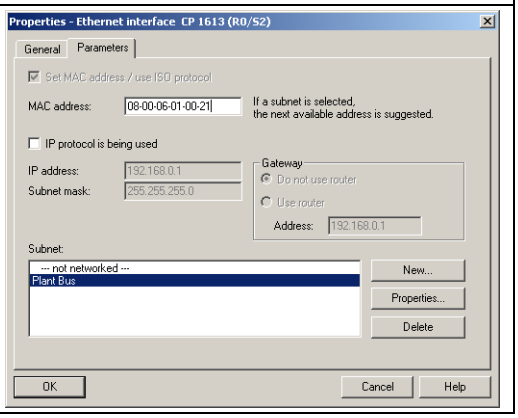
Table 4-4

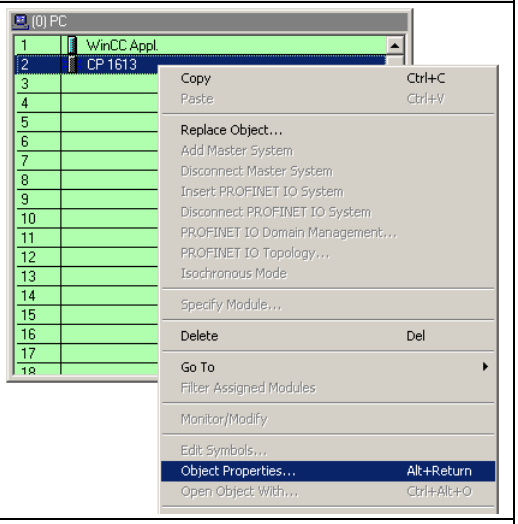
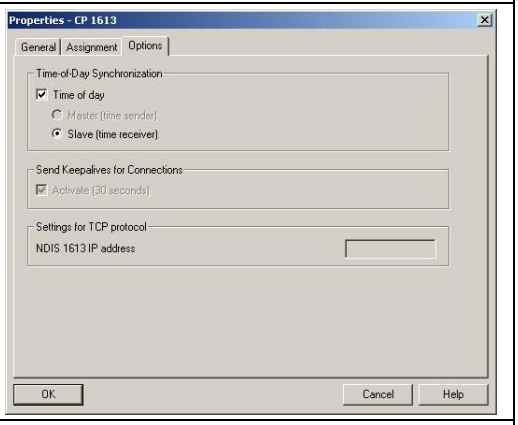
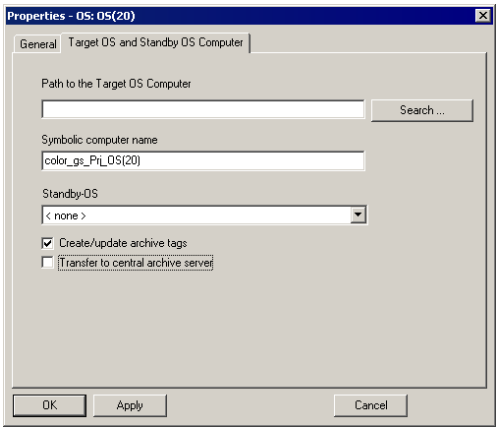
Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “Insert New Object > SIMATIC PC Station”. Change the name of the PC station so that it corresponds to the name of the local computer in the network.	
2.	Open the HW Config of the PC station of the OS server.	
3.	From the object catalog (“View > Catalog”), add a “WinCC Application” and a network card of the type “CP1613”.	

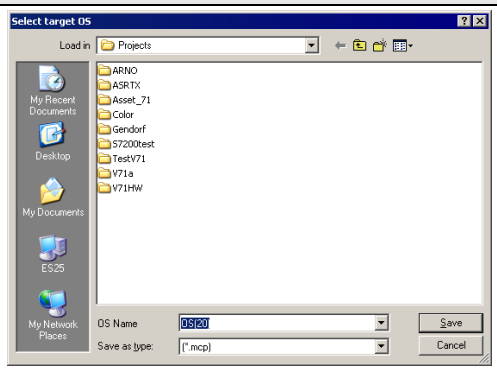
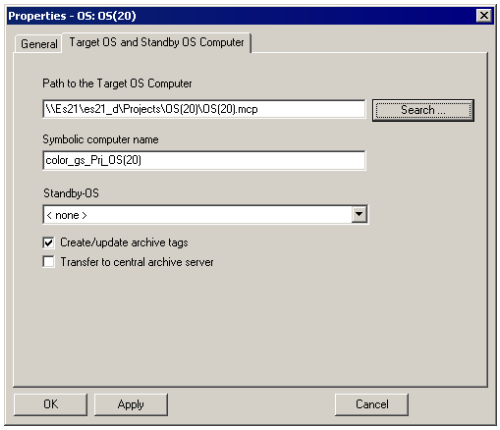
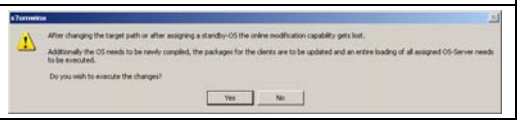
Step	Activity	Screenshot
4.	Under “Subnet”, select the Plant Bus or create it with the button “New”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	
5.	Open the context menu of the CP and select “Object Properties…”.	
6.	Select the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via menu item “Station > Save and Compile”. Close the HW Config.	
8. optional	In the SIMATIC Manager, delete the OS application of the PC station of the ES as it is not required in our example.	

Generating the OS server PC station

Table 4-5

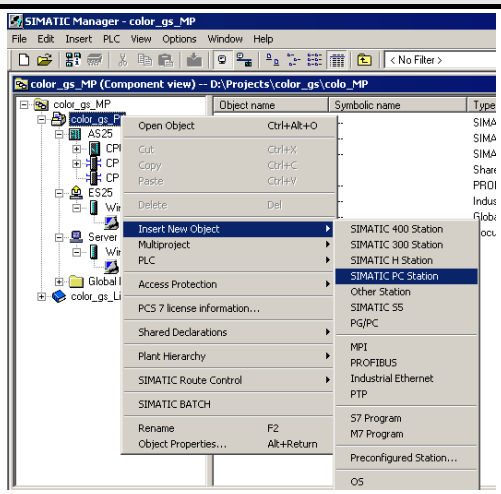
Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via `“Insert New Object > SIMATIC PC Station”`. You can choose its name freely.	
2.	Open the HW Config of the PC station with the context menu.	
3.	From the object catalog (`“View > Catalog”`), add a “WinCC Application” and a network card of the type “CP1613”.	
4.	Under “Subnet”, select the Plant Bus or create it with the button “New…”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	

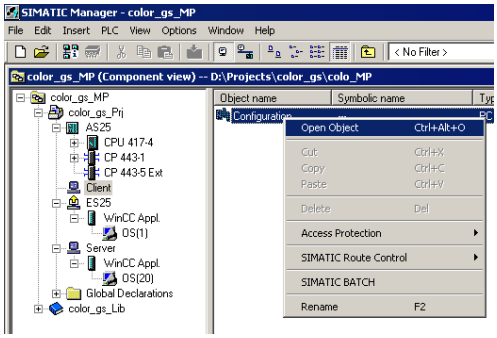
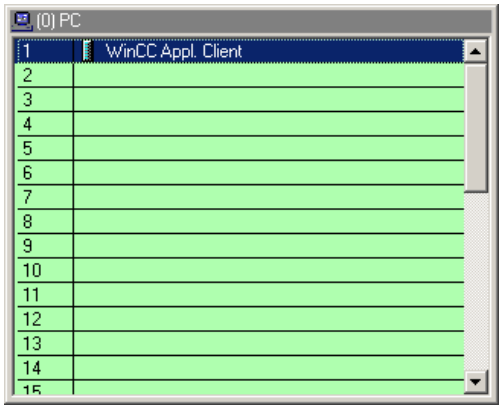
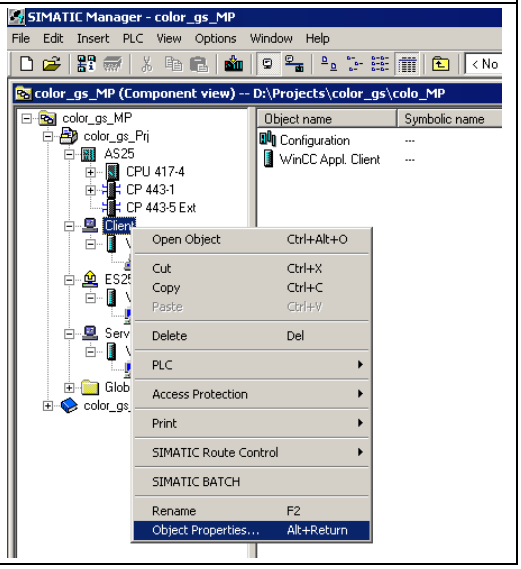
Step	Activity	Screenshot
5.	Open the context menu of the CP1613 and select “Object Properties…”.	
6.	Switch to the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via menu item “Station > Save and Compile”. Close the HW Config.	
8.	In the SIMATIC Manager, open the properties dialog of the OS project of the OS server. Switch to the “Target OS and Standby OS Computer” tab. Under “Standby-OS”, select “<none>”. Then hit the “Search…” button.	

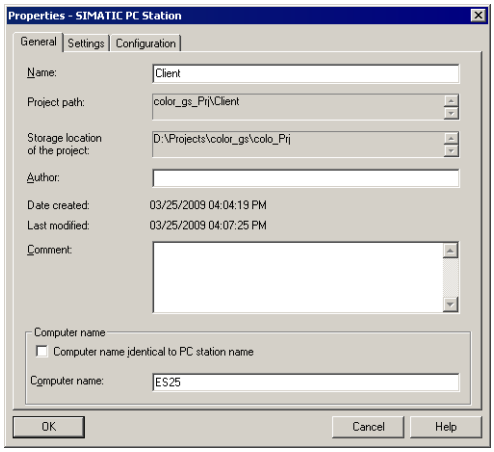
Step	Activity	Screenshot
9.	Navigate by the drop down menu to the enable project folder of the OS server (see 4.3.1 Preparatory Steps). Hit the “Save” button.	
10.	Check the selected path and confirm with the “OK” button.	
11.	Acknowledge the information dialog with “Yes”.	

Generating the client PC station

Table 4-6

Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “`Insert New Object > SIMATIC PC Station`”. You can choose its name freely.	

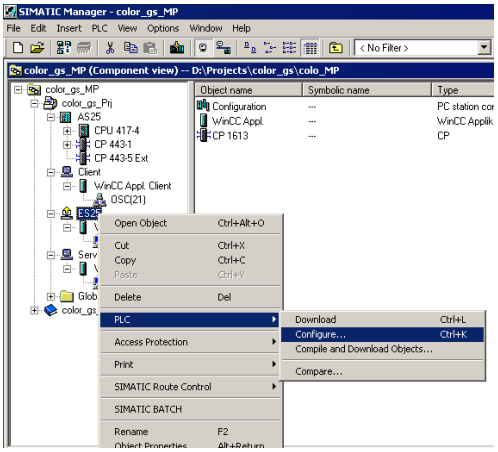
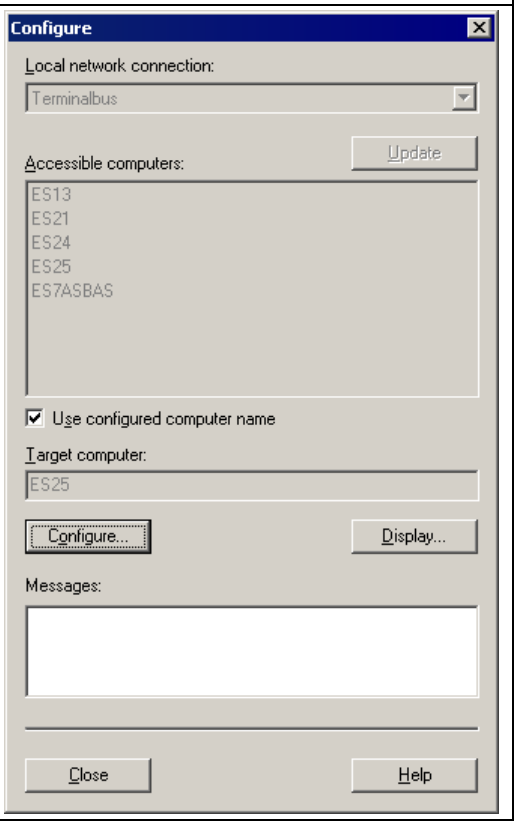
Step	Activity	Screenshot
2.	Open the HW Config of the PC station of the OS client.	
3.	From the object catalog (“View > Catalog”), add a “WinCC Application Client”.	
4.	Save and compile via menu item “Station > Save and Compile…”. Close the HW Config.	
5.	Open the context menu of the PC station of the client in the SIMATIC Manager and select “Object Properties”.	

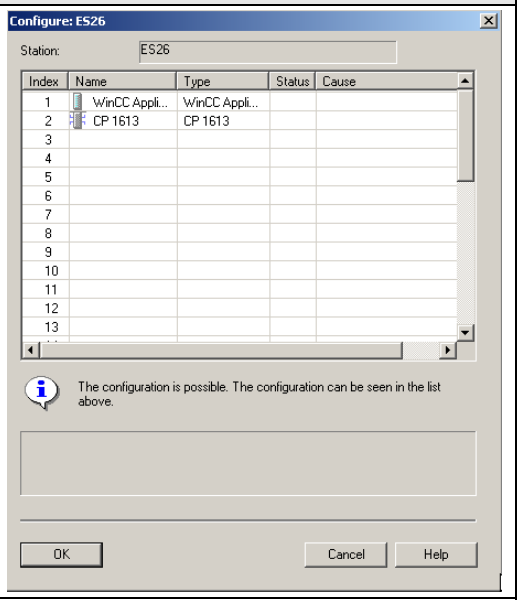
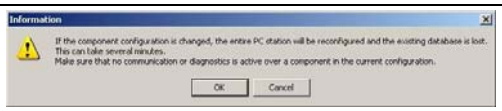
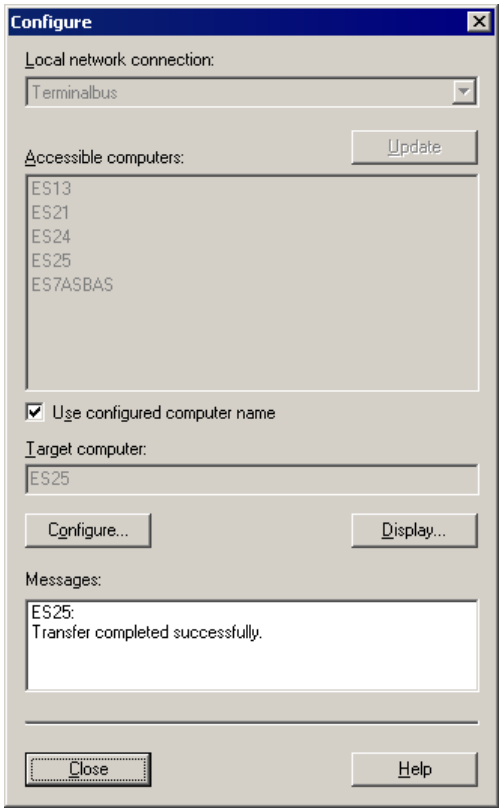
Step	Activity	Screenshot
6.	Under “Computer name”, enter the name of the PC, where the operating of the client shall be carried out. In the configuration on hand, this is the ES computer Confirm the entry with “OK”.	

Configuring all relevant PC stations

The function “Configure PC station” transfers the project configuration to one or more PLCs. First configure the local components configurator of the ES and then the OS connected to the plantbus.

Table 4-7

Step	Activity	Screenshot
1.	Configure the component configurator of the ES. Open the ES context menu and select “`PLC > Configure…`”.	
2.	Under “Accessible computers”, choose the PC which is provided for configuration. **NOTE** If you chose the option “Computer name identical to the PC station name” in the component view “Object Properties” for the PC station, the component configurator directly displays the target computer to be configured. With “Display”, you can have the current configuration of the PC station displayed. Hit the “Configure…” button.	

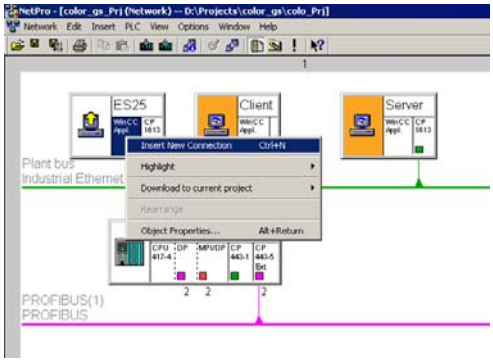
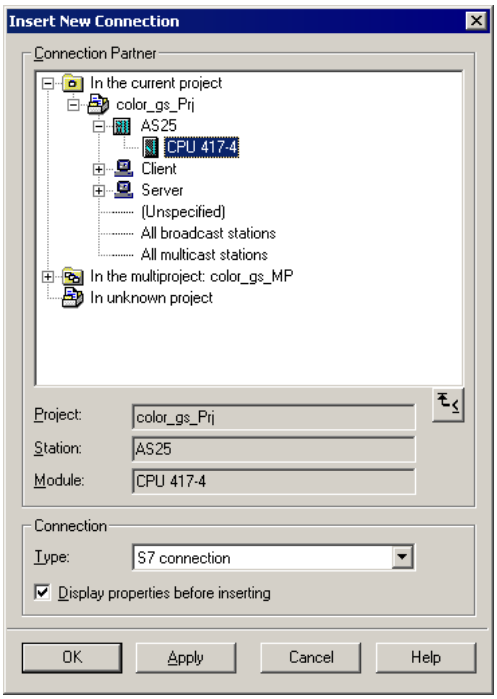
Step	Activity	Screenshot
3.	In the displayed window you see how the PC station is configured. Confirm this setting with “OK”.	
4.	Acknowledge the information dialog with “OK”.	
5.	Finally, you receive the following message in the bottom window: “Transfer completed successfully.” Close the configuration dialog box.	
6.	Please configure the component configurator of the OS server analog to step 1 to 5.	

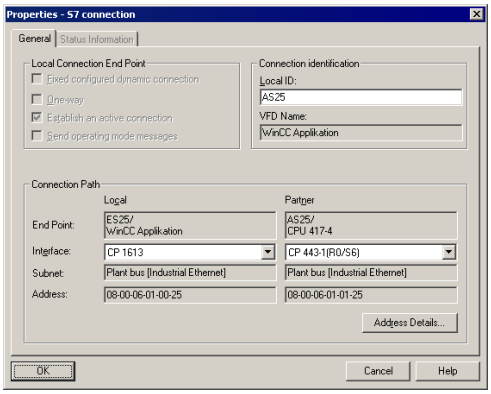
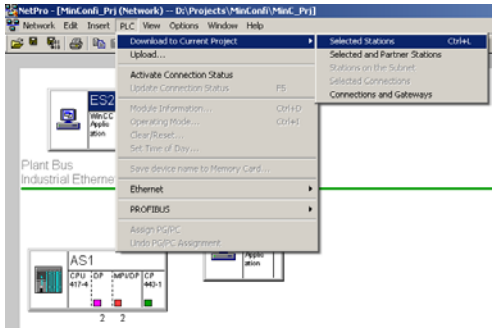
Configuration and download of the AS/OS communication

In the following, the connections between the PC stations and the AS in NetPro are configured and downloaded into the individual stations.

Note For station granular configuration, the subnets of the individual subprojects must be joined beforehand.

Table 4-8

Step	Activity	Screenshot
1.	Open NetPro. Select the WinCC application of the ES and open the context menu. Choose “Insert New Connection”.	
2.	In the “Connection Partner” window, select the CPU of the AS. Make sure that in the “Connection” field a “S7 connection” has been selected. Confirm the setting with “OK”.	

Step	Activity	Screenshot
3.	In the “General” tab, in “Connection identification” change the “Local ID” into a meaningful name, like AS25. Confirm the entries with “OK”.	
4.	Repeat steps 1 to 3 for connecting the OS server to the AS. It is important here, that the connections of the ES and the OS server with the AS have **identical names**. Then, save and compile the configuration with the menu item “`Network > Save and compile…`”. Choose the option “Compile and check everything” and confirm with “OK”.	
5.	Select the ES and then download the connections with the menu item “`PLC > Download to Current Project > Selected Stations`”. Download the OS server and the AS in the same way. Then close NetPro.	

Compile and download the user program

Compile the S7 program and download it into the AS.

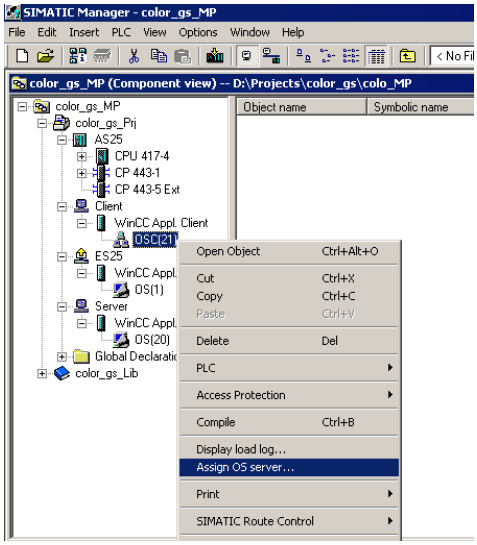
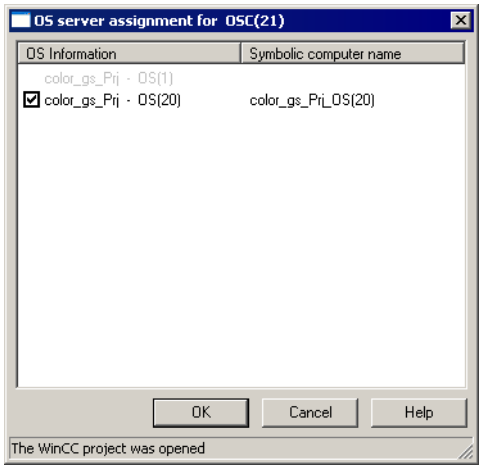
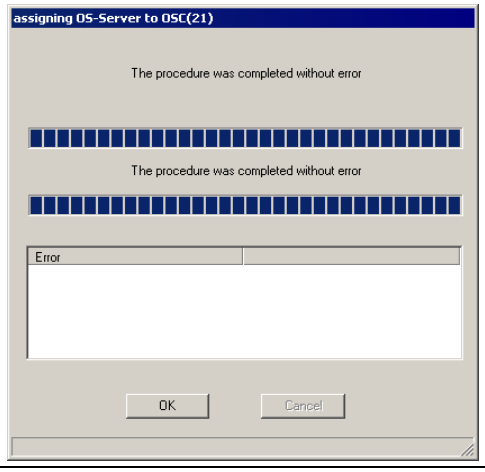
Compiling the OS server project

Compile the OS server project in the SIMATIC Manager.

Look out for the correct OS assignment to the server in Plant View.

Assigning the server package

Table 4-9

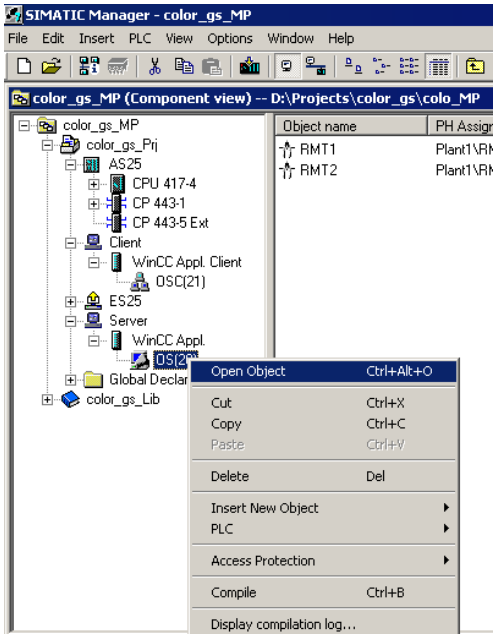
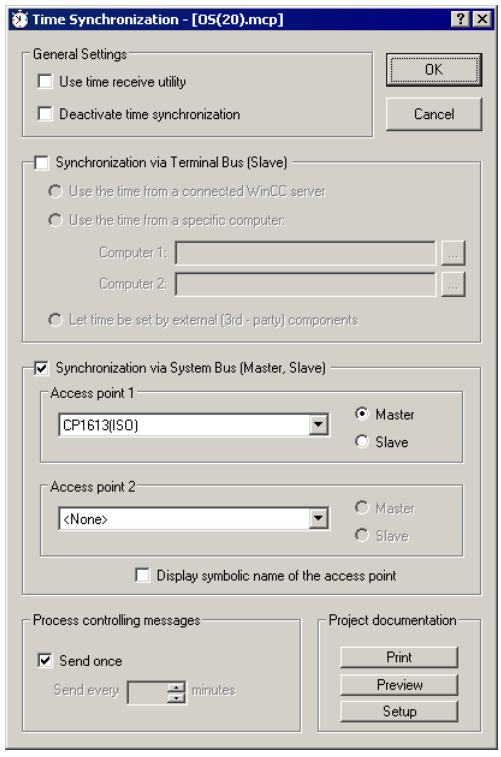
Step	Activity	Screenshot
1.	Select the OS application of the OS client and select “Assign OS server…” in the context menu.	
2.	Then select the respective OS project and acknowledge with “OK”.	
3.	Confirm the successful download of the package with “OK”.	

