

# SIEMENS

## SIMATIC

### Process Control System PCS 7 V7.0 SP1 PC Configuration and Authorization

Operating Manual

Preface

1

PC components of a PCS 7  
system

2

Hardware for PC stations

3

Installing PC stations

4

Appendix

5

09/2007

A5E00783465-02

## Safety Guidelines

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

### DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

### WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

### CAUTION

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

### CAUTION

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

### NOTICE

indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

## Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

## Prescribed Usage

Note the following:

### WARNING

This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

## Trademarks

All names identified by ® are registered trademarks of the Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

## Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

# Table of contents

<b>1</b>	<b>Preface .....</b>	<b>7</b>
<b>2</b>	<b>PC components of a PCS 7 system.....</b>	<b>11</b>
2.1	Basic configuration of the PCS 7 system.....	11
2.2	Fault-tolerant (redundant) configurations.....	13
2.3	Options when working with engineering stations.....	15
2.4	Differences between multiple station systems and single station systems .....	16
2.5	Solutions for engineering stations.....	19
2.5.1	Engineering for a PCS 7 project with multiple engineering stations .....	19
2.5.2	Engineering for a PCS 7 project with a single PC .....	20
2.5.3	Combination of engineering station and operator station on a single PC .....	21
2.6	Solutions for multiple station systems.....	22
2.6.1	Operator station multiple station system.....	22
2.6.2	BATCH station multiple station system.....	24
2.6.3	Route control station multiple station system .....	25
2.6.4	Maintenance station multiple station system .....	26
2.6.5	Long-term archiving with the central archive server .....	28
2.7	Solutions for single station systems.....	29
2.7.1	OS single station .....	29
2.7.2	BATCH single station.....	31
2.7.3	Route control single station.....	32
2.7.4	Maintenance station single station system .....	33
2.7.5	SIMATIC PCS 7 BOX stations .....	34
2.8	Solutions for accessing PC stations .....	36
2.8.1	Remote access to the OS using PCS 7 OS Web Option .....	36
2.8.2	Access to PCS 7 data using Open PCS 7 .....	39
2.9	Connecting PC stations .....	42
2.9.1	Bus connection between AS, OS, BATCH, RCS and ES.....	42
2.9.2	Connection to the terminal bus/plant bus .....	44
2.9.3	Connecting PC Stations via Wireless LAN .....	46
2.9.4	Time-of-day synchronization.....	47
<b>3</b>	<b>Hardware for PC stations.....</b>	<b>49</b>
3.1	Preconfigured PC systems for PCS 7 (product bundles) .....	49
3.2	Basic hardware configuration.....	50
3.3	Components for connection to the terminal bus/plant bus .....	53
3.4	Optional hardware components.....	55
3.5	Configuring and ordering .....	56

<b>4</b>	<b>Installing PC stations .....</b>	<b>57</b>
4.1	Overview of the installation procedure .....	57
4.2	Hard disk partitioning .....	59
4.3	Installing the operating system .....	60
4.3.1	Notes on installing the operating system .....	60
4.3.2	PC configuration security settings .....	63
4.3.3	How to install Windows XP and Windows Server 2003 .....	65
4.3.4	How to install service packs for the operating system .....	68
4.3.5	How to configure paged memory .....	69
4.3.6	How to make additional system settings .....	70
4.3.7	How to install the Message Queuing Service for Windows XP Professional .....	72
4.3.8	How to install the Message Queuing Service for Windows Server 2003 .....	73
4.3.9	How to install additional components .....	74
4.3.10	How to Install Microsoft SQL Server .....	75
4.3.11	How to configure the server role for the central archive server .....	77
4.3.12	Installing additional services for SIMATIC BATCH .....	78
4.3.13	How to set color schemes and font sizes .....	79
4.3.14	Creating a backup .....	80
4.4	Installing the PCS 7 software .....	81
4.4.1	Notes on installing PCS 7 .....	81
4.4.2	How to install in a network .....	84
4.4.3	How to install the PCS 7 software .....	85
4.4.4	How to install the central archive server (StoragePlus) .....	89
4.4.5	Configuring redundancy for redundant servers .....	91
4.4.6	Installing a PC for PCS 7 OS Web Option .....	91
4.4.7	Setting up user groups and users .....	92
4.4.8	Firewall in PC stations .....	95
4.4.9	Reinstallation or updating .....	96
4.4.10	Removing PCS 7 .....	97
4.5	Installing drivers for PCS 7 .....	98
4.5.1	Drivers for communications processors .....	98
4.5.1.1	Drivers for communications processors .....	98
4.5.1.2	How to install drivers for communications modules .....	99
4.5.1.3	How to configure standard communication modules .....	101
4.5.1.4	How to disable the power saving options of network adapters .....	103
4.5.1.5	How to Prepare an Engineering Station with CP 1613 for Use in PCS 7 .....	105
4.5.2	Additional Devices and Drivers for PCS 7 .....	107
4.5.2.1	Additional Devices and Drivers for PCS 7 .....	107
4.5.2.2	How to activate a multi-VGA graphics card .....	108
4.5.2.3	How to activate a sound card .....	110
4.5.2.4	How to activate the DCF77 reception service .....	111
4.6	Licensing .....	112
4.6.1	Licensing and authorizing PCS 7 software .....	112
4.6.2	How to transfer license keys .....	115
4.6.3	Selecting the correct license keys/authorizations .....	117
4.6.4	Calculating the process objects for the SIMATIC station .....	120
4.6.5	Calculating the process objects for the engineering station .....	122
4.6.6	Calculating the process objects for the operator station .....	123
4.6.7	Calculating the process objects for the central archive server .....	126
4.6.8	Calculating the asset tags (hardware components) for the maintenance station .....	127
4.6.9	Calculating the units for the BATCH station .....	129
4.6.10	Calculating the routes for the route control station .....	130

4.7	Preparing PC stations .....	131
4.7.1	Preparing PC stations - an overview .....	131
4.7.2	How to create user groups for SIMATIC Logon .....	132
4.7.3	How to assign the SQL access permissions for OS users .....	134
4.7.4	How to set the language for a user (MUI) .....	135
4.7.5	How to configure communication modules .....	137
4.7.6	How to configure the PC station in the configuration console .....	139
4.7.7	How to make the settings for standard network adapters .....	141
4.7.8	How to change the transmission rate and the mode in the PC network .....	142
4.7.9	Installing security patches, hotfixes, service packs .....	144
4.7.10	How to retro-activate the security settings for PCS 7 .....	145
4.7.11	How to change the settings of the Windows firewall for Open PCS 7 .....	146
4.7.12	How to activate redundancy for fault-tolerant PCs .....	147
4.7.13	Downloading the network configuration to the PC stations .....	148
4.8	Notes on add-ons and utilities .....	149
4.8.1	Overview of add-on programs and utilities for PCS 7 .....	149
4.8.2	Remote diagnostics functions .....	150
4.8.3	Virus scanners .....	153
4.8.4	Burner software .....	153
4.8.5	DiagMonitor .....	154
4.8.6	Screen savers .....	157
4.8.7	Defragmentation programs .....	158
<b>5</b>	<b>Appendix.....</b>	<b>159</b>
5.1	Appendix A - Use of software packages .....	159
5.1.1	Software packages for basic engineering .....	159
5.1.2	Software packages for operator stations .....	161
5.1.3	Software packages for SIMATIC BATCH .....	162
5.1.4	Software packages for SIMATIC Route Control .....	163
5.1.5	Optional software packages .....	164
5.2	Appendix B - Licensing of software packages .....	166
5.2.1	Software packages and required license key .....	166
5.3	Appendix C - Approved configurations on a PC station .....	204
5.3.1	Approved configurations .....	204
5.3.2	Configuration tables .....	208
5.3.2.1	Configurations with engineering station, clients and single station .....	208
5.3.2.2	Configurations with server operating system (server to server) .....	208
5.3.2.3	Configurations with server operating system (client installation on server) .....	209
5.3.3	Information on configurations .....	210
5.3.3.1	Information on configuration type "X" .....	210
5.3.3.2	Information on configuration type "-" .....	210
5.3.3.3	Information on configuration type "A" .....	210
5.3.3.4	Information on configuration type "B" .....	210
	<b>Index.....</b>	<b>211</b>



# Preface

## Purpose of this documentation

This documentation provides you with an overview of the PC components used in PCS 7. It contains the following information:

- The PC components that can be used in PCS 7 applications
- The software and hardware you require for specific PC components
- The licenses you require for individual products
- The potential PC configurations for an application
- How you can set up and configure your PC network

This documentation is intended for persons involved in configuration, commissioning, and service.

## Required basic knowledge

To understand this documentation, you should be familiar with automation engineering and process control engineering.

You should also have experience of using PCs and similar (for example programming devices) and the Windows operating system used.

Before installing PC components for PCS 7, make sure that you read the *pcs7* readme file for the latest version of PCS 7.

## Validity of the documentation

This documentation is valid for the *Process Control System; PCS 7 Toolset V7.0 SP1* software package.

## Changes compared with the previous version

Below you will find an overview of the most important changes in the documentation compared with the previous version:

- New PC stations integrated in PCS 7:
  - SIMATIC PCS 7 BOX RTX and SIMATIC PCS 7 AS RTX  
You will find more information on this topic in the manual *Process Control System PCS 7; SIMATIC BOX*.
  - Open PCS 7 for access to PCS 7 systems over intranet/Internet  
You will find information on this topic in the section "Access to PCS 7 data with Open PCS 7 (Page 39)"
- PCS 7 OS Web Option with PCS 7 OS single station system  
You will find information on this topic in the section "Remote access to the OS with the PCS 7 OS Web Option (Page 36)"
- Using SQL Server 2005  
You will find information on this topic in the section "How to install the Microsoft SQL server (Page 75)"
- PC Configuration security settings  
You will find information on this topic in the section "PC Configuration security settings (Page 63)"
- Installing additional services for SIMATIC BATCH  
You will find information on this topic in the section "Installing additional services for SIMATIC BATCH (Page 78)"
- Determining the process objects for the SIMATIC station  
You will find information on this topic in the section "Determining the process objects for the SIMATIC station (Page 120)"
- Determining the process objects for the operator station  
You will find information on this topic in the section "Determining the process objects for the operator station (Page 123)"

## Conventions

In this documentation the designations of elements of the user interface are shown in the documentation language. If you have installed a multi-language package for the operating system, some of the designations will be nevertheless be displayed in the base language of the operating system after you change the language and will, therefore, differ from the designations used in the documentation.

## PCS 7 glossary

You will find a PCS 7 glossary containing definitions of important technical terms used in this documentation on the DVD *SIMATIC PCS 7; Manual Collection* or in the PCS 7 software via the SIMATIC Manager Help menu (menu command **Help > Contents > "Glossary"** button).

## See also

- Preconfigured PC systems for PCS 7 (product bundles) (Page 49)



## Further Support

If you have any technical questions, please get in touch with your Siemens representative or responsible agent.

You will find your contact person at:

<http://www.siemens.com/automation/partner>

You will find a guide to the technical documentation offered for the individual SIMATIC Products and Systems at:

<http://www.siemens.com/simatic-tech-doku-portal>

The online catalog and order system is found under:

<http://mall.automation.siemens.com/>

## Training Centers

Siemens offers a number of training courses to familiarize you with the SIMATIC S7 automation system. Please contact your regional training center or our central training center in D 90327 Nuremberg, Germany for details:

Telephone: +49 (911) 895-3200.

Internet: <http://www.sitrain.com>

## Technical Support

You can reach the Technical Support for all A&D products

- Via the Web formula for the Support Request  
<http://www.siemens.com/automation/support-request>
- Phone: + 49 180 5050 222
- Fax: + 49 180 5050 223

Additional information about our Technical Support can be found on the Internet pages  
<http://www.siemens.com/automation/service>

## Service & Support on the Internet

In addition to our documentation, we offer our Know-how online on the internet at:

<http://www.siemens.com/automation/service&support>

where you will find the following:

- The newsletter, which constantly provides you with up-to-date information on your products.
- The right documents via our Search function in Service & Support.
- A forum, where users and experts from all over the world exchange their experiences.
- Your local representative for Automation & Drives.
- Information on field service, repairs, spare parts and more under "Services".
  -

## PC components of a PCS 7 system

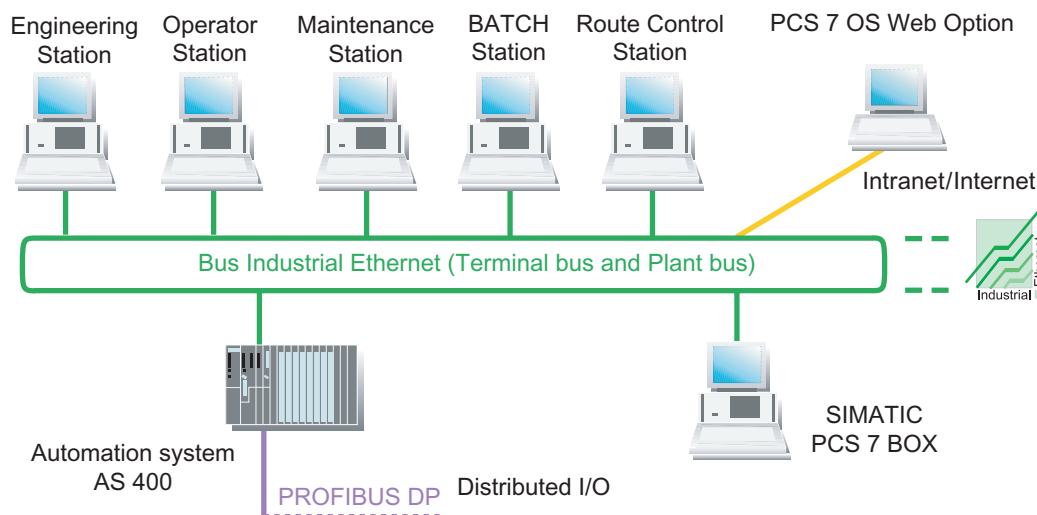
### 2.1 Basic configuration of the PCS 7 system

#### PC components for ES/OS/SIMATIC BATCH/SIMATIC Route Control/SIMATIC IT

In a PCS 7 system, PC components are used for the following stations:

- Engineering stations (ES)
- Operator stations (OS)
- BATCH stations (BATCH)
- Route Control Stations (RCS)
- Stations for connecting SIMATIC PCS 7 to the SIMATIC IT environment

PCS 7 refers to these stations collectively as "PC stations". The following figure outlines the most important components in a PCS 7 plant.



### Legend for figure

Station	Function
Engineering station (Page 15)	<p>You configure and download all system components of PCS 7 with the engineering station: operator stations, BATCH stations, Route Control stations, automation systems, central and distributed I/O.</p> <p>Engineering stations are PCs on which the PCS 7 engineering software is installed for the configuration of a PCS 7 project.</p>
Operator station (Page 16)	<p>The operator station is used to operate and monitor the PCS 7 system in process mode.</p> <p>You connect the operator station to the plant bus to enable the required data communication with the automation system.</p> <p>Operator stations are PCs on which the PCS 7 OS software is installed.</p>
Maintenance station (Page 16)	<p>You can view the status of plant components using the maintenance station.</p> <p>Maintenance servers are PCs on which the PCS 7 OS software is installed and specially configured for diagnostics.</p> <p>An engineering station is used as a maintenance client.</p>
BATCH station (Page 16)	<p>The BATCH station is used to operate and monitor batch process sequences in process mode.</p> <p>A connection to an operator station is required for data communication with the automation system. The BATCH station is connected to the terminal bus for this purpose.</p> <p>BATCH stations are PCs on which the SIMATIC BATCH software is installed.</p>
Route Control Station (Page 16)	<p>You use a Route Control station (RCS) to automate the transport of materials and products in a PCS 7 plant.</p> <p>The Route Control station is connected to the plant bus to provide the required data communication. A connection to an operator station is required to display messages.</p> <p>Route Control stations are PCs on which the SIMATIC Route Control software is installed.</p>
Bus (terminal bus and plant bus) (Page 44)	<p>The PCS 7 AS, OS, BATCH, RCS and ES components communicate (between and among each other) via a bus system (Industrial Ethernet). In PCS 7 plants, this bus is divided into:</p> <ul style="list-style-type: none"> <li>• A terminal bus for communication between the following components: <ul style="list-style-type: none"> <li>– Operator control and monitoring systems (OS, BATCH, RCS)</li> <li>– Engineering station</li> <li>– Higher-level components (e.g., MES, office networks)</li> </ul> </li> <li>• A plant bus for communication between: <ul style="list-style-type: none"> <li>– Servers (OS, RCS) and automation systems</li> <li>– Automation systems (SIMATIC connections)</li> </ul> </li> </ul>
Automation system	<p>The automation system performs the following tasks:</p> <ul style="list-style-type: none"> <li>• The AS acquires and processes the process tags from the connected I/O (centralized and distributed) and outputs control information and set points to the process.</li> <li>• The AS supplies the operator station with data for visualization.</li> <li>• The AS recognizes operator inputs and returns them to the process.</li> </ul>
SIMATIC PCS 7 BOX (Page 34)	<p>An industrial PC, which comprises the functions of a PCS 7 process control system (engineering, automation, operator control and monitoring) when used in conjunction with a distributed I/O.</p> <p>You use PCS 7 BOX for small stand-alone systems or combined AS/OS stations that can be integrated in the PCS 7 network.</p>

## 2.2 Fault-tolerant (redundant) configurations

### Introduction

The use of fault-tolerant components in a process control system minimizes the risk of a production downtimes. A redundant design ensures increased availability of a control system. This means that all components involved in the process have a backup and perform a portion of the control tasks.

If a fault occurs or one of the process control system components fails, the still functional redundant component takes over the control task.

### Redundancy for PC stations in a PCS 7 system

You can use redundant components in PCS 7 to ensure high availability of PC stations.

- Note the following properties for redundant server pairs:

Property	Description
Reaction to server failure	In a project with a redundant server pair, the advantage is that if one of the servers fails, operator control and monitoring of the process can continue via the redundant server.
Number of servers	Maximum 12 servers (pairs) in a PCS 7 system
Behavior from the client perspective	From a client perspective, a redundant server pair behaves like <b>one</b> server.
Configuration	You configure all of the configuration data for one server only. You then download the configuration data to both redundant servers.

- Note the following properties for redundant network components:

Property	Description
Switch over in the event of a terminal bus failure	<p>The following network adapters are used for a redundant connection of the PC stations to a terminal bus:</p> <ul style="list-style-type: none"><li>• Server adapter: Pro/1000MT</li><li>• Desktop adapter: Pro/1000GT</li></ul> <p>You can find additional information about this in the function manual <i>Process Control System PCS 7; Fault-Tolerant Process Control Systems</i>.</p>
Switch over in the event of a plant bus failure	<p>The CP 1613 is used for a redundant connection of the PC stations to a plant bus.</p> <p>You will find more information on this topic in the function manual <i>Process Control System PCS 7; Fault-Tolerant Process Control Systems</i>.</p>
Response to cable failure (disruption in a ring line)	<p>The typical networks in a ring structure in PCS 7 feature cable redundancy.</p> <p>The network remains in operation even if one cable fails.</p>
Response to failure of network adapters of PCs or switches	<p>If you use redundant network adapters and redundant network connections, the network remains in operation even when a network adapter or switch fails.</p>
Configuration	<i>ProSet®</i> from Intel is used to configure the network properties.

## Recommendations

You should always use redundant server pairs when the availability of the respective application is critical to your PCS 7 plant.

If PC stations of a PCS 7 plant are integrated in a domain, we recommend that you use several domain controllers.

## Additional information

- You can find information about the client-server architecture in the section "Differences between a Multiple Station System and a Single Station System (Page 16)"
- You can find information about activating redundancy for operator stations in the function manual *Process Control System PCS 7; Fault-Tolerant Process Control Systems*.
- You can find information about configuring and implementing redundancy for BATCH stations in the manual *Process Control System PCS 7; SIMATIC BATCH*.
- You can find information about configuring and implementing redundancy for Route Control stations in the manual *Process Control System PCS 7; SIMATIC Route Control*.

## 2.3 Options when working with engineering stations

### Working with several PCs

You have a variety of options available when working on engineering stations to engineer PCS 7 systems. You can, for example, use more than one PC when engineering a PCS 7 system if a single PC is inadequate for the job.

The difference between working with multiple PCs when engineering and working with a single engineering station only involves a few steps.

Property	Working with multiple engineering stations	Working with a single engineering station
Area of application	<ul style="list-style-type: none"> <li>• Medium-sized and large systems</li> <li>• Configuration phases</li> <li>• Spatially distributed configuration of engineering stations</li> </ul>	<ul style="list-style-type: none"> <li>• Small systems</li> <li>• Local operator stations</li> <li>• Training systems</li> </ul>
Monitors	1 or 2 recommended	
Combination/ Method	<ul style="list-style-type: none"> <li>• Engineering for a PCS 7 project with multiple engineering stations (Page 19)</li> </ul>	<ul style="list-style-type: none"> <li>• Engineering for a PCS 7 project with a single PC (Page 20)</li> <li>• Combination of engineering station and operator station on a single PC (Page 21)</li> <li>• Engineering with SIMATIC PCS 7 BOX: You will find information on this topic in the manual <i>Process Control System PCS 7; SIMATIC PCS 7 BOX</i></li> </ul>

## 2.4 Differences between multiple station systems and single station systems

You can configure each PCS 7 application for process mode (OS, BATCH, RCS) as a single station system or a multiple station system with client-server architecture.

### Definition of a multiple station system

A multiple station system is a system of related PCs in which the functionality of a PCS 7 application in a client/server architecture is distributed over several PCs (for example, OS clients, OS servers). The PCS 7 Toolset DVD provides the appropriate client or server software for this.

In the case of multiple station systems, we recommend that you configure a terminal bus (separate from the plant bus) for data communication between clients and servers.

### Definition of a single station system

A single station system is a PC that provides the entire functionality of a PCS 7 application (e.g., operator station). The PCS 7 Toolset DVD provides the single station software for this.

You can connect single station systems to the plant bus as well as to the terminal bus (for example, when there are also multiple station systems in the PCS 7 system).