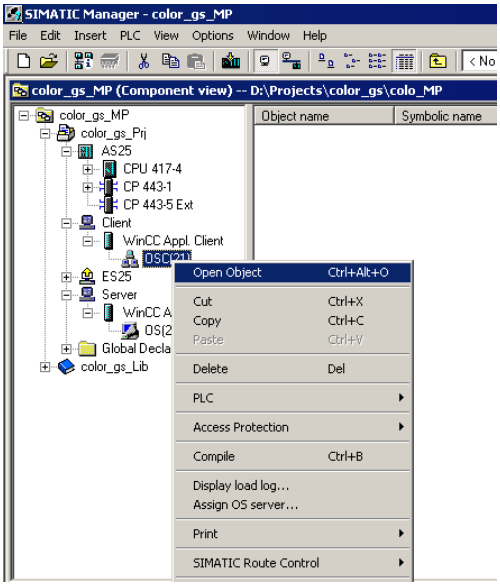
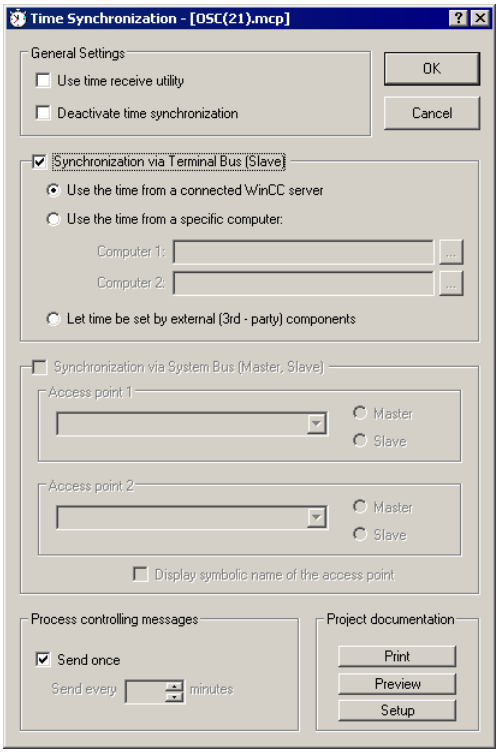
4.3.3 OS Configuration

Activating the clock synchronization

Still on the ES, the necessary settings are activated in the OS projects by OS server and OS client.

Table 4-10

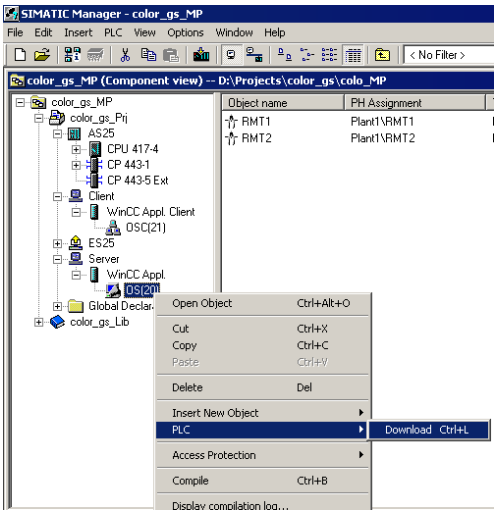
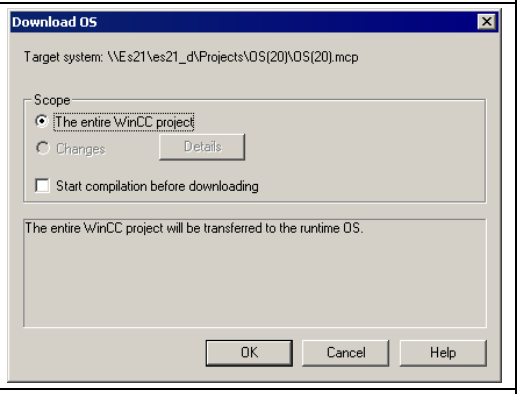
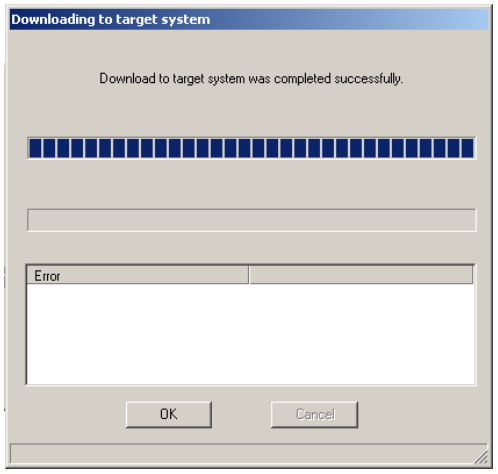
Step	Activity	Screenshot
1.	Open the OS server project.	
2.	Open the editor “Time synchronization” with the context menu. Activate the checkbox “Synchronization via System Bus (Master, Slave)”. In “Access point 1”, select “CP1613(ISO)” and activate the option “Master”. Confirm the setting with “OK”. **NOTE** If the ES server, as opposed to the OS server, does not have a CP 1613, the settings for the clock synchronization cannot be executed here. The clock synchronization settings must, in this case, be executed on the OS server itself after the download of the OS project.	

Step	Activity	Screenshot
3.	Close the OS server project.	
4.	Open the OS client project.	
5.	Open the editor “Time synchronization” with the context menu. Activate the checkbox “Synchronization via Terminal Bus (Slave)” and select “Use the time from a connected WinCC server”. Confirm the setting with “OK”.	
6.	Close the OS client project.	

Download the OS project to the OS server

After the clock synchronization has been configured on the ES side, the OS project can be downloaded to the OS server.

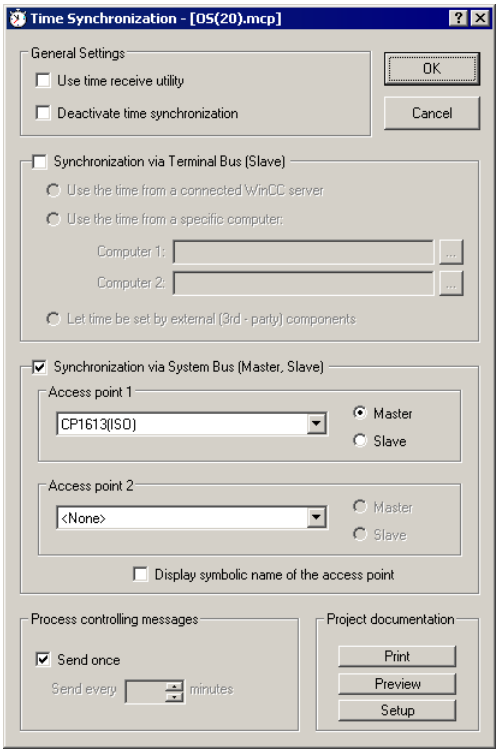
Table 4-11

Step	Activity	Screenshot
1.	In the SIMATIC Manager, select the OS project of the OS server and select "PLC > Download" from the context menu.	
2.	Downloading the OS project for the first time requires a complete download. Start the download with "OK".	
3.	After the successful download, the OS project is located on the OS server in the intended folder. Confirm this with "OK".	

OS configuration on the OS server

After the first download, the following step-by-step instructions for time synchronization must be checked and corrected if necessary.

Table 4-12

Step	Activity	Screenshot
1.	Open the OS project on the OS server.	
2.	Open the editor “Time synchronization” with the context menu. Activate the checkbox “Synchronization via System Bus (Master, Slave)”. In “Access point 1”, check or select “CP1613(ISO)” and press the “Master” radio button. Confirm the settings always with “OK”.	

4.3.4 Activating Runtime

Open the OS project on the OS server and activate Runtime.

Then change to the ES computer and open the OS client project. Here, activate Runtime, too.

4.3.5 Particularities at downloading of OS Project Modifications

Delta-download

Before OS compilation and download are possible on the ES, the OS client Runtime must be deactivated and the WinCC project must be closed.

Entire download

Before OS compilation and download are possible from the ES, the OS client Runtime as well as the OS server Runtime must be deactivated and the WinCC projects must be closed.

5 ES/OS-Master and OS-Standby

CAUTION **The configuration described here only works with WinCC V7.0 SP2 HF5 or higher.**

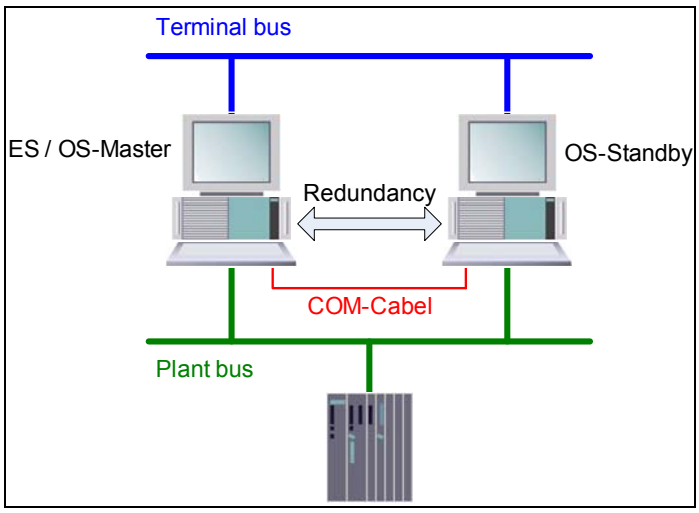
5.1 Configuration Description

The configuration refers to the use of the ES as an additional OS (see chapter 3 ES/OS Stand-alone Systems). Moreover, another OS stand-alone system is configured and operated in redundancy with the ES/OS combination. After the download the redundancy settings in the WinCC Explorer must be set.

Note In our example, the redundancy settings in WinCC are made in such a way that the ES is defined as the master OS and the OS as a standby OS.

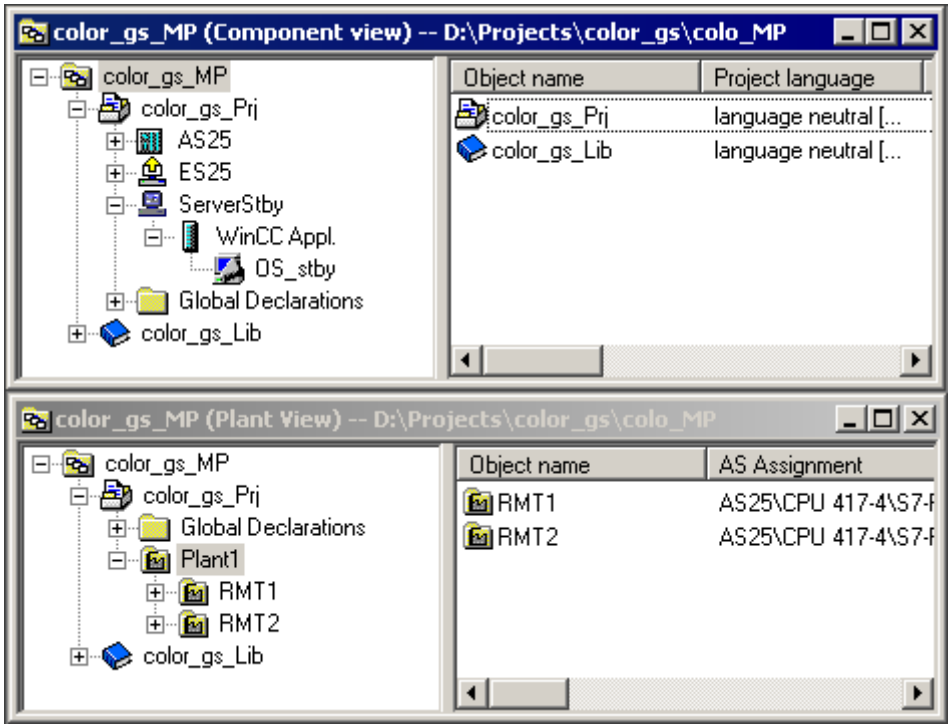
Hardware configuration

Figure 5-1



PCS 7 configuration

Figure 5-2



Particularities / restrictions

Due to the nontypical PCS 7 configuration with only one OS there are differences in the system behavior which must be considered:

- The first activated OS takes on the master role.
- For the complete download, Runtime must be deactivated for both computers, and the WinCC Explorer must be closed. During this time, neither operator actions nor archiving is possible.
- For a delta-download, Runtime on the ES must be closed again for compiling the OS. It can then be re-activated for testing the modified OS functions. For the downloading, Runtime must be terminated and the WinCC project must be closed.
  The following restrictions result:
  - No operator actions can take place at the ES computer at that time.

NOTICE	If Runtime remains active on the ES during the OS compilation, it might happen - depending on the changes made - that a subsequent delta-download is carried out incompletely and results in errors. Afterwards, only a complete download will be possible.

- Runtime being active on the ES computer results in the runtime archive being stored under the multiproject path. Therefore, they are also

included into the ZIP file during archiving and cause increased storage space as well as archiving times.
Workaround:

- Deactivate Runtime on the ES computer.
- Reset archive in the OS project on the ES computer and close the entire PCS 7 project.

After archiving and reactivating Runtime, the archives are updated again. Please note that more time will be needed for checking.

5.2 Required Hardware and Software Licenses

Hardware

The following hardware is recommended for this configuration and can be ordered via the Siemens mall. Your selected operating system and the system software SIMATIC PCS 7 is then preinstalled accordingly.

Table 5-1

Components	Product information	Operating system	Plantbus transition
1 x ES	SIMATIC PCS 7 ES/OS IL 547B BCE WXP	Windows XP SP3	RJ45 network card
	SIMATIC PCS 7 ES/OS IL 547B IE WXP	Windows XP SP3	CP 1613 A2
1 x OS single station	SIMATIC PCS 7 ES/OS IL 547B BCE WXP	Windows XP SP3	RJ45 network card
	SIMATIC PCS 7 ES/OS IL 547B IE WXP	Windows XP SP3	CP 1613 A2
1 x redundancy	RS 232 connecting cable, 10 m		

Software licenses

In the following, the different software/license packages required for this configuration selection have been listed.

In the selected configuration, the number of the POs is restricted to no more than 2000.

Table 5-2

Software	Name
1 x engineering software for the combined station	SIMATIC PCS 7 Engineering Software V7.1 AS/OS Runtime license • 250 PO • 1000 PO • 2000 PO
1 x OS software single station	SIMATIC PCS 7 OS Software Single Station V7.1 • 250 PO • 1000 PO • 2000 PO • 3000 PO • 5000 PO
1 x redundancy upgrade	WinCC/Redundancy V7.0

Note The “Rental License”, which is restricted to 30 operating days or 50 hours, provides additional licenses for engineering of short-term projects.

5.3 Step-by-step Configuration

Note The following instruction was generated on the basis of Windows XP SP3 and PCS 7 V7.1.

For the plantbus transitions, CP1613 is used as an example. Additionally, the clock synchronization is activated.

The PC stations in the test setup are called:

- ES/OS-Master (“ES25”): ES25
- OS-Stanby (“ServerStby”): ES21

5.3.1 ES Configuration

Generating the multiproject

As a basis for the following instruction, all PC stations must be physically networked according to Figure 5-1. Furthermore, a multiproject must have been created on the ES in which the AS has already been configured regarding hardware and software.

Then you can start with the following CPU and CP settings.

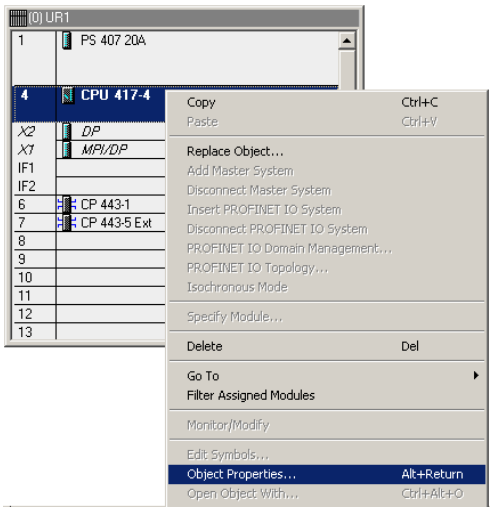
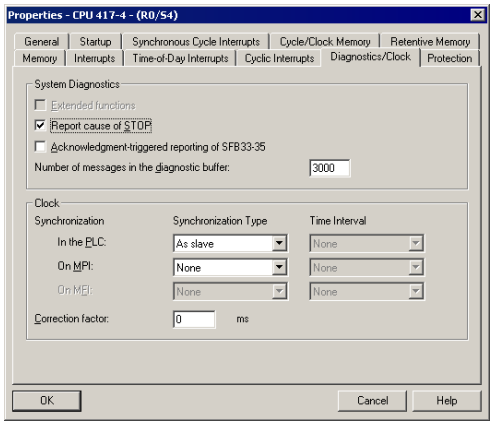
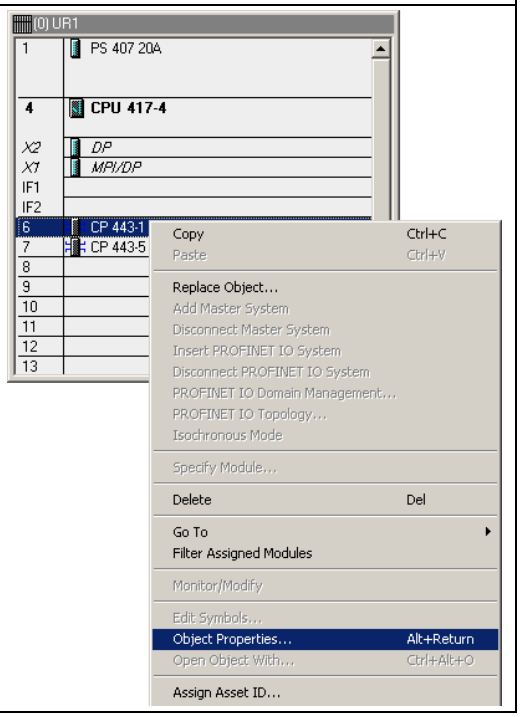
AS settings for the clock synchronization

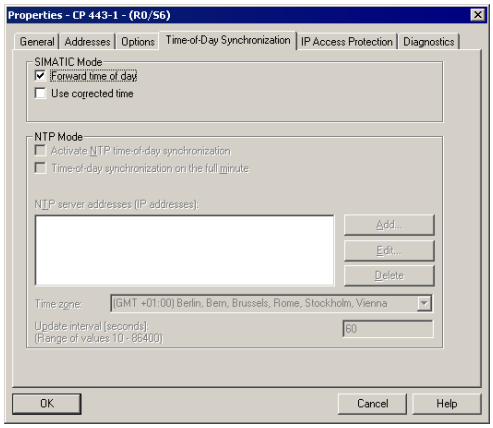
Evaluation of the process data requires all components of the process control system to work with an identical clock, so that messages can be allocated in the correct temporal sequence.

Below, a path is described where the redundant OS single stations define the master time.

Note Further options of clock synchronization are described in detail in the Manual “PCS 7 – Configuration Manual Operator Station, clock synchronization and life signal monitoring”.

Table 5-3

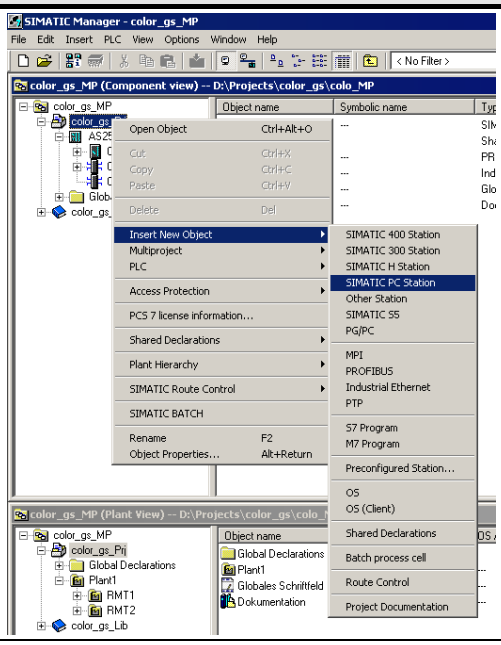
Step	Activity	Screenshot
1.	Open the HW Config of the AS. Select the CPU and choose “Object Properties…” from the context menu.	
2.	Go to the “Diagnostics/Clock” tab. In the section under “Clock”, set “As slave” for the AS under “Synchronization Mode”. Confirm this setting with “OK”.	
3.	Open the context menu of the CP and select “Object Properties…”.	

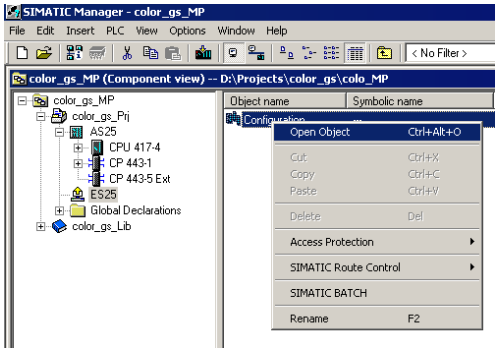
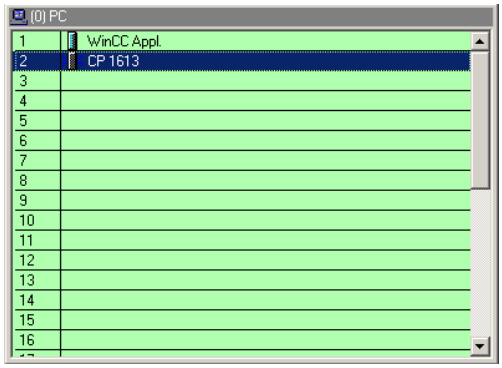
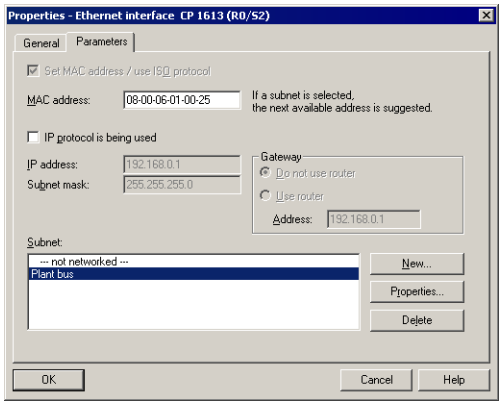
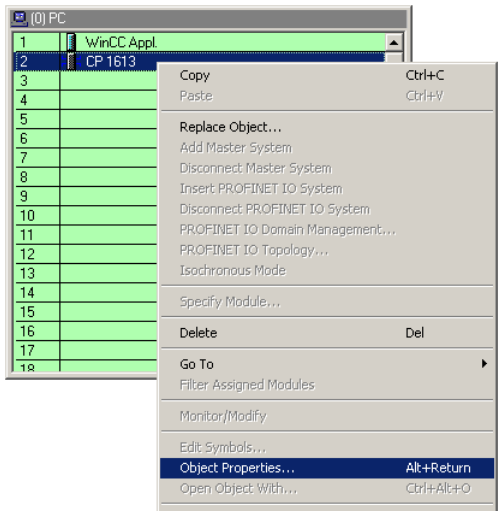
Step	Activity	Screenshot
4.	Go to the “Time-of-Day Synchronization” tab. Activate the option “Activate SIMATIC time-of-day synchronization”. Confirm the setting with “OK”.	
5.	Save and compile via menu item “`Station > Save and Compile`”. Close the HW Config.	