### Properties of multiple and single station systems

Property	Multiple station system	Single station system
Areas of application	Medium-sized and large systems	<ul style="list-style-type: none"> <li>• Small systems</li> <li>• Local operator stations</li> <li>• Training systems</li> </ul>
Configuration	Client-server architecture with multiple PCs: <ul style="list-style-type: none"> <li>• Operator station multiple station system (Page 22)</li> <li>• BATCH station multiple station system (Page 24)</li> <li>• Route Control station multiple station system (Page 25)</li> <li>• Maintenance station (MS) multiple station system (Page 26)</li> </ul>	One PC for all functions of a PCS 7 application: <ul style="list-style-type: none"> <li>• OS single station (Page 29)</li> <li>• BATCH single station (Page 31)</li> <li>• Route Control single station (Page 32)</li> <li>• SIMATIC PCS 7 BOX stations (Page 34)</li> <li>• Maintenance station single station system (Page 33)</li> </ul>
Workstations	Up to 32 workstations per server	1 workstation with a maximum of 4 monitors (depending on the application)



## 2.4 Differences between multiple station systems and single station systems

Property	Multiple station system	Single station system
Availability	<p>To guarantee high availability of the PCS 7 plant, you can configure the server as redundant server pairs (PCs):</p> <ul style="list-style-type: none"> <li>• Operator station <ul style="list-style-type: none"> <li>– OS server</li> <li>– Central archive server</li> <li>– MS server</li> </ul> </li> <li>• BATCH station <ul style="list-style-type: none"> <li>– BATCH server</li> </ul> </li> <li>• Route Control Station <ul style="list-style-type: none"> <li>– Route Control server</li> </ul> </li> </ul> <p>You can find additional information on this in the section "Fault-Tolerant (Redundant) Configurations (Page 13)".</p>	
Number of servers	<p>Maximum 12 server (pairs) in the PCS 7 system. The following each count as <b>one</b> server:</p> <ul style="list-style-type: none"> <li>• Server for multiple station systems</li> <li>• Redundant server pair</li> <li>• MS server</li> <li>• Central archive server</li> </ul>	

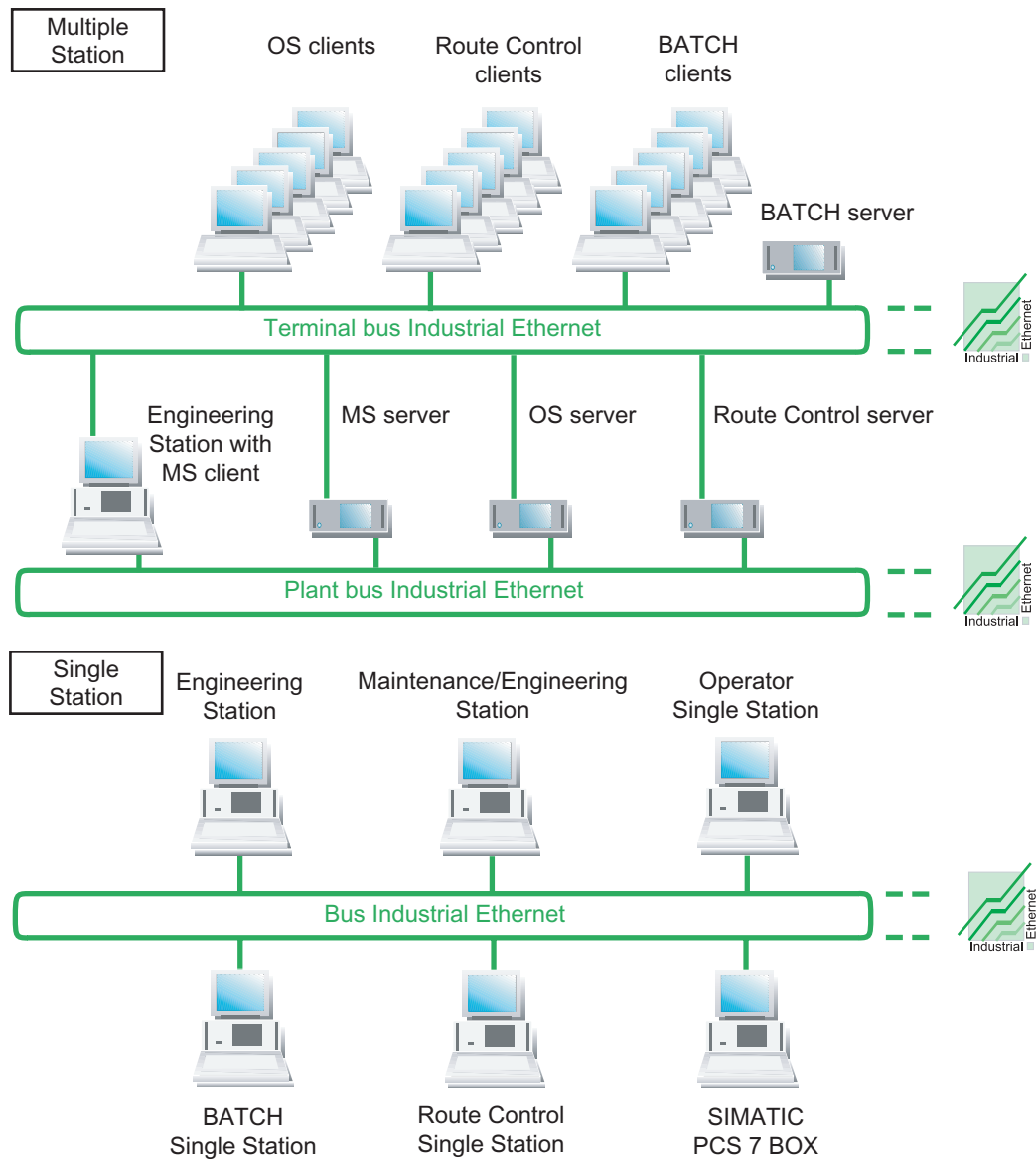
**Intranet and Internet connection**

You can realize the connection to an Intranet and Internet via Open PCS 7 or PCS 7 Web Option.

You can find additional information about this in the sections "Remote Access to the OS Using PCS 7 OS Web Option (Page 36)" and "Access to PCS 7 Data Using Open PCS 7 (Page 39)".

### Example configuration

The following example configuration show the use of multiple station and signal station systems in a PCS 7 plant:



## 2.5 Solutions for engineering stations

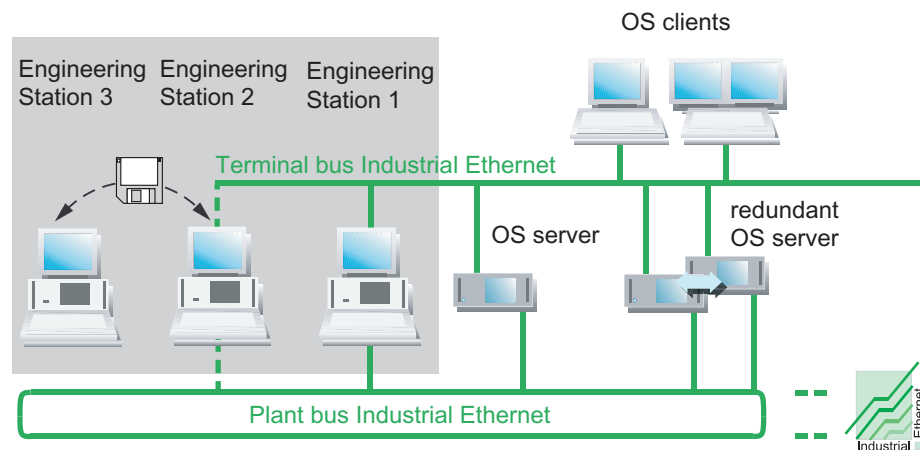
### 2.5.1 Engineering for a PCS 7 project with multiple engineering stations

#### Distribution of engineering tasks

You can distribute the engineering tasks for a PCS 7 system over several engineering stations. PCS 7 provides the following options for this:

Option	Application
Configuring in a multiproject	You can use multiproject engineering to allow several project teams to work on complex projects at the same time. The engineering stations can be connected over a network or be located in separate areas.
Branching and merging charts of a project	You can branch and merge the projects at the chart level (S7 program) to allow several engineers to work at the same time.
Configuring over a network	Several engineers can work on specific parts of a project (e.g., AS, OS) stored on a central engineering server at the same time, working from their networked engineering stations.

#### Example configuration for multiproject engineering



#### Additional information

The engineering procedure is described in detail in the configuration manual *Process Control System PCS 7; Engineering Station*.

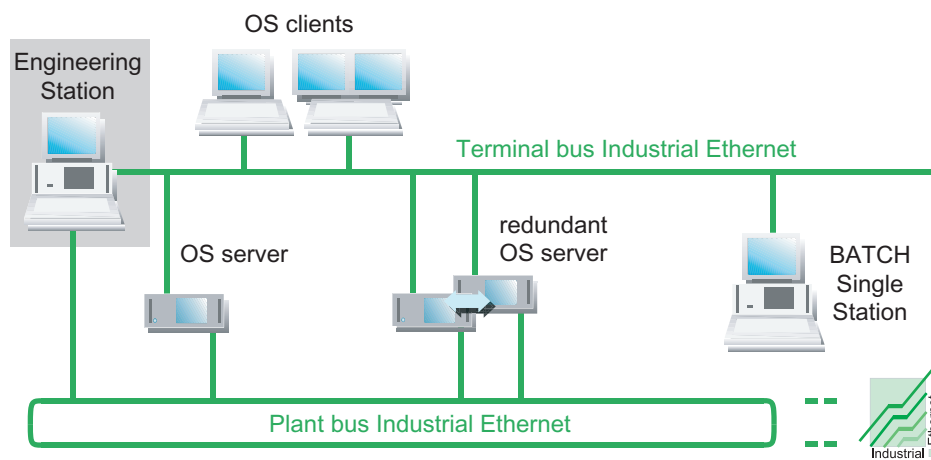
## 2.5.2 Engineering for a PCS 7 project with a single PC

### Central engineering

You can configure a PCS 7 system centrally for all PCS 7 applications (OS, BATCH, Route Control, AS) with a single engineering station.

Connect the engineering station to the plant bus and terminal bus if you want to download the configuration data to the target systems and test it in process mode.

### Example configuration



### SIMATIC PCS 7 BOX

SIMATIC PCS 7 BOX can also be used as an engineering station for small standalone systems. You can find additional information about this in the manual *Process Control System PCS 7; SIMATIC PCS 7 BOX*.

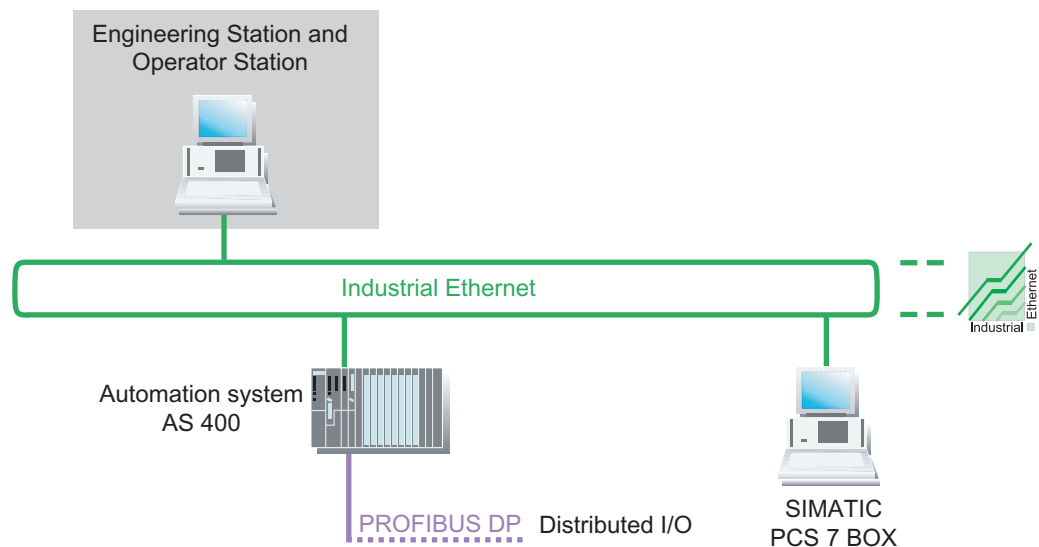
### 2.5.3 Combination of engineering station and operator station on a single PC

#### Engineering station and operator station on a single PC

You can configure a small system (such as a training station) centrally for all PCS 7 components (OS, BATCH, Route Control, AS) with a single engineering station. You can combine the engineering station and an operator station for this purpose.

The example configuration below shows a plant with a joint plant/terminal bus. You use this bus to download the configuration data to the target system both for testing and for process mode.

#### Example configuration



#### SIMATIC PCS 7 BOX

SIMATIC PCS 7 BOX can also be used as an engineering station for small standalone systems. You will find more information on this topic in the section "SIMATIC PCS 7 BOX stations (Page 34)" and in the manual *Process Control System PCS 7; SIMATIC PCS 7 BOX*.

### 2.6.1 Operator station multiple station system

### **Central archive server**

You can configure an OS server as a central archive server.

- The central archive server is a node on the terminal bus and is not connected to the plant bus.
- The central archive server can be configured redundantly.

You will find more information on this topic in the section "Long-term archiving using the central archive server (Page 28)".

### **Maintenance station**

The maintenance station is configured in the client-server architecture, with the engineering station as the maintenance client (MS client).

You can find more information on this topic:

- In the section "Maintenance station multiple station system (Page 26)"
- In the configuration manual *Process Control System PCS 7, Operator Station*

### **PCS 7 OS Web Option for an operator station multiple station system**

In PCS 7 you can use Internet Explorer to access the OS of a PCS 7 plant, provided that the PCS 7 OS Web Option is installed on it and the necessary access rights have been set in the network.

You will find information on this topic in the section "Remote access to the OS with the PCS 7 OS Web Option (Page 36)".

## 2.6.2 BATCH station multiple station system

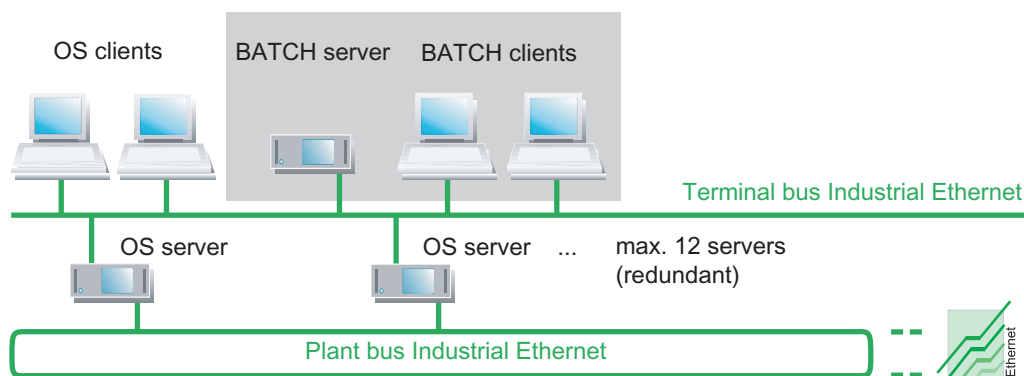
### BATCH station as multiple station system with client-server architecture

- A BATCH station multiple station system consists of BATCH clients (workstations) that are supplied with data (project data, process values, archives, alarms and messages) from a BATCH server via a terminal bus.
- A BATCH server supplies process data to up to 32 BATCH clients.
- There can only be one BATCH project with one BATCH server in a PCS 7 plant. Only one BATCH project can be activated on a BATCH server.
- Several PCS 7 systems can be operated and monitored with one BATCH client. To do this, start several BATCH client applications on the BATCH client and select different BATCH projects (each with a BATCH server) at startup. In this situation, you will find a multi-VGA card practical.
- You can achieve high availability for the PCS 7 plant by configuring a redundant BATCH server. In terms of the number of servers in a PCS 7 project, a redundantly configured BATCH server is counted as a single BATCH server.

#### Note

If you operate no more than 4 BATCH clients on a BATCH server, you can use the BATCH server as an operator control and monitoring station in PCS 7 V6.0 SP3 and higher.

### Example of a configuration





### 2.6.3 Route control station multiple station system

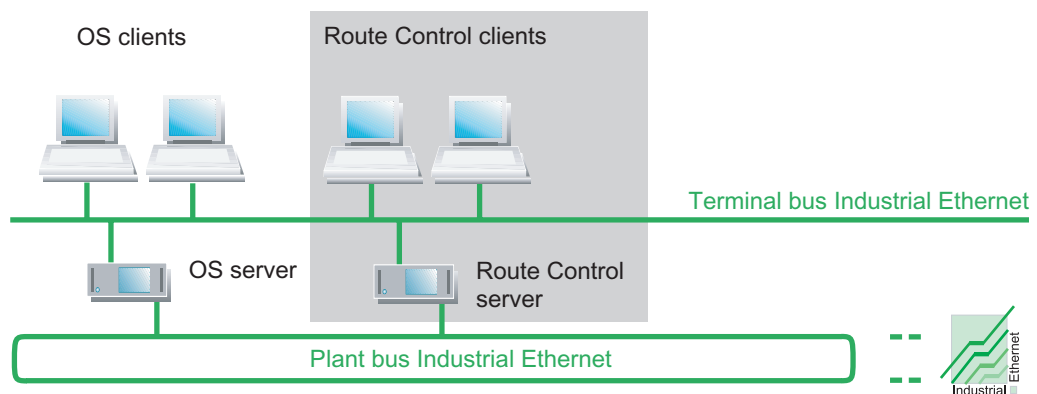
#### Route control station as multiple station system with client-server architecture

- A route control station multiple station system consists of route control clients (workstations) that are supplied with data (project data, process values, archives, alarms and messages) from a route control server via a terminal bus.
- A route control server supplies process data to up to 32 route control clients.
- There is only one route control project with one route control server in a PCS 7 system (even when redundant).
- The route control server requires a connection to an OS to store messages.
- Up to 4 monitors can be connected to a workstation (route control client) via a multi-VGA card. You can operate the resulting system areas with a single keyboard and mouse.
- You can achieve high availability for the route control station by configuring a redundant route control server. In terms of the number of servers in a PCS 7 project, a redundantly configured route control server is counted as a single route control server.

#### Note

If you operate no more than 4 route control clients on a route control server, you can use the route control server as an operator control and monitoring station in PCS 7 V6.1 and higher.

#### Example of a configuration



## 2.6.4 Maintenance station multiple station system

### Maintenance stations

Maintenance stations are PC stations intended for diagnostics of a PCS 7 plant and asset management of the PCS 7 plant.

The maintenance station consists of the following components:

- Maintenance server (MS server)
- Maintenance client (MS client)

### Maintenance station as multiple station system with client-server architecture

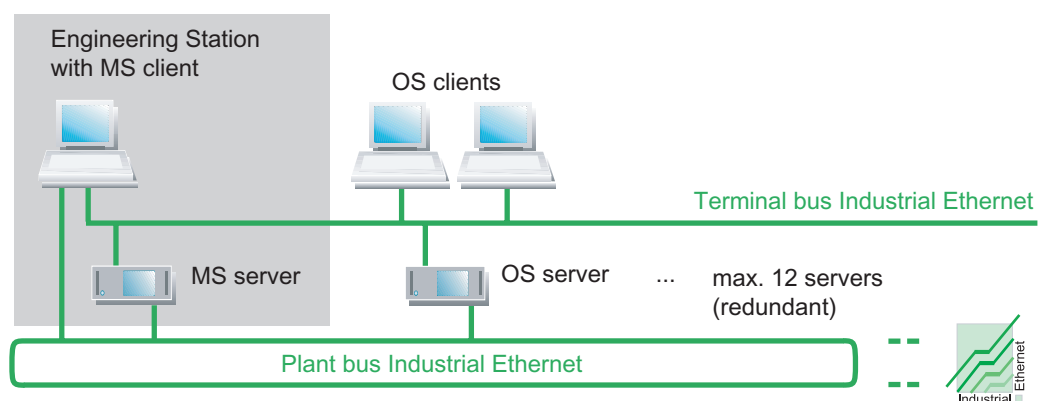
The maintenance station multiple station system consists of the MS client (workstation) that is supplied with data (project data, archives, alarms and messages) from an MS server.

- MS client  
The MS client uses diagnostic screens to visualize the diagnostic status and provides required operation and monitoring functions. The MS client is configured as the engineering station for this.
- MS server  
The MS server concentrates the picture information and data required for system diagnostics on one PC. The MS server needs the following data to display information on the MS client:
  - Server data from the OS servers
  - Configuration of the network components

Up to 4 monitors can be connected to a workstation (MS client) via a multi-VGA card. You can operate the resulting system areas with a single keyboard and mouse.

You can achieve high availability for the maintenance station by configuring a redundant MS server.

### Example configuration



### **Notes on installing the maintenance station**

Note the following points during installation:

- The MS server is an OS server configured for system diagnostics.
- The MS client is a component of the engineering station. You can find instructions for configuration in the configuration manual *Process Control System PCS 7; Operator Station*

You can find more information about installation in the section "How to install the PCS 7 software (Page 85)".

### **Additional information**

- Appendix "Approved configurations (Page 204)"
- Configuration manual *Process Control System PCS 7, Operator Station*

## 2.6.5 Long-term archiving with the central archive server

### Introduction

The central archive server is used for long-term archiving of diverse data from PCS 7 in a central database. Using the central archive server, you can manage measured values and messages transferred from the OS archives, OS reports and batch data of SIMATIC BATCH. The archive data is available regardless of the status of PCS 7 runtime systems. This allows you to view all data clearly organized using Internet Explorer.

You can achieve high availability of the central archive server by configuring the central archive server redundantly.

### Functions

You can perform the following functions with the central archive server:

- Archive messages and process values from PCS 7 OS
- Archive OS reports
- Archive batch data from SIMATIC BATCH
- Transfer all archive data to external storage media
- Catalog all archive data
- Display messages using filter functions
- Display the process values in graphs and tables using filter functions
- Export process values as a CSV or XML file
- Display the archive data of a batch
- Display archive data in a web-based display

### Access protection

You can configure access protection with user-specific rights on the central archive server.

### Notes on installing the central archive server

Note the following points during installation:

- To improve performance, install the central archive server on a separate PC.
- We recommend a RAID system for data integrity.

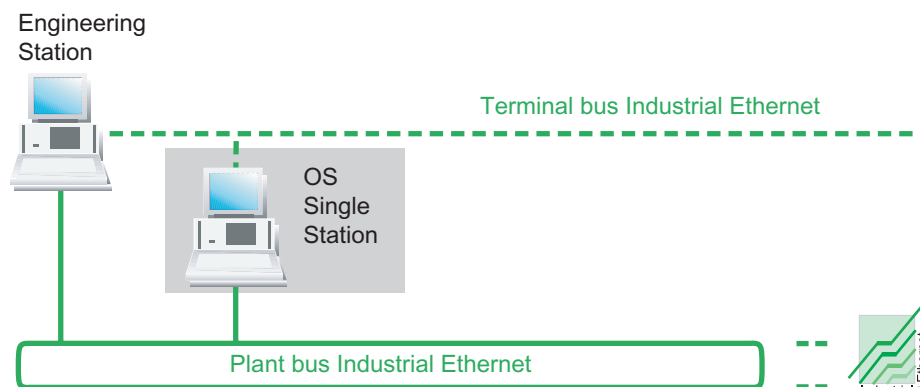
## 2.7 Solutions for single station systems

### 2.7.1 OS single station

#### OS as single station system on a single PC

- The OS single station is an operator station on a single PC with complete operator control and monitoring functionality for a PCS 7 project (process cell/unit).
- The OS single station system on the plant bus can be used at the same time as other single station or multiple station systems.
- You can achieve higher PCS 7 plant availability by configuring redundant OS single stations or by using more than one OS single station with the same configuration. You can also use the WinCC/Redundancy software to operate two OS single stations redundantly.
- The operator single station can also be used in combination with an engineering station on a PC.  
You will find more information on this topic in the section "Combination of engineering station and operator station on a PC (Page 21)".
- You can also use the operator single station in combination with an engineering station and an automation system on a PC. This solution is offered as the SIMATIC PCS 7 BOX.

#### Example configuration



### **PCS 7 OS Web Option for an OS single station**

In PCS 7 you can use Internet Explorer to access the OS of a PCS 7 plant, provided that the PCS 7 OS Web Option is installed on it and the necessary access rights have been set in the network.

You will find information on this topic in the section "Remote access to the OS using PCS 7 OS Web Option (Page 36)".

### **More information**

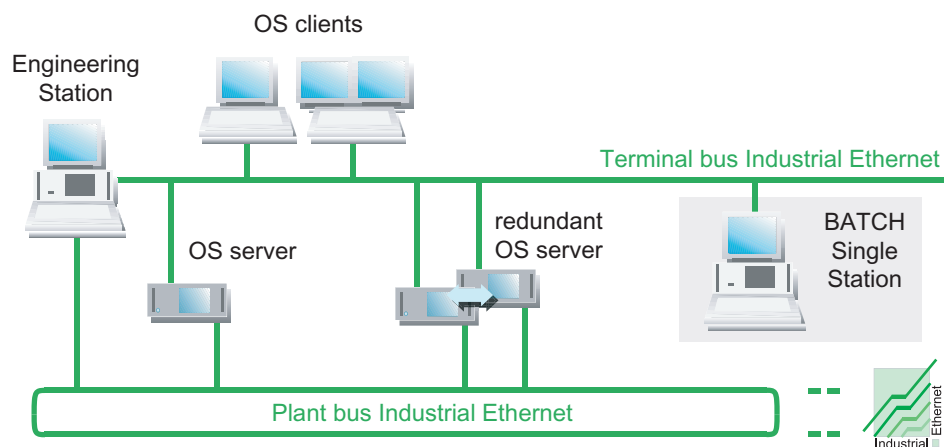
- Section "Combination of engineering station and operator station on a single PC (Page 21)"
- Function manual *Process Control System PCS 7; SIMATIC PCS 7 BOX*

## 2.7.2 BATCH single station

### BATCH as single station system on a single PC

- The BATCH single station is a BATCH station on a single PC. Complete operator control and monitoring functionality is available for a process cell. A BATCH single station is associated with a BATCH project (process cell/unit).
- A connection to an operator station (OS server) is required for data communication with the automation system.
- You use a BATCH single station to operate and monitor an entire plant. When several process cells are operated in parallel, an additional BATCH single station with corresponding connections to the OS server is needed for each process cell. If you are monitoring several process cells, we recommend using a BATCH station multiple station system (Page 24).
- If several BATCH single stations are used: Each BATCH single station used must be connected to another OS system.
- You can operate BATCH single stations redundantly.
- A connection to an OS server must exist in order to use process mode.

### Example configuration



### 2.7.3 Route control single station

#### Route control as a single station system on a single PC

- The route control single station is a route control station on a single PC. You use the route control single station to automate the transport of materials and products in a PCS 7 system.
- You can operate route control single stations redundantly.
- A connection to an OS server is required for process mode.

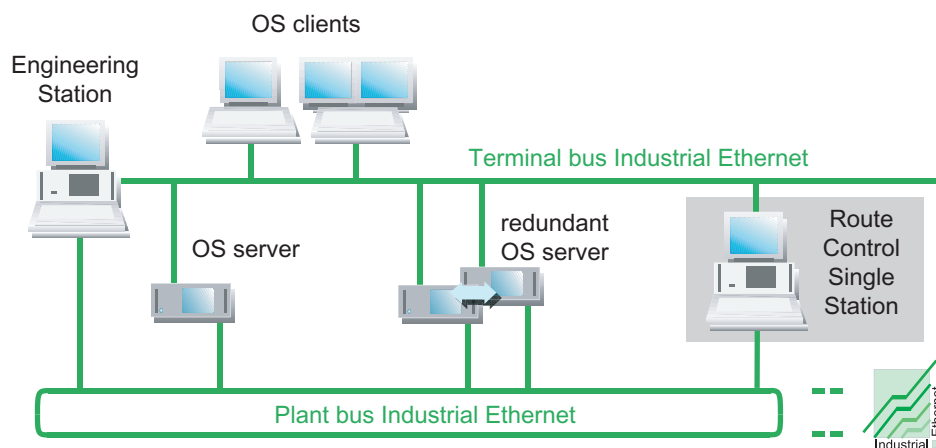
---

#### Note

If you use route control single stations at the same time as other route control systems, you will need to separate the areas that are controlled by one system.

---

#### Example of a configuration





## **2.7.4 Maintenance station single station system**

### **Maintenance station as a single station system**

- Maintenance stations are PC stations intended for diagnostics of a PCS 7 plant and asset management of the PCS 7 plant.
- The maintenance station as a single station system consists of a combination an OS single station and engineering station.

### **Additional information**

- Section "Maintenance station multiple station system (Page 26)"
- Section "OS Single Station (Page 29)"
- Section "Combination of Engineering Station and Operator Station on a Single PC (Page 21)"
- Appendix "Approved Configurations (Page 204)"
- Configuration manual *Process Control System PCS 7, Operator Station*

## 2.7.5 SIMATIC PCS 7 BOX stations

### SIMATIC PCS 7 BOX stations as combined AS/ES/OS for small systems

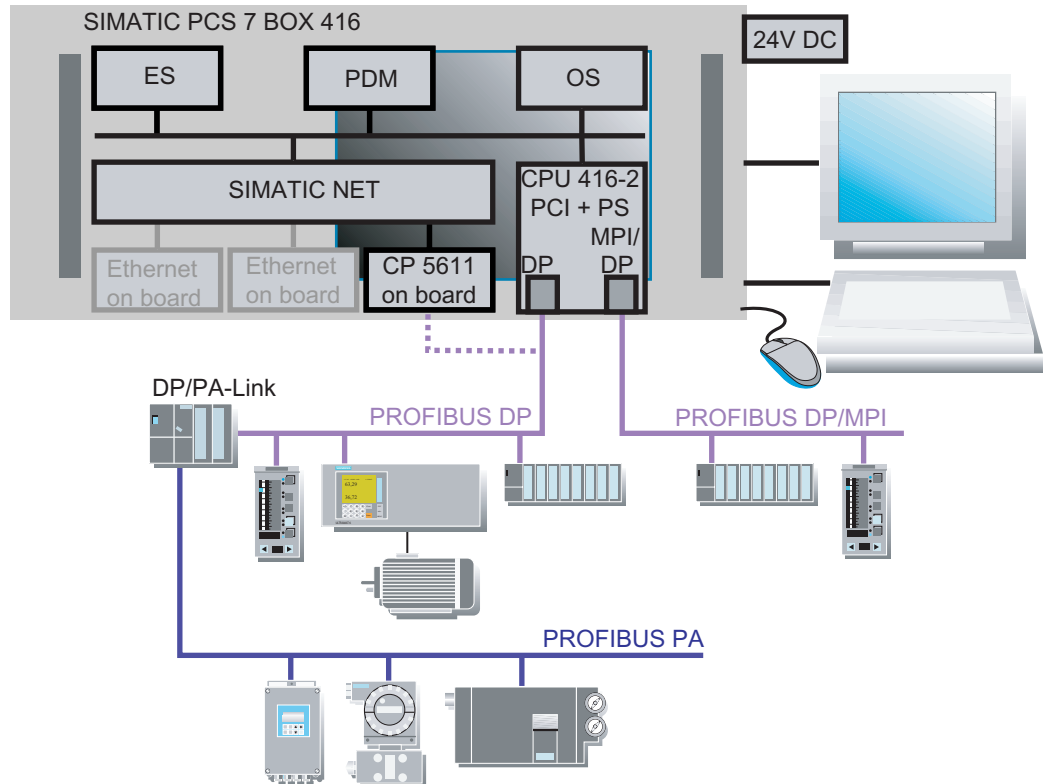
PCS 7 Box PCs (bundle PCs) with various hardware configurations and software installations are available for use as a PC station or automation system in PCS 7.

The following configurations are possible with PCS 7 Box PCs (bundle PCs):

- Bundle: SIMATIC PCS 7 BOX as SIMATIC PCS 7 complete system with AS, ES and OS functionality:
  - SIMATIC PCS 7 BOX as a single station system with AS/ES/OS
- Bundle: SIMATIC PCS 7 BOX as SIMATIC PCS 7 runtime system with AS, ES and OS functionality:
  - SIMATIC PCS 7 BOX with separate engineering
  - SIMATIC PCS 7 BOX in the PCS 7 network
- Bundle: SIMATIC PCS 7 AS RTX
  - SIMATIC PCS 7 AS RTX is an automation system (AS) with PLC WinAC RTX software on a MICROBOX PC.

### Example configuration

The following figure shows an example of a SIMATIC PCS 7 BOX as a single station system with AS/ES/OS and connected distributed I/O.



### Ordering information

#### Note

You can find the ordering information for bundles PCs in the *ST PCS 7* catalog.

### Additional information

- Section "Selecting the Correct License Keys/Authorization (Page 117)"
- Section "Software Packages and Required License Key (Page 166)"
- Manual *Process Control System PCS 7; SIMATIC PCS 7 BOX*
- Product information *SIMATIC; PCS 7 V7.0 SP1 BOX 416*
- Product information *SIMATIC; PCS 7 V7.0 SP1 BOX RTX*
- Product information *SIMATIC; PCS 7 V7.0 SP1 AS RTX*

## 2.8 Solutions for accessing PC stations

### 2.8.1 Remote access to the OS using PCS 7 OS Web Option

#### PCS 7 OS Web Option for remote access to the OS

You can use the PCS 7 OS Web Option for operator control and monitoring of automated processes with PCS 7 via the Intranet/Internet. You will find additional information on this topic in the manual *Process Control System PCS 7; PCS 7 OS Web Option*.

PCS 7 OS Web Option consists of two components:

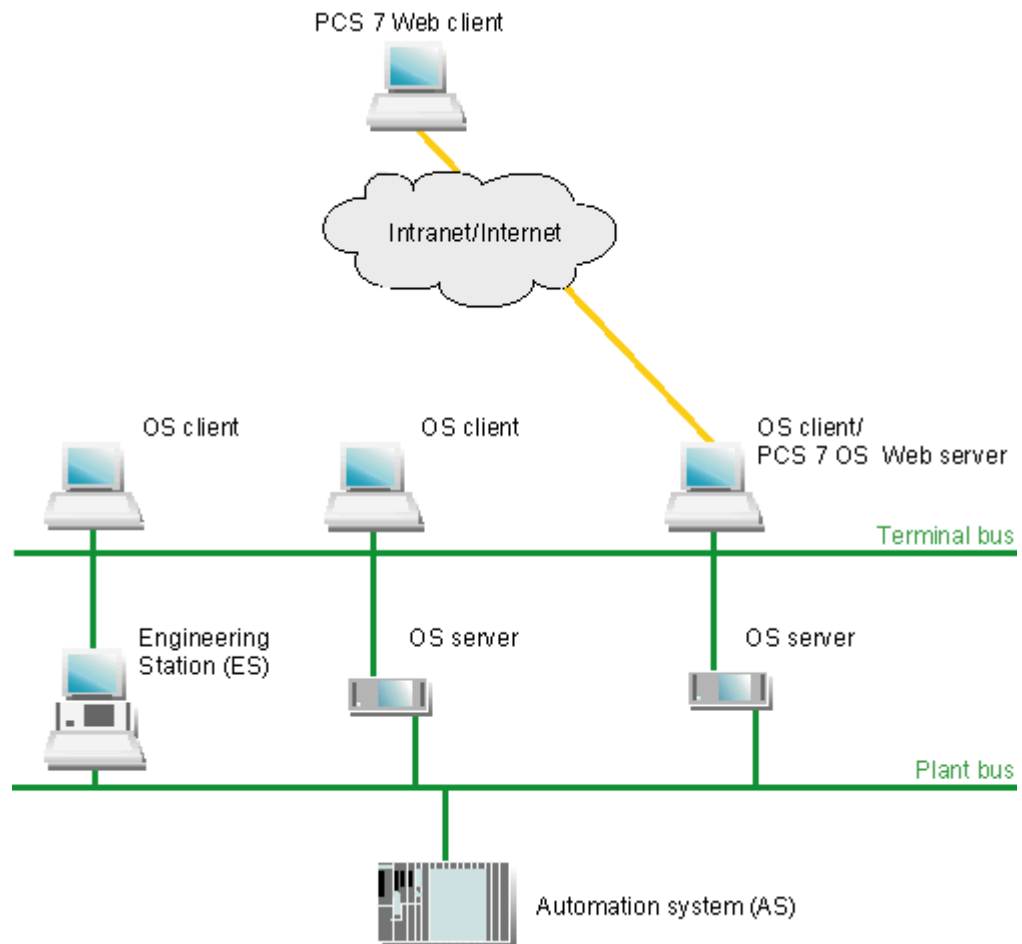
- PCS 7 OS Web Server  
Within the OS, the PCS 7 OS Web server is an OS client with PCS 7 OS Web server functionality.
- PCS 7 Web client  
The PCS 7 Web client accesses project data available on the PCS 7 OS Web server via the Intranet/Internet, with the help of Internet Explorer. The process can be operated and monitored.

PCS 7 OS Web Option can be used in a PCS 7 system with the following configurations:

- For an OS multiple station system
  - Configuration with PCS 7 OS Web server and PCS 7 Web client
- For an OS single station
  - Configuration with PCS 7 OS Web standard server and PCS 7 Web standard client
  - Configuration with PCS 7 OS Web diagnostics server and PCS 7 Web diagnostics client

### Example configuration

The following figure is an example of a configuration using a PCS 7 OS Web server and a PCS 7 Web client.



### Notes on the PCS 7 OS Web server and Web client

- For an OS multiple station system:
  - An OS client that is configured as a PCS 7 OS Web server can no longer be utilized as an operator station (OS client) within the PCS 7 system.
  - The maximum number of Web clients per OS Web server is restricted by the license key (licensing for 3, 10, 25 or 50 Web clients).
- For an OS single station:
  - The OS single station that is configured with PCS 7 OS Web server can still be utilized within the PCS 7 plant as an operating station (OS).
  - An OS single station (as OS Web server) can simultaneously access data on up to 3 Web clients.
  - A Web diagnostic client can simultaneously access data on up to 3 OS single stations (OS Web diagnostic server).
- The maximum number of Web clients is limited by the license key.

### Additional information

- You will find information about installation in the manual *Process Control System PCS 7; PCS 7 OS Web Option*.

## **2.8.2 Access to PCS 7 data using Open PCS 7**

### **Open PCS 7**

Data from a PCS 7 plant can be made available to third-party systems using OLE DB or OPC via a PC station with Open PCS 7 (Open PCS 7 station).

You can use Open PCS 7 at the following levels:

- Automation level
- Plant control and production control levels
- MES level (Manufacturing Execution Systems)
- ERP level (Enterprise Resource Planning)

### **Configuration of the Open PCS 7 station**

The Open PCS 7 station is a PC on which a server for OPC and OLE/DB is installed.

The Open PCS 7 station performs the following tasks:

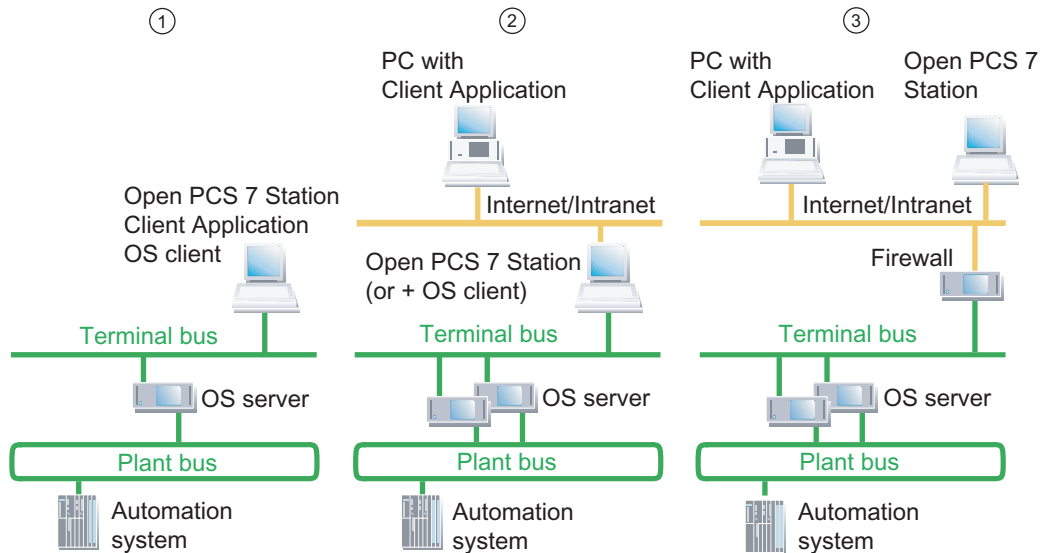
- It makes the PCS 7 data of the automated process available over the OPC interface.
- It allows the client applications (OPC or OLE DB) to access the available PCS 7 data.

The Open PCS 7 station is connected to the PCS 7 plant via the terminal bus.

In process mode, the Open PCS 7 station communicates with the automation systems via the operator station (OS server).

## Examples of configurations

Typical configurations with Open PCS 7 are shown in the following figure.



No.	Configuration	Area of application
1	Open PCS 7 station, OS client, and client applications (OPC or OLE/DB) on a shared PC	Single station system: Recommended for small systems
2	Open PCS 7 station and client applications (OPC or OLE/DB) on separate PCs connected to one another via an additional network (Intranet/Internet in the diagram) With this configuration, the Open PCS 7 station can also be installed on an OS client.	Multiple station system with client-server architecture: Recommended for medium-sized and large systems
3	Open PCS 7 station and client applications (OPC or OLE/DB) on separate PCs connected to one another via an additional network (Intranet/Internet in the diagram), which access the PCS 7 plant's terminal bus, protected by a firewall	Multiple station system with client-server architecture: Recommended for medium-sized and large systems

## Client applications, standard interface formats, and access possibilities

Client applications access data on the Open PCS 7 station via interfaces.

- Open PCS 7 uses the following standard interface formats for data communication:
- OPC DA (Data Access)
- OPC A&E (Alarm and Event and Historical Alarm and Event)
- OPC HDA (Historical Data Access)
- OLE/DB (integration of data in applications that support OLE (e.g., MS Office))

You will find more information on this topic in the configuration manual *Process Control System PCS 7; Engineering Station*.



### **Accessing data of redundant server pairs**

You can access data of redundant server pairs using the Open PCS 7 station. If a PC station (master) fails, the redundant PC station is connected automatically for the next read job.

If the connection is interrupted during a read job, the Open PCS 7 station attempts to read data from the redundant partner.

### **Possible access depending on the license key used**

PCS 7 data can be accessed via Open PCS 7 under the following conditions as regards license keys:

- If you use the "OpenPCS 7/WinCC" license key and operate the Open PCS 7 station on an OS client, the OS client must be in process mode.
- If you use the "OpenPCS 7" license key, you can always access PCS 7 data via Open PCS 7.