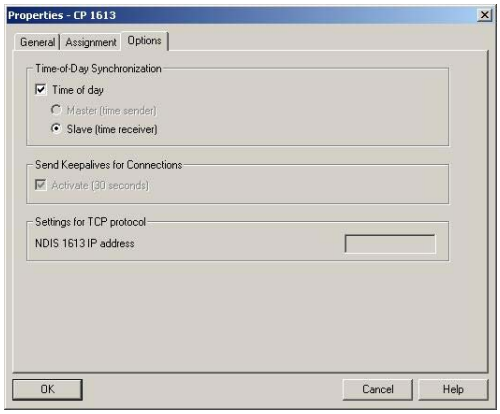
Generating the ES PC station

In order to take the OS project on the ES into operation, we generate a PC station for the ES with WinCC application.

Table 5-4

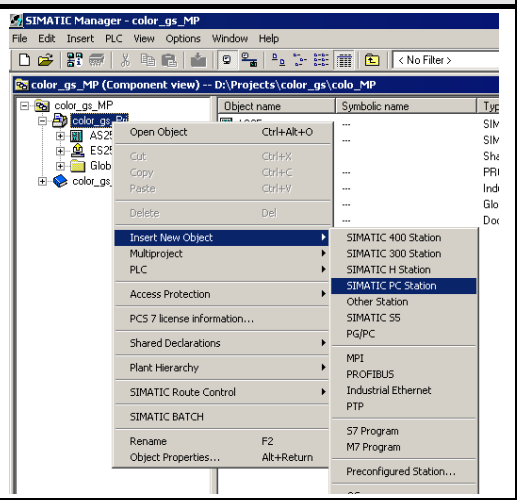
Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “`Insert New Object > SIMATIC PC Station`”. Change the name of the PC station so that it corresponds to the name of the local computer in the network.	

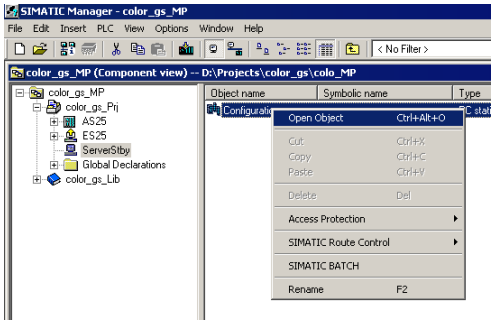
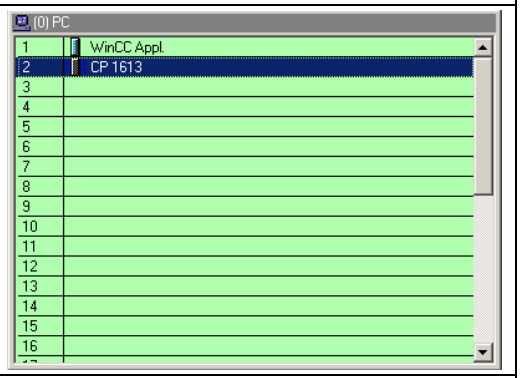
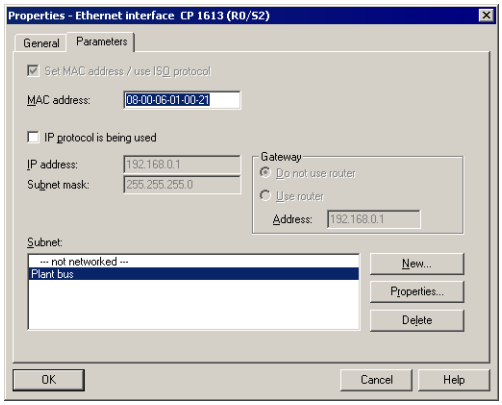
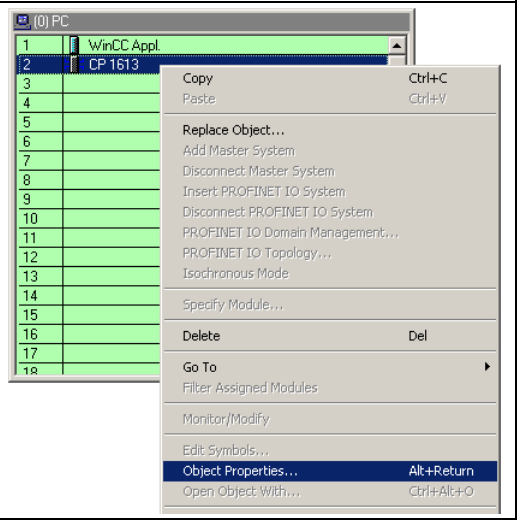
Step	Activity	Screenshot
2.	Open the HW Config of the PC station of the ES with the context menu.	
3.	From the object catalog (`"View > Catalog"`), add a “WinCC Application” and a network card of the type “CP1613”.	
4.	Under “Subnet”, select the Plant Bus or create it with the button “New…”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	
5.	Open the context menu of the CP and select “Object Properties…”.	

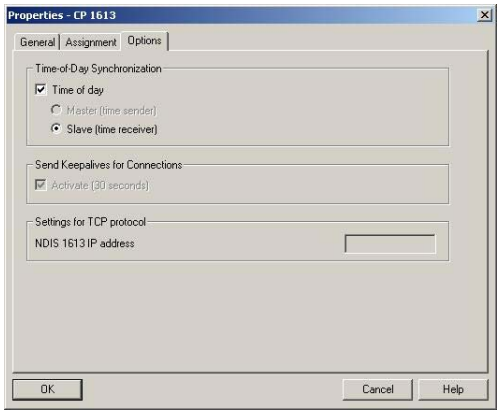
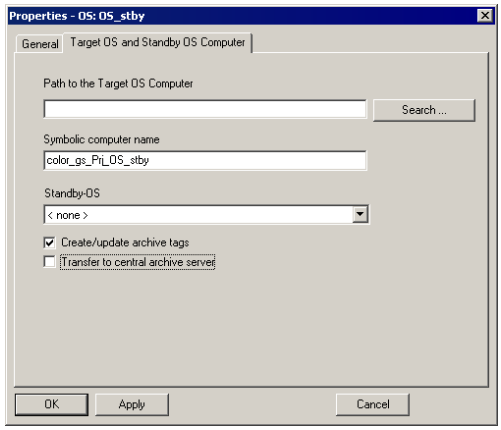
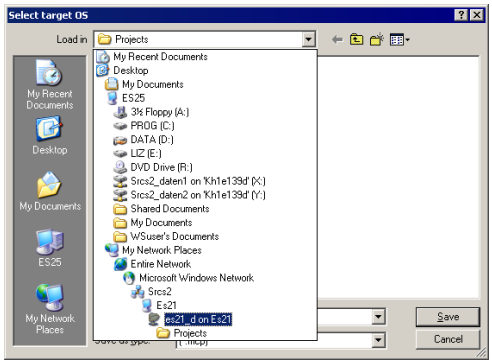
Step	Activity	Screenshot
6.	Select the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via the menu item “Station > Save and Compile…”. Close the HW Config.	
8. optional	In the SIMATIC Manager, delete the OS project of the PC station of the ES as it is not required in our example.	

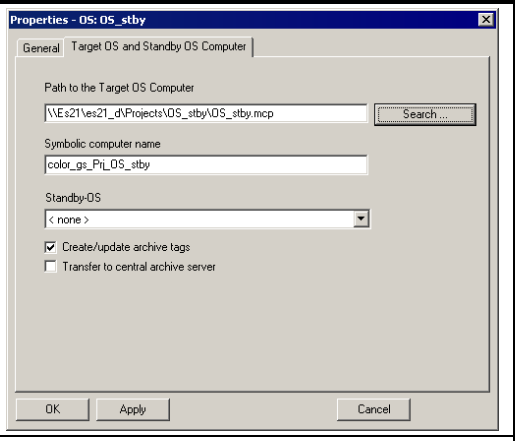
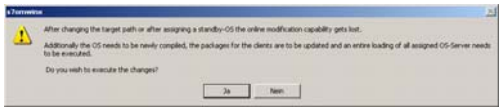
Generating the standby OS PC station

Table 5-5

Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “Insert New Object > SIMATIC PC Station”. You can choose its name freely.	

Step	Activity	Screenshot
2.	Open the HW Config of the PC station of the standby OS with the context menu.	
3.	From the object catalog (“View > Catalog”), add a “WinCC Application” (no WinCC Application Stby!) and a network card of the type “CP1613”.	
4.	Under “Subnet”, select the Plant Bus or create it with the button “New…”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	
5.	Open the context menu of the CP and select “Object Properties…”.	

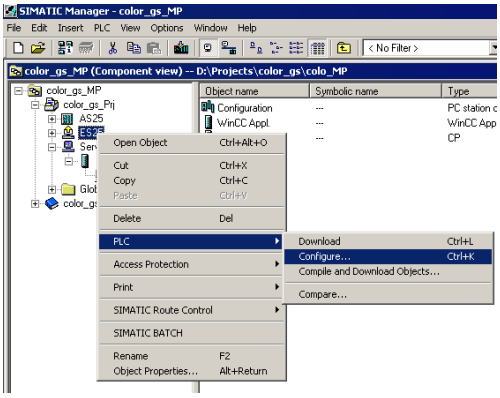
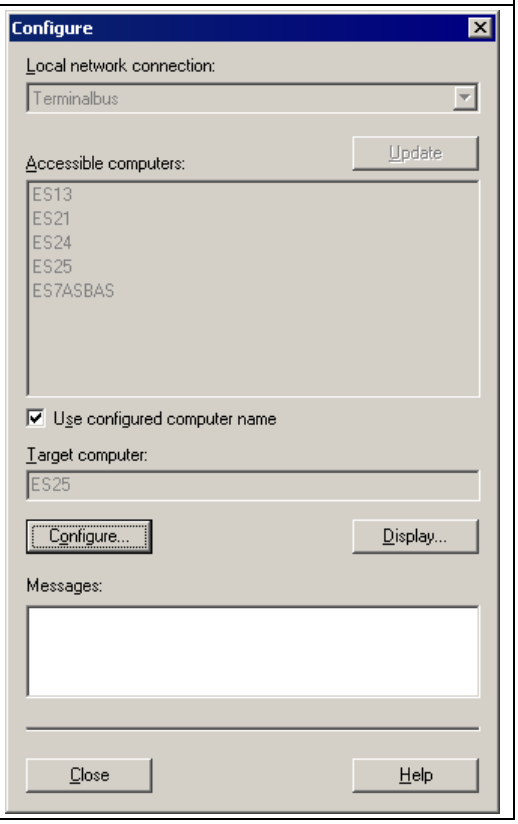
Step	Activity	Screenshot
6.	Select the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via menu item “Station > Save and Compile…”. Close the HW Config.	
8.	In the SIMATIC Manager, open the properties dialog of the OS project. Switch to the “Target OS and Standby OS Computer” tab. Checkmark the “Create/update archive tags” box and deselected “Transfer to central archive server”. Press the “Search” button.	
9.	Navigate by the drop down menu to the enable project folder of the OS server (see 5.3.1 Preparatory Steps). Hit the “Save” button.	

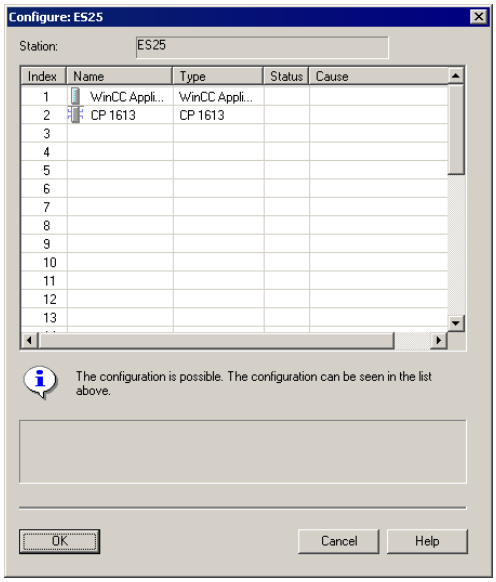
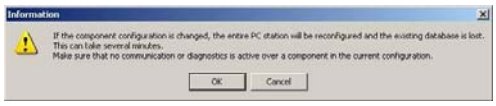
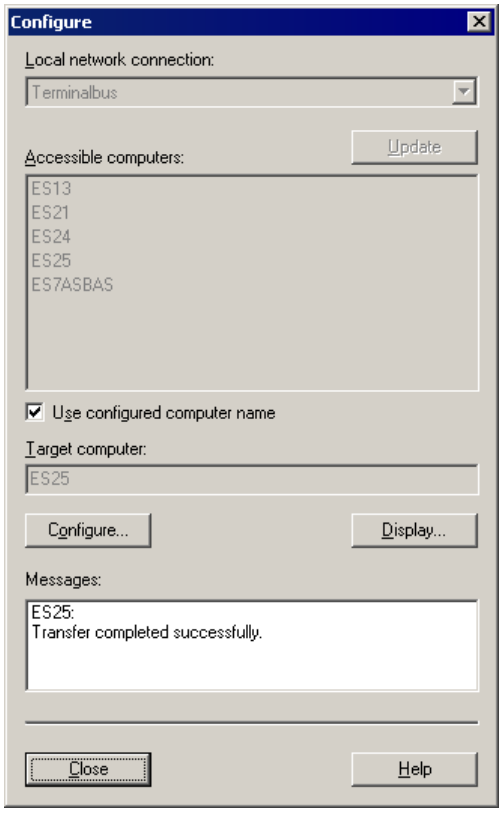
Step	Activity	Screenshot
10.	Check the path in the box “Path to the Target OS Computerr”. Confirm this with “OK”.	
11.	Acknowledge the information dialog with the “Yes” button.	

Configuring the PC stations

The function “Configure PC station” transfers the project configuration to one or more PLCs. First configure the local components configurator of the ES and then the all the other PC Stations connected with the plantbus.

Table 5-6

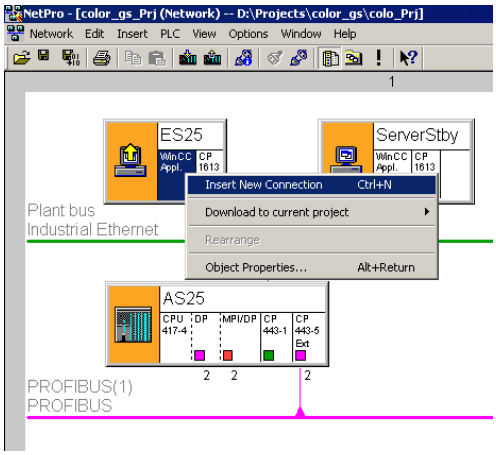
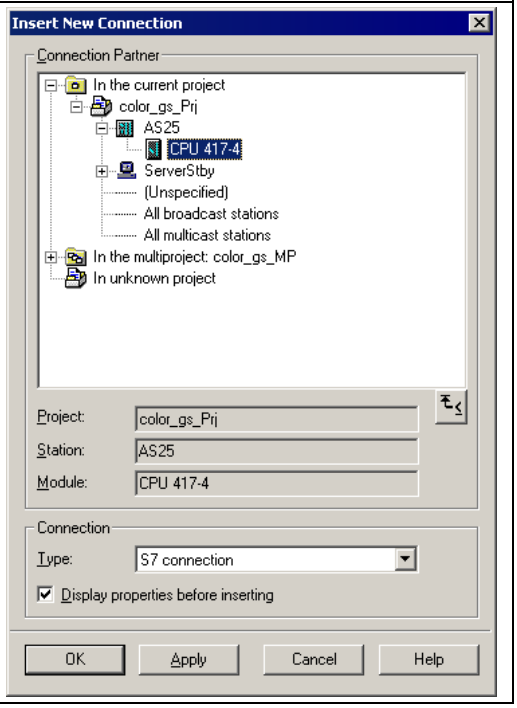
Step	Activity	Screenshot
1.	Configure the component configurator of the ES. Select the PC station of the ES and choose “PLC > Configure…” from the context menu.	
2.	Under “Accessible computers”, choose the PC which is provided for configuration. **NOTE** If you chose the option “Computer name identical to the PC station name” in the component view “Object Properties” for the PC station, the component configurator directly displays the target computer to be configured. With “Display”, you can have the current configuration of the PC station displayed. Hit the “Configure…” button.	

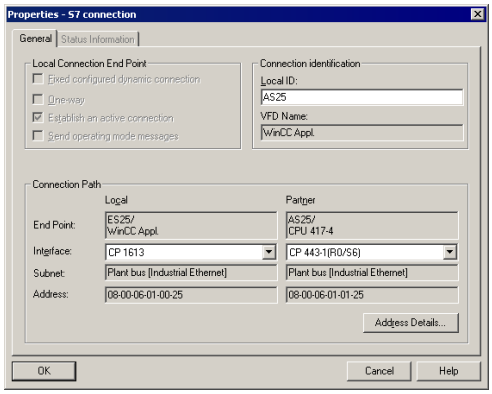
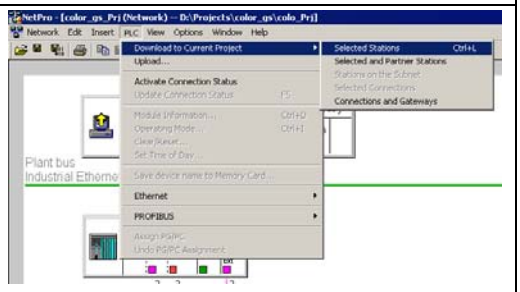
Step	Activity	Screenshot
3.	In the displayed window you see how the PC station is configured. Confirm this setting with “OK”.	
4.	Acknowledge the information dialog with “OK”.	
5.	Finally, you receive the following message in the bottom window: “Transfer completed successfully.” Close the configuration dialog box.	
6.	Please configure the component configurator of the OS server analog to steps 1 to 5.	

In the following, the connections between the PC stations and the AS in NetPro are configured and downloaded into the individual stations.

Note For station granular configuration, the subnets of the individual subprojects must be joined beforehand.

Table 5-7

Step	Activity	Screenshot
1.	Open NetPro. Select the WinCC application of the ES and open the context menu. Choose “Insert New Connection”.	
2.	In the “Connection Partner” window, select the CPU of the AS. Make sure that in the “Connection” field a “S7 connection” has been selected. Confirm the setting with “OK”.	

Step	Activity	Screenshot
3.	In the “General” tab, in “Connection identification” change the “Local ID” into a meaningful name, like AS25. Confirm the settings with “OK”.	
4.	Create the connection between the standby OS and the AS in the same way, by repeating steps 1 to 3. It is important that the connection has the same name as the connection of the ES to the AS. Then, save and compile the configuration with the menu item “`Network > Save and compile…`”. Choose the option “Compile and check everything” and confirm with “OK”.	
5.	Mark the ES and then download the connections with the menu item “`PLC > Download to Current Project > Selected Stations`”. Download the standby OS and the AS in the same way. Then close NetPro.	

Compile and download the user program

Compile the S7 program and download it into the AS.

Compiling the OS project

Compile the OS project in the SIMATIC Manager.

Look out for the correct OS assignment to the server in Plant View.

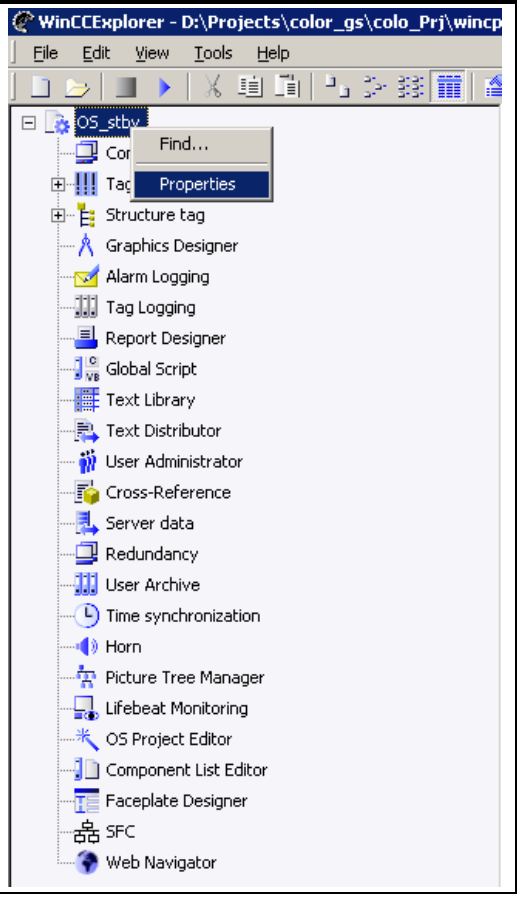
5.3.2 OS Configuration

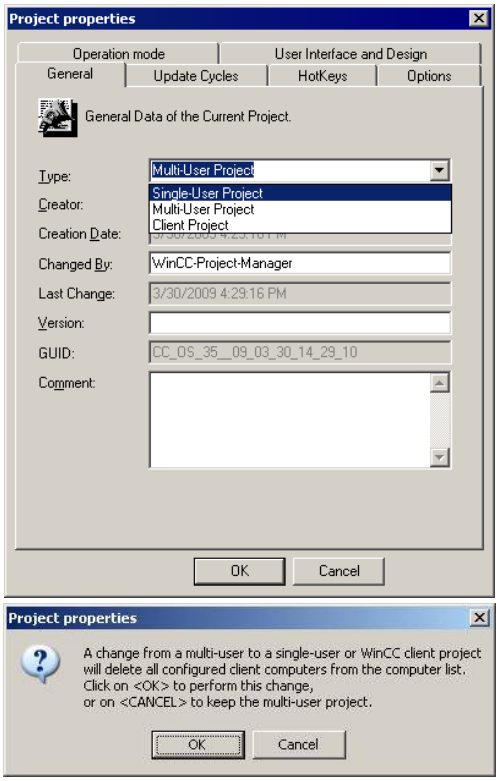
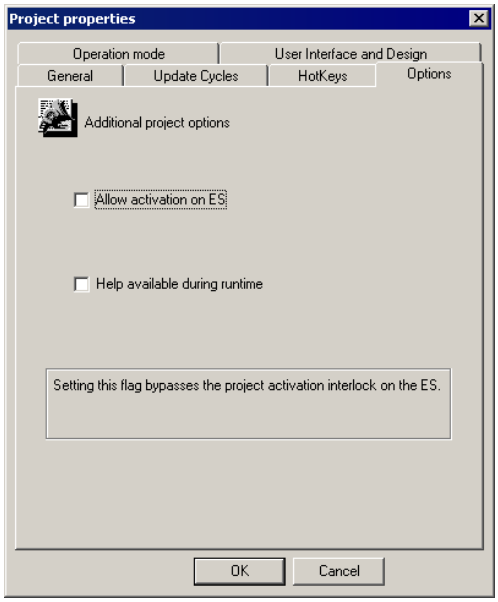
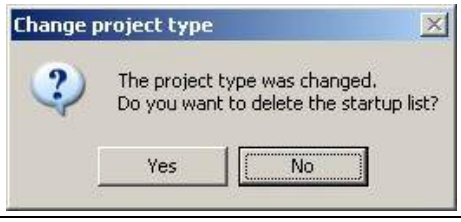
OS configuration on the Engineering Station

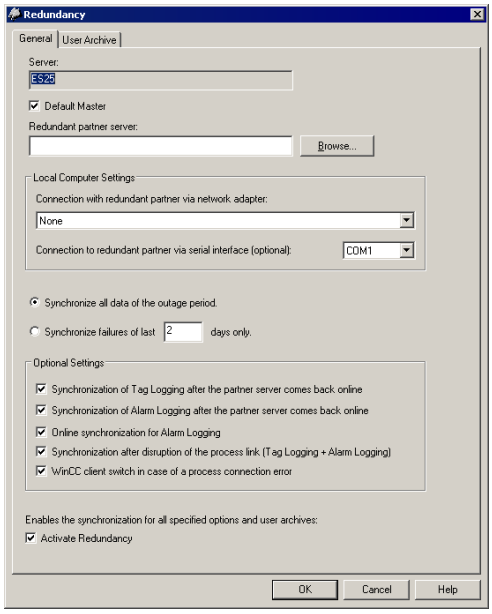
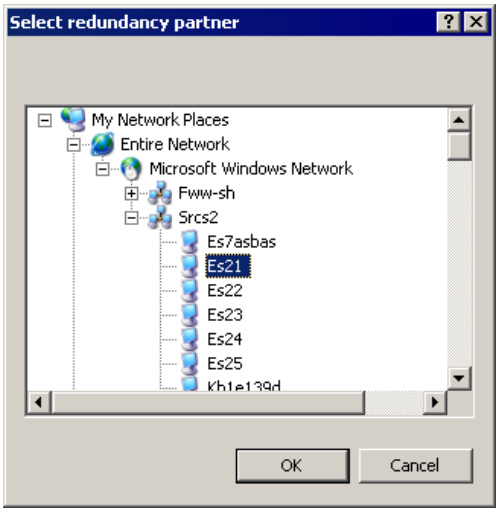
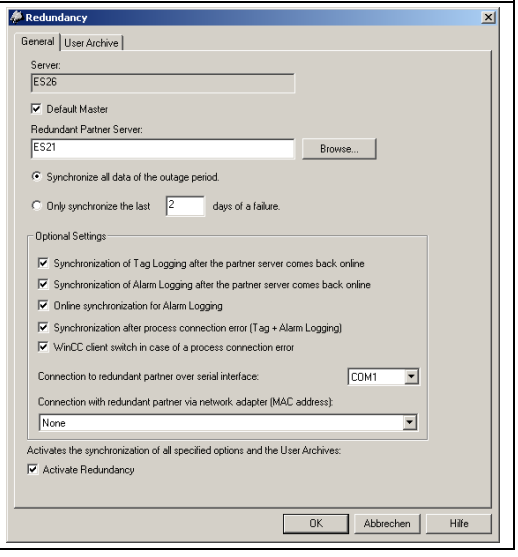
Conversion from multi-place to single-place systems is made on the ES, as well as settings for redundancy and clock synchronization.

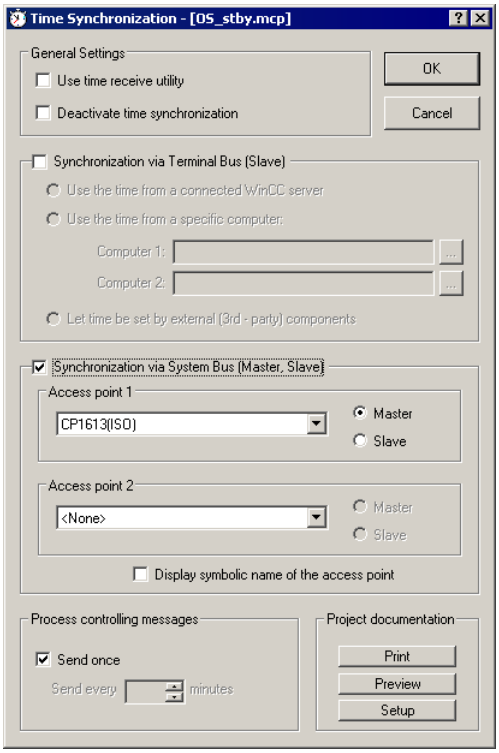
Note For this particular configuration, it is necessary to complete the redundancy setting in the WinCC Explorer of the standby OS after the entire download.

Table 5-8

Step	Activity	Screenshot
1.	Open the OS-Standby project on the ES computer. In the opened WinCC Explorer, open the OS project and select “Properties” in the context menu.	

Step	Activity	Screenshot
2.	In the “General” tab, under “type:”, select “Single-user project”. Confirm the selection and the message that appears with the “OK” button.	
3.	Via the “Options” tab, checkmark the OS project option “Allow activation on ES”. With this setting Runtime can be simulated on the ES.	
4.	Prevent deleting the startup list by pressing the “No” button. Confirm the message that appears with the “OK” button.	

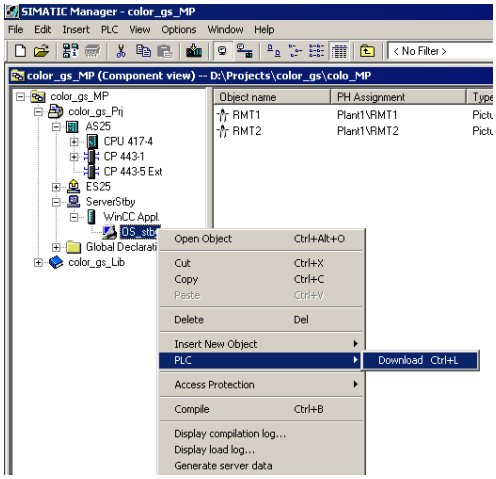
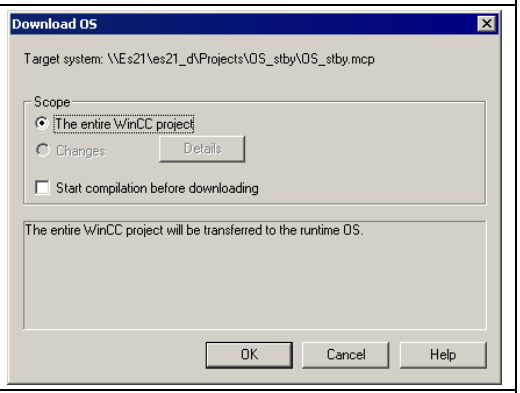
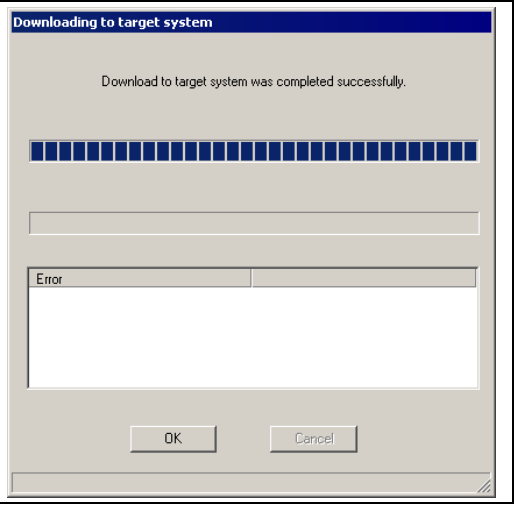
Step	Activity	Screenshot
5.	Open the editor “Redundancy” with the context menu. Activate the option box “Activate Redundancy”. Activate the option box “Default Master”. If necessary, adjust the redundancy properties in “Optional Settings” to your requirements. If you do not wish to operate the RS 232 redundancy cable at the COM1 interface, then these settings must later be performed on the OS itself (see section “OS configuration on the OS”).	
6.	To complete the redundancy settings for the ES, the partner server must be selected. Select the standby OS as redundant partner via the “Browse…” button out of the PC network. Confirm the settings with “OK”.	
	Control the redundancy settings before you confirm via “OK” button.	

Step	Activity	Screenshot
7.	Open the “Time Synchronization” editor. Here, activate the checkbox “Synchronization via System Bus (Master, Slave)”. In “Access point 1”, select “CP1613(ISO)” and activate the “Master” radio button. Confirm the settings with “OK”. **NOTE** If the ES server does not have a CP 1613, the settings for the clock synchronization cannot be executed here. The clock synchronization settings must, in this case, be executed on the standby OS itself after downloading the OS project.	
8.	Close the OS project.	

Loading OS project to the standby OS

After the redundancy and clock synchronization have been configured on the ES side, and the OS project has been closed, download the OS project onto the standby OS.

Table 5-9

Step	Activity	Screenshot
1.	In the SIMATIC Manager, select the standby OS and select "PLC > Download" from the context menu.	
2.	Downloading the OS project for the first time requires a complete download. Start the download with "OK".	
3.	After the successful download, the OS project is located on the standby OS in the intended folder. Confirm this with "OK".	

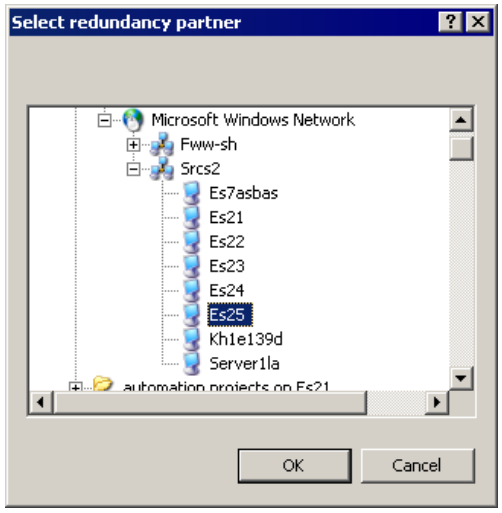
OS configuration on the standby OS

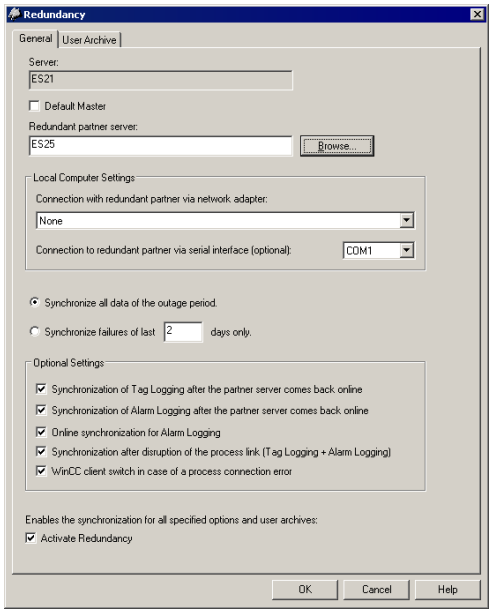
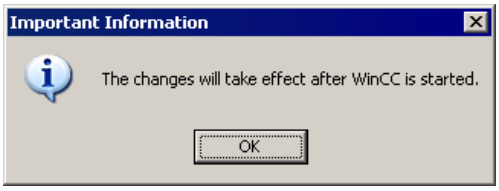
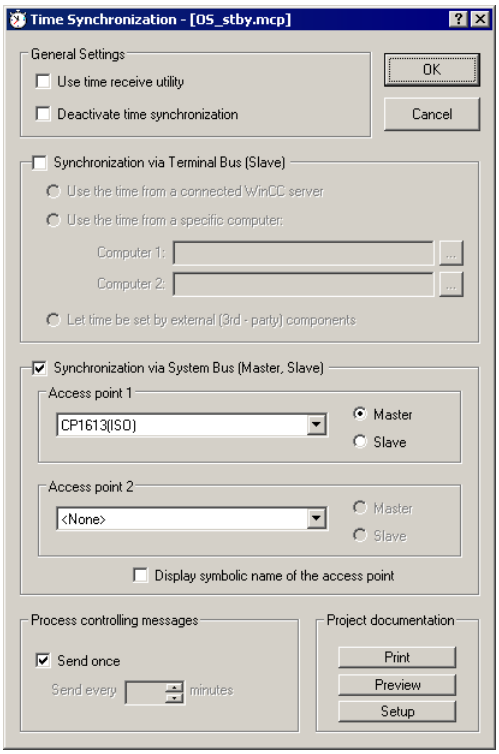
For this special configuration, it is necessary to make the redundancy settings before the download.

If the engineering station has no CP 1613 as opposed to the OS, or the RS 232 redundancy cable is not connected at COM1 there, the following step-by-step instructions must be performed. Otherwise, we generally advise you to check those after the project download onto the target system.

Note Normally, all configuration works are executed on the ES for the purpose of consistent data management, so that no WinCC engineering licenses are required on the OS. Nevertheless, a license free time window of one hour is available after each opening of the WinCC Explorer for WinCC configuration works.

Table 5-10

Step	Activity	Screenshot
1.	Open the WinCC Explorer on the standby OS.	
2.	Open the editor “Redundancy” with the context menu. Select the standby OS as redundant partner via the “Browse…” button out of the PC network. Confirm the settings with “OK”.	

Step	Activity	Screenshot
	Here, uncheck the “Default Master” checkbox. Select the ES computer as redundant partner via the “Browse…” button. Check whether your desired checkboxes are activated at “Optional Settings”. Confirm the settings with “OK”.	
	Confirm the information dialog with the “OK” button.	
3.	Open the editor “Time synchronization” with the context menu. Here, activate the checkbox “Synchronization via System Bus (Master, Slave)”. In “Access point 1”, check or select “CP1613(ISO)” and press the “Master” radio button. Confirm the settings always wih “OK”.	

Step	Activity	Screenshot
4.	If you made any changes in the WinCC Explorer project, close the OS project and open it again to activate the settings.	

5.3.3 Activating Runtime

Successively start the OS project on the ES as well as on the standby OS. It is recommended to wait with activating the second Runtime until the start process of the first one is completed entirely.

Regarding the redundancy, the online synchronization is active immediately. The mutual archive update, on the other hand, takes approx. 10-15 min.

5.3.4 Particularities at downloading of OS Project Modifications

Delta-download

For a delta-download, Runtime on the ES must be closed again for compiling the OS. It can then be re-activated for testing the modified OS functions.

NOTICE If Runtime remains active on the ES during the OS compilation, it might happen - depending on the changes made - that a subsequent delta-download is carried out incompletely and results in errors. Afterwards, only a complete download will be possible.

For the downloading, Runtime must be terminated and the WinCC project must be closed.
The following restrictions result:

- No operator actions can take place at the ES computer at that time.

Complete download

For downloading the complete program, please note:

1. Runtime must be deactivated on both PC stations and the WinCC project must be closed.
2. Before Runtime is activated again on the standby OS, the redundancy settings must be made.
   Repeat the steps from Table 5-10

6 ES, OS-Master and OS-Standby

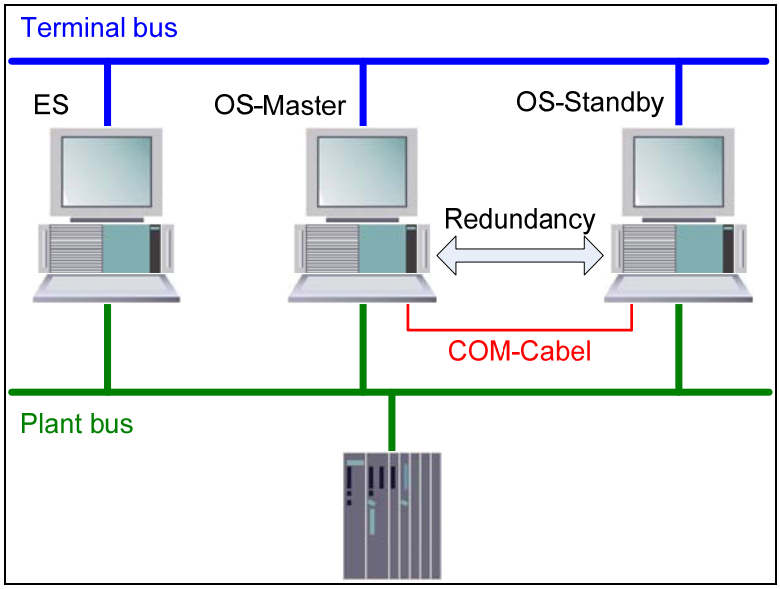
6.1 Configuration Description

During process operation the server pair runs completely in parallel and absolutely independent. If a server fails, there is always an equivalent redundant OS server. The servers supervise each other during the runtime and synchronize the project archives if necessary.

The configuration is carried out via the ES.

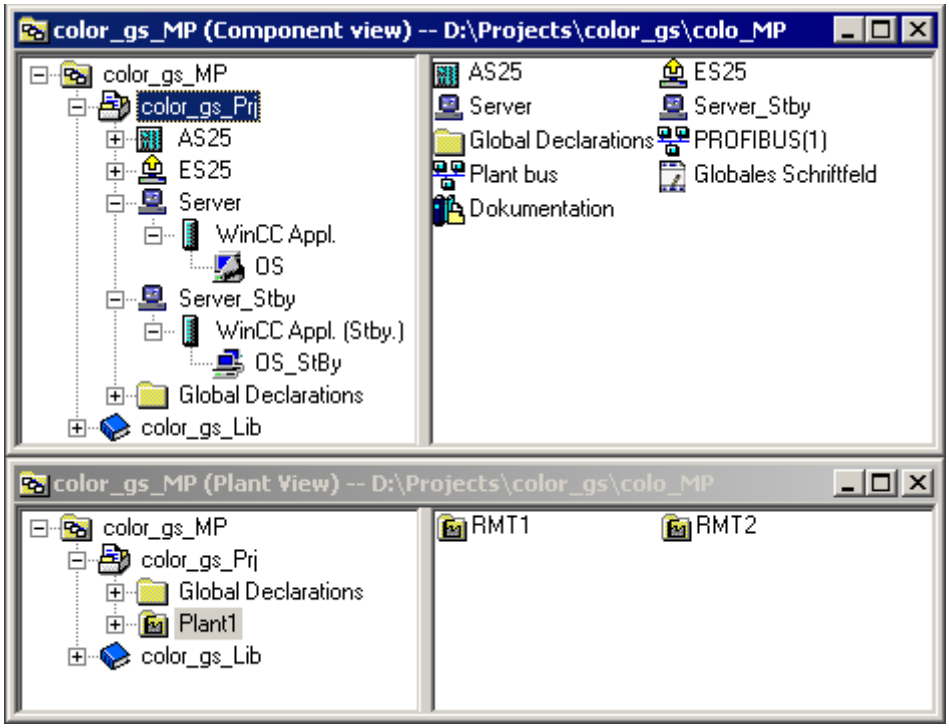
Hardware configuration

Figure 6-1



PCS 7 configuration

Figure 6-2



6.2 Required Hardware and Software Licenses

Hardware

The following hardware is recommended for this configuration and can be ordered via the Siemens mall. Your selected operating system and the system software SIMATIC PCS 7 is then preinstalled accordingly.

Table 6-1

Component	Product information	Operating system	Plantbus transition
1 x ES	SIMATIC PCS 7 ES/OS IL 547B BCE WXP	Windows XP SP3	RJ45 network card
	SIMATIC PCS 7 ES/OS IL 547B IE WXP	Windows XP SP3	CP 1613 A2
2 x OS single stations	SIMATIC PCS 7 ES/OS IL 547B BCE WXP	Windows XP SP3	RJ45 network card
	SIMATIC PCS 7 ES/OS IL 547B IE WXP	Windows XP SP3	CP 1613 A2

Software licenses

In the following, the different software/license packagess required for this configuration selection have been listed.

In the selected configuration as a redundant stand-alone system, the number of the POs is restricted to no more than 5000.

Table 6-2

Software	Name
1 x OS software redundant single station	SIMATIC PCS 7 OS Single Station Redundancy V7.1 • 250 PO • 1000 PO • 2000 PO • 3000 PO • 5000 PO
1 x engineering software	PCS 7 Engineering Software V7.1 AS/OS – PO "unlimited"

Note The “Rental License”, which is restricted to 30 operating days or 50 hours, provides additional licenses for engineering of short-term projects.

6.3 Step-by-step Configuration

Note The following instruction was generated on the basis of Windows XP SP3 and PCS 7 V7.1.

For the plantbus transitions, CP1613 is used as an example. A clock synchronization is activated.

The PC stations in the test setup are called:

ES (“ES25”): ES25
OS-Master (“Server”): ES21
OS-Standby (“ServerStby”): ES23

6.3.1 ES Configuration

Generating the multiproject

As a basis for the following instruction, all PC stations must be physically networked according to Figure 6-1 (S.75). Furthermore, a multiproject must have been created on the ES in which the AS has already been configured regarding hardware and software.

Then you can start with the following CPU and CP settings.

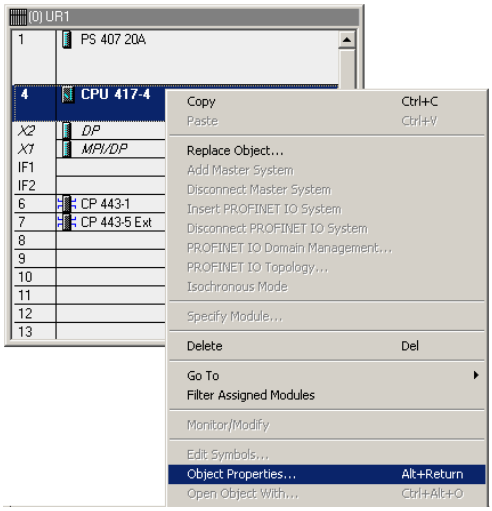
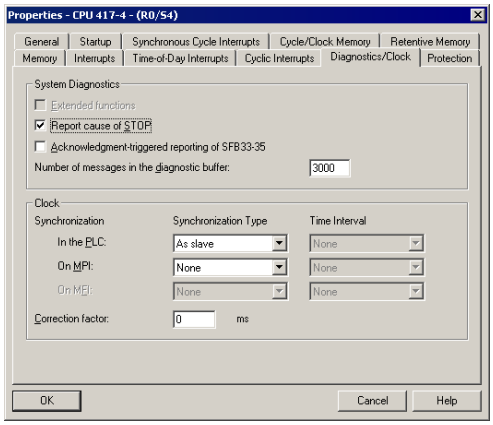
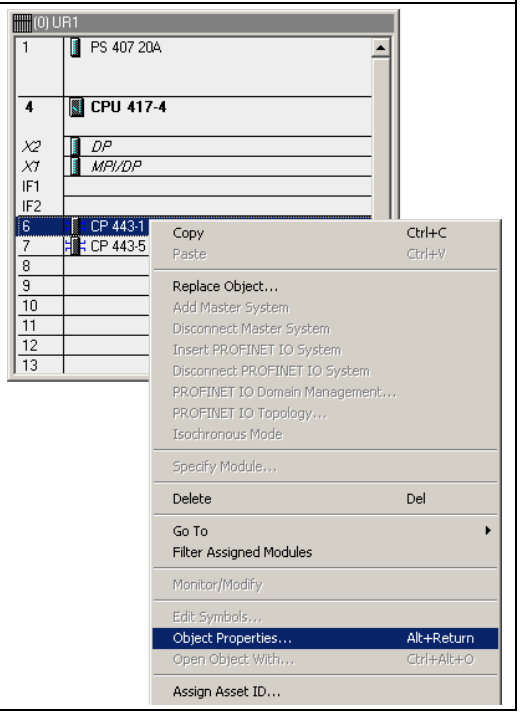
AS settings

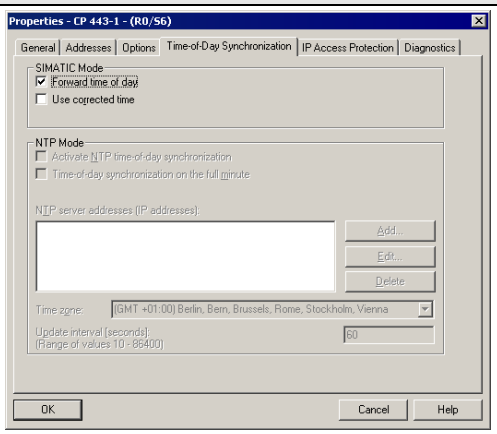
Evaluation of the process data requires all components of the process control system to work with an identical clock, so that messages can be allocated in the correct temporal sequence.

Below, a path is described where the redundant OS single stations define the master time.

Note Further options of clock synchronization are described in detail in the Manual “PCS 7 – Configuration Manual Operator Station, clock synchronization and life signal monitoring”.

Table 6-3

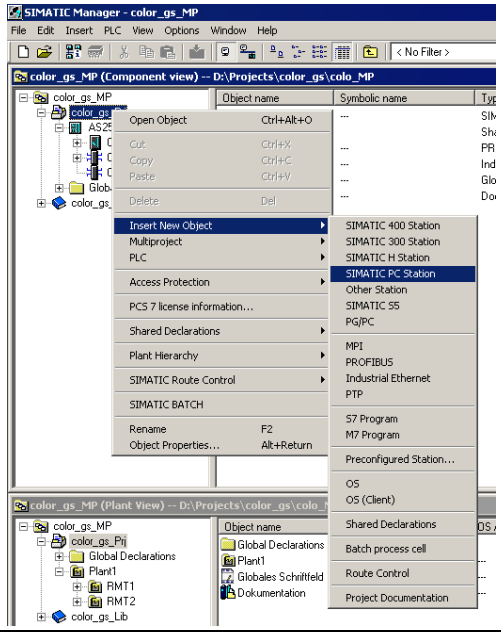
Step	Activity	Screenshot
1.	Open the HW Config of the AS. Select the CPU and choose “Object Properties…” from the context menu.	
2.	Go to the “Diagnostics/Clock” tab. In the section under “Clock” set “As slave” for the AS under “Synchronization Type”. Confirm the setting with “OK”.	
3.	Open the context menu of the CP and select “Object Properties…”.	