### **More information**

- Configuration manual *Process Control System PCS 7; Engineering Station*
- Configuration manual *Process Control System PCS 7; Operator Station*

## 2.9 Connecting PC stations

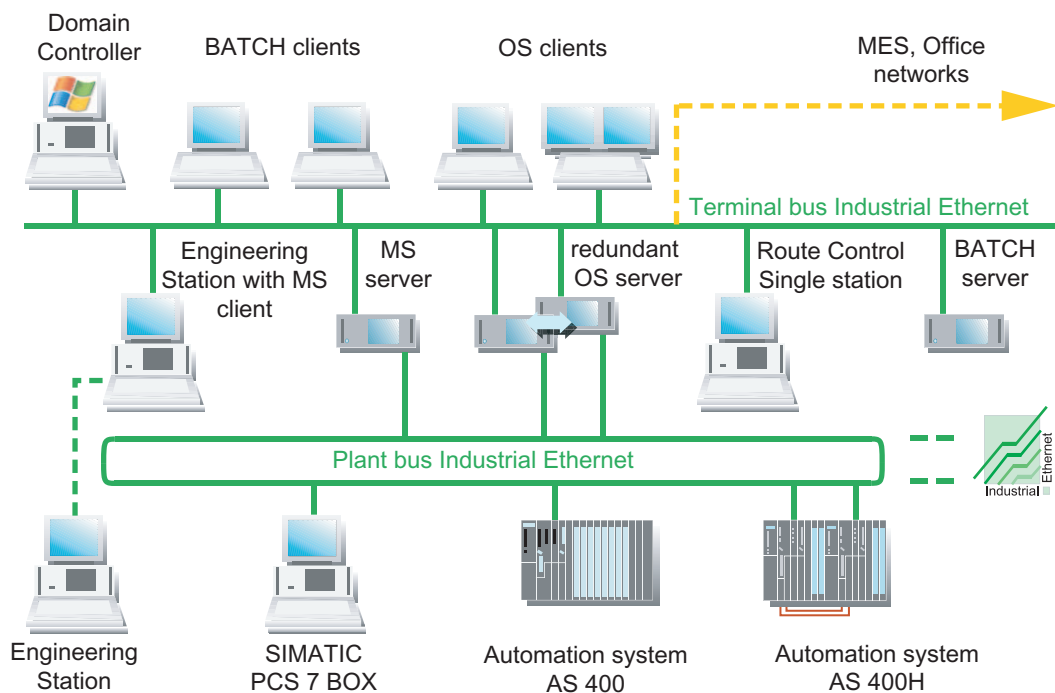
### 2.9.1 Bus connection between AS, OS, BATCH, RCS and ES

#### Terminal bus and plant bus

With PCS 7, the AS, OS, BATCH, Route Control and ES communicate via a bus system (Industrial Ethernet). The bus system is divided as follows in PCS 7:

Bus	For communication between the following components
Terminal bus	<ul style="list-style-type: none"> <li>Operation and monitoring systems (OS, BATCH, Route Control)</li> <li>Engineering station</li> <li>Higher-level components (for example, MES, office networks)</li> </ul>
Plant bus	<ul style="list-style-type: none"> <li>Servers (OS, Route Control) and the automation systems</li> <li>Automation systems (SIMATIC connections)</li> </ul>

#### Example configuration



### **More information**

The configuration manual "Process Control System PCS 7, Engineering Station" contains information on

- Cables and network components
- Distances between the components of a PCS 7 plant

## 2.9.2 Connection to the terminal bus/plant bus

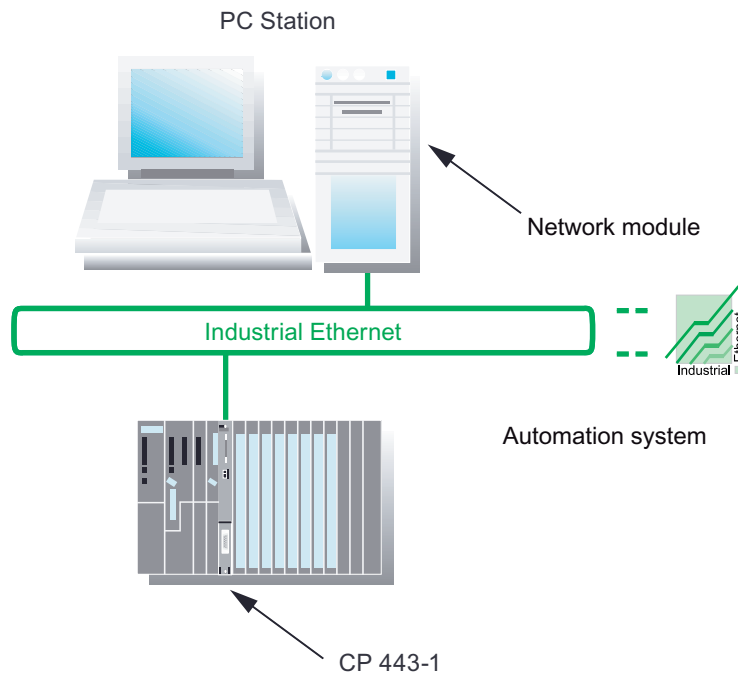
### Attachment of OS, BATCH, Route Control and ES

You connect operator stations, BATCH stations, Route Control stations and engineering stations to Industrial Ethernet using communication cards. The communication cards use a slot in the PC or programming device (PG). You use different communication cards depending on your requirements.

### Additional information

You will find an overview of the possible communication cards in the section "Components for connecting to the terminal/plant bus (Page 53)".

### Example configuration



## **Connecting the AS**

You connect automation systems to Industrial Ethernet using the CP 443-1 communications processor or the CPU's Ethernet interface. The protocols used are TCP/IP, ISO, and UDP.

## **Cables and network components**

You will find information on this topic in the configuration manual "Process Control System PCS 7, Engineering Station":

- Cables and network components
- Possible distances within a PCS 7 plant

## **Redundant bus systems**

You can use redundant communication paths in PCS 7. You will find information on this topic in the *PCS 7 Function Manual; Fault-Tolerant Process Control Systems*.

### 2.9.3 Connecting PC Stations via Wireless LAN

#### Connecting a PC station via Industrial Wireless LAN (IWLAN)

Industrial Wireless LAN (IWLAN) enables you to integrate mobile or stationary PC stations via an access point in a PCS 7 plant. You can integrate the following PC stations:

- OS clients  
Up to 2 OS clients (to IWLAN)
- Web clients  
Up to 2 Web clients to a PCS 7 Web server (to IWLAN)
- PC station  
One PC station for remote access to an engineering station using NetMeeting or Remote Desktop, during commissioning, for example

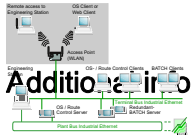
#### Components for IWLAN in PCS 7

The "PCS 7 - Released Modules" documentation lists the network and PC components that are approved for IWLAN in PCS 7.

You can find the documentation on the PCS 7 Toolset DVD or following installation of PCS 7 with the menu command **Start > SIMATIC > Documentation > <language> > PCS 7 - Released Modules**.

#### Example for IWLAN in PCS 7

The figure shows a basic configuration of WLAN components in a PCS 7 plant.



#### Additional Information

You can find information on WLAN components, installation guidelines and settings in the following documentation:

- Product Information *Process Control System PCS 7; PCS 7 - Released Modules*
- System manual *SIMATIC NET; Basics - Industrial Wireless LAN*
- Operating instructions *SIMATIC NET;*  
*SCALANCE W788-1PRO (Access Point),*  
*SCALANCE W788-2PRO (Dual Access Point),*  
*SCALANCE W788-1RR (Access Point iPCF),*  
*SCALANCE W788-2RR (Dual Access Point iPCF)*
- Operating instructions *SIMATIC NET; CP 7515*

## **2.9.4 Time-of-day synchronization**

### **Time synchronization**

In a synchronized process control system, all the individual time-dependent components have an identical date and identical time of day. We recommend that you use SIMATIC components as the time master for a PCS 7 plant (for example, SICLOCK TM).

### **Synchronizing the time of day throughout the system**

To obtain process data that can be evaluated, all the components of the process control system need to work with an identical time of day. This allows you to assign messages in the correct sequence over time. The result is then consistent regardless of the time zone where the messages originate.

To achieve this, an OS server, for example, assumes the function of time master. All the other operator stations and automation systems on the plant bus then have the identical time that they received from this time master.

The time of day is synchronized through both busses in a system:

- **Terminal bus**  
OS servers synchronize OS clients via the terminal bus. BATCH and Route Control stations get the time from the terminal bus via a client program (DCF77) if they are not installed on a PC with an OS. In a Windows domain the domain controller can send the time of day to the OS server that is currently acting as the active time master.
- **Plant bus**  
OS servers synchronize automation systems via the plant bus.

## Synchronization options

Station	Synchronization options	Additional information
Operator station and Maintenance station	<ul style="list-style-type: none"> <li>Synchronize the time via the terminal bus</li> <li>Synchronize the time via the plant bus</li> </ul>	Configuration manual <i>Process Control System PCS 7; Operator Station</i>
BATCH station	<ul style="list-style-type: none"> <li>Synchronize the time via the operating system</li> </ul>	Synchronize SIMATIC BATCH components using resources of the operating system.
Route Control Station	<ul style="list-style-type: none"> <li>Synchronize the time via the operating system</li> </ul>	Synchronize Route Control station components using resources of the operating system.
SIMATIC PCS 7 BOX	<ul style="list-style-type: none"> <li>Synchronize the time during integration in a PCS 7 plant</li> </ul>	Manual <i>Process Control System PCS 7; SIMATIC PCS 7 BOX</i>
AS	<ul style="list-style-type: none"> <li>Synchronize the time with the AS</li> <li>Synchronize the time with the AS as the time slave</li> </ul>	Configuration manual <i>Process Control System PCS 7; Engineering Station</i>
Domains	<ul style="list-style-type: none"> <li>Synchronize the time with a domain controller as the time master on the terminal bus</li> </ul>	Configuration manual <i>Process Control System PCS 7; Operator Station</i>
Time master	<ul style="list-style-type: none"> <li>The time master is integrated in a PC or connected to Ethernet as a bus component.</li> <li>The time master can be any device which can transmit a time signal via Ethernet (e.g., a PC).</li> </ul>	Configuration manual <i>Process Control System PCS 7; Operator Station</i> Manual <i>SIMATIC NET; SICLOCK TM</i>



## Hardware for PC stations

### 3.1 Preconfigured PC systems for PCS 7 (product bundles)

#### PC hardware for engineering stations (ES) and operator stations (OS)

Special versions of the basic hardware (bundles), which have been optimized for the corresponding application, are available for engineering stations (ES) and operator stations (OS).

The preconfigured PC systems that are available for PCS 7 can be found in the current *ST PCS 7* catalog under the keyword "basic devices".

We recommend PCS 7 BOX PCs for use in small standalone systems or for combined AS/OS stations in the PCS 7 network.

You will find more information on this topic in the manual *Process Control System PCS 7; SIMATIC BOX*.

If you use other PCs for PCS 7, you will find the relevant hardware requirements in the section "Recommended basic hardware configuration (Page 50)".

#### Color monitors

Siemens industrial monitors are available for use as PCS 7 process monitors, depending on the prevailing environmental conditions.

We recommend you use monitors with a minimum resolution of 1280 x 1024, which will enable you to fully utilize the graphical options offered by the PCS 7 software.

#### Connecting preconfigured PC systems to the network

All PCS 7 bundle PCs are configured for a Windows workgroup.

If you include preconfigured PC systems in a Windows domain, you must reactivate the security settings by means of the PCS 7 setup.

You will find more information about security settings in the section "How to retro-activate the security settings for PCS 7 (Page 145)".

#### More information

- Catalog *ST PCS 7*
- Catalog *ST PCS 7.1* (Add Ons for SIMATIC PCS 7)

## 3.2 Basic hardware configuration

### Introduction

This section contains information on equipping the PC stations with basic hardware:

- Recommended basic hardware configuration
- Minimum basic hardware configuration

### Recommended basic hardware configuration

We recommend the following configuration for PC components (the higher the quality of the equipment, the better):

Parameters	Central engineering station with server operating system, central archive server, PCS 7 OS/SIMATIC BATCH/SIMATIC Route Control on a PC, engineering station, OS server, OS single station, maintenance station, PCS 7 Web server, OS client, and BATCH client on a PC, BATCH server, BATCH single station, Route Control server, Route Control single station	OS client, BATCH client, Route Control client
Basic PC (see catalog)	SIMATIC Rack PC 547B	
Processor	Intel Core2Duo E6600	
Clock-pulse rate	2.40 GHz	
Second-level cache (SLC)	4 MB	
Front-side bus (FSB)	1066 MHz	
Work memory (RAM)	2.0 GB	1.0 GB
Hard disk	250 GB SATA RAID 1 array in servers and ES/OS single stations 250 GB SATA in client systems	250 GB SATA
Partition size	C:\ 50 GB	C:\ 50 GB
Network adapters/Communications interfaces	<ul style="list-style-type: none"> <li>• RJ45 on-board gigabit Ethernet</li> <li>• CP1613 A2 or BCE network adapter for engineering station and OS server</li> </ul>	<ul style="list-style-type: none"> <li>• RJ45 on-board gigabit Ethernet</li> </ul>

Parameters	Central engineering station with server operating system, central archive server, PCS 7 OS/SIMATIC BATCH/SIMATIC Route Control on a PC, engineering station, OS server, OS single station, maintenance station, PCS 7 Web server, OS client, and BATCH client on a PC, BATCH server, BATCH single station, Route Control server, Route Control single station	OS client, BATCH client, Route Control client
Opt. drive	<ul style="list-style-type: none"> <li>For all apart from engineering station: DVD-ROM</li> <li>For engineering station: DVD+/-RW</li> </ul>	DVD-ROM DV

Parameters	SIMATIC BOX PC 627B	SIMATIC Microbox PC 427B
Processor	Intel Core2Duo Mobile T7400	Pentium Mobile M738
Clock-pulse rate	2.16 GHz	1.4 GHz
Second-level cache (SLC)	4 MB	2 MB
Front-side bus (FSB)	667 MHz	400 MHz
Work memory (RAM)	2.0 GB	1.0 GB
Hard disk	160 GB SATA	CompactFlash card: 2.0 GB
Partition size	C:\ 30 GB	
Network adapters/Communications interfaces	<ul style="list-style-type: none"> <li>2 x RJ45 on-board gigabit Ethernet</li> <li>On-board CP5611</li> <li>In "SIMATIC PCS 7 BOX RTX" bundle, additional CP5613 A2</li> </ul>	<ul style="list-style-type: none"> <li>2 x RJ45 on-board gigabit Ethernet</li> <li>On-board CP5611</li> </ul>
Opt. drive	DVD-ROM	
Special features		Without fan

### Note

Please note the following:

- In the case of multiproject engineering, it is beneficial for the engineering stations if you use PCs with high clock-pulse rates, large main memories and hard disks, and high-speed disk drives.
- If the central archive server is used in conjunction with large amounts of data, we recommend that you use the premium server found in the PCS 7 Add On Catalog.

### Minimum basic hardware configuration

We recommend the following minimum configuration for smaller projects:

Parameters	Central engineering station with server operating system, central archive server, PCS 7 OS/SIMATIC BATCH/SIMATIC Route Control on a PC	Engineering station, OS server, OS single station, maintenance station, PCS 7 Web server, OS client and BATCH client on a PC, BATCH server, BATCH single station, Route Control server, Route Control single station	OS client, BATCH client, Route Control client	SIMATIC PCS 7 BOX 416 (basic PC must be a BOX PC 627 or better)
Processor	Intel Pentium IV	Intel Pentium IV	Intel Pentium IV	Pentium Mobile
Clock-pulse rate	$\geq 2.0$ GHz	$\geq 2.0$ GHz	$\geq 2.0$ GHz	$\geq 2.0$ GHz
Hard disk	$\geq 120$ GB	$\geq 120$ GB	$\geq 80$ GB	80 GB
Minimum partition size	C:\ 20 GB	C:\ 20 GB	C:\ 20 GB	C:\ 20 GB
Work memory (RAM)	2 GB	1 GB	512 MB	1 GB
Network adapters/Communications interfaces <ul style="list-style-type: none"> <li>For terminal bus communication</li> <li>For plant bus communication</li> </ul>	<ul style="list-style-type: none"> <li>RJ45 connector (fast Ethernet)</li> <li>CP1613 or BCE network adapter for engineering station and OS server</li> </ul>	<ul style="list-style-type: none"> <li>RJ45 connector (fast Ethernet)</li> <li>CP1613 or BCE network adapter for engineering station and OS server</li> </ul>	<ul style="list-style-type: none"> <li>RJ45 connector (fast Ethernet)</li> </ul>	2 x RJ45 connectors (fast Ethernet) available on BOX PC 627
Opt. drive	DVD-ROM	DVD-ROM	DVD-ROM	DVD-ROM

### Latest information in the PCS 7 readme file

Always read the latest information in the *pcs7-readme* file on the PCS 7 Toolset DVD for every new PCS 7 version or service pack.

### More information

- Catalog *ST PCS 7*
- Catalog *ST PCS 7.1* (Add Ons for SIMATIC PCS 7)

### 3.3 Components for connection to the terminal bus/plant bus

#### Attachment of OS, BATCH, Route Control, and ES

You can connect the following PC stations to Industrial Ethernet via communication modules:

- Operator stations
- BATCH stations
- Route control stations
- Engineering stations

The communication modules require a slot in the PC or programming device (PG). A variety of communication modules can be used depending on the requirements:

- For connection to the terminal bus:
  - Standard communication modules (for example, desktop adapter Intel Pro/1000GT)
  - Redundant connection of the PC station to the terminal bus:  
Two network adapters working in a PC in team mode
    - Intel Pro/1000MT server adapter
    - Intel Pro/1000GT desktop adapter
- We recommend the following network adapter for attachment to the plant bus and communication connections with a maximum of 8 communication partners (automation systems or servers):
  - Intel Pro/1000GT desktop adapter
- Communications processors with on-board processors are used if the maximum number of 8 automation systems per operator station is not sufficient or if fault-tolerant automation systems are connected to the plant bus:
  - CP 1613 with S7-1613 software
  - CP 1613 with S7 REDCONNECT software for redundant communication with S7-400H/FH

---

**Note**

Communication can be established with up to 64 automation systems (including redundant systems) using a CP 1613.

---

#### Firewall on the plant bus

If you use a firewall on the plant bus, you will need one of the following types of the CP 443-1 communications processor for the SIMATIC stations:

- CP 443-1 EX 10 with firewall version V2.5.5 or later
- CP 443-1 EX 11 with firewall version V2.5.5 or later
- CP 443-1 EX 20

## Driver

The driver software for the communication modules described above is available on the PCS 7 Toolset DVD. You will find more information on this topic in the section "Additional devices and drivers for PCS 7 (Page 107)".

## Time-of-day synchronization

CP 1613 supports time-of-day synchronization on Industrial Ethernet (Fast Ethernet). A PC with a CP 1613 can receive time frames from the following time transmitters:

- SIMATIC S7-400/H/FH with CP 443-1
- SIMATIC NET time transmitters for Industrial Ethernet  
(for more information see catalog *IK P*)
- SIMATIC SICLOCK
- PC with CP 1613

## 3.4 Optional hardware components

### Overview

Components	Application
<b>Chip card reader</b>	<p>This is used to access the PC stations via chip cards. Every authorized user must have a chip card.</p> <p>Chip card readers can be used for serial and USB interfaces.</p> <p>Note: If you use SIMATIC Logon, the chip card reader must support chip cards with the TCOS 2.0 operating system.</p> <p>You will find the necessary drivers for the OMNIKEY CardMan 3121 USB chip card reader on the PCS 7 Toolset DVD in folder: \\Additional_Products\\Drivers\\CHIPCARD\\CardMan 3121 USB</p>
<b>Printer</b>	<p>Use a graphics-enabled printer or a line printer for message sequence reports. Printers must be supported by the operating system.</p>
<b>Signal module</b>	<p>You can use the signal module to control three visual or acoustic signal transmitters. Variables are assigned to these three signal transmitters in the "audible signal device" WinCC editor. If a variable has the status "1", the corresponding signal transmitter of the signal module will be activated.</p> <p>The signal transmitter is acknowledged/reset by means of software control or via an external acknowledgment on the signal module.</p> <p>A group signal is also available to you on the signal module. The group signal is triggered when one of the three signal transmitters is present and can control an acoustic or visual signal transmitter.</p> <p>Connecting a signal module also facilitates sign-of-life monitoring thanks to the watchdog function.</p>
<b>Sound card</b>	<p>You can use a standard sound card to expand OS single station systems and OS clients. Files (e.g., *.wav) are played back through suitable devices (loudspeakers, piezo transmitters) via the signal module.</p>
<b>Radio clock</b>	<p>This is used to synchronize the PCs and plant bus.</p>
<b>Intrinsically safe operating unit</b>	<p>If required, use an intrinsically safe PC operating unit (add-on product) in hazardous areas, zone 1 or 2 - distances of up to 750 m are possible.</p>
<b>Multi-VGA cards</b>	<p>Install a multi-VGA graphics card in a PC used as:</p> <ul style="list-style-type: none"><li>• An engineering station or</li><li>• A client for an operator station or SIMATIC Route Control</li></ul> <p>This allows you to connect up to four monitors to a PC (for clients and engineering stations).</p>
<b>EPROM programming device USB prommer</b>	<p>This allows you to program SIMATIC memory cards and EPROM modules.</p>
<b>Redundant network adapters</b>	<p>These allow you to connect PC stations to the redundant terminal bus.</p>

### More information

- Catalog *ST PCS 7*

## 3.5 Configuring and ordering

### Configurator software

On the *Interactive Catalog CA01; Automation and Drives* CD, you will find configuration software that you will find useful when creating your PC networks.

### Ordering information

In the *Process Control System PCS 7; ST PCS 7* catalog, you will find the ordering information for tested PC configurations and software components. The catalog offers complete installed solutions providing the optimum components for your system whatever your application.

### Custom solutions

If you require customized solutions for PC systems (for example for RAID systems), please contact your local Siemens representative.

You will find your local Siemens representative at:

<http://www.siemens.com/automation/partner>



# 4

## Installing PC stations

### 4.1 Overview of the installation procedure

#### Introduction

Below you will find a practical outline of the basic procedure for installing PC stations for PCS 7.

Siemens AG offers training courses on PC and network administration. Please contact your regional training center or the central training center for more information.

#### Overview of the individual steps for installation

This overview shows the recommended sequence of installation tasks.

Step	What?
<b>Installation of the operating system</b>	
1	Installing the operating system (Page 65)
2	Installing operating system service packs (Page 68)
3	Setting the location where the swap file is to be stored (Page 69)
4	Making system settings (Page 70)
5	<ul style="list-style-type: none"><li>Installing the Message Queuing service for Windows XP Professional (Page 72)</li><li>Installing the Message Queuing service for Windows Server 2003 (Page 73)</li></ul>
6	Installing the Microsoft SQL Server (Page 75)
7	Installing additional components (Page 74)
8	Configuring the server function for the central archive server (Page 77)
9	Installing additional services for SIMATIC BATCH (Page 78)
10	Setting the color scheme and font size (Page 79)
11	Creating a backup (Page 80)

Step	What?
<b>Installation of PCS 7</b>	
12	Installing the PCS 7 software (Page 85)
13	Installing the central archive server (StoragePlus) (Page 89)
14	Configuring the redundancy for redundant servers (Page 91)
15	Installing a PC for PCS 7 OS Web Option (Page 91)
16	Activating the firewall in the PC stations (Page 95)
17	Installing additional communication modules and PCS 7-specific settings (Page 98)
18	Installing interfaces for the plant/terminal bus (Page 99)
19	Licensing and authorizing the PCS 7 software (Page 112)
20	Preparing the PC stations (overview) (Page 131)
21	Creating a backup (Page 80)

### **PCS 7 security settings in the network**

SIMATIC Security Control (SSC) is called up automatically in the PCS 7 setup.  
SIMATIC Security Control makes all necessary security settings for the PC station so you don't have to.

## 4.2 Hard disk partitioning

### Partitioning the hard disks

To make data backup easier, you should divide your PC station hard disks into partitions as follows:

- For the operating system and the PCS 7 installation: approx. 20 GB
- For PCS 7 project structures: More than 15 GB, possible several partitions
- For backups: Back up to a data storage medium which will not be affected should the PC or hard disk containing the original data fail, e.g, CD, MOD, or even the network.

### Example

Example of a hard disk with 120 GB:

Drive letter	Size in GB	Drive name	Formatting	Intended use
C:	20	SYSTEM	NTFS	Operating system installation and PCS 7 installation
D:	60	DATA	NTFS	PCS 7 project data
...	...	BACKUP	NTFS	Backup files

## 4.3 Installing the operating system

### 4.3.1 Notes on installing the operating system

#### Introduction

Only appropriately qualified personnel may install the operating system, particularly the servers, and configure networks.

#### Integration in networks

You can integrate PC stations for PCS 7 in a network. Note the following:

---

##### Note

Install the PC stations locally or in a workgroup. Using this procedure prevents group guidelines or domain restrictions from hindering the installation.

Do not use the following PC stations in PCS 7 for domain management (DHCP or DNS server, for example):

- OS server
- BATCH server
- Route Control server

If a server (OS server, BATCH server, Route Control server) is also used as a server for these services, then the PCS 7 functions may be impaired due to overloading of the PC's resources.

---

##### NOTICE

Only install PCS 7 software products listed in this manual on a PC station. This especially applies to PC stations for process mode (OS, SIMATIC BATCH, SIMATIC Route Control).

Installing and simultaneously activating applications that are not approved by Siemens can adversely impact the PCS 7 system performance.

The user bears sole responsibility when third-party products are used.

If you nevertheless require third-party products, these should be installed before you install PCS 7. PCS 7 and these third-party products should not run at the same time.

## Reinstalling and updating

Note the following general information in regard to updating software.

### NOTICE

Notice:

- If the operating system for PCS 7 is not yet installed on the PC station, reinstall the PC. This requires the operating system to be changed.
- Check the suitability of your hardware before performing a new installation. You can find additional information in the file *pcs7-readme*.
- Back up your authorizations.
- Save your unchanged project and associated data prior to reinstallation (in an image, for example). You can find additional information about this in the manual SIMATIC; *Process Control System PCS 7; Service Support and Diagnostics*.
- Make the preparations for updating the software. You can find additional information about this in the manual *Process Control System PCS 7; Software Update*.
- Back up the data required for the software update.
- Format the hard disks and create new partitions.

## Operating systems

There are different procedures that depend on the various 32-bit operating systems:

- Procedure for installation with Windows XP Professional
- Procedure for installation with Windows Server 2003

Possible operating systems and their use in PCS 7: You can find additional information about this in appendix "Software Packages and Necessary License Key (Page 166)".

---

### Note

You can operate domain controllers with the following operating systems:

- Windows Server 2003
  - Windows 2000 Server
-

### **Languages for the operating system**

The menus for configuration and for the process management can be displayed in the following languages:

- Chinese
- German
- English
- French
- Italian
- Spanish

The bundle PCs from PCS 7 are provided with a multilingual operating system.

If you install a PC yourself, we recommend the following when selecting the operating system language:

- If the PC users only use one language, select the operating system language used for configuration/process management.
- If the PC users use several languages, select a multilanguage operating system (with English as the default) and also install the additional Multilingual User Interface Packs.

### **Name of the PC station**

Do not use underscores. Otherwise, problems may arise when accessing data using the StoragePlus WebViewer. You will find the name of the PC in the Windows Control Panel under "System", on the "Computer Name" tab.

When configuring an OS or BATCH server and an engineering station, please note that it is essential that the PC station name must be the same as that of the server PC (computer name).

Exception: When setting up a maintenance station (see *Process Control System PCS 7; Operator Station Configuration Manual*).

You will find more information on this topic in *WinCC information system* > Working with projects > Appendix > Invalid characters.

## **4.3.2 PC configuration security settings**

### **Introduction**

Current production methods increasingly require process control systems and the IT environment to come together. The need to connect company networks to public ones brings with it increased hazard potential. Information system and network security has therefore become an important factor in operating process control systems. Accurate knowledge of the sources of risks and the implementation of measures to prevent these risks from occurring is of utmost importance.

Comprehensive knowledge of administrating Microsoft Windows networks is required if you want to integrate PCS 7 PC stations into a PC network.

### **Recommendations and instructions**

The manual *Process Control System PCS 7; Security Concept PCS 7; Recommendations and Notes* helps Administrators to plan and configure PC networks:

- It will give you an overview of network, computer and user management, as well as the management of user and access rights in PCS 7.
- It will provide you with important information about integrating PCS 7 networks into the Windows management system.
- You will learn what the options are for time-of-day synchronization in a PCS 7 plant.
- You will find information about how to establish patch management and secure communication paths between the PC stations in a PCS 7 plant.

---

#### **Note**

This manual builds on the options available in Windows XP Professional and Windows Server 2003 and requires knowledge of how these operating systems are used and managed.

---

### **Network**

You must isolate the network for a PCS 7 plant via switches, routers, or gateways to ensure that no faults reach the PCS 7 plant, via office networks, for example.

### **Security settings on a PC**

When you install PCS 7, you can either activate the required security settings on the PC when the installation is taking place or at a later time.

<b>NOTICE</b>
When the PCS 7 plant is operated in a domain, the security settings must be coordinated over the entire domain. Coordinate the security settings with the appropriate Administrator.

## Virus scanners and updates

Virus scanners and updates approved for PCS 7 can be installed later.

<b>NOTICE</b>
Please note that some updates will require you to restart your PC and cannot, therefore, be installed in process mode.

## More information

- You will find more information about security settings in:
  - Section "How to retro-activate the security settings for PCS 7 (Page 145)"
  - Section "Installing security patches, hotfixes, and service packs (Page 144)"
- You will find more information about virus scanners and updates in:
  - Section "Virus scanners (Page 153)"
  - Section "Installing security patches, hotfixes, service packs (Page 144)"
- Manual *Process Control System PCS 7; Security Concept PCS 7; Recommendations and Notes*
- File *pcs7-readme*



### 4.3.3 How to install Windows XP and Windows Server 2003

#### Requirement

All the necessary modules and devices have been installed in your PC.

#### Procedure

---

**Note**

For a multi-language installation, the names of dialog boxes appear in square brackets "[ ... ]".

---

1. Insert the installation CD for the operating system in the CD drive.
2. Follow the Setup instructions for installing the operating system.
3. Make the settings for your specific system in the "Regional and Language Options" dialog box.
4. Make the settings for your specific system in the "Personalize Your Software" dialog box.
5. Enter your product key in the "Product Key" dialog box. You can find it on the CD envelope.
6. The "Licensing Modes" dialog box only appears in the setups for Windows Server 2003 and Windows Advanced Server 2003 (not in Windows XP).

The default setting for the licensing mode is: "per server".

Select the "per device or per user" radio button for the licensing mode if more than one server or more than five clients are present in one area.

In this context, "area" means a subnet, a workgroup or a domain.

---

**Note**

One standard Windows 2003 Server software package contains licenses for five seats. Make sure that you have the correct number of licenses.

---

7. Make the settings for your specific system in the "Computer Name and Administrator Password" dialog box.

---

**Note**

Recommendation: Select short and descriptive computer names that provide some information about the role of the PC station in the overall system.

Use only letters and number for the computer names.

---

8. Make the settings for your specific system in the "Date and Time Settings" dialog box.
9. You can make the settings in the "Network Settings" dialog box now or later.
10. Make the settings for your specific system in the "Workgroup or Computer Domain" dialog box. You can also configure this later.

The installation is complete.

**Installation of specific language components for a multilingual installation**

1. Start the setup on the *Multilingual User Interface Pack* CD.
2. Follow the Setup instructions for the installation.
3. In the "Windows Multilingual User Interface Pack" dialog box, select the languages to be made available in the menus and dialogs (multiple languages can be selected). Select the default language. Select the "Match Language for non-Unicode ..." and "Match the default shell ..." check boxes.
4. Follow the Setup instructions for the installation.
5. Reboot the PC.

**After installation of the Windows multilingual user interface pack**

The selected language is English.

1. Select the menu command **Start > Settings > Control Panel > Regional Language Options**.  
The "Regional and Language Options" dialog box opens.
2. Open the "Regional Options" tab and make the settings for your specific system.
3. Open the "Languages" tab and make the settings for your specific system.
4. Open the "Advanced" tab and make the settings for your specific system.
5. Reboot the PC.

**Adding more system components**

1. Select the menu command **Start > Settings > Control Panel > Add or Remove Programs**.  
The "Add or Remove Programs" dialog box opens.
2. Click the "Add/Remove Windows Components" button.  
The "Window Components Wizard" opens.
3. In the list, check the boxes for components as specified in the "Selecting options in the 'Window Components Wizard'" table found below.
4. Click "Next".
5. Click "Finish".  
This completes the installation.

### Selecting options in the 'Windows Components Wizard'

Where?	What?
Accessories and Utilities	<ol style="list-style-type: none"><li>1. Click "Details".</li><li>2. Clear the check box for "Games" when installing Windows XP.</li><li>3. Click "OK".</li></ol>
IIS - Internet Information Service	<ol style="list-style-type: none"><li>1. <b>Activate</b> the service only for:<ul style="list-style-type: none"><li>– OS Web server</li><li>– Central archive server</li><li>– PC stations where BATCH archives are stored</li></ul></li><li>2. Activate the "Application server" check box.</li><li>3. Click "Details".</li><li>4. <b>Deactivate</b> the service for all other installations.</li></ol>
Message Queuing services	<ol style="list-style-type: none"><li>1. <b>Activate</b> the service.</li></ol>

### More information

- Section "How to install the Message Queuing Service for Windows XP Professional (Page 72)"
- Section "How to install the Message Queuing Service for Windows Server 2003 (Page 73)"

#### 4.3.4 How to install service packs for the operating system

##### Introduction

If you installed the operating system without a service pack, you must install the service pack later.

##### Versions

---

**Note**

Refer to the *pcs7* readme file to find out which version is required.

---

##### Requirements

- The operating system has been installed.
- The PC station is operated locally or in a workgroup (but is still not included in a domain).

##### Procedure

1. Insert the installation CD in the CD drive.
2. Double-click the appropriate "<operating system>.exe" file to start the installation routine.
3. Select the "I agree with the license agreement" check box and click "Install".
4. When the installation has been successfully completed, reboot the computer and remove the installation CD.

##### Additional information

- Section "Installing Security Patches, Hotfixes, Service Packs (Page 144)"

## **4.3.5 How to configure paged memory**

### **Introduction**

The operating system requires additional disk space for the paging file (virtual memory; this is created by default on the operating system partition).

### **Rules for setting the size of the paging file**

The size of the paging file depends on the memory configuration of the PC. We recommend the following settings:

- Specify about 1.5 to 2 times the RAM available in the PC for the paging file.
- Enter the same value for the initial size and maximum size of the paging file.

### **Requirement**

- The PC station is operated locally or in a workgroup (but is still not included in a domain).

### **Procedure**

1. Select the "My Computer" object in the Windows Explorer.
2. Select the menu command **File > Properties**.
3. Open the "Advanced" tab.
4. In the "Performance" group, click "Performance Options".  
The "Performance Options" dialog box opens.
5. Open the "Advanced" tab.
6. In the "Virtual Memory" group, click "Change".
7. Use the option "User defined size" to enter the required values.
8. Click "OK" to save the settings.
9. Click "OK" twice to close the opened dialog boxes for this procedure.

### 4.3.6 How to make additional system settings

#### Requirement

The PC station is operated locally or in a workgroup (but it has not yet joined a domain).

#### Procedure

1. Select the menu command **Start > Settings > Control Panel > Administrative Tools > Computer Management > Local Users and Groups** to set up the users.  
You will find more information on this topic in the section "Setting up user Groups and users (Page 92)".
2. Select the menu command **Start > Settings > Control Panel > Display**.  
The dialog box for setting the display properties opens.
  - Open the "Settings" tab and select the screen resolution (recommended for PCS 7: 1280x1024).  
A higher resolution allows you to better utilize the display features of the PCS 7 software, e.g., for the online operation of faceplates from the libraries. Please ensure that you have installed appropriate drivers and are using suitable monitors.
  - Open the "Screen Saver" tab.
  - In the "Screen saver" area, select "[None]" from the drop-down list box.
  - In the "Monitor power" area, click the "Power..." button.
  - In the "Settings for Home/Office Desk power scheme" area, select "Never" in all the drop-down list boxes.
  - Click "OK" to close the dialog box.
3. Select the data throughput for network applications for a Windows server.
  - Windows Server 2003: Select the menu command **Start > Settings > Network Connections**.
  - Select the network connection for the terminal bus.  
Recommendation: Name the network connections in accordance with use, e.g., terminal bus or plant bus.
  - Select the menu command **File > Status**.
  - Select the "General" tab.
  - Click "Properties".
  - Select "File and Printer Sharing for Microsoft Networks".
  - Click "Properties".
  - Select "Maximize data throughput for network applications".
  - Click "OK" to close the dialog box.

4. Disable the energy saving option for network adapters.  
You will find more information on this topic in the section "How to disable the energy saving options for network adapters (Page 103)".
5. Select the menu command **Start > Settings > Control Panel > Administrative Tools > Computer Management > System Tools > Event Viewer** to check that all services and drivers are functioning correctly.
6. OS server: In the Control Panel, select the "Background services" radio button.
  - Select the menu command **Start > Settings > Control Panel > System**.  
The "System Properties" dialog box opens.
  - Select the "Advanced" tab.
  - In the "Performance" area, click the "Settings" button.
  - Select the "Advanced" tab.
  - For Windows Server 2003: In the "Processor scheduling" area, select the "Background services" radio button.
  - Click "OK" to close the dialog box.

### 4.3.7 How to install the Message Queuing Service for Windows XP Professional

#### Introduction

Install the Message Queuing service on the PC station prior to installing PCS 7.

#### Requirements

- The Windows XP Professional operating system must be installed, along with a service pack and Internet Explorer.
- The PC station is operated locally or in a workgroup (but it has not yet joined a domain).
- You are logged in to Windows XP Professional as an Administrator.

#### Procedure

1. Select the menu command **Start > Settings > Control Panel > Add or Remove Programs**.
2. Click the "Add/Remove Windows Components" button.
3. Select the "Message Queuing" component.  
The "Details" button is active.
4. Click "Details".  
The "Message Queuing" dialog box opens.
5. Select the "General" subcomponent.  
Disable all other subcomponents and click "OK".
6. Click "Next".
7. If you have stored the software for the Message Queuing service on the PC with the operating system, the installation will start immediately. If the software for the Message Queuing service is not yet available, the "Data Medium" dialog box opens:
  - Insert the required Windows installation CD into the CD drive.
  - Click "OK".MS Message Queuing is installed.
8. Click "Finish" to close the Wizard.
9. Use the Event Viewer to check that the Message Queuing services have been activated correctly:
  - Select the menu command **Start > Settings > Control Panel > Administrative Tools > Event Viewer**.
  - In the tree view, select "Event Viewer > Application".The Message Queuing service has been installed correctly if the "Source" column contains the entry "MSMQ".

#### Incorrect function

If an error message appears under "Description" in the "Event Properties" dialog box, the installation has not been executed correctly. Uninstall and then reinstall "Message Queuing Services".



## 4.3.8 How to install the Message Queuing Service for Windows Server 2003

### Introduction

Install the Message Queuing service on the PC station prior to installing PCS 7.

### Requirements

- The Windows Server 2003 operating system must be installed, along with a service pack and Internet Explorer.
- The PC station is operated locally or in a workgroup (but it has not yet joined a domain).
- You are logged in to Windows Server 2003 as an Administrator.

### Procedure

1. Select the menu command **Start > Settings > Control Panel > Add or Remove Programs**.
2. Click the "Add/Remove Windows Components" button.
3. Select the "Application Server" line (do not check the box) and click the "Details" button. The "Application Server" dialog box opens.
4. Select the "Message Queuing" line (do not check the box) and click the "Details" button. The "Message Queuing" dialog box opens.
5. Check the "Shared Components" box. Uncheck all other boxes and click "OK".
6. If the software for the Message Queuing service is stored on the PC with the operating system, the installation will start immediately. If the software for the Message Queuing service is not yet available, the "Data Medium" dialog box opens:
  - Insert the required Windows installation CD into the CD drive.
  - Click "OK".MS Message Queuing is installed.
7. Click "Finish" to close the Wizard.
8. Use the Event Viewer to check that the Message Queuing services have been activated correctly:
  - Select the menu command **Start > Settings > Control Panel > Administrative Tools > Event Viewer**.
  - In the tree view, select "**Event Viewer > Application**".The Message Queuing service has been installed correctly if the "Source" column contains the entry "MSMQ".

### Incorrect function

If an error message appears under "Description" in the "Event Properties" dialog box, the installation has not been executed correctly. Uninstall and then reinstall "Message Queuing Services".

### 4.3.9 How to install additional components

You need to install additional Microsoft components for some PC configurations. You will find these components on the PCS 7 Toolset DVD in the "Microsoft" folder or on the "MS\_ServicePacks\_u\_Tools" DVD.

---

**Note**

If you install an additional Microsoft component for a PC configuration, you will find the latest information about it in the *pcs7-readme* file.

---

### Languages

Install the additional Microsoft components in the language of the operating system.

Example of how to store a hotfix in a language-specific directory:

Language	Language code	Directory on the "MS_ServicePacks_u_Tools" DVD
German	german	Tools\MS_XPSP2_KB319740\german\WindowsXP-KB319740-v5-x86-DEU.exe
English	english	Tools\MS_XPSP2_KB319740\english\WindowsXP-KB319740-v5-x86-ENU.exe
French	french	Tools\MS_XPSP2_KB319740\french\WindowsXP-KB319740-v5-x86-FRA.exe
Italian	italian	Tools\MS_XPSP2_KB319740\italian\WindowsXP-KB319740-v5-x86-ITA.exe
Spanish	spanish	Tools\MS_XPSP2_KB319740\spanish\WindowsXP-KB319740-v5-x86-ESN.exe

Example of how to identify a component's language in its file name:

Language	Language code	Example
German	xxx_de.xxx	dotnetfx_ <b>de</b> .exe
English	xxx_en.xxx	dotnetfx_ <b>en</b> .exe
French	xxx_fr.xxx	dotnetfx_ <b>fr</b> .exe

### Procedure

1. Insert the DVD in the DVD drive.
2. Select the relevant folder on the DVD.
3. Install the components named in the *pcs7-readme* file.

## **4.3.10 How to Install Microsoft SQL Server**

### **Introduction**

The Microsoft SQL Server is required in PCS 7 for the following PC stations:

- Operator stations
- Engineering station

With the "PCS 7 Toolset" software package you receive a CD containing Microsoft SQL Server software, adapted for PCS 7.

### **Installation and setting**

---

#### **Note**

The Microsoft SQL Server settings required for PCS 7 are integrated in the PCS 7-specific SQL Server setup. No other settings are necessary. The SQL instance installed for the operator station for PCS 7 is "WinCC".

---

### **Requirements**

- The operating system has been installed.
- The installation CD for the PCS 7-specific SQL Server is available. As of PCS 7 V7.0, you will require SQL Server 2005.  
You can find version information, along with information about additional hotfixes or patches for the "MS SQL Server", on the PCS 7 Toolset DVD, in file *pcs7-readme*.

### **Procedure**

1. Insert the MS SQL Server installation CD in the DVD drive.  
If the initial dialog box does not appear, go to the CD drive in Windows Explorer and run file "setup.exe" from there.  
The "Welcome ..." dialog box opens.
2. Click "Next".  
The License dialog box opens.
3. Select the "I accept the condition of this license agreement" radio button.
4. Click "Next".  
The "Program packages ..." dialog box opens.
5. Select "SQL Server 2005 (WinCC)" from the list.
6. Click "Next".  
The "Programs ..." dialog box opens.
7. Click "Next".  
The installation starts.  
The "Add password for the sa login" dialog box opens.
8. Click "Continue".  
The "Start Copying Files ..." dialog box opens.

9. Click "Install".  
The files for the SQL Server are installed.  
The "Setup Complete ..." dialog box opens.
10. Click "Finish".  
The "Setup SQL Server 2005 (WinCC) ..." dialog box opens.
11. Following the installation, click "Finish" on the final screen.

#### "SQLServer2005MSSQLUser\$<Computername>\$WINCC" user group

Once the SQL Server software has been installed on the PC, the "SQLServer2005MSSQLUser\$<Computername>\$WINCC" user group is created in the operating system.

The "Computername" is the name of the PC station (menu command **Start > Settings > Control Panel > System > "Computer Name" tab**).

Example user group name: SQLServer2005MSSQLUser\$OSServer1\$WINCC

---

#### Note

The necessary users must be entered following a successful version update/installation.

---

You will find more information on this topic in the section "Setting up user groups and users (Page 92)".

#### Installing an SQL Server hotfix

1. Insert the PCS 7 Toolset DVD in the DVD drive.
2. In Windows Explorer, select the DVD drive and folder  
Additional\_Products/HF\_für\_SQL2005 in the tree structure.
3. Select file "sqlIncli.msi". In the shortcut menu, select the menu command "Install".  
The "Microsoft SQL Server Native Client Setup" dialog box opens.
4. Click "Next".  
The License dialog box opens.
5. Select the "I accept the condition of this license agreement" radio button.
6. Click "Next".  
The "Registration Information" dialog box opens.
7. Click "Next".  
The "Feature Selection" dialog box opens.
8. Click "Next".  
The "Ready to Install the Program" dialog box opens.
9. Click "Install".  
The hotfix is installed.
10. Click "Finish".

#### More information

See the "MS SQL Server" installation CD, file *SQL-readme.wri*.

### 4.3.11 How to configure the server role for the central archive server

#### Introduction

If you use the StoragePlus software package on an OS server, perform the following steps on this OS server.

#### Requirement

- The Windows Server 2003 operating system is installed.

#### Procedure

For Windows Server 2003, you will need to configure IIS, ASP.net:

1. In the Start menu, select **Settings > Server Configuration Wizard**.  
The "Server Configuration Wizard" opens.
2. Click "Next".
3. No settings are needed on the following page.
4. Click "Next".
5. On the following page, select the entry "Application Server (IIS, ASP.NET)" for the "Server Role".
6. Click "Next".
7. On the following page, place a check mark next to the entry "Enable ASP.NET".
8. Click "Next".
9. Follow the instructions on the screen.

### 4.3.12 Installing additional services for SIMATIC BATCH

#### Introduction

If you want to transfer SIMATIC BATCH archives using FTP, then additional installations are required on the PC stations.

#### Which additional services need to be installed?

PC station	Service or software that needs to be installed
PC station to which the BATCH archives are transferred	IIS service FTP service
PC station from which the transfer of BATCH archives will be activated	FTP service
PC station from which the transferred BATCH archives will be accessed	BATCH Control Center (BatchCC)

#### Additional information

- You will find additional information on configuring services in the manual *Process Control System PCS 7; SIMATIC BATCH*.