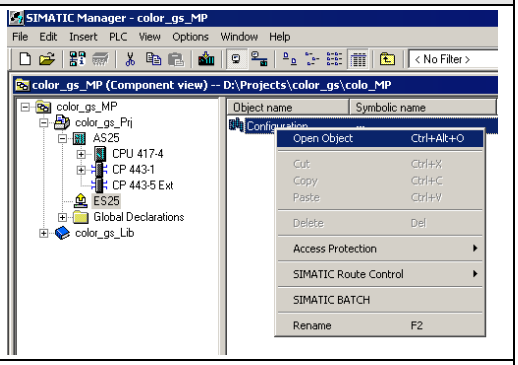
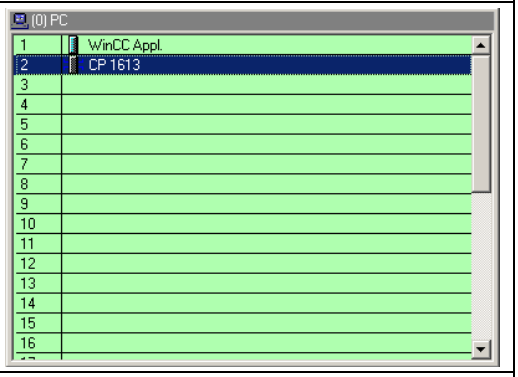
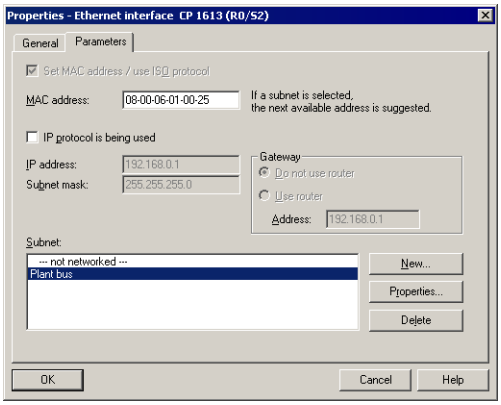
Step	Activity	Screenshot
4.	Go to the “Time-of-Day Synchronization” tab. Activate the option “Activate SIMATIC time-of-day synchronization”. Confirm the setting with “OK”.	
5.	Save and compile the configuration with “Station > Save and Compile”. Close the HW Config.	

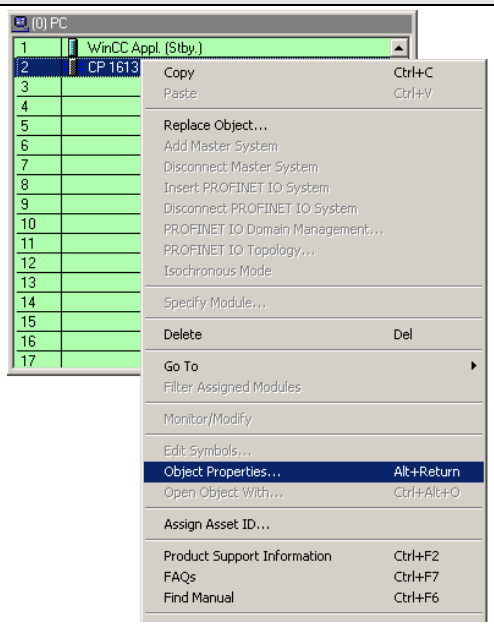
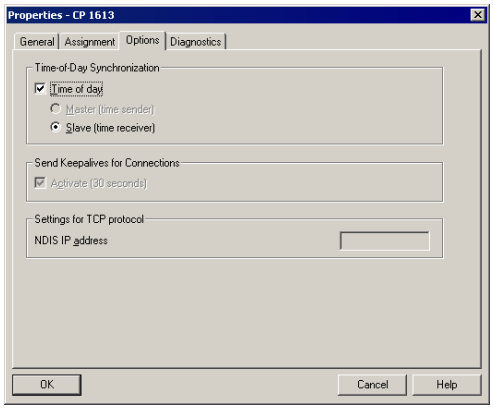
Generating the ES PC station

In order to take the OS project on the ES into operation, we generate a PC station for the ES with WinCC application.

Table 6-4

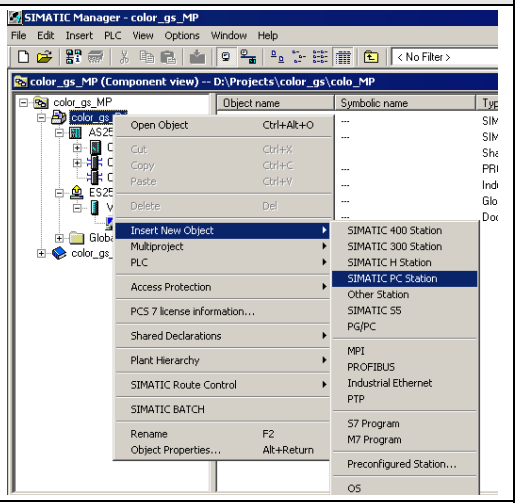
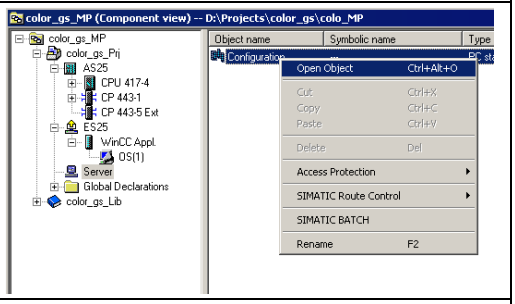
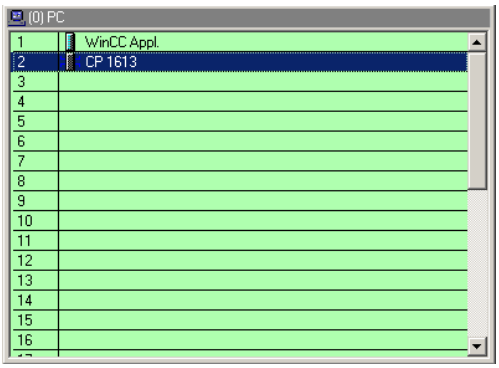
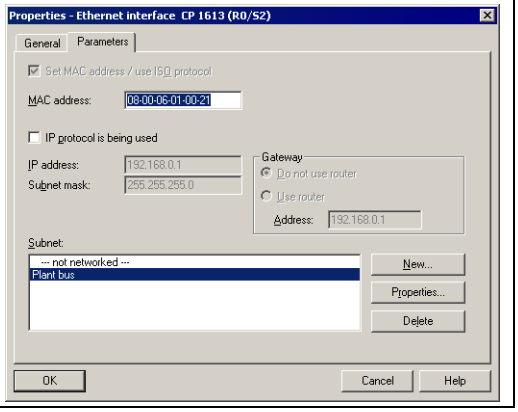
Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “Insert New Object > SIMATIC PC Station”. Change the name of the PC station so that it corresponds to the name of the local computer in the network.	

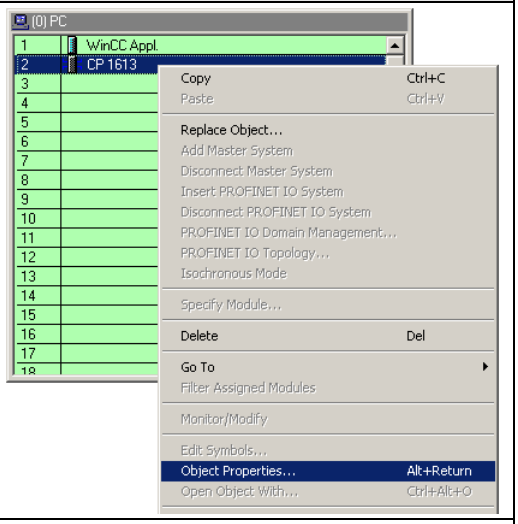
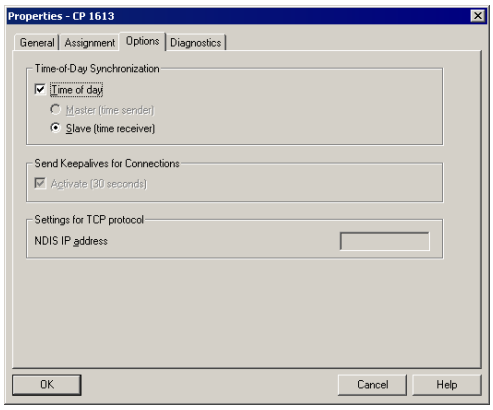
Step	Activity	Screenshot
2.	Open the HW Config of the PC station of the ES with the context menu.	
3.	From the object catalog (`"View > Catalog"`), add a “WinCC Application” and a network card of the type “CP1613”.	
4.	Under “Subnet”, select the Plant Bus or create it with the button “New…”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	

Step	Activity	Screenshot
5.	Open the context menu of the CP and select “Object Properties…”.	
6.	Select the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via menu item “Station > Save and Compile”. Close the HW Config.	
8. **optional**	In the SIMATIC Manager, delete the OS project of the PC station of the ES as it is not required in our example.	

Generating the master OS PC station

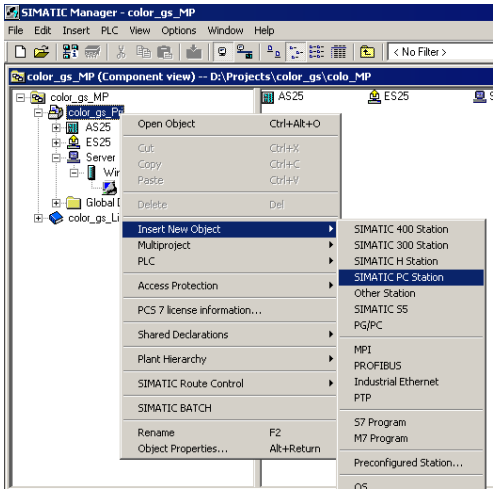
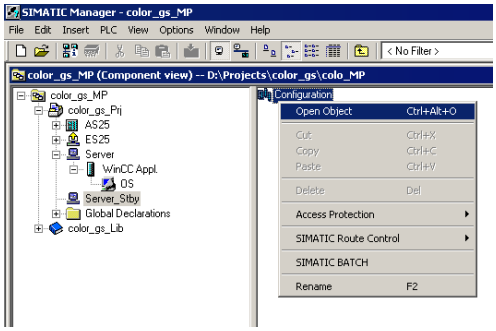
Table 6-5

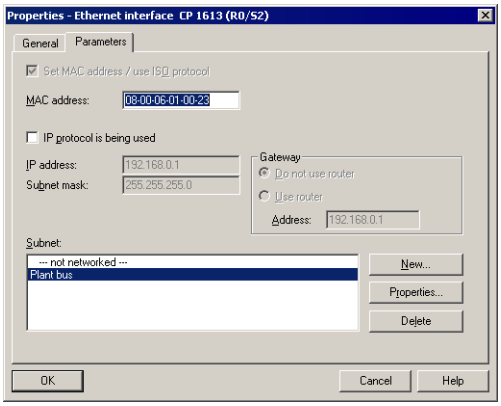
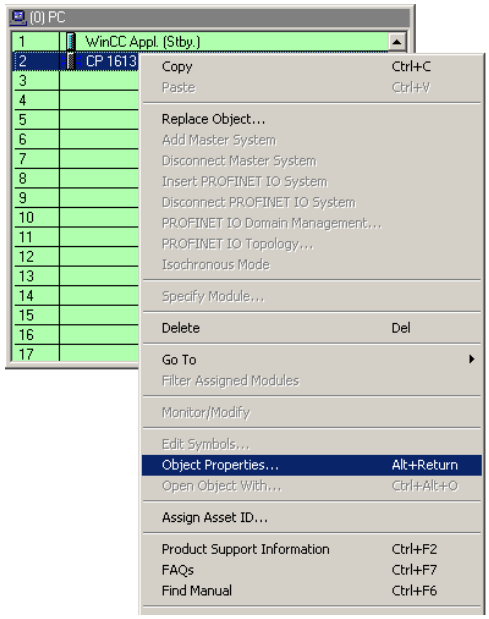
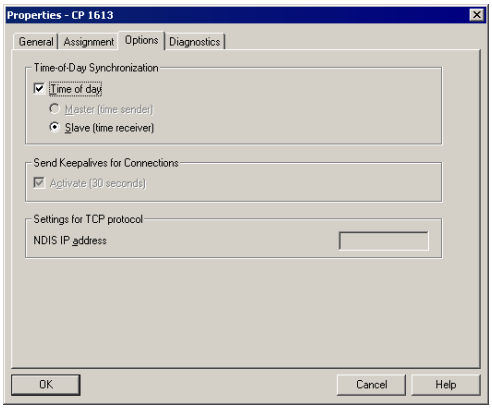
Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “Insert New Object > SIMATIC PC Station”. You can choose its name freely.	
2.	Open the HW Config of the PC station of the standby OS with the context menu.	
3.	From the object catalog (“View > Catalog”), add a “WinCC Application” and a network card of the type “CP1613”.	
4.	Under “Subnet”, select the Plant Bus or create it with the button “New…”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	

Step	Activity	Screenshot
5.	Open the context menu of the CP and select “Object Properties…”.	
6.	Select the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via menu item “Station > Save and Compile…”. Close the HW Config.	

Generating the standby OS PC station

Table 6-6

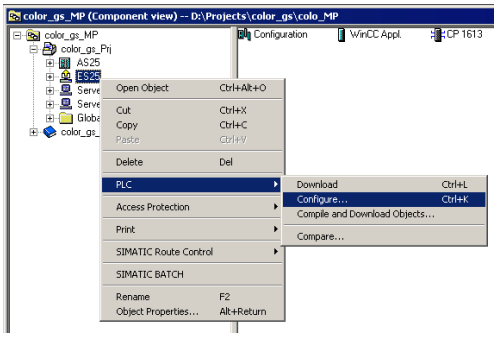
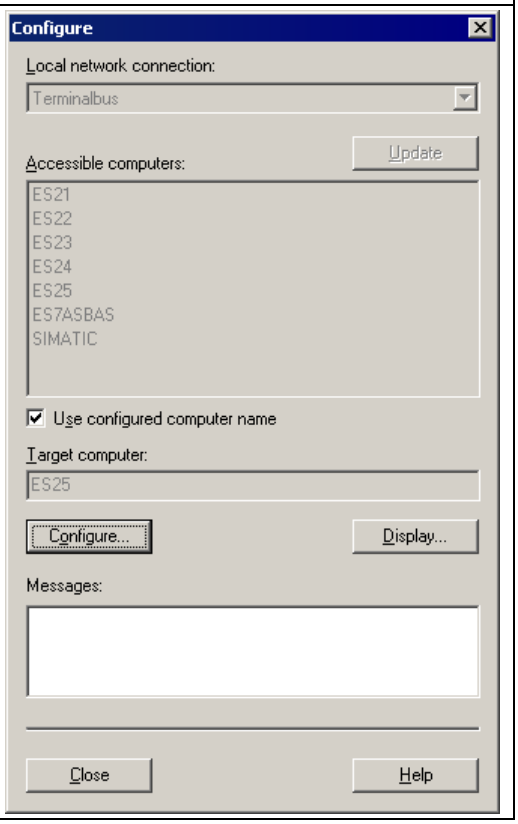
Step	Activity	Screenshot
1.	In the “Component view”, open the context menu of the project and insert a new PC station via “Insert New Object > SIMATIC PC Station”. You can choose its name freely.	
2.	Open the HW Config of the PC station of the standby OS with the context menu.	
3.	From the object catalog (“View > Catalog”), add a “WinCC Application (stby)” and a network card of the type “CP1613”.	

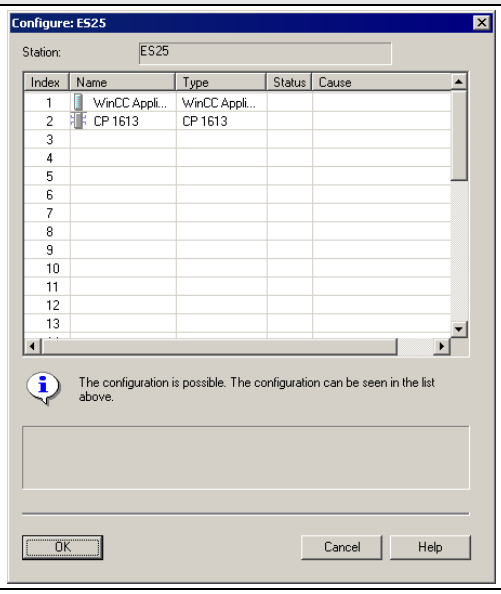
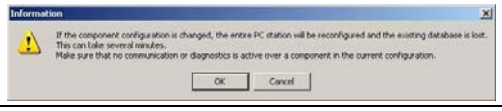
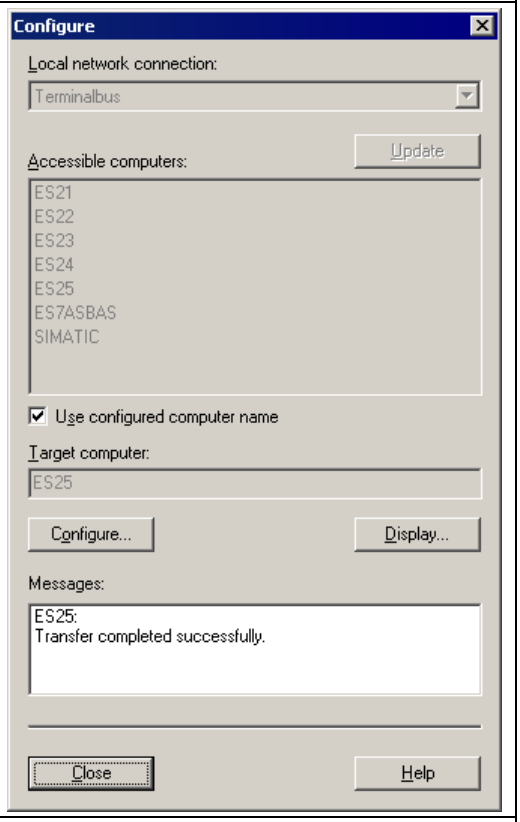
Step	Activity	Screenshot
4.	Under “Subnet”, select the Plant Bus or create it with the button “New…”. Assign the respective MAC address to the CP 1613. Deactivate the option “IP protocol is being used”. Confirm the settings with “OK”.	
5.	Open the context menu of the CP and select “Object Properties…”.	
6.	Select the “Options” tab and checkmark the “Time of day” box. Confirm the setting with “OK”.	
7.	Save and compile via menu item “`Station > Save and Compile…`”. Close the HW Config.	

Configuring all PC stations

The function “Configure PC station” transfers the project configuration to one or more PLCs. First configure the local components configurator of the ES and then the OS connected to the plantbus.

Table 6-7

Step	Activity	Screenshot
1.	Configure the component configurator of the ES. Select the PC station of the ES and choose “PLC > Configure…” from the context menu.	
2.	Under “Accessible computers”, choose the PC which is provided for configuration. **NOTE** If you chose the option “Computer name identical to the PC station name” in the component view “Object Properties” for the PC station, the component configurator directly displays the target computer to be configured. With the button “Display”, you can have the current configuration of the PC station displayed. Hit the “Configure…” button.	

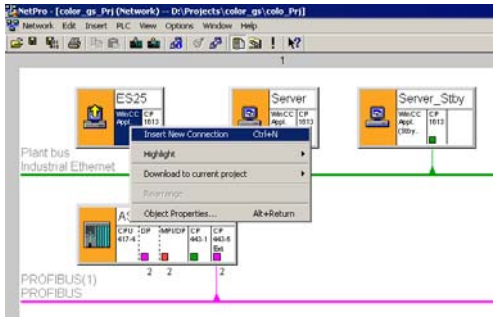
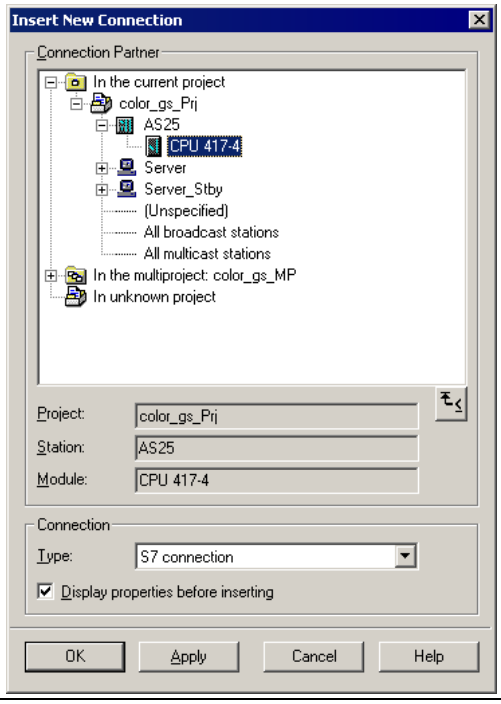
Step	Activity	Screenshot
3.	In the displayed window you see how the PC station is configured. Confirm this setting with “OK”.	
4.	Acknowledge the information dialog with “OK”.	
5.	Finally, you receive the following message in the bottom window: “Transfer completed successfully.” Close the configuration dialog box.	
6.	Please configure the component configurator of the master and the standby OS analog to steps 1 to 5.	

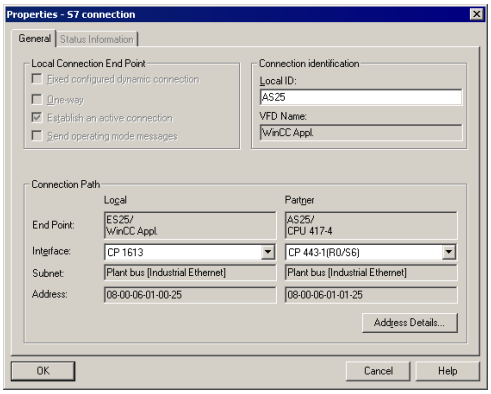
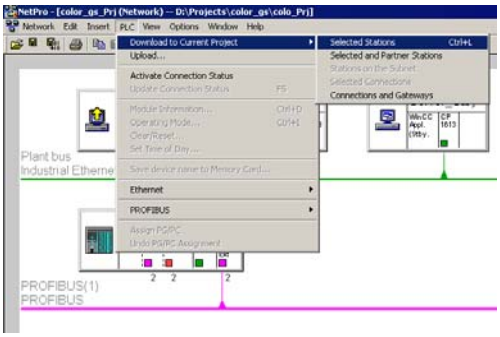
Configuration and download of the AS/OS communication

In the following, the connections between the PC stations and the AS in NetPro are configured and downloaded into the individual stations.

Note For station granular configuration, the subnets of the individual subprojects must be joined beforehand.

Table 6-8

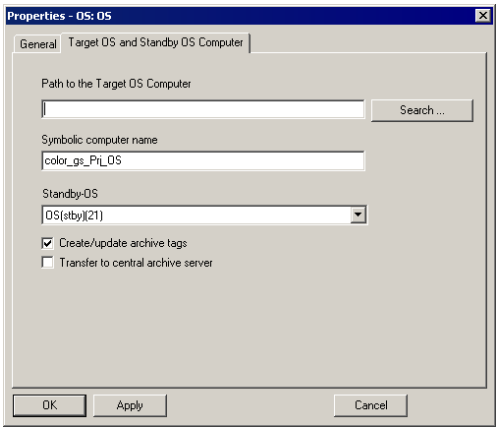
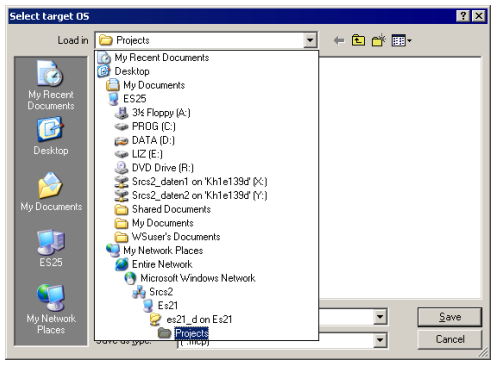
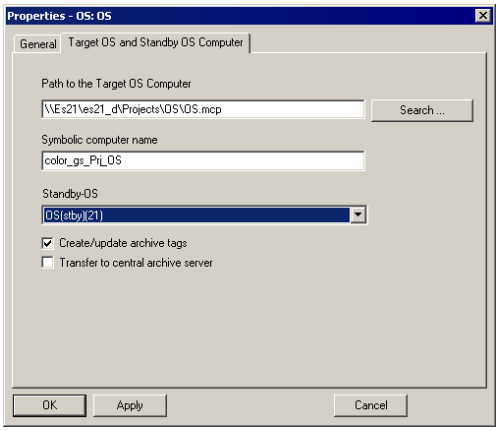
Step	Activity	Screenshot
1.	Open NetPro. Select the WinCC application of the ES and open the context menu. Choose “Insert New Connection”.	
2.	In the “Connection Partner” window, select the CPU of the AS. Ensure that in the “Connection” field a “S7 connection” has been selected. Confirm the setting with “OK”.	