### 4.3.13 How to set color schemes and font sizes

#### Introduction

The settings for the color scheme and font size can sometimes change automatically when other programs are installed. Correct the settings if necessary.

#### Procedure

1. Select the menu command **Start > Settings > Control Panel > Display**.  
The "Display Properties" dialog box opens.

##### Color scheme

1. Select the "Appearance" tab.
2. Make the following settings:
  - Select "Windows Classic" in the "Windows and Buttons" drop-down list.
  - Select "Windows Classic" in the "Color Scheme" drop-down list.
  - Click "Apply".
  - Click "Advanced".  
The "Advanced Appearance" dialog box opens.
  - Select "Active Title Bar" in the "Item" drop-down list box.
  - Select the dark blue menu area in the "Color 1" list.
  - Select the dark blue menu area in the "Color 2" list.
  - Click "OK".

##### Font size

1. Select "Normal" in the "Font Size" drop-down list.

##### Options

1. Click "Effects".  
The "Effects" dialog box opens.
2. Disable the "Show window contents while dragging" check box.
3. Double-click "OK".

#### **4.3.14 Creating a backup**

##### **Recommendation**

After restarting and testing the installation, create a backup of the partitions on which the operating system/PCS 7 software is installed.

We recommend creating an image of the installation for backing up partitions and hard drive data. An image allows you to restore partition and hard drive data at any time or to prepare the PC for a software reinstallation.

---

##### **Note**

Please note that neither license keys nor authorizations can be backed up along with the data.

- Move authorizations and license keys to a different medium (license key diskette, partition, etc.) before creating the image.
  - In selecting image software, ensure that it is suitable for the operating system in use.
  - To create an image, follow the image software manufacturer's instructions.
-



## **4.4 Installing the PCS 7 software**

### **4.4.1 Notes on installing PCS 7**

#### **Introduction**

The PCS 7 software contains applications that allow you to configure systems and operate and monitor them in runtime. In addition to the applications of the basic software, there are numerous optional packages and upgrade packages that you can install later and use for special applications.

Refer to the latest *ST PCS 7* catalog to learn about all of the software packages released for PCS 7 and how they can be used. You can find a detailed introduction in the configuration manual *Process Control System PCS 7; Engineering System*.

The following describes the installation for the basic PCS 7 software.

#### **Versions of the software package**

You can find information on the software packages and versions associated with the current PCS 7 Toolset DVD in the *pcs7-readme* file on the PCS 7 Toolset DVD.

#### **Latest information about the installation**

---

##### **Note**

When installing PCS 7 in a network, make sure that at least one DVD drive and one diskette drive are available.

---

##### **Note**

Read the latest information about installation and the software and hardware requirements in the *pcs7-readme* file on the PCS 7 Toolset DVD.

---

##### **Note**

If you install PCS 7 in a domain, be aware of the group policies or other restrictions that can hinder the installation. Consult the appropriate Administrator as regards these settings and the required approvals and authorizations.

---

##### **Note**

If you want to use the Windows firewall, you must wait to activate it until after PCS 7 is installed.

---

## Rules

NOTICE
<p>Only the software products listed in this manual should be installed on a PCS 7 PC. This applies in particular to PC stations used for process mode (OS, BATCH, Route Control).</p> <p>Installing and simultaneously activating applications that are not approved by Siemens can adversely impact the PCS 7 system performance.</p> <p>The user bears sole responsibility when third-party products are used.</p> <p>If you nevertheless require third-party products, these should be installed before you install PCS 7. PCS 7 and these third-party products should not run at the same time.</p>

## Several PCS 7 applications on a single PC station

A PC station can be used to run a single PCS 7 application (such as OS server). It can also be used to run several PCS 7 applications (such as OS server and BATCH client). You can find additional information on this in the section "Approved Configurations (Page 204)".

## Installation of the archive server

---

### Note

When installing the central archive server and StoragePlus, set the same language for the logged on user and the default user.

---

## **SIMATIC Security Control**

The settings are made in the registry, in DCOM and in the exception list for the Windows firewall are required for trouble-free operation of the PCS 7 software. When the setup is completed, the "SIMATIC Security Control" dialog appears, allowing you to make these settings. You have the following options:

- If you want to apply the settings immediately, click "Apply".
- If you want to make the settings at a later point in time, select the menu command **Start > SIMATIC > SIMATIC Security Control > All Settings**.
- If you start "SIMATIC Security Control" via the menu command **Start > SIMATIC > SIMATIC Security Control > Settings Made**, the settings already transferred to the operating system will be displayed.

---

### **Note**

The settings must be applied again if the work environment changes (domains, workgroups) using the menu command **Start > SIMATIC > SIMATIC Security Control > All Settings**.

The settings in the exception list of the Windows firewall are applied to the area of the local network (subnet). If your PC stations are located in different networks (subnets), you need to change this area.

The settings in the exception list of the Windows firewall are made when the Windows firewall is disabled.

---

You can find additional information on this in the section "How to Retro-activate the Security Settings for PCS 7 (Page 145)".

The security settings must be activated again if the work environment changes (domains, workgroup).

---

### **Note**

Notice:

- With the factory state of the bundle systems, the settings are made in the registry, in DCOM and in the exception list for the Windows firewall.
  - With the factory state of the bundle systems V7.0, the local Windows firewall is disabled.
  - The log of firewall events is disabled.
- 

<b>NOTICE</b>
When the PCS 7 system is operated in a domain, the security settings must be coordinated over the entire domain. Coordinate the settings with the appropriate Administrator.

## **4.4.2 How to install in a network**

### **Preparation**

If you want to install several PCs, make the following preparation:

Copy the content of the PCS 7 Toolset DVD to a hard disk that can be accessed by all the PCs. In this way, you can install several PCs at one time.

### **Rules**

Observe the following rules when installing PCS 7 over a network

- Make sure the PC is set up to automatically restore the link to the directory containing the PCS 7 software after a restart of the PC.
- Set up a share for the directory (folder or drive) on which the PCS 7 software is available.
- Set up the following access rights for the share:
  - Operating user: Read
  - System: Read

### **Procedure**

1. Copy the files of the DVD to a folder.  
Then continue working on the PC on which you want to install PCS 7.
2. Open Windows Explorer and go to the folder in the network where you copied the DVD.
3. Start the Setup program.  
You will find more information on this topic in the section "How to install the PCS 7 software (Page 85)".

### 4.4.3 How to install the PCS 7 software

#### Introduction

The PCS 7 Toolset DVD contains the complete software for the PCS 7 applications. Depending on the PCS 7 application in question, you only need to install certain applications from the PCS 7 Toolset DVD. In this phase you are supported by the PCS 7 system setup.

#### Licensing

You can transfer the license keys required for the software package either before or after the installation of PCS 7.

You will find a description of the licensing concept in the section "Licensing and authorizing the PCS 7 software (Page 112)".

#### Checking the installation requirements

The PCS 7 system setup automatically checks whether the software components needed for the PCS 7 installation are already installed on the PC.

Missing software components are indicated with a message. The setup program is terminated after the message is confirmed. You must install the missing software components. Then, restart the PCS 7 system setup.

#### Requirements

- The operating system is installed and all the steps described in the "Installation of the Operating System" section have been completed.
- All communications processors have been installed in the PC.
- You need administrator rights on the PC station.

#### Starting the PCS 7 setup

1. Insert the PCS 7 Toolset DVD in the DVD drive.
2. Double-click on "Setup.exe" to start the setup.  
Setup starts.

## Settings in the setup

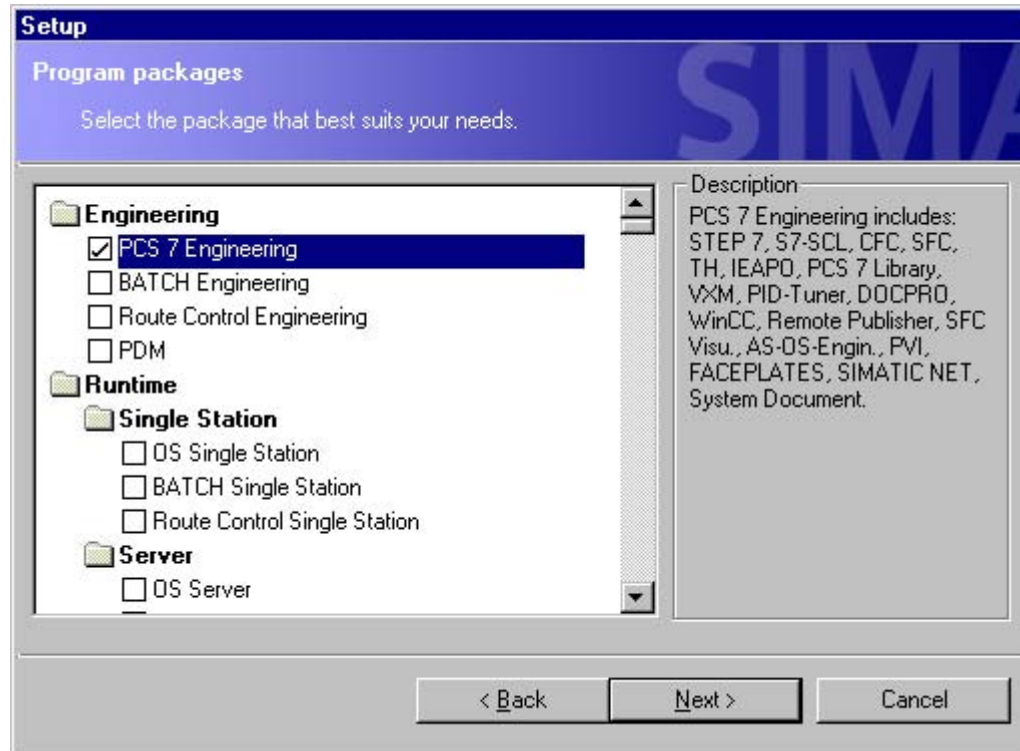
Below you will find information about the settings made in the setup dialog boxes, listed in the order in which they are processed:

1. Setup language
  - For example, "English" and "Next"
2. Welcome
  - ... "Next"
3. Product information
  - ... read this if needed and "Next"
4. License agreement
  - ... Mark the check box "I accept the conditions of the licensing agreement as well as the conditions of the Open Source Licensing Agreement"
  - ... "Next"
5. Setup type
  - ... Select this with the check box "Install" or "Update" and "Next"
6. User information
  - Enter the user information and "Next"
7. Installation type
  - Select the check box "User-defined Installation" if you need to modify preconfigured software packages for the PCS 7 application.
  - Click "Browse" if you want to set a different destination folder
  - "Next"
8. Program packages (see following figure)
  - ... Select the program package and "Next"
  - Select the software packages for the PCS 7 application in the subsequent dialog box. Check the corresponding boxes (approved combinations can be found in the section "Approved configurations (Page 204)").  
Result: The software packages installed for this PCS 7 application are listed in the window in the lower section of the dialog box.
9. Programs
  - ... The necessary program packages are shown. You can add additional (software) packages of PCS 7.
  - ... "Next"
10. Ready to install the selection
  - ... "Install"
11. SIMATIC Security Control

The top section of the "SIMATIC Security Control" dialog box shows the settings which the PCS 7 system setup can make automatically.  
Read the information in the bottom section of the "SIMATIC Security Control" dialog box and select the appropriate button.  
You will find more information on this topic in the section "How to retro-activate the security settings for PCS 7 (Page 145)".

12. When the installation is complete, close setup.

13. Reboot the PC.



## PC station as a file server for storing projects for multiuser engineering

### Note

If a PC station is to be used as a file server for multiuser engineering, an engineering station must be installed in the Windows Server 2003 operating system.

PCS 7 licenses are not required for this file server.

You will find more rules about storing projects on network servers in the *STEP 7 Help*.

## Setting the network connection to the terminal bus

If several network adapters are installed in the PC, network connections to the terminal bus must be set in order for the PC to be operated in the PCS 7 plant.

You will find more information on this topic in the section "How to set communication modules".

### **Display of installed software**

You can check which software packages are installed on the PC.

Select the menu command **Start > SIMATIC > PCS7 > Installed Software**.

You will find the installed software packages in the "Products" tab.

### **See also**

- How to configure communication modules (Page 137)



#### 4.4.4 How to install the central archive server (StoragePlus)

##### Introduction

When installing a central archive server (StoragePlus server) with the PCS 7 Toolset DVD, perform the following steps in the setup during installation:

##### Requirements

- The SQL server and application server (IIS and ASP.net) are installed.
- The computer name is assigned for the specific plant.

##### Making settings in the "StoragePlus Installation Settings" dialog box

1. Click the "Install" button in the "Ready to install the selection" setup dialog box. The "StoragePlus Installation Settings" dialog box opens.

---

**Note**

You cannot change the settings in the "StoragePlus Installation Settings" dialog box once they have been made.

---

2. Make the following settings:

Where?	What?
Name of the database:	Enter a unique database name.
Path of the database:	When updating PCS 7: Enter the path for the database file on the local hard disk of the server.
Path of the data log:	Enter the path of the data log.
Shared archive directory:	Enter the path and name of the shared archive directory. The shared archive is used as a common location for swapping out the archive segments and reports of the OS server to the central archive server (backup path).

You can find additional information about this in the section "How to Install the PCS 7 Software".

## Note on installation

Notice:

- The names of the database files are derived from the individual database names as follows:
  - Configuration database - name of database file: "DBName.mdf"
  - Configuration database - name of database log file: "DBName.ldf"
  - Runtime database - name of database file: "DBName\_D.mdf"
  - Runtime database - name of database log file: "DBName\_D.ldf"
- If you wish to use an existing database, note that you also have to use the name of the database and corresponding path where it is located.

The following recommendations for distributing the archives on the partitions provide optimized performance and operating security:

- Do not set the paths for the interim archive or the shared archive directory to the partition containing the Windows operating system.
- Do not store any other data (the virtual memory file of the operating system, for example) on the following partitions:
  - The partition of the shared archive directory
  - The partition of the interim archive, if you have selected the "Fraction of hard disk capacity" option for automatic archiving.  
With this option, the time period which the total archive can encompass depends on the remaining free space in the partition. This determines how far back you can access the tag logging data.
- Ensure that there is enough free space on the partition for the shared archive directory so that the OS server can continue to swap out archive segments even after process mode has ended on the central archive server.

We recommend the following to increase the performance of the archive server when large amounts of data are involved:

- Use an archive server with several hard disks.
- Do not set the path of the database to the hard disk where the operating system of the PC station is installed (additional hardware required).

## Increased performance and data security

Notice:

- We recommend the use of RAID systems (RAID 0) to increase performance.
- We recommend the use of RAID systems (RAID 1) to increase data security for the archive server.

## See also

- How to install the PCS 7 software (Page 85)

## 4.4.5 Configuring redundancy for redundant servers

### Introduction

You will need to configure the redundancy monitoring for redundant servers in PCS 7.

- A local Ethernet network with an additional network adapter for the redundancy communication needs to be configured for the OS server and BATCH server.
- SIMATIC Route Control uses the terminal bus for redundant communication.

### Additional information

You will find information on configuring fault-tolerant components, redundancy and redundancy monitoring for redundant servers in the manual *Process Control System PCS 7; Fault-tolerant Process Control Systems*.

## 4.4.6 Installing a PC for PCS 7 OS Web Option

### Installation of PCS 7 OS Web Server and PCS 7 Web Client

All information and step-by-step instructions for installing PCS 7 OS Web server and PCS 7 Web client can be found in the manual *Process Control System PCS 7; PCS 7 OS Web Option*.

### Additional information

- Section "Software packages and required license key (Page 166)"

#### 4.4.7 Setting up user groups and users

Some user Groups and users are created automatically when PCS 7 software is installed. The follow table shows the user group a user must be a member of to be able to use installed software.

##### Note to the reader for the "User Groups and users" table

In the following you will find notes for the reader on the "User Groups and users" table shown below:

- The "Installation" column defines the software that must be installed on the PC station in order for the user groups and users to be created.
- The "Component" column defines the standard component in the PCS 7 setup which creates the user groups and users.
- The "User group with users" column lists the user groups and users which are automatically created when a software package is installed. The **user groups** are marked "bold".
- The "Member" column lists the users that must be assigned to a user group in a PCS 7 system.
- The "SQLServer2005MSSQLUser\$<Computername>\$WINCC" user group is created automatically for the installation of the SQL server. All members of the "HMI" user group must be added to this group in order to work with PCS 7.

##### User groups and users

Installation	Component	User group with users	Members
Operating system		<b>Power User</b>	Add all users of a PCS 7 PC to this user group.
SQL Server for PCS 7		User group of the SQL server (see reader note "SQLServer2005...")	Add all members of the "HMI" user group to this user group.
Engineering station	PCS 7 Engineering	<b>HMI</b>	OS project engineer Project administrator Operator Operator groups
	BATCH Engineering	<b>SIMATIC BATCH</b>	BATCH project engineer
	Route Control Engineering	<b>RC_ENGINEER</b> <b>RS_MAINTENANCE</b> <b>RC_OPERATOR_L1</b> <b>RC_OPERATOR_L2</b> <b>RC_OPERATOR_L2</b>	Route Control project engineer Route Control administrator (with all rights) Operator (for operator permissions, see the manual "Process Control System PCS 7; SIMATIC Route Control")

Installation	Component	User group with users	Members
Runtime server	OS server	HMI	Project administrator Operator Operator groups
	BATCH server	SIMATIC BATCH	Operator
	Route Control server	RS_MAINTENANCE RC_OPERATOR_L1 RC_OPERATOR_L2 RC_OPERATOR_L2	Operator
Runtime Single Station	OS single station	HMI	Project administrator Operator Operator groups
	BATCH single station	SIMATIC BATCH	Operator
	Route Control single station	RS_MAINTENANCE RC_OPERATOR_L1 RC_OPERATOR_L2 RC_OPERATOR_L2	Operator
Clients	OS clients	HMI	Project administrator Operator Operator groups
	BATCH clients	SIMATIC BATCH	Operator
	Route Control clients	RS_MAINTENANCE RC_OPERATOR_L1 RC_OPERATOR_L2 RC_OPERATOR_L2	Operator
SIMATIC Logon		LOGON_Administrator	

## User management options

Distinguish between the following:

- User management in Windows, without SIMATIC Logon:
  - User management on a single PC
  - User management performed from a central location in Windows (PCs in a domain)
- User management expanded to include SIMATIC Logon

Many PCS 7 applications support central user management with the SIMATIC Logon software of PCS 7, which is based on the basic mechanism of Windows user management. SIMATIC Logon provides the following enhancements for user management:

- User management expanded to include SIMATIC Logon can be performed from a central location in Windows (PCs in a domain)
- User management expanded to include SIMATIC Logon on a single PC

## Setting up Windows users for PCS 7

The user who installs the PCS 7 components, is automatically entered as a user of these components in Windows management.

If you want to authorize other users to use a PCS 7 component, they must be set up in Windows and assigned to the relevant PCS 7 components (user groups).

### Basic procedure

- The following applies to all configuration options for users and user groups:  
You should define the users and user groups available on the respective Windows server and define the passwords from a central location in Windows.
- The following applies to defining user roles with the SIMATIC Logon:  
You can assign users and user groups particular roles within some PCS 7 applications (for example, SIMATIC BATCH).  
Example: SIMATIC BATCH
  - User permissions in a user role (global)
  - Permitted user roles per computer (for each specific computer)
  - Permitted user roles per plant unit (for each specific unit)
- The PCS 7 applications are supplied with information about the logged on user via the central logon service and can be informed of any change of the logon, etc.

### Basic procedure in a Windows domain

---

#### Note

A domain administrator is responsible for creating users and groups in a domain. This administrator must have the necessary experience and authorization to administer the network.

---

### Domain administrators in PCS 7 plants

---

#### Note

Domain administrators must only use their authorization to administer the network (e.g., to set up users or add PC stations to a domain) and not to work within the PCS 7 project.

---

### Additional information

- Manual *SIMATIC; SIMATIC STEP 7*
- Online help *WinCC Information System*
- Manual *Process Control System PCS 7; SIMATIC BATCH*
- Manual *Process Control System PCS 7; SIMATIC Route Control*
- Manual *SIMATIC; SIMATIC Logon*

## 4.4.8 Firewall in PC stations

### Windows firewall

PCS 7 uses the operating system's firewall (see *pcs7-readme*).

"SIMATIC Security Control" makes the necessary settings in the exceptions list of the Windows-Firewall.

You will find more information on this topic in the section "How to retro-activate the security settings for PCS 7 (Page 145)"

### Requirement for using a firewall on the plant bus

You require a specific firmware version of the CP 443-1 to use a firewall on the plant bus.

You can find additional information about this in the section "Components for Connecting to the Terminal Bus/Plant Bus (Page 53)".

### Additional information

- Section "Components for connection to the terminal bus/plant bus (Page 53)"
- Section "How to change the settings of the Windows firewall for Open PCS 7 (Page 146)"

#### 4.4.9 Reinstallation or updating

If a PCS 7 software package is already installed on the PC, a dialog box for the type of installation appears during the PCS 7 system setup. You can specify which type of installation you require in this dialog box:

- Reinstallation
- Update

##### Reinstallation

A reinstallation allows you to install additional software packages on your PC.

##### Update

An update replaces existing software packages with newer versions of the software. Make sure that you select the latest software packages of the new version.

Recommendation:

Reboot the PC station before updating the PCS 7 software.

---

##### Note

Some software packages of PCS 7 automatically reboot the PC station during updating.

---

##### Note

If you want to update a PCS 7 project from a previous version of PCS 7 with the latest version of PCS 7, follow the procedure described in the manuals for the software update.

You will find more information in the manual *Process Control System PCS 7; Software Updates*

---



#### 4.4.10 Removing PCS 7

If you want to update your PCS 7 software, it can be overinstalled.

If you no longer require PCS 7 on the PC station, you can remove the PCS 7 software by performing the steps described below.

---

**Note**

The default folder containing PCS 7 projects is retained.

---

#### Recommendation

We recommend the procedure below:

1. Uninstall the license keys.
2. Back up any data you still need.
3. Format the hard disk.
4. Reinstall the PC.

#### Uninstalling PCS 7

1. Select the menu command **Start > Settings > Control Panel**.  
The "Control Panel" dialog box opens.
2. In the tree structure, double-click on **Add or Remove Programs**.  
The "Add or Remove Programs" dialog box opens.
3. Click "Change or Remove Programs".
4. Select "SIMATIC PCS 7" from the list.
5. Click "Remove".  
Follow the instructions to remove the PCS 7 software.

## 4.5 Installing drivers for PCS 7

### 4.5.1 Drivers for communications processors

#### 4.5.1.1 Drivers for communications processors

##### Introduction

The PCS 7 system setup automatically installs the required drivers for the communications modules. This is only possible when the communications modules have been inserted in the PC prior to installation of PCS 7.

If the type of communications module changes after a PCS 7 installation, you will have to reinstall the driver for the communications modules from the PCS 7 Toolset DVD (SIMATIC NET PC software package).

##### Plug-and-play capability

The communications processors used for PCS 7 support plug-and-play. The required settings are made automatically when the PC starts up.

---

##### Note

If plug-and-play components are not detected, check in the BIOS whether the detection of plug-and-play components is activated. You will find more information on this topic in the documentation of the BIOS manufacturer.

Detection of plug-and-play components is activated as default for PCS 7 bundle PCs.

---

##### Changing protocols on the bus (Industrial Ethernet)

If you need to change the protocol of a bus in a system (from TCP to ISO, for example), you will need to set a mixed protocol (TCP and ISO) briefly on the engineering station.

Now load the configuration data onto the AS and the operating and monitoring systems.

<b>NOTICE</b>
Do not disable the TCP/IP or ISO protocol during operation since they are both needed for configured operation!

#### 4.5.1.2 How to install drivers for communications modules

##### Requirement

- The communications modules have been installed in the PC.

##### Starting the PCS 7 setup

1. Insert the PCS 7 Toolset DVD in the DVD drive.
2. Double-click on "Setup.exe" to start the setup.  
Setup starts.

##### Settings in the setup

Below you will find information about the settings made in the setup dialog boxes, listed in the order in which they are processed:

1. Setup language
  - ... For example, "English" and "Next"
2. Welcome
  - ... "Next"
3. Readme
  - ... Read this if needed and "Next"
4. Software license agreement
  - ... Activate this with the "I accept ..." radio button and click "Next"
5. Setup type
  - ... Activate this with the check box "Install" and "Next"
6. User information
  - ... Enter user name and organization (company / ID number) and "Next"
7. Installation type
  - ... Activate this with the check box "User-defined installation" and "Next"
8. Programs
  - ... Activate the programs with the check box "SIMATIC NET PC Software" and "Next"
9. Ready to install the selection
  - ... "Install"

The installation of the software package starts and a window shows its progress.

10. Close the dialog box when the installation is complete.

11. Reboot the PC.

---

**Note**

Additional steps are required if a communications processor without a stand-alone processor has been subsequently installed: You can find additional information about this in the section "How to Set Up Standard Communications Processors (Page 101)".

---

### 4.5.1.3 How to configure standard communication modules

#### Settings for BCE and Softnet CPs

If the system has a separate bus (terminal bus and plant bus), we recommend that you select the ISO protocol and disable the TCP/IP protocol for the plant bus. An exception is communication with SIMATIC PCS 7 BOX, SIMATIC PCS 7 AS RTX, and automation systems, which provide the CPU with access to an integrated Ethernet interface.

---

#### Note

You select the protocol for the plant bus during configuration of the communication modules in HW Config and/or NetPro.

---

#### Requirements

- PCS 7 has been installed.
- There is no communication.
- The user programs are closed.
- The network adapter is not CP 1613.  
The CP 1613 uses another type of connection (S7 connection).

#### Procedure

1. Select the menu command **Start > Settings > Network Connections**.
2. Right-click the communications processor (connection) for the plant bus for which you wish to disable the TCP/IP protocol, and select the menu command **Properties**.
3. Deactivate the check box "Internet protocol (TCP/IP)" and in the area "Components checked are used by this connection" activate "SIMATIC Industrial Ethernet (ISO)" to use the ISO protocol. Click "OK".  
  
If a note appears stating that some additional services ("File and Printer Sharing", "Client for Microsoft Networks") have been disabled, just ignore it.
4. For PCs with several network adapters:
  - Select the menu command **Advanced > Advanced Settings**.
  - Select the network connection to the terminal bus in the "Connections" area.
  - Move the selected network connection to the top position using the arrow keys.
5. Click "OK" to close the dialog boxes.
6. Reboot your PC to activate the settings.
7. Select the menu command **Start > Settings > Network Connections**.

8. Clear the following options for the communications processor on the plant bus:
  - "Client for Microsoft Networks" check box
  - "File and Printer Sharing for Microsoft Networks" check box
9. Click "OK" to close the dialog boxes.

---

**Note**

Also refer to the notes in the *WinCC Information System*, under the topic "Special Communication Features for a Server with Several Network Adapters".

---

#### 4.5.1.4 How to disable the power saving options of network adapters

##### Introduction

Many modern network adapters support energy management features. You can reduce energy consumption with these features.

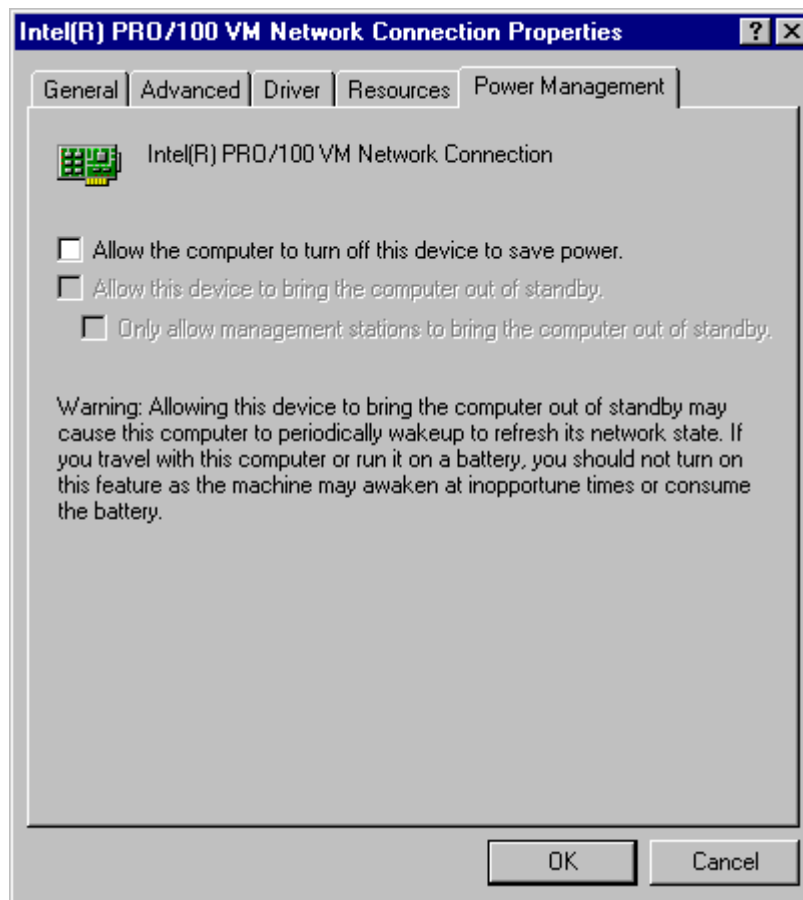
Energy saving options allow the PC to monitor the activity of input devices. If energy saving options are activated, they shut the PCS 7 PC down or trigger a restart if the PC is inactive for a set period of time.

We recommend you disable this function for all PCs involved in the process mode.

##### Procedure

1. Windows Server 2003: Select the menu command **Start > Settings > Network Connections**.
2. Select the network connection.
3. Select the menu command **File > Properties**.
4. Select the "General" tab.
5. Click "Configure".  
The "Properties <network adapter>" dialog box opens.
6. Check all the displayed tabs to see whether the PC can disable the network card in order to save power (see figure below).

7. Disable the energy saving function.





#### 4.5.1.5 How to Prepare an Engineering Station with CP 1613 for Use in PCS 7

##### Introduction

When a CP 1613 is used as a network adapter in a engineering station, the NDIS adapter needs to be configured in the following cases:

- You want to monitor the diagnostics of network components on the plant bus with a maintenance station (MS). A CP 1613 is used as a network adapter in the MS client (engineering station) for accessing the plant bus.
- You want to load an automation system integrated in a Box PC using an external engineering systems. A CP 1613 is used as a network adapter in the engineering system for accessing the plant bus.

##### Overview

Perform the following tasks:

- Install the SIMATIC CP 1613 NDIS adapter
- Configure the network settings for the SIMATIC CP 1613 NDIS adapter

---

##### Note

Perform these steps for every CP 1613 of the MS client or engineering system.

---

##### Installing the SIMATIC CP 1613 NDIS adapter

You must make the following settings on the PC station with the CP 1613.

1. Select the menu command **Start > Settings > Control Panel > Add/Remove Hardware**. The "Add/Remove Hardware" dialog box opens.
2. Click "Next".
3. Select the check box "Yes, the hardware is already connected". Click "Next".
4. Select "Add new hardware" from the list. Click "Next".
5. Select the check box "Select and install hardware manually from a list". Click "Next".
6. Select "Network adapter" from the list. Click "Next".
7. Select the following entries:
  - Select the entry "SIEMENS AG" in the "Manufacturer" area.
  - Select the entry "SIMATIC CP 1613 NDIS Adapter" in the "Network adapter" area.
8. Click "Next".
9. Click "Next".  
The installation is performed.
10. If you receive a message indicating an error in the Windows Logo Test in the "Hardware Installation" dialog box, ignore this message. Click "Continue installation".
11. Click "Finish".

## Result

The NDIS adapter is installed.

## Configure the network settings for the SIMATIC CP 1613 NDIS adapter

You must make the following settings on the PC station with the CP 1613.

1. Select the menu command **Start > Settings > Control Panel > Network Connections**.  
The "Network Connections" dialog box opens.
2. Select the menu command **View > Details**.
3. Right-click on the NDIS adapter "SIMATIC CP 1613 NDIS Adapter" to select it.  
Recommendation: Select the shortcut menu command **Rename**. Enter a descriptive name, for example "CP 1613\_NDIS\_Adapter\_No\_1".  
Select the shortcut menu command **Properties**.
4. Select the connection "Internet Protocol (TCP/IP)". Click "Properties".  
The "Internet Protocol (TCP/IP) Properties" dialog box opens.
5. Select the check box "Use the following IP address".  
Configure:
  - IP address
  - Subnet mask
6. Click "OK".
7. Close the "(Network Connection) Properties" window.

## Result

The network settings for the NDIS adapter are now applied.

## 4.5.2 Additional Devices and Drivers for PCS 7

### 4.5.2.1 Additional Devices and Drivers for PCS 7

#### Introduction

If you want to use particular properties of PCS 7, additional drivers are available on the PCS 7 Toolset DVD.

#### Overview of additional devices and drivers

Application	Driver	Driver location on PCS 7 Toolset DVD	Additional information
Multiple monitors on a single PC	Matrox Multi VGA	Additional_Products\Drivers\Display\...	Section "How to activate a multi-VGA graphics card (Page 108)"
Acoustic or visual signal transmitter	Horn module	The required drivers are automatically installed with PCS 7.	Configuration manual <i>Process Control System PCS 7; Operator Station</i>
Acoustic signal transmitter	Sound card	Not included on the PCS 7 Toolset DVD – Located on sound card or standard Windows installation medium	Section "How to activate a sound card (Page 110)"
Time signal via DCF77	Time reception service	Additional_Products\Drivers\DCF77	Section "How to activate the DCF77 reception service (Page 111)"
Chip cards	Chip card reader	The drivers required for chip card readers at the COM interfaces are automatically installed with PCS 7. You will find drivers for USB chip card readers under Additional_Products\Drivers\chipcard.	<i>WinCC Information System</i>

#### 4.5.2.2 How to activate a multi-VGA graphics card

The procedure below describes how to retro-install a Matrox multi-VGA graphics card in a PC station with an on-board graphics card.

##### Multi-VGA graphics card

The following graphic cards are recommended for PC stations in PCS 7:

- G200 MMS (order number: 6ES7652-0XX02-1XE0 or 6ES7652-0XX02-1XE1)
- G450 MMS (order number: 6ES7652-0XX03-1XE0 or 6ES7652-0XX03-1XE1)

---

##### Note

##### Matrox G450 Dualhead

The Matrox G450 Dualhead graphics card is not approved for multi-VGA operation. If this graphics card is used, it is essential that "bus mastering" is deactivated.

---

##### Driver

If the G200 MMS multi-VGA graphics card is used in PCS 7 V7.0 and higher, we recommend that the Matrox 5.96.005 driver is also used. You will find this driver on your "PCS 7 Toolset" DVD in folder Additional Products > Drivers > DISPLAY > Matrox\_G450\_MMS > XP2K\_596\_005.exe.

##### Preparation

1. Shut the PC station down.
2. Install the multi-VGA graphics card in the PC station, taking the information contained in the PC station user manual into account.
3. Start Windows in safe mode (press F8 while Windows is booting).
4. Disable (but do not uninstall) the on-board graphics card in the Device Manager as follows:
  - Select the Device Manager from the My Computer shortcut menu on the desktop, using the menu command **Properties > Hardware > Device Manager**.
  - In the Device Manager, disable the on-board graphics card by right-clicking on Graphics Card.

---

##### Note

This procedure saves you from having to reinstall the on-board graphics card, should you want to reactivate it at a later time.

---

5. Restart the computer and change the on-board graphics card to PCI in the PC station BIOS.
  - You reach the BIOS by pressing the F2 key when the PC station is starting up.
  - In the BIOS select "Main > Boot Options > Primary Display" and change "AGP VGA" to "PCI VGA".
  - Reset the PCI bus configuration in the BIOS under "Advanced > Reset Configuration Data > Yes".
  - Save the changes in the BIOS and start up the computer in the "VGA compatible" Windows mode.

## Procedure

1. Install the driver for the multi-VGA graphics card.
2. Restart your computer.
3. Finally, the parameters of the multi-VGA graphics card need to be set.  
You will find more information on this topic in the WinCC Information System:
  - Options > Options for Process Control > OS Project Editor > Split Screen Manager > Notes on Multi VGA.
  - Release Notes > Options for Process Control > Multi VGA

---

### Note

The "Matrox screen properties" are only displayed in the Control Panel if the Matrox graphics card driver is installed.

---

### 4.5.2.3 How to activate a sound card

#### Introduction

You can use standard sound cards to output acoustic messages. A \*.wav sound file created using standard software will be played repeatedly until you acknowledge the message.

#### Requirements

- The sound card has been installed.
- The WAV file is on the computer.
- The WAV file supports pulse code modulation format (mono/stereo).
- DirectX has been installed.

#### Procedure

1. Select the menu command **Start > Settings > Control Panel**.
2. Double-click on "Sounds and Audio Devices".
3. Select the "Audio" tab.
4. Select the sound module from the "Default device" drop-down list box.

#### More information

You will find more information about configuring sounds and assigning them to events in the configuration manual *Process Control System PCS 7; Operator Station*.

#### 4.5.2.4 How to activate the DCF77 reception service

##### DCF77 reception service

The DCF77 reception service performs the following tasks:

- Analyzes time signals from the DCF77 transmitter of the Physikalisch-Technische Bundesanstalt in Mainflingen in Darmstadt, Germany
- Compares the time signals with the system time of the PC station
- Corrects the system time if necessary

A receiver module reads in the time signals in different ways. The reception service expects the time signals over one of the serial ports of the PC station.

---

##### Note

You can use the "DCF77 Reception Service" application as a client application to synchronize any number of PCs without the DCF77 module.

---

##### Requirement

The DCF77 receiver module has been connected to an available serial port on the PC station.

##### Procedure

1. Select the folder **Additional\_Products > DCF77Client** on the PCS 7 Toolset DVD.
2. Start the "SETUP.exe" program.
3. Change the settings in the Control Panel if necessary.

## 4.6 Licensing

### 4.6.1 Licensing and authorizing PCS 7 software

#### Important terms

The following table lists terminology that is important for licensing:

Term	Description
License	A license provides the right to use products. This right is in the form of: <ul style="list-style-type: none"><li>• CoL (Certificate of License)</li><li>• License key</li></ul>
CoL (Certificate of License)	The CoL certifies the license. The product may only be used by the license owner or authorized persons.
License key	The license key is the "technical representative" of the license (also called an "electronic license stamp").
Authorization	The authorization is a "technical representative" of a license, which was granted for older versions of software packages. It has the same function as a license key.

---

#### Note

In this section, we only use the term **license key**, even if a product is still using the older "authorization".

---



## License types

Every license is made up of a basic license type and a license type.

The basic license type defines how many PC stations the associated software may be installed and used on. The license type defines any applicable restrictions on how the associated software may be used.

- The following basic license types are available to you:

Basic license type	Description
Single license	With this license, the software may be used on any single computer. The type of permissible usage is defined in the Certificate of License.
Floating license	With this license, the software may be used on any computer within a network. The software may be installed on several computers for this purpose.

- The following license types are available to you:

License types	Description
Unlimited license	With this license, the software may be used without restriction.
Count relevant license	With this license, software usage is restricted to: <ul style="list-style-type: none"> <li>• The number of days defined in the contract</li> </ul>
Rental license	With this license, software usage is restricted to: <ul style="list-style-type: none"> <li>• The number of operating hours defined in the contract</li> <li>• The number of days after first use defined in the contract</li> </ul> Note: The information area of the task bar will display tooltips telling you how long the rental license has left to run.
Trial license	With this license, software usage is restricted to: <ul style="list-style-type: none"> <li>• A maximum of 14 days, for example</li> <li>• A certain number of days after first use</li> <li>• Test and validation purposes (disclaimer of liability)</li> </ul>
Pay per use license	With this license, software usage is restricted by the terms of use defined in the contract.
Demo license	With this license, software usage is restricted to: <ul style="list-style-type: none"> <li>• The number of operating hours defined in the contract</li> <li>• The number of days after first use defined in the contract</li> </ul> Note: The information area of the task bar will display tooltips telling you how long the demo license has left to run.
Contract license	With this license, the software may be used without restriction.
Upgrade license	Specific system status requirements may have to be met for an upgrade to be performed: <ul style="list-style-type: none"> <li>• With an upgrade license, a license of an "old" version x can be converted to a version &gt;x+....</li> <li>• An upgrade may become necessary due to an increased quantity structure, for example.</li> </ul>

### Note

Not all products support all license types. In the *Automation License Manager* you can see which license form is valid for a specific product.

### PCS 7 without a license key

You may use the *PCS 7 Engineering Toolset* software package in a trial version for up to 14 days.

---

#### Note

You can activate the trial (demo) mode the first time the software is used.

---

### Missing license key

When a software program requests a license key, but it cannot be located on the network in a "valid" format, it is described as a "missing license key".

### Automation License Manager

All license keys are managed in a central location using the *Automation License Manager* software, which is installed by means of the PCS 7 system setup.

### Virus-free

---

#### Note

Check that your PC is virus-free prior to each installation/uninstallation of a license key.

You must disable the license key diskette's write protection in order to transfer the license key, which brings with it the risk that viruses may be passed between hard disks and the diskette.

---

### More information

- Manual *Automation License Manager*

## 4.6.2 How to transfer license keys

### Introduction

The following license keys are transferred with the *Automation License Manager* software:

- License keys belonging to licenses purchased at a later date
- License keys stored at locations which cannot be accessed by a computer's applications

### Possible license key storage locations

- License key diskettes
- Local storage media
- Storage media on connected computers
- Removable disks (e.g., USB stick, but not CDs or DVDs)

### Options for transferring license keys

The *Automation License Manager* gives you the following options for transferring license keys between the various possible storage locations:

- Drag-and-drop
- Cut and paste
- Offline transfer

### Requirement

The *Automation License Manager* has been started up.

### Procedure - Drag-and-drop

1. Select the appropriate view using the menu command **View > Manage**.
2. On your own or the connected computer, open the storage location where you wish to insert the license keys.
3. On your own or the connected computer, open the storage location from where you wish to remove the license keys.
4. Select the license keys, hold down the left mouse button and drag the license keys to the folder where you wish to insert them.  
The license keys are transferred.

### Procedure - Cut and paste

1. Select the appropriate view using the menu command **View > Manage**.
2. On your own or the connected computer, open the storage location from where you wish to cut the license keys.
3. Select the menu command **Edit > Cut**.
4. On your own or the connected computer, open the storage location where you wish to paste the license keys.
5. Select the menu command **Edit > Paste**.  
The license keys are transferred.

### Procedure - Offline transfer

The *Automation License Manager* online help describes how to perform an offline license key transfer.

### Defective cluster on hard disk

---

#### Note

As part of the license key safety system, when license keys are transferred, clusters identified as "defective" are created on the target drive. You must not reconstruct these clusters, as this will destroy the license keys.

---

### Backing up license keys

The *Automation License Manager* enables you to back up **all** license keys (authorizations) - see "Possible license key storage locations".

### 4.6.3 Selecting the correct license keys/authorizations

#### Introduction

The **configurable** size of a PCS 7 plant is scalable. The software product licenses for engineering stations, operator stations, SIMATIC BATCH stations, Route Control stations, and SIMATIC PDM are available with different quantity structures. You can expand these quantity structures using additional Power Packs.

---

#### Note

Hereinafter, we use the term **license key** even for products that still use the older authorizations.

---

#### Process objects

In PCS 7 version V7.0 SP1 and higher, the following objects are classed as the process object (PO) for licensing purposes:

Objects which can generate messages

#### Levels of licenses

The following table shows the available system size increments (for each component of the process control system).