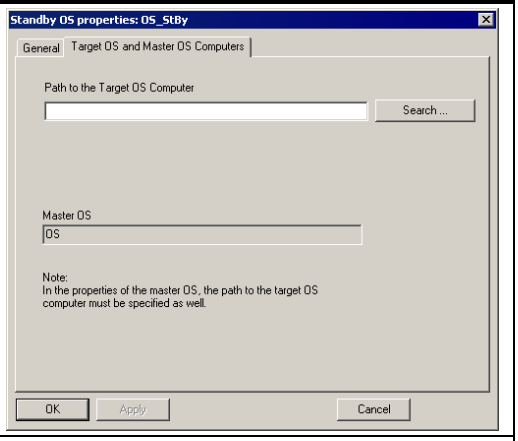
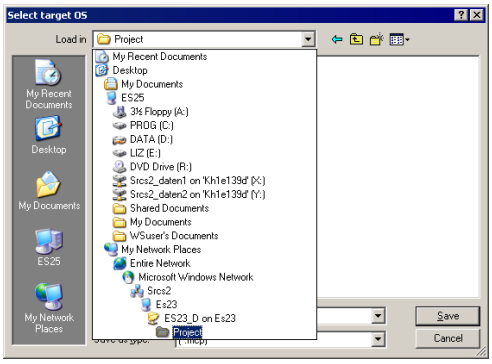
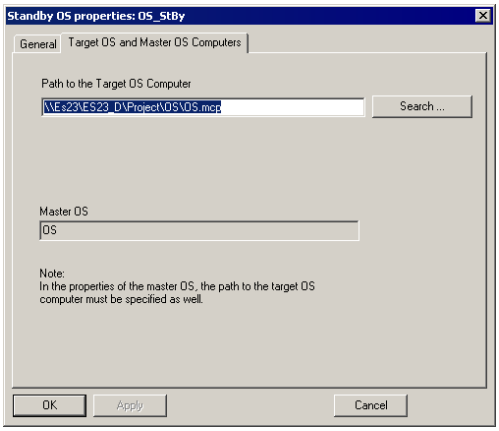
Step	Activity	Screenshot
3.	In the “General” tab, in “Connection identification” change the “Local ID” into a meaningful name, like AS1. Confirm the settings with “OK”.	
4.	Repeat steps 1 to 3 for connecting the master OS and the standby OS to the AS. It is important that the connection of master OS, standby OS and ES to the AS have identical names. Then, save and compile the configuration with the menu item “Network > Save and compile…”. Choose the option “Compile and check everything” and confirm with “OK”.	
5.	Mark the ES and then, over the menu item load “PLC > Download to Current Project > Selected Stations”. Download the AS, master OS, and standby OS in the same way. Then close NetPro.	

Master/standby settings on the ES

Here you make the master/standby assignment and select the download paths.

Table 6-9

Step	Activity	Screenshot
1.	In the SIMATIC Manager, open the properties dialog of the master OS. Switch to the “Target OS and Standby OS Computer” tab. In the “Standby-OS” drop-down menu, select “OS_(StBy)(21)”. Checkmark the “Create/update archive tags” box and deselected “Transfer to central archive server”. Press the “Search” button.	
2.	Navigate by the drop down menu to the enable project folder of the OS server (see 6.3.1 Preparatory Steps). Hit the “Save” button.	
3.	Check the path in the box “Path to the Target OS Computer”. Confirm this with “OK”. Also confirm the message box that appears with the “OK” button.	

Step	Activity	Screenshot
4.	Open the Properties dialog of the standby OS. Switch to the “Target OS and Master OS Computers” tab. Verify that the master OS has also been entered in “Master OS”. Hit the “Search…” button to choose the storage path of the OS data.	
5.	Navigate by the drop down menu to the enable project folder of the OS standby server (see 6.3.1 Preparatory Steps). Hit the “Save” button.	
6.	Check the path in the box “Path to the Target OS Computer”. Confirm this with “OK”.	

Compile and download the user program

Compile the S7 program and download it into the AS.

Compiling the OS project

Compile the OS project of the master OS in the SIMATIC Manager.

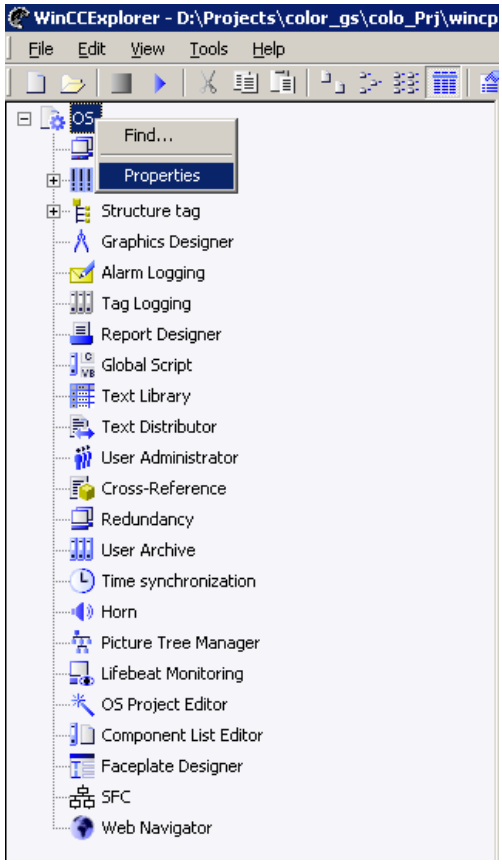
Look out for the correct OS assignment to the server in Plant View.

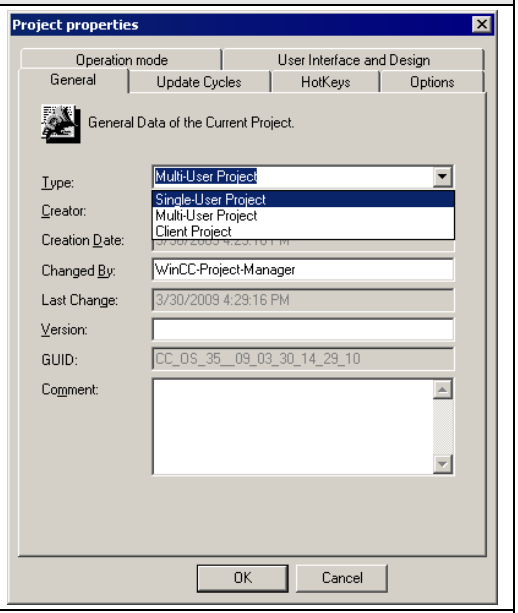
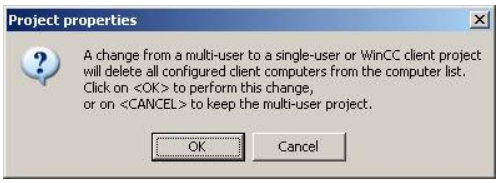
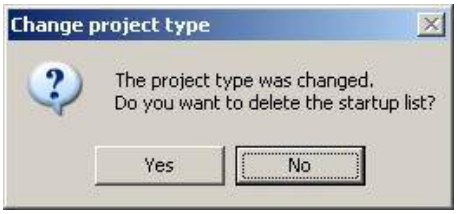
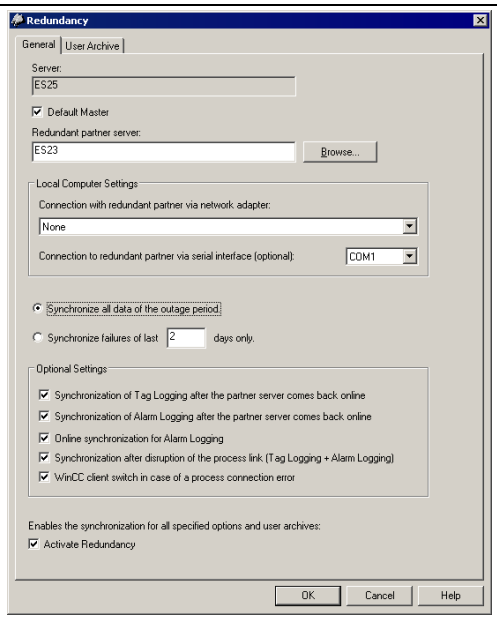
6.3.2 OS Configuration

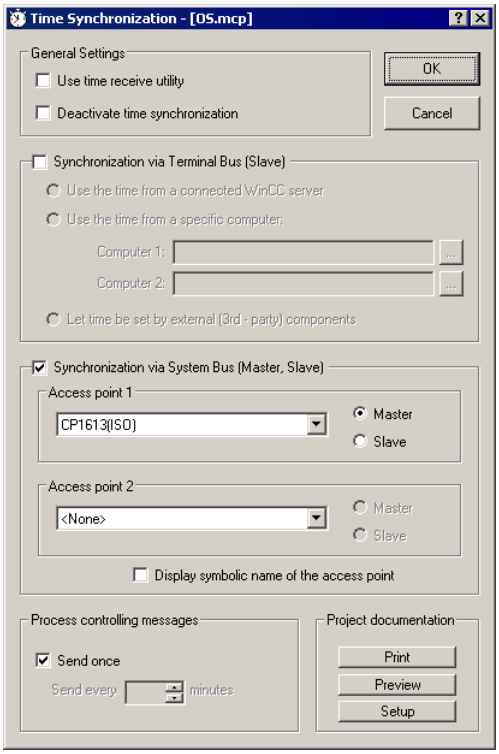
OS configuration on the Engineering Station

Conversion from multi to single place systems is made on the ES, as well as settings for redundancy and clock synchronization.

Table 6-10

Step	Activity	Screenshot
1.	Open the OS project of the master OS on the ES computer. In the opened WinCC Explorer, open the OS project and select “Properties” in the context menu.	

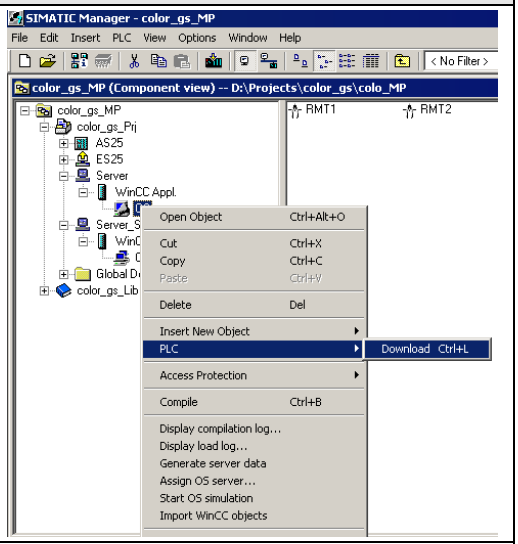
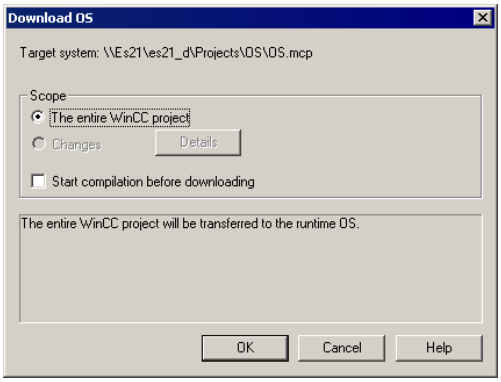
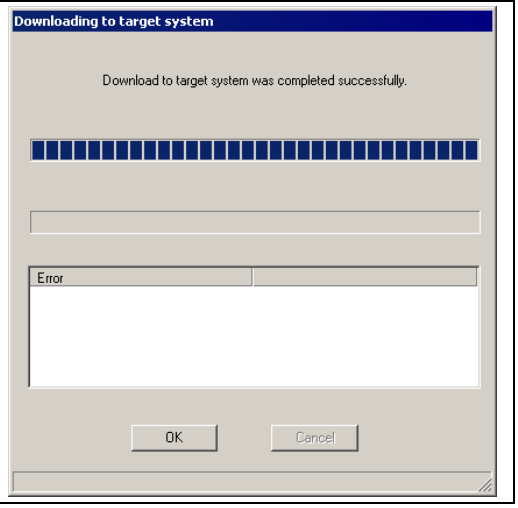
Step	Activity	Screenshot
2.	In the “General” tab under “type:”, select “Single-user project”. Confirm the selection and the message that appears with the “OK” button.	 
3.	Prevent deleting the startup list by pressing the “No” button.	
4.	Open the editor “Redundancy” with the context menu. Activate the option box “Default Master”. Under “Redundanter Partner Sever:” the standby OS must be entered. Check whether your desired checkboxes are activated at “Optional Settings”. If you do not wish to operate the RS 232 redundancy cable at the COM1 interface, then these settings must later be performed on the OS itself (see section “OS configuration on the Operator Station”). Confirm the settings with “OK”.	

Step	Activity	Screenshot
5.	Open the editor “Time synchronization” with the context menu. Here, activate the checkbox “Synchronization via System Bus (Master, Slave)”. In “Access point 1”, select “CP1613(ISO)” and activate the “Master” radio button. Activate the option box “Display symbolic name of the access point”. Confirm the settings with “OK”. **NOTE** If the ES server does not have a CP 1613, the settings for the clock synchronization cannot be executed here. The clock synchronization settings must, in this case, be executed on both single stations itself after downloading the OS project.	
6.	Close the OS project.	

Downloading OS project to the OS computers

After the redundancy and clock synchronization have been configured on the ES side, the OS project can be downloaded to the master and standby OS.

Table 6-11

Step	Activity	Screenshot
1.	In the SIMATIC Manager, select the master OS and select "PLC > Download" from the context menu.	
2.	Downloading the OS project for the first time requires a complete download. Start the download with "OK".	
3.	After the successful download, the OS project is located on the master OS in the intended folder. Confirm this with "OK".	

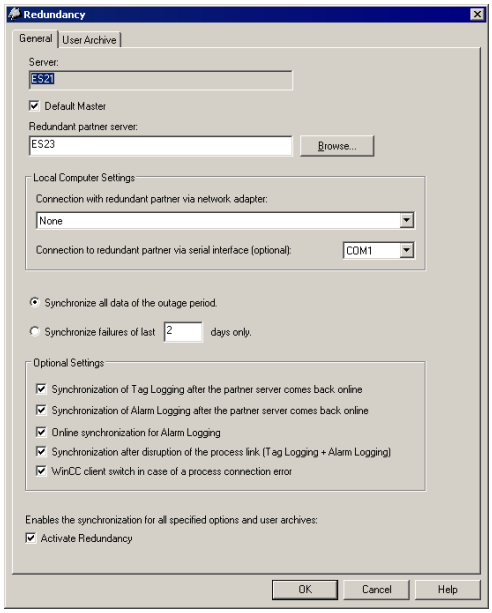
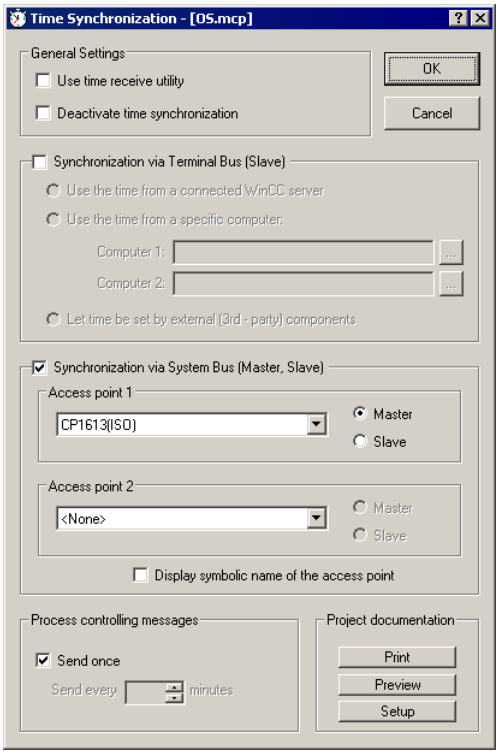
Step	Activity	Screenshot
4.	Repeat steps 1 to 3 to download the OS project to the standby OS.	

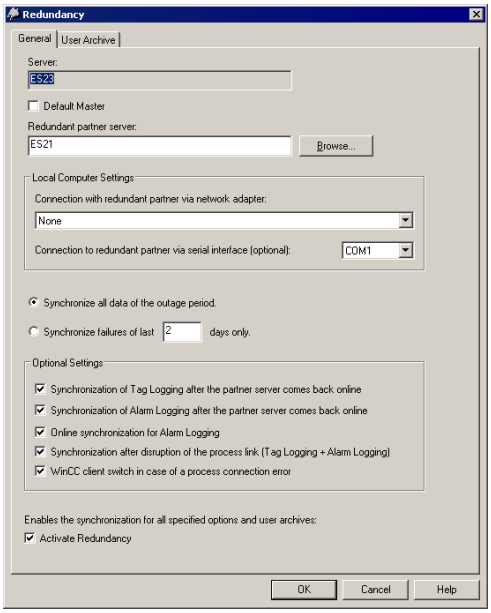
Configuration of the Operator Station

If the engineering station has no CP 1613 as opposed to the OS, or the RS 232 redundancy cable is not connected at COM1 there, the following step-by-step instructions must be performed. Otherwise, we generally advise you to check the project settings after the project download onto the target systems.

Note Normally, all configuration works are executed on the ES for the purpose of consistent data management, so that no WinCC engineering licenses are required on the OS. Nevertheless, a license free time window of one hour is available after each opening of the WinCC Explorer for WinCC configuration works.

Table 6-12

Step	Activity	Screenshot
1.	Open the OS project on the master OS.	
2.	Open the editor “Redundancy” with the context menu. Check the name of the master OS in the field “Server”. The “Default Master” checkbox must be activated. Also check whether, under “Redundant Partner Server:” the name of the standby OS has been entered correctly. Check whether your desired checkboxes are activated at “Optional Settings”. If you are operating the RS 232 redundancy cable at a location different to the COM1 interface, you have to set the appropriate interface at “Serial connection to redundant partner:”. Confirm the settings with “OK”.	
3.	Open the editor “Time synchronization” with the context menu. Here, activate the checkbox “Synchronization via System Bus (Master, Slave)”. In “Access point 1”, check or select “CP1613(ISO)” and press the “Master” radio button. Confirm the settings always wih “OK”.	

Step	Activity	Screenshot
4.	If you made any changes in the WinCC Explorer project, close the OS project and open it again to activate the settings.	
5.	Repeat steps 1 to 6 on the standby OS with the following modifications for step 3 (redundancy): The “Default Master” checkbox must be deactivated. Also check, whether under “Redundant Partner Server:” the name of the master OS has been entered correctly.	

6.3.3 Activating Runtime

Successively activate the OS project on the master OS as well as on the standby OS. It is recommended to wait with activating the second Runtime until the start process of the first one is completed entirely.

Regarding the redundancy, the online synchronization is active immediately. The mutual archive update, on the other hand, takes approx. 10-15 min.

7 Expansion by PCS 7 Web Option

NOTE The Configuration OS Web Option has been tested with PCS 7 Version V7.1 and V7.0 SP2.

Positioning

To control automated processes via the Internet/Intranet, SIMATIC PCS 7 offers control and monitoring options, the so called web options.

This chapter describes the configuration of the web option on an ES/OS stand-alone system. The instruction can therefore be used as expansion for the following minimal configurations:

- ES/OS stand-alone system (chapter 3)
- Master ES/OS and Standby OS (chapter 5)

Note In the following we configured exemplified the ES/OS stand-alone system as web server for stand alone systems with web options. Analog is it possible to configure the partner-OS as web server, without reservation of functionality for the web clients.

If one of the redundant operator stations acts as web server, the redundancy is not available for the web clients. If this OS is in STOP mode, then web clients have no connection to the process either.

The maximum number of Web clients is limited. For further information, please refer to chapter 7.1 "Web Configurations" in the "Attention" field.

Function

All relevant pictures and scripts are stored on the web server, so that they can be displayed and run via a web client.

At the same time the web client accesses the stored process cell data on the web server via a TCP/IP connection. The user interface looks like an OS standard client with overview, work and key area.

Among others, the following functions are available via the Web:

- Control and monitoring functions that are also used on an OS Client
- Message lists which can be called user-dependent just like on an OS Client. Messages can be acknowledged user-dependent.
- Display of picture hierarchy according to plant hierarchy
- Group display function including "Loop-in-Alarm" function.
- Advanced status display

Note You can find further information regarding PCS 7 web options in the manual:

"SIMATIC Process Control System PCS 7 OS Web Option > Overview of PCS 7 OS Web Option"

7.1 Web Configurations

In our example, the configuration of the web option represents an extension of the hard- and software configurations of chapter 3 "ES/OS Stand-alone Systems" and chapter 5 "ES/OS-Master and OS-Standby".

Windows XP is installed on the ES/OS stand-alone systems that are expanded to web server. Thereupon the following restrictions result:

WARNINGS

As a rule, a stand-alone system with web server can be accessed by a maximum of three web clients simultaneously.

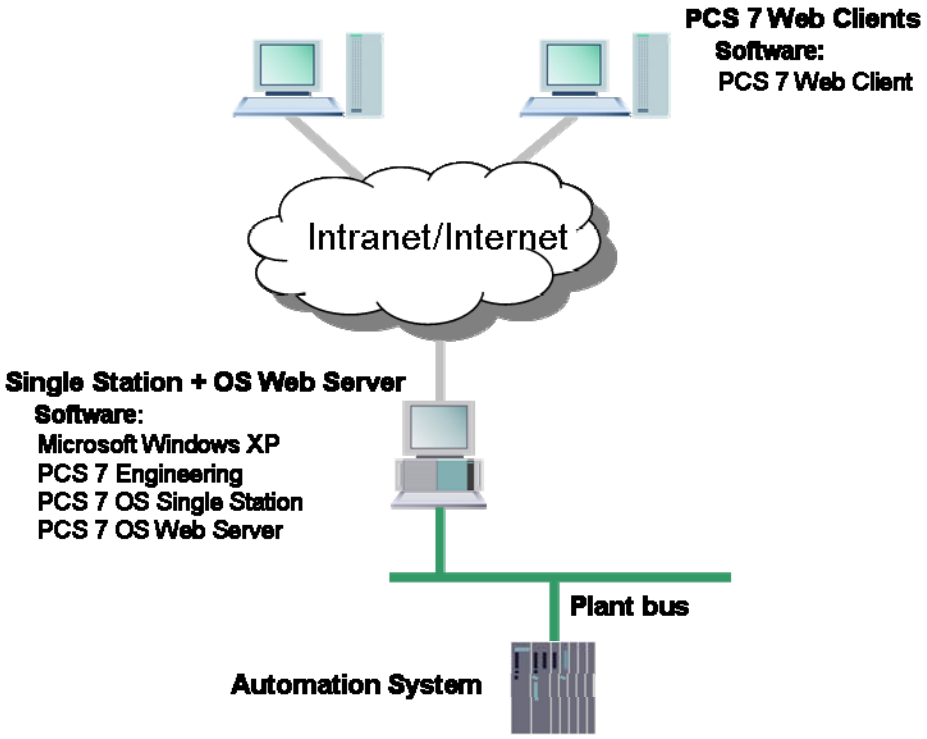
The connection resources of Windows XP are limited to ten. However, a web client alone can claim up to four TCP/IP connections for certain actions.

This is why collisions may occur under Windows XP in the case of three web clients operating at the same time. This is why we recommend linking a maximum of two web clients.

ES/OS stand-alone system as OS web server

To control and monitor the system process, the OS web clients retrieve their project data using the Internet Explorer of the OS web server via the Intranet/Internet.

Figure 7-1: Web Options Configuration in stand-alone system

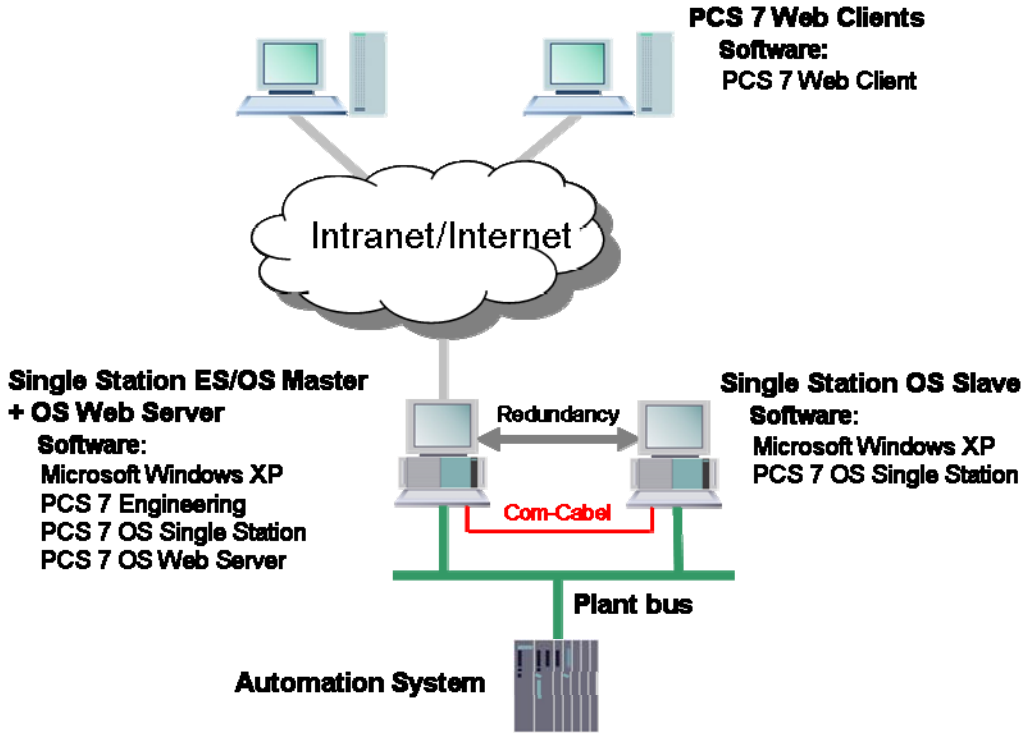


ES/OS Master as OS Web server

To control and monitor the system process, the OS web clients retrieve their project data using the Internet Explorer of the OS web server via the Intranet/Internet.

Furthermore, the system process has a redundant design to offer the plant operation the greatest possible failure protection (this is not the case for the web option!)

Figure 7-2: Web Options Configuration in redundant stand-alone system



7.2 Web-Specific Hardware and Software Requirements

Hardware components

Table 7-1 OS Web Server

Component	Requirement
Minimum hardware (PC) requirement	Intel Pentium IV, 2.8 GHz, 1 GB work memory
Recommended hardware (PC) requirement	Intel Pentium IV, 3.4 GHz, 1 GB work memory
Miscellaneous	Fast access (>= 64 kbit/s) to web client via Internet/Intranet or TCP/IP connection

Table 7-2 OS Web Client

Component	Requirement
Minimum hardware (PC) requirement	No PDAs, tablet PCs etc.
Miscellaneous	Fast access (>= 64 kbit/s) via TCP/IP connection

Software components

Table 7-3 OS Web Server

Component	Requirement
Operating system	Windows XP Professional (or also Windows Server 2003)
Software	Internet Explorer Internet Information Services (IIS)
License	SIMATIC PCS 7, Software Web Server V (3 Clients) Single License

Table 7-4 OS Web Client

Component	Requirement
Operating system	Windows XP Professional (or also Windows Server 2003)
Software	Internet Explorer

Note

The Internet Explorer version is adequate to choose for the PCS 7 version, after the following FAQ:

http://support.automation.siemens.com/WW/view/en/2334224

Further information regarding hardware and software requirements can be found in document:

"Process Control System PCS 7 > PCS 7 Readme"

7.3 Installation of OS Web Server

Content

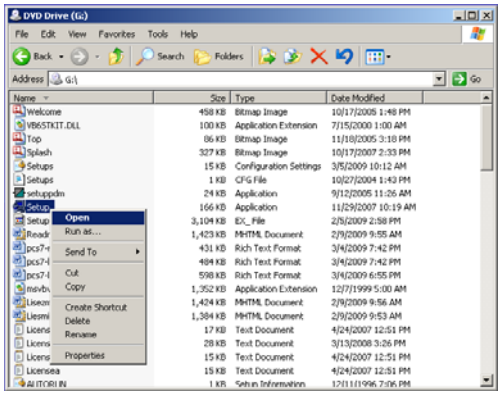
Below you find a description, how to install a web server on an ES/OS stand-alone system.

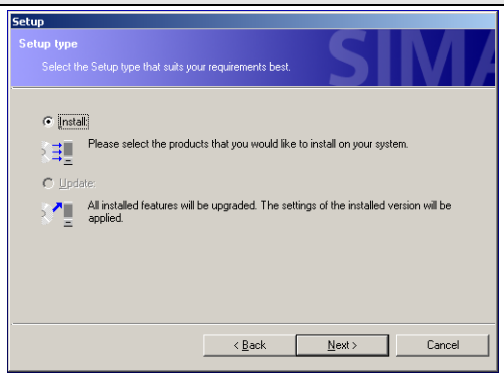
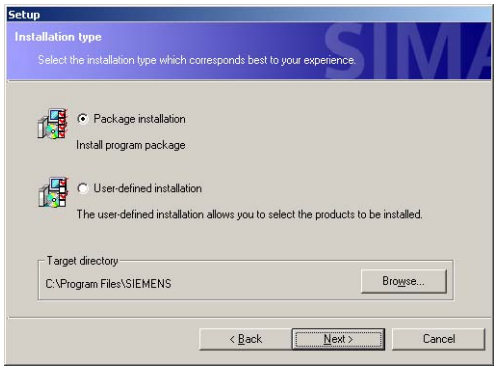
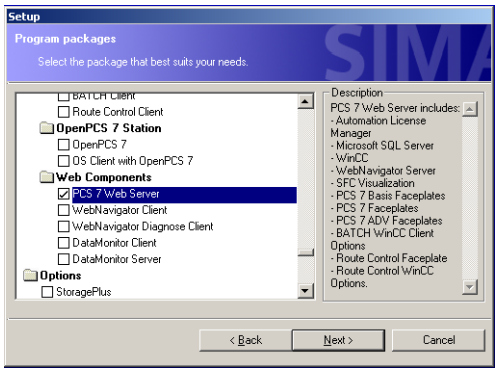
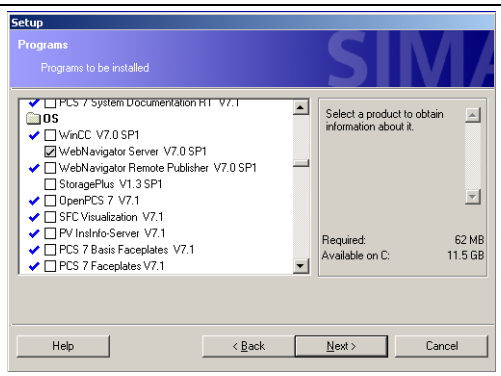
Requirements

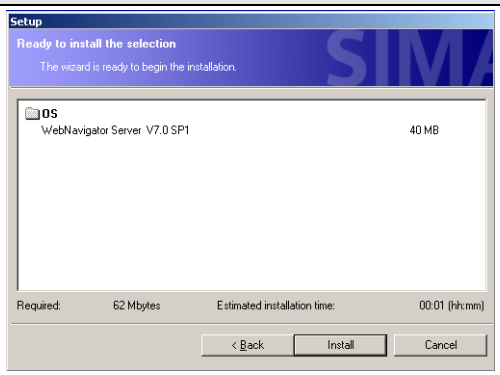
- The hardware and software requirements mentioned in chapter 7.2 are fulfilled.
- The Internet Information Services (IIS) has to be enabled before you can start installing the "PCS 7 Web Server" software.
  "Start > Settings > Control Panel > Add or Remove Programs > Add/Remove Windows Components > Internet Information Services"

Installation of Software

Table 7-5

Step	Action	Note
1.	Select the "Setup.exe" file from the PCS 7 tool set DVD and open it by double-clicking it or via the context menu. Setup will start.	

Step	Action	Note
2.	Follow the setup instructions. Select the option "Install" when selecting the "Setup type". Subsequently click "Next".	
3.	Enable the option "Package installation". Click the "Next" button.	
4.	The "Program packages" dialog field is opened. From the options select "PCS 7 Web Server". Click the "Next" button.	
5.	In the subsequent dialog field, the PCS 7 options already installed and the newly selected "Program packages" are displayed. Click the "Next" button.	

Step	Action	Note
6.	Before installation starts the "Program packages" you want to install new, are listed separately. Check your selection and click the "Install" button when the desired PCS 7 options are displayed.	

7.4 Configuration of OS Web Server

Configuration steps on the ES

- Publishing of pictures by means of Web View Publisher
- Configuring user rights, start screen and language of website in user administrator
- Loading and compiling of Web Server

Publishing of OS data

Pictures and scripts which are supposed to run on the web clients later are published on the OS Web Server using the Web Publisher. Doing this, the following actions are carried out:

- Project data is compressed and stored
- Screen windows are transferred into web-enabled ActiveX components
- Scripts are converted so that they can be run on the Web

Requirements

To be able to publish the Web server data the following prerequisites have to be fulfilled:

- PCS 7 project is readily configured
- OS has already been compiled
- Scripts which the Web clients access are available
- Process pictures do not have a double underscore (e.g. yy__xx.pdl)
- Variable name in plain text (inverted commas) in C scripts contain no spaces

Note

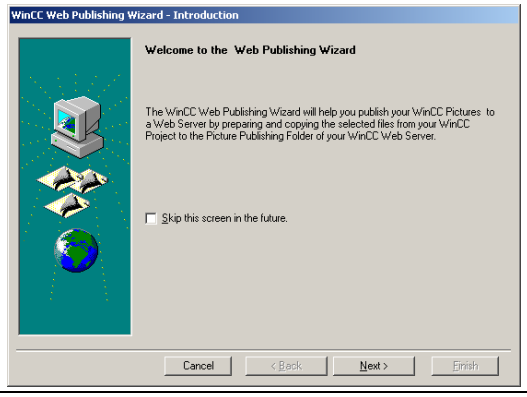
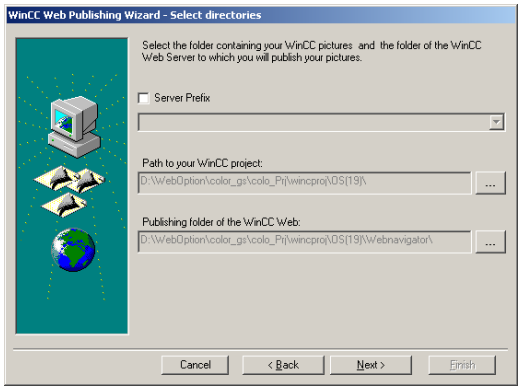
For a stand-alone system only one publishing process for the publishing of local data on the Web server is necessary.

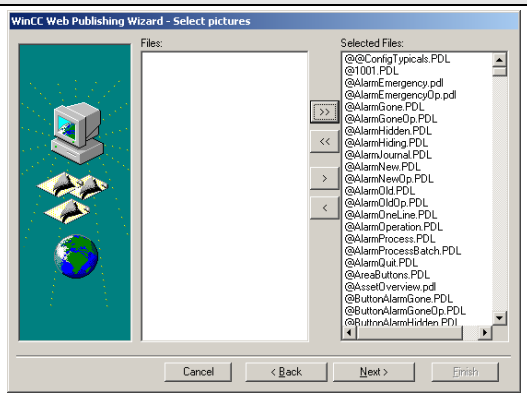
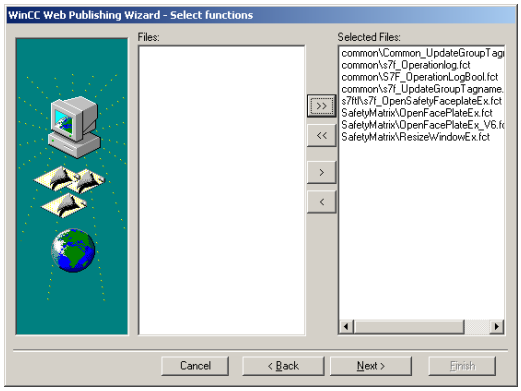
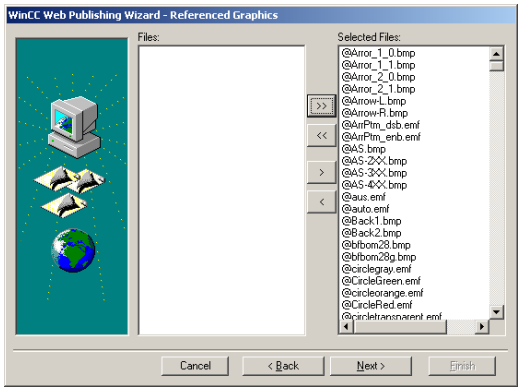
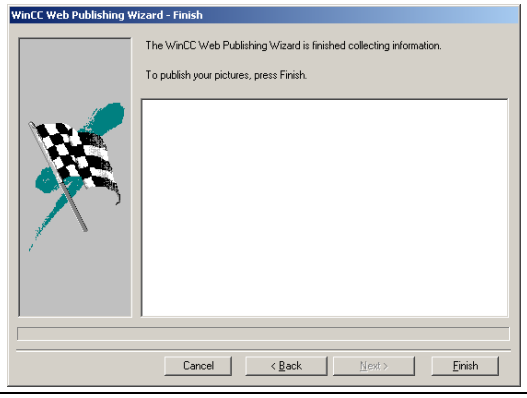
Information regarding the issue of "Supported script normal functions" can be found in the manual:

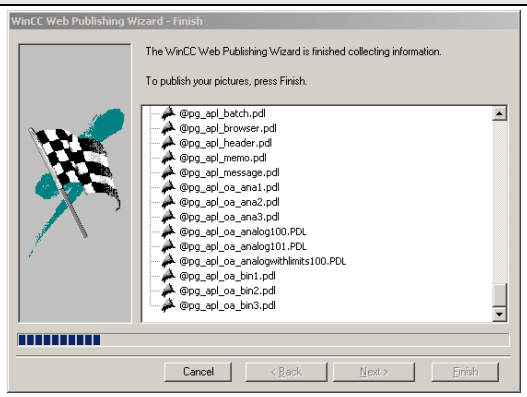
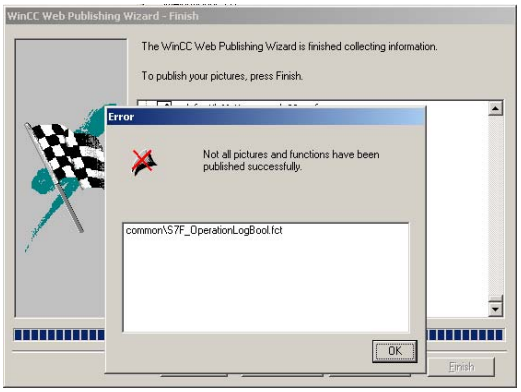
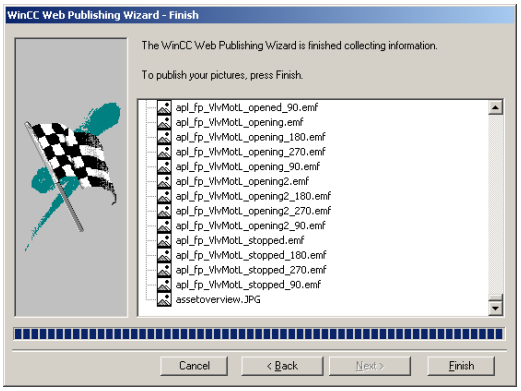
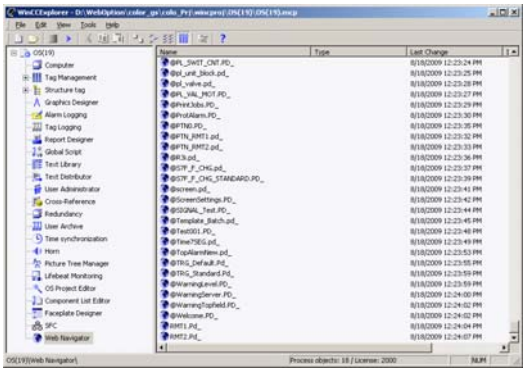
"SIMATIC Process Control System PCS 7 OS Web Option > Configuration of the OS Web server on an ES > Changes to project data > Web-Executable Functions for PCS 7 OS Web Option"

7.4.1 Publishing of Project Data

Table 7-6

Step	Action	Note
1.	Open the OS project of the OS Web Server in WinCC Explorer. Select the command "Web View Publisher" via the context menu of the "Web Navigator" editor. The "WinCC Web Publishing Wizard – Introduction" dialog field opens up. Click the "Next" button.	
2.	The "WinCC Web Publishing Wizard – Select directories" dialog field opens up. Disable the option "Server Prefix" since you want to publish local data. Accept the preset target and source path. If you would like to change the respective path, click the button behind the shaded input fields. Navigate to the desired target or source file. Click the "Next" button.	

Step	Action	Note
3.	The "WinCC Web Publishing Wizard – Select pictures" dialog field opens up. Select all pictures you want to publish. We generally recommend to publish all standard pictures. Via the ">>", "<<", ">" and "<" buttons you can select the pictures. Click the "Next" button.	
4.	The "WinCC Web Publishing Wizard – Select functions" dialog field opens up. Select all functions you want to publish. Only the scripts which were selected in the last publishing process are available in the pictures. This is why you select all necessary function for each publishing process. Via the ">>", "<<", ">" and "<" buttons you can select the functions. Click the "Next" button.	
5.	The "WinCC Web Publishing Wizard – Referenced Graphics" dialog field opens up. Select all graphics you want to publish. We generally recommend to publish all graphics. Via the ">>", "<<", ">" and "<" buttons you can select the graphics. Click the "Next" button.	
6.	The "WinCC Web Publishing Wizard – Finish" dialog field opens up. Click the "Finish" button.	

Step	Action	Note
		
7.	Pictures and functions which contain faulty scripts are marked with a red cross. Double-click each faulty picture to open and correct the picture in the "PdlPad" editor. Confirm the message after each publishing process by clicking the "OK" button.	
8.	The transferred pictures are listed in the "WinCC Web Publishing Wizard – Finish" dialog field. Click the "Finish" button.	
9.	The published pictures are displayed in the data window of the Web Navigator.	

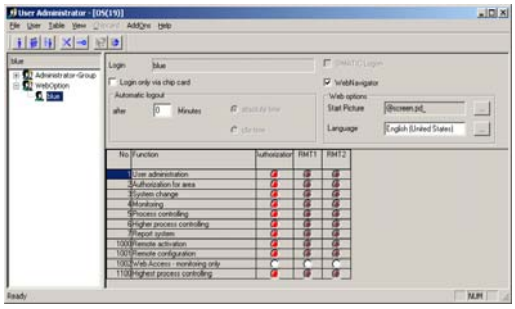
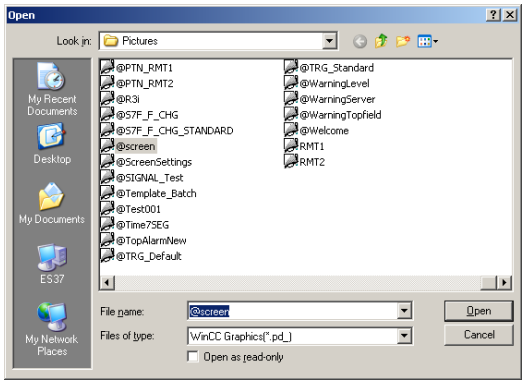
7.4.2 Setting of User Rights, Website Start Screen and Language

Access restriction

Accesses of the Web Clients on the OS Web Server are controlled via user rights. User rights are assigned in the "User Administrator" editor. The user rights correspond to those of the standard clients.

Settings in the "User Administrator" Editor

Table 7-7

Step	Action	Note
1.	Open the "User administration" in the opened OS project of the WinCC Explorer. Create new users and/or new user groups and assign them respective authorizations. In addition, enable the option "WebNavigator" for the user/user group and enter the "Start Picture" and "Language" in the respective input fields.	
2.	Select the start picture from the published graphics via the "…" button. "…\OS Web Server\<wincc project release name>\Web Navigator\pictures" Select the "@screen.pd_" graphic as start picture. Confirm your selection with the "Open" button. This is also how you determine a language for the control and monitor interface of the Web clients. To do this, click the respective "…" button. Confirm your selection with the "OK" button.	
3.	Close the User Administration editor.	

7.4.3 Configuring with the Web Configurator

Tasks of the Web Configurator

The Web configurator sets up and manages the Internet Information Service (IIS) and therefore the website of the OS web server. This setup is carried out on the web server after you have loaded the project on the web server. This setup and configuration is necessary to set up an operator station (OS) as OS web server and to make it accessible for web clients via the Intranet/Internet.

With the Web Configurator you can make the necessary firewall settings for the network card, if the firewall is enabled.

Requirements of the stand-alone system

- PCS 7 Web Server software is installed on the stand-alone system
- the OS project is loaded on the stand-alone system
- settings in the OS are completed
- pictures, functions and graphics have been published
- user rights have been assigned/created

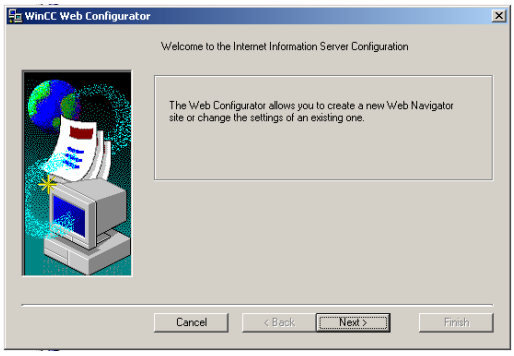
Note

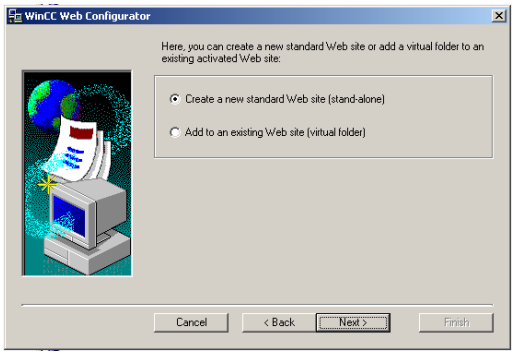
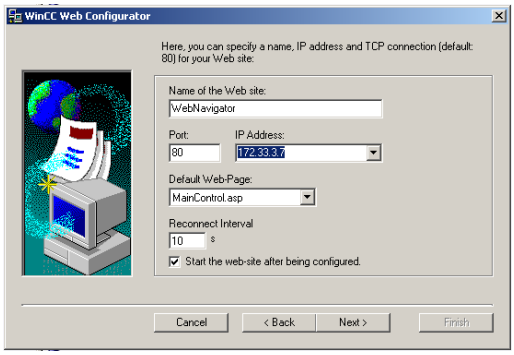
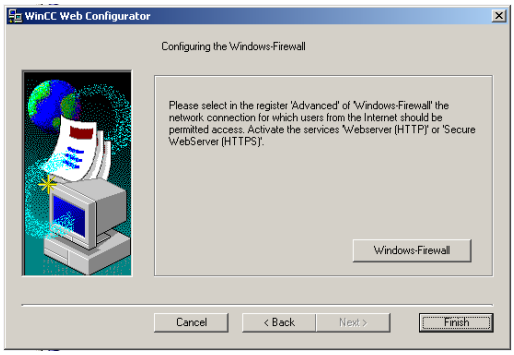
Further information regarding the setup of a standard website can be found in the manual:

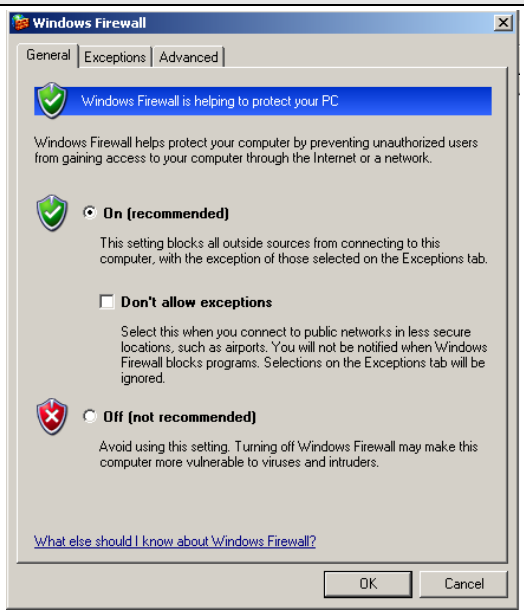
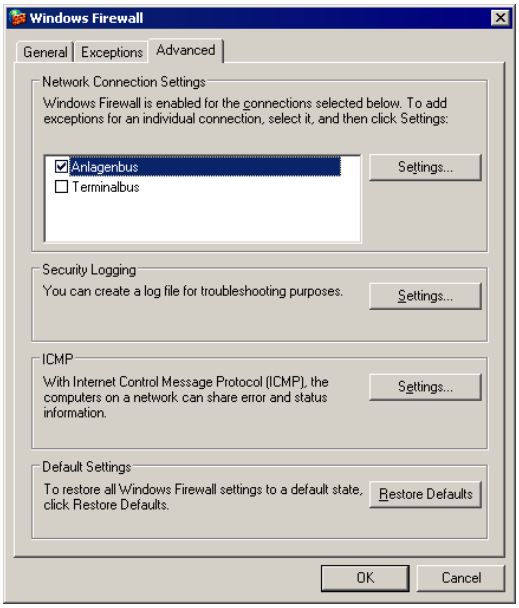
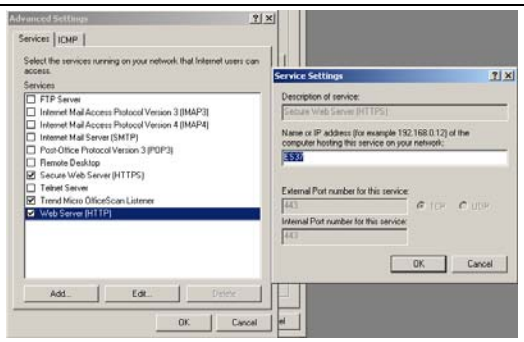
"SIMATIC Process Control System PCS 7 OS Web Option > Completing configuration on the OS Web server"

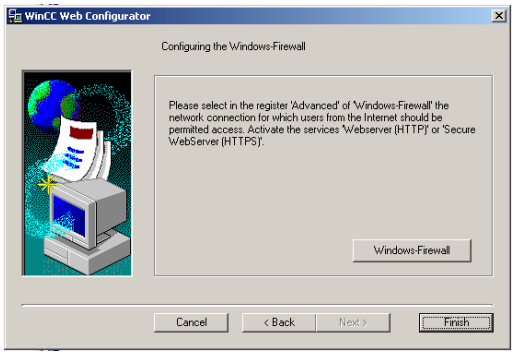
Settings in the "Web Navigator" editor

Table 7-8

Step	Action	Note
1.	Open the OS project on the OS Web Server in the WinCC Explorer. Select the command "Web Configurator" via the context menu of the "Web Navigator" editor. The "WinCC Web Configurator" dialog field opens up. Click the "Next" button.	

Step	Action	Note
2.	In the next window select the option "Create a new standard Web site (stand-alone)". Click the "Next" button.	
3.	Specify a name for your Web site in the "Name of Web site" input field. Also assign the IP address and the connection port of the computer via the "Port" and "IP Address" input fields. Select "MainControl" from the drop-down list of the "Default Web-Page" input field. Also enter a time in the "Reconnect Interval" input field Enable the option "Start the web-site after being configured". Click the "Next" button.	
4.	If the Windows-Firewall is not enabled, continue with step 8. Otherwise click the "Windows-Firewall" button (the button is only visible when the Firewall is enabled).	

Step	Action	Note
5.	In the "Windows-Firewall" dialog field select the "Advanced" tab.	
6.	Enable the optional box for the desired network connection. Click the "Settings..." button. The "Advanced Settings" dialog field is opened.	
7.	This is where you enable the optional box "Secure Web Server" and/or "Web Server". Click the respective "OK" button.	

Step	Action	Note
8.	Click the "Finish" button.	
9.	Click the "OK" button. Afterwards close the WinCC Explorer and restart your computer to accept all settings.	

7.4.4 Loading and Compiling of Web Server

Loading of Web Server

Since the OS Web Server is a stand-alone system (ES/OS/Web Server), a loading and/or delta download of project data is not necessary because local data is already present through "Compile OS".

Compiling

The "Compile changes" function can be carried out for stand-alone systems without having to interrupt the process operation of the Web server.

Note

Further information regarding the configuration of the OS Web Server can be found in the manual:

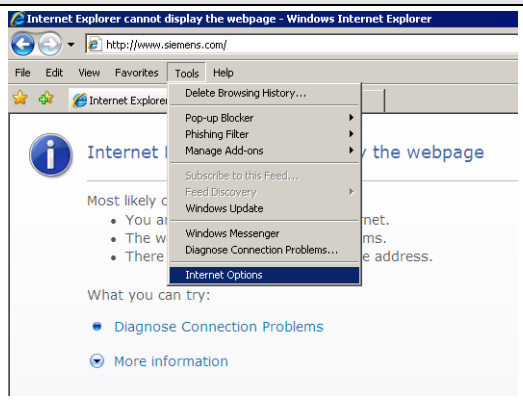
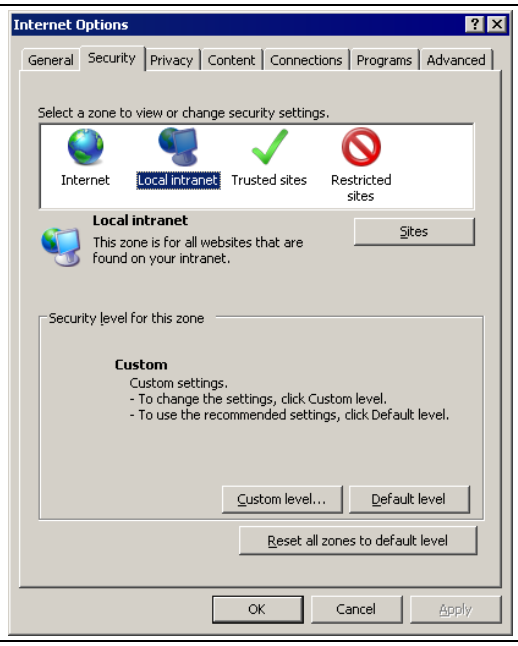
"SIMATIC Process Control System PCS 7 OS Web Option > Configuration of the OS Web server on an ES"

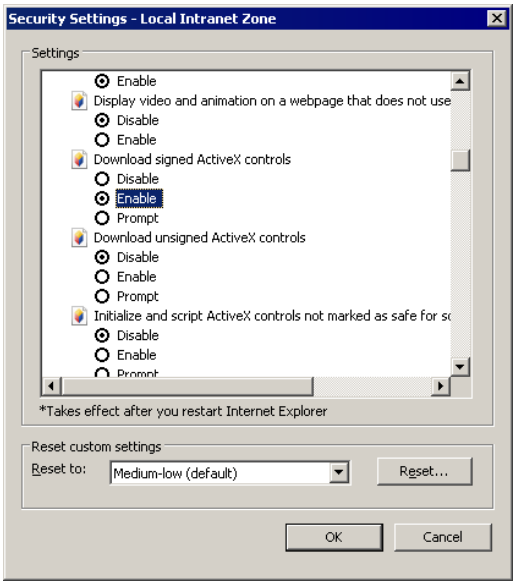
7.5 Settings on Web Client

Settings of web content zone "Internet" or "Local Intranet"

You have to make or check the settings for the web content page in the Internet Explorer to be able to install the plug-ins for the Web Client of the OS Web Server later.

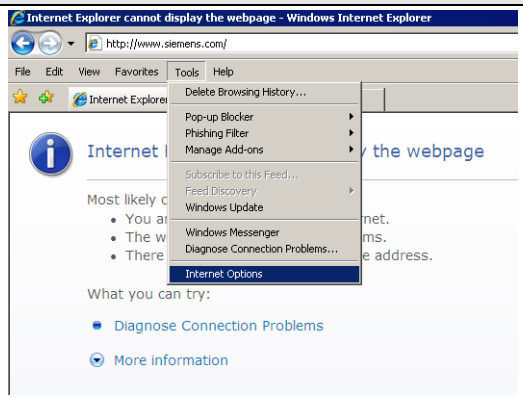
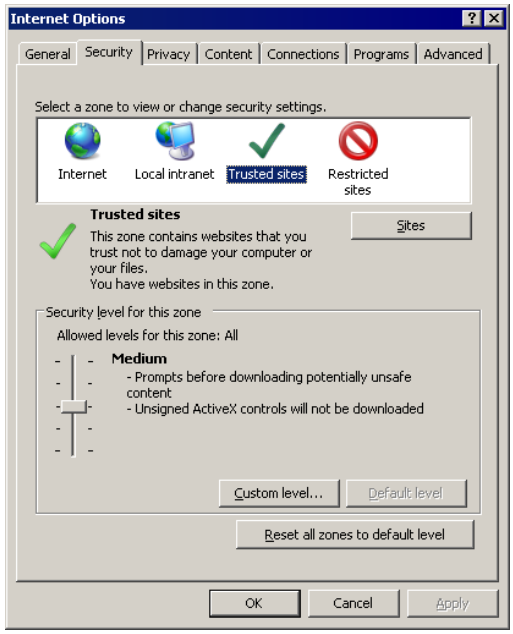
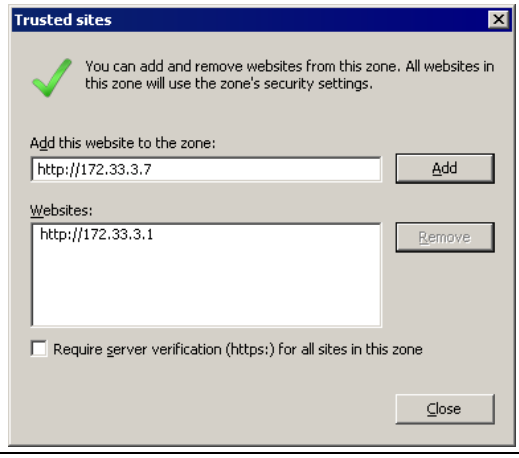
Table 7-9

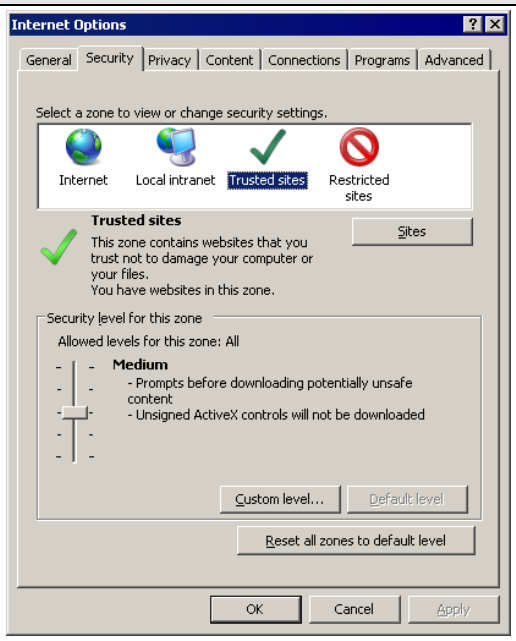
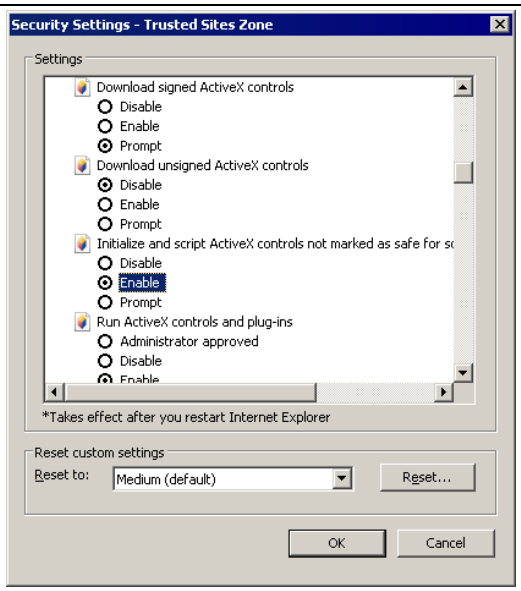
Step	Action	Note
1.	Open the Internet Explorer. Select the command "Tools > Internet Options"	
2.	Click the "Security" tab. Select the web content zone in which the Web server is located ("Internet" or "Local intranet"). Click the "Custom level..." button.	

Step	Action	Note
3.	Enable the option under "Execute ActiveX controls safe for scripting" and "Download signed ActiveX controls"	
4.	Click the respective "OK" buttons for the dialog fields "Security Settings" and "Internet Options" to close them.	

Settings of web content zone "Trusted sites"

Table 7-10

Step	Action	Note
1.	Open the Internet Explorer. Select the command "Tools > Internet Options".	
2.	Click the "Security" tab. Select the web content zone "Trusted sites". Click "Sites" to open the dialog field.	
3.	Enter the address of the OS Web Server in the "Add this website to the zone" input field e.g. *://172.33.3.7 or http://*.microsoft.com Additionally, disable the option "Require server verification (https:) for all sites in zone". Click the "Add" and "Close" buttons.	

Step	Action	Note
4.	Select the web content zone "Trusted sites". Click the "Default level" and afterwards the "Custom level…" button.	
5.	Enable the option "Initialize and script ActiveX controls not marked as safe for scripting" in the dialog field "Security Settings".	
6.	Click the respective "OK" buttons for the dialog fields "Security Settings" and "Internet Options" to close them.	

Therefore the requirements for a connection of Web client to Web server have been created.

7.6 Installation of Web Client Plugins

Installation paths

When installing the plugins for the Internet Explorer you can choose between two installation paths:

- Remote installation – installation via the Intranet/Internet of the Web server
- Local installation – installation via the Windows Installer Package of the Web Client

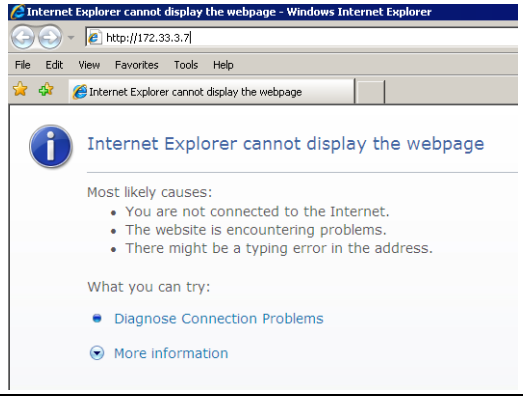
In application example we look at the "Remote installation".

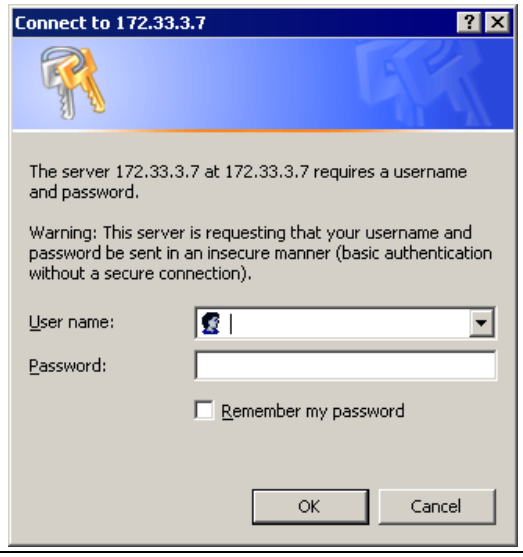
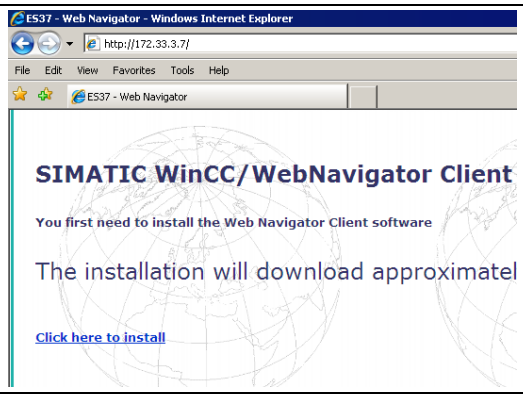
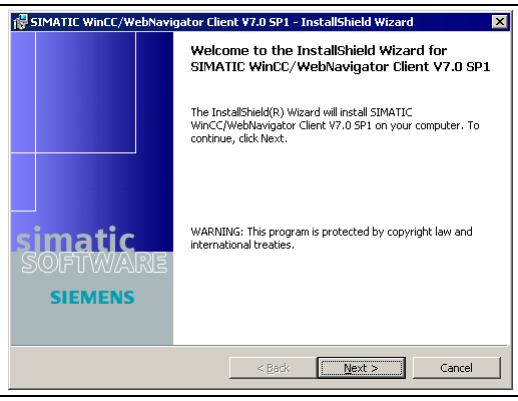
Requirements

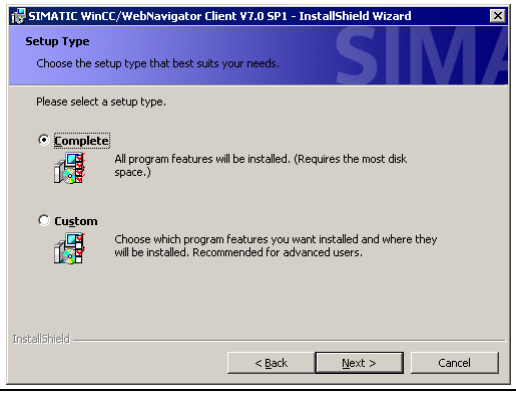
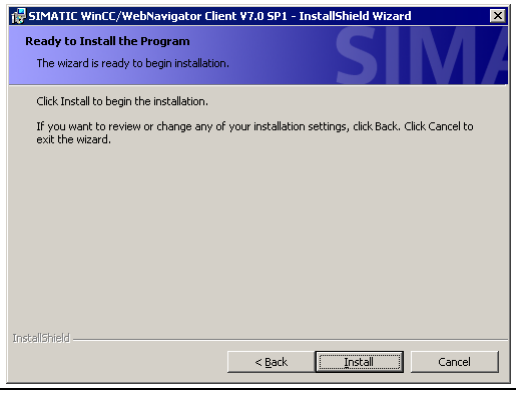
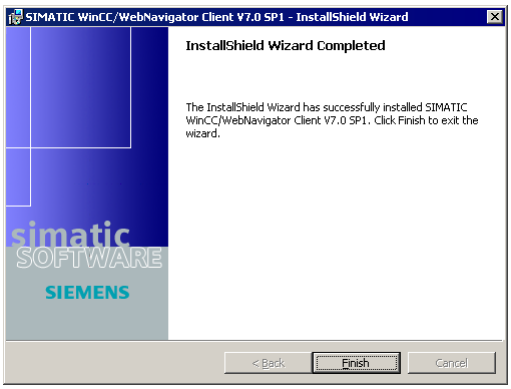
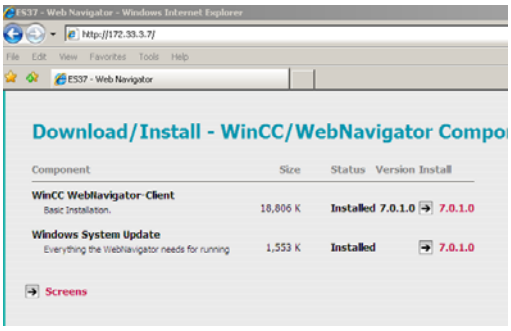
- the OS Web Server is in runtime.
- the web client has access to the web server
- you know the web server address
- you know the domain, user name and password
- the user authorizations are valid for PCS 7 Web Options
- the login on the PC has the rights of a main user.

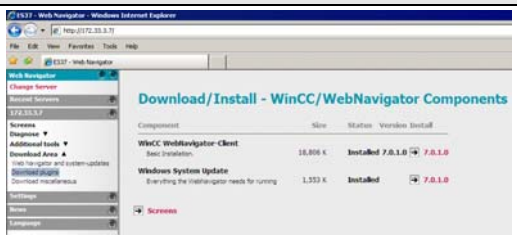
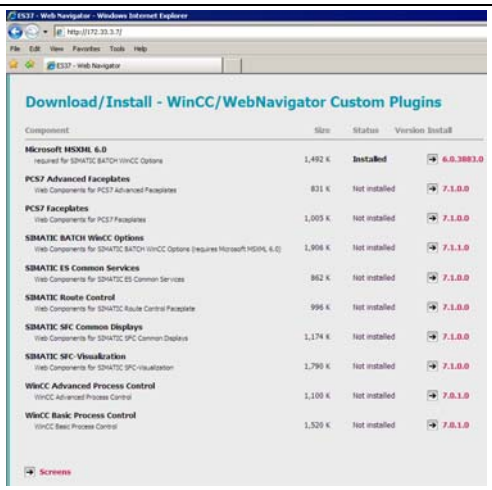
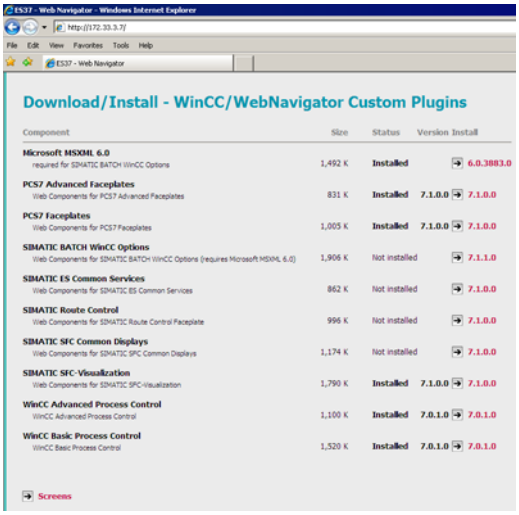
Installation

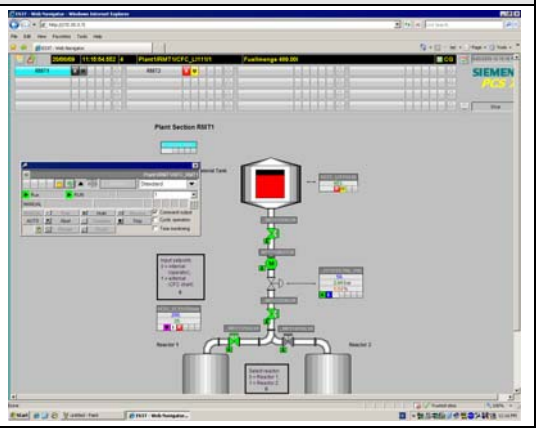
Table 7-11

Step	Action	Note
1.	Open the Internet Explorer. Enter the Web Server address (http://<Server name or IP>) in the "Address" input field.	

Step	Action	Note
2.	Enter the access data in the "Connect to <severname>" dialog field which was determined on the Web server in the "User Administrator" editor.	
3.	During the first connection the "Security Warning" dialog field will open up. Continue by clicking the "Install" button.	
4.	A note will appear in the main window, saying that the "Web Navigator Client“ software has to be installed first. Click on the bottom link "Click here to install" to start installation.	
5.	The InstallShield Wizard is started. Click the "Next" button to install the "WebNavigator Client" software Follow the instructions of the wizard.	

Step	Action	Note
6.	Select the option "Complete" in the dialog field "Setup Type". Click the "Next" button.	
7.	Click the "Install" button to trigger the installation process of the "WebNavigator Client" software.	
8.	To complete the installation, click the "Finish" button in the last step of the wizard.	
9.	In the main window you can now see which components have been successfully installed on the web client. Before you click on the reference "Process pictures", install the necessary plugins first, to be able to operate and monitor the process accordingly.	

Step	Action	Note
10.	Move the cursor to the left edge of the screen of the Internet Explorer window to make the navigation bar visible there. Click on the "double arrow" icon in the navigation menu next to the name or the IP address of the web server. Click the sub-menu "Download Area". This is where you select "Download plugins".	
11.	Now all available plugins for the web client will be displayed in the Internet Explorer window. In the "Install" column, click the arrow before the version number to install the plugin.	
12.	The plugins: WinCC Basic Process Control WinCC Basic Process Control PCS 7 Faceplates PCS 7 Advanced Faceplates should be installed to guarantee minimum process control. During installation the displayed sequence is to be observed.	

Step	Action	Note
13.	Installation of the web client is complete. Close the Internet Explorer and reopen it to register for process control. As soon as the web client has established a connection with the web server, the process pictures can be called.	

Note Further information regarding the installation of the web client, process control on the web client and settings can be found in the manual:

"SIMATIC Process Control System PCS 7 OS Web Option > Installation and Settings for the Web Client"