Component of process control system	Levels of licenses		Comment
Engineering system (ES)	Engineering	Max. PO: <ul style="list-style-type: none"> <li>• 250</li> <li>• 1000</li> <li>• 2000</li> <li>• Unlimited</li> </ul>	<ul style="list-style-type: none"> <li>• Limits the sum of all process objects on the ES</li> </ul>
	Downloading to SIMATIC stations	Max. PO (tags): <ul style="list-style-type: none"> <li>• 100</li> <li>• 200</li> <li>• 250</li> <li>• 1000</li> <li>• 10000</li> </ul>	<ul style="list-style-type: none"> <li>• Objects which can generate messages are classed as the process object (PO)</li> <li>• The license type of these license keys is "Count relevant license".</li> <li>• Limits the sum of process objects of all AS license keys on the ES</li> </ul>
Operator station (OS)	Max. PO: <ul style="list-style-type: none"> <li>• 250</li> <li>• 1000</li> <li>• 2000</li> <li>• 3000</li> <li>• 5000</li> <li>• 8500</li> </ul>		<ul style="list-style-type: none"> <li>• Limited to 5,000 PO per single station system</li> <li>• Limited to 8,500 PO per OS server</li> <li>• Maximum of 12 servers each with max. 5,000 PO = 60,000 PO</li> </ul>

Component of process control system	Levels of licenses	Comment
OS client		WinCC RT PO Client
Central archive server		WinCC RT PO Client
Archiving (OS server and central archive server)	Max. archive tags: <ul style="list-style-type: none"> <li>• &lt; 512</li> <li>• 512 &lt; 1500</li> <li>• 1500 &lt; 5000</li> <li>• 5000 &lt; 10000</li> <li>• 10000 &lt; 30000</li> <li>• 30000 &lt; 80000</li> <li>• 80000 &lt; 120000</li> </ul>	<ul style="list-style-type: none"> <li>• You can archive a maximum of 1,000 archive tags per second with an OS server.</li> <li>• You can archive a maximum of 12,000 archive tags per second with a central archive server.</li> </ul> <p>The license for &lt; 512 archive tags is included in all OS server licenses. If you want to archive more archive tags, <b>all</b> additional licenses up to the desired capacity are required.</p>
Maintenance station (MS)	Max. asset tags (hardware components): <ul style="list-style-type: none"> <li>• 10</li> <li>• 100</li> <li>• 1000</li> </ul>	Number of monitored hardware components within a PCS 7 project The license type of these license keys is "Count relevant license".
PCS 7 OS Web Option	Max. Web clients <ul style="list-style-type: none"> <li>• 3</li> <li>• 10</li> <li>• 25</li> <li>• 50</li> </ul>	Number of Web clients on the OS Web server
	Max. Web diagnostic clients <ul style="list-style-type: none"> <li>• 3</li> </ul>	
BATCH stations (batch processes)	Max. units (plant units): <ul style="list-style-type: none"> <li>• 10</li> <li>• 20</li> <li>• 40</li> <li>• 100</li> <li>• Unlimited</li> </ul>	Number of units within a PCS 7 project <ul style="list-style-type: none"> <li>• The number of units that can be processed depends on the utilization of the BATCH server.</li> </ul>
Route Control Station (route control)	Max. routes <ul style="list-style-type: none"> <li>• 30</li> <li>• 31 to 100</li> <li>• 101 to 300</li> </ul>	Number of activated routes in process mode (material transports) The base of 30 active routes can be increased by upgrading to the next highest level.
PDM	Max. devices: <ul style="list-style-type: none"> <li>• 4</li> <li>• 128</li> <li>• 512</li> <li>• 1024</li> <li>• 2048</li> <li>• Unlimited</li> </ul>	Number of configurable devices

Component of process control system	Levels of licenses		Comment
SIMATIC PCS 7 Box PCs	Engineering	Max. PO: • 250 • 1000 • 2000	<ul style="list-style-type: none"> <li>Limits the sum of all process objects on the ES</li> <li>You can find additional information in this table for the engineering system (ES)</li> </ul>
	Operator station	Max. PO: • 250 • 1000 • 2000	<ul style="list-style-type: none"> <li>Limited to 2.000 PO per single station system</li> </ul>
	Downloading to SIMATIC stations	Max. PO (tags): • 3 x 100	<ul style="list-style-type: none"> <li>The license type of these license keys is "Count relevant license".</li> <li>You can find additional information in this table for the engineering system (ES)</li> </ul>
	PDM	Max. devices: • 4 • 128	<ul style="list-style-type: none"> <li>Limited to 128 devices per SIMATIC PCS 7 BOX 416</li> </ul>
	Maintenance Station	Asset tags (hardware components): • 10 • 100	<ul style="list-style-type: none"> <li>The license type of these license keys is "Count relevant license".</li> <li>You can find additional information in this table for the maintenance station (MS)</li> </ul>
	BATCH	Max. units (plant units): • 10	<ul style="list-style-type: none"> <li>Limited to 10 units per SIMATIC PCS 7 BOX 416</li> </ul>
	Route Control	Max. routes • 30	<ul style="list-style-type: none"> <li>Limited to 30 routes per SIMATIC PCS 7 BOX 416</li> </ul>

### List of license keys

You can find an overview of license keys in the section "Software Packages and Required License Key (Page 166)".

#### 4.6.4 Calculating the process objects for the SIMATIC station

##### License key for the AS

The required license key for all SIMATIC stations depends on the total number of process objects loaded and configured in a project (multiproject).

When an AS is loaded, the loaded process objects are evaluated. The following procedure shows you how to calculate the number of process objects configured in a project. With a multiproject, you need to determine the number per project and add them together.

The following applies as of PCS 7 V7.0 SP1:

The number of process objects loaded into the AS is calculated and subtracted from the available process objects (countable license keys).

You calculate the number of available (still to be loaded) process objects using the license key via the Automation License Manager or in SIMATIC Manager via the menu command **Options > Charts > Process Objects Statistics**.

##### Display

The display of the number of licenses is based on the object selected in the SIMATIC Manager (multiproject, project, SIMATIC station).

##### Requirement

The SIMATIC Manager is open.

##### Procedure

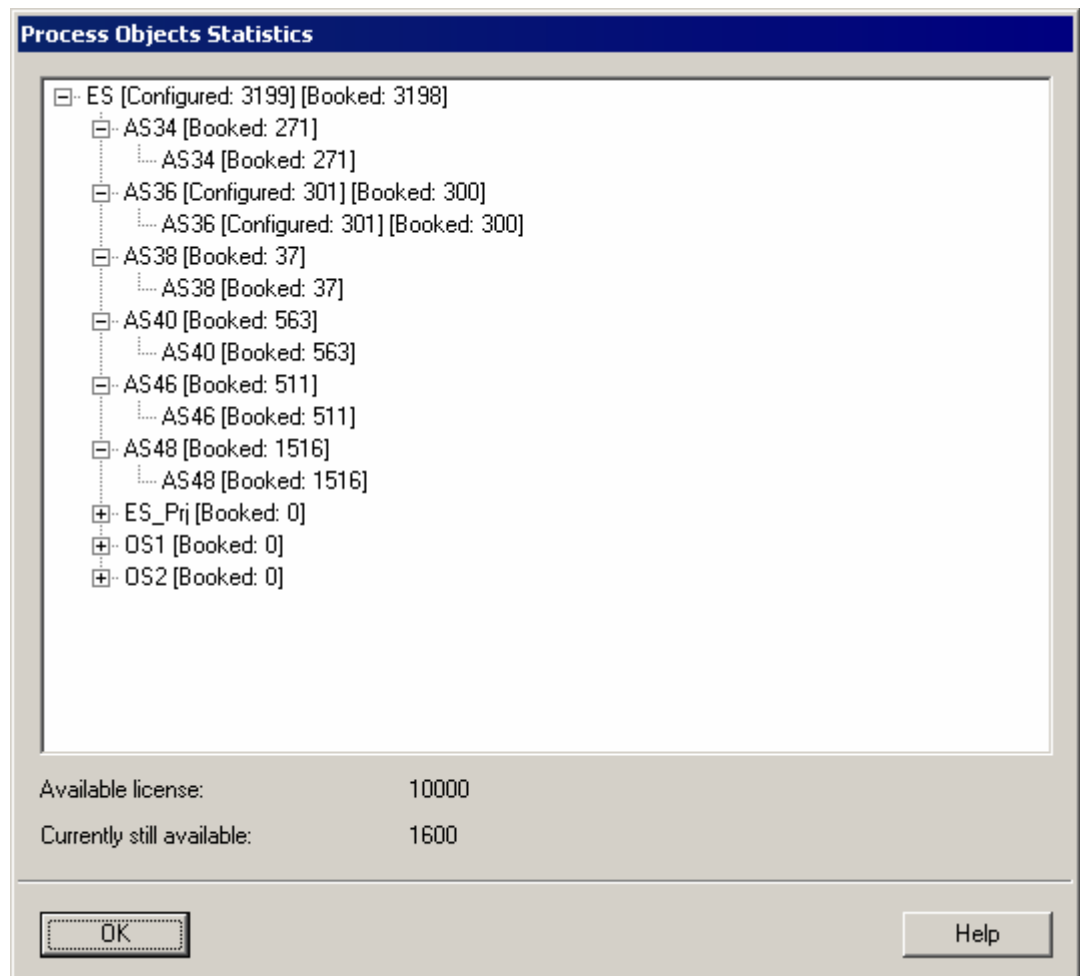
1. Select the multiproject in the component view.
2. Select the menu command **Options > Charts > Process Objects Statistics**.  
The "Process Objects Statistics" dialog box opens.



## Result

The "Process Objects Statistics" dialog box shows the number of configured process objects, the existing license, and the process objects which are currently still available for the following system areas:

- Multiproject
- Project
- SIMATIC station



### 4.6.5 Calculating the process objects for the engineering station

#### License key for engineering

Relevant process objects in the project are process objects that can be monitored with the OS.

The license key for engineering provides the number of process objects that you can configure in the CFC as "process objects in the project".

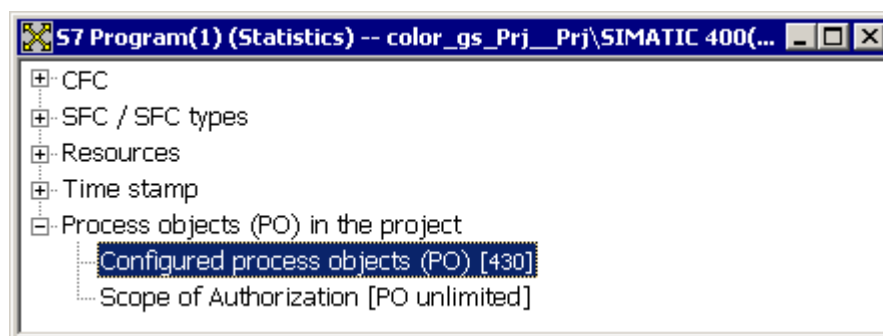
#### Procedure

You can calculate the number of configured process objects as follows:

1. Open any chart in CFC.
2. Select the menu command **Options > Chart Reference Data**.  
The "Chart Reference Data" dialog box opens.
3. Select the menu command **View > Statistics**.

#### Result

You will find the number of "Process objects (PO) [x]" and the scale of the license key in the "process objects in the project" path. The following figure shows an example.



## 4.6.6 Calculating the process objects for the operator station

### License key for process objects

License keys for operator stations are differentiated as follows:

- **RT license keys**  
RT license keys permit unlimited (in terms of time) use of WinCC in process mode (runtime mode). You can only use the editors for a limited period of time in demo mode.
- **RC license keys**  
RC license keys permit unlimited (in terms of time) use of WinCC in process (runtime) mode and configuration mode.

This license key allows you to operate and monitor a defined number of configured process objects with the operator station.

Projects which use SIMATIC BATCH require a larger number of process objects.

### License key for archive values

This license key allows you to archive a defined number of archive values with the operator station. The basic package is supplied with a license key for 512 archive values.

The license key required for archiving archive values in the OS project depends on the number of values configured for archiving.

### License key designations

The license key RT (x)/RC (x) defines how many external variables are permitted.

#### **Example 1: WINCC RC (5000)**

The following configuration is possible with this license key (RC):

- Up to **5,000** process objects
- Up to 512 archive values

#### **Example 2: WINCC User Archives (10000)**

This license key enables you to increase the number of archive values which can be configured for the archive server to 10,000.

### License key for OS clients

A license key is required for OS client process mode (WinCC RT PO Client).

## Requirement

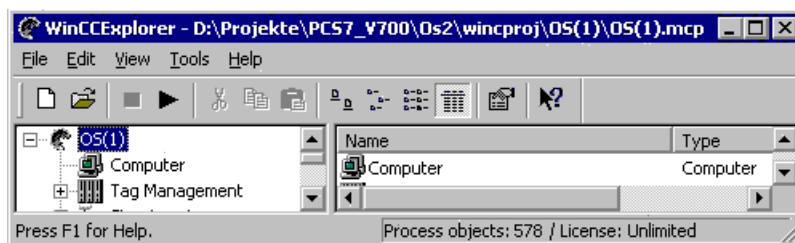
The OS project must be open in the WinCC Explorer.

## Procedure

If you have executed the "Compile OS" function in SIMATIC Manager, you can determine the number of configured process objects in the WinCC Explorer:

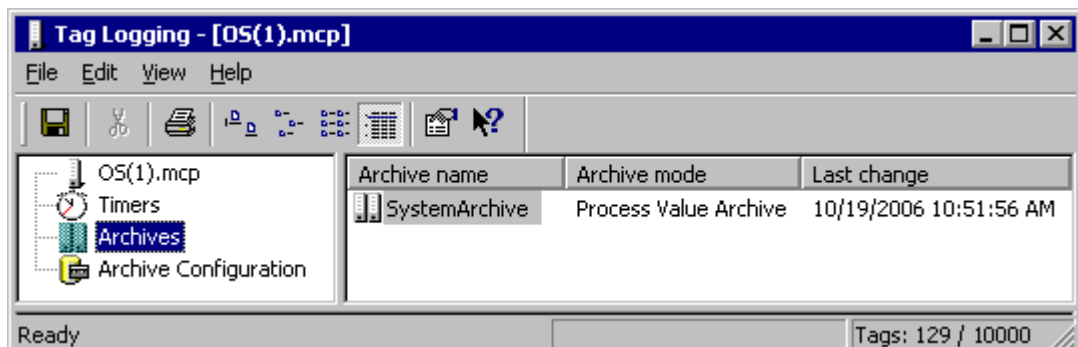
### Determining the number of process objects

1. Select the OS in the WinCC Explorer:  
The number of configured process objects is displayed at the bottom right of the dialog box.  
The screenshot below shows an example with "578 process objects".



### Determining the number of archive values

1. Open the "Tag Logging" editor in the WinCC Explorer.  
The number of configured archive values is displayed at the bottom right of the dialog box.  
The screenshot below shows an example with 129 of 10,000 authorized archive values.



## Extension by means of Power Packs

You can use Power Packs to increase the number of configurable archive values.

Example:

If you need to archive around 20,000 archive values, install Power Packs for **1,500 to 30,000** archive values in addition to the basic license key. You will need the following Power Packs in addition to the basic license key:

- Power Pack 512 < 1,500 configurable archive values
- Power Pack 1,500 < 5,000 configurable archive values
- Power Pack 5,000 < 10,000 configurable archive values
- Power Pack 10,000 < 30,000 configurable archive values

## Insufficient license key

---

### Note

If you open a project with an insufficient number of configurable process objects, the OS program switches to demo mode automatically.

If an RT/RC license key is present, the maximum number of configurable process objects is always permissible on a client, as the number of configurable process objects is only checked on a server.

---

### 4.6.7 Calculating the process objects for the central archive server

#### Introduction

The **archive values** of all OS servers in a PCS 7 plant are archived on a central archive server. The sum of the archive values of all OS servers gives the number of licensed archive values.

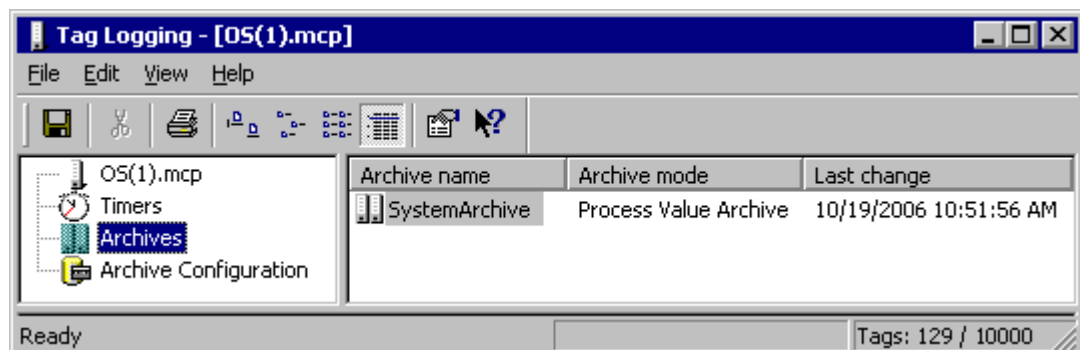
#### License keys for the central archive server

The following license keys are required for the central archive server:

- License key for operating an OS client: WinCC RT PO Client
- License key for the "StoragePlus" software package: StoragePlus
- To use the central archive server: WinCC Server
- To use the archives: WinCC Archive
- To view archived data: WinCC DataMonitor

#### Determining the number of archive values on an OS server

1. Open the "Tag Logging" editor in the WinCC Explorer.  
The number of configured archive values is displayed at the bottom right of the dialog box.  
The screenshot below shows an example with 129 of 10,000 authorized archive values.



2. Determine the number of archive values of all OS servers.

---

#### Note

If redundant OS servers are used, the number of archive values must be doubled.

---

## 4.6.8 Calculating the asset tags (hardware components) for the maintenance station

### License key for maintenance station

The license type of these license keys is "Count relevant license". The licensed scope is added together when several license keys are installed.

- This license key allows you to monitor a defined number of diagnostic objects (asset tags).

**Example:** Maintenance RT (100)

This license key is sufficient for diagnosing up to 100 hardware components with a maintenance station. If you have three Maintenance RT (100) license keys on a maintenance station, you will be able to diagnose up to 300 hardware components.

### Components with diagnostics capability

The following components with diagnostics capability are classed as asset tags within a PCS 7 project:

- PC stations
- Network components with diagnostics capability (e.g., switches)
- Automation systems (CPU)
- Distributed I/O (ET 200 station)
- Field devices with diagnostics capability

### Requirement

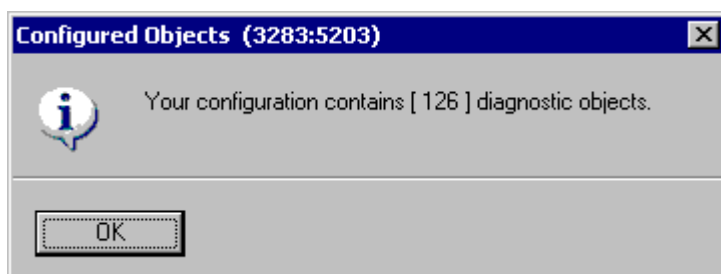
SIMATIC Manager is open.

### Procedure

1. Select the multiproject in the plant view.
2. Select the menu command **Options > Plant Hierarchy > Configured Objects**. The "Configured Objects" dialog box opens.

## Result

The "Configured Objects" dialog box displays the number of configured diagnostic objects (asset tags).





## 4.6.9 Calculating the units for the BATCH station

### License key for BATCH station

A defined number of units can be operated and monitored with this license key. The number of units that can be processed depends on the utilization of the BATCH server.

**Example:** BATCH Server (20)

The license key for BATCH server is adequate for configuring up to 20 units.

### Requirement

- SIMATIC Manager is open.

### Procedure

1. In the SIMATIC Manager, select the multiproject/project for which you want to calculate the number of configured units.
2. Select the menu command **Options > SIMATIC BATCH..**.  
The "Configure BATCH Process Cell" dialog box opens.
3. Select the "BATCH Process Cell" folder in the tree view.
4. In the "Process Cell" section, click "Check validity".
5. In the "Log" group, enable the "Validate" check box.
6. Click the "Display" button.

### Result

A log file opens in the Internet Explorer.

- If the "Check validity" or "Compile" function shows an error in the configuration, you will need to correct the error and calculate the process objects again.
- If the configuration is free of errors, you will find the number of units configured in the multiproject/project in the table under the heading "Units".
- You can calculate the number of configurable units based on the license keys through the Automation License Manager.

### Example of the layout of a log file:

Plant	Units	Log	Date, time	Result
<process cell name>	11	Plausibility	<date, time>	0 errors, 0 warnings
No.	ID	Error	Warning	Remedy

#### 4.6.10 Calculating the routes for the route control station

##### License key for route control station

For the process mode of SIMATIC Route Control, the number of active routes (material transports) is relevant and not the number of configured routes. The number of routes active in process mode is based on the process.

**Example:** Route Control Server (300)

This is the license key for a route control server in which 300 routes can be simultaneously active in process mode.

##### Determining the route license

The status bar of the Route Control Center shows how many routes were active simultaneously after a restart of the route control server.

##### License key too small – server license key is installed

---

###### Note

If the route control server detects a license key for 30, 100 or 300 routes during startup, the maximum number of simultaneous material transports will be limited to this value. If the server then receives a 31st, 101st or 301st route request, the Route Control Center reports that the license key is missing or that the limit has been exceeded. The route control server continues to operate.

---

##### License key too small – server license key is not installed

If no license key is installed on the route control server, the server is limited to a maximum of 300 routes (maximum limit). Since information about the actual size of the system is lacking on the route control server, it makes an estimate on the safe side - you can continue to operate the system even when there is no license. The absence of a license is displayed in the Route Control Center.

##### New license

Restart the route control server after you have installed the license.

## 4.7 Preparing PC stations

### 4.7.1 Preparing PC stations - an overview

#### Introduction

After installing the PCS 7 software, configure and set up the communication interfaces.

#### Requirements

- The PCS 7 software and PCS 7 hardware have been installed.
- The communications processors have been installed.

---

#### Note

To commission SIMATIC PCS 7 BOX, use the manual *Process Control System PCS 7, SIMATIC PCS 7 BOX*.

---

#### Overview of the individual steps

To enable you to configure, download and test all automation systems and PC stations (OS, BATCH) of a PCS 7 project from a central engineering station (ES), make the following settings on all PC stations.

Make these settings on the central engineering station, too.

Step	What?
1	Creating the "Logon_Administrator" user group for SIMATIC Logon (Page 132)
2	Assigning the SQL access permissions for OS users (Page 134)
3	Setting the language for a user (MUI) (Page 135)
4	Setting the communication modules (Page 137)
5	Configuring the PC station in the configuration console (Page 139)
6	Setting the standard network adapters (Page 141)
7	Changing the transmission rates and operating modes in the PC network (Page 142)
8	Installing security patches, hotfixes, service packs (Page 144)
9	Activating the security settings for PCS 7 (Page 145)
10	Activating the firewall settings for Open PCS 7 (Page 146)
11	Activating redundancy for fault-tolerant PCs (Page 147)
12	Downloading the network configuration to the PC stations (Page 148)

## 4.7.2 How to create user groups for SIMATIC Logon

### Introduction

If you want to use SIMATIC Logon for access protection in a PCS 7 plant, you have to set up the "Logon\_Administrator" user group.

### Procedure

1. Select the menu command **Start > Settings > Control Panel > Administrative Tools > Computer Management**.
2. In the tree view, select "System > Local Users and Groups > Groups".
3. Select the menu command **Action > New Group**.
  - Create user groups in accordance with their corresponding tasks (e.g., Operators, Service Engineers, Managers).
  - If you want to use SIMATIC Logon functions, create the "Logon\_Administrator" group.
4. In the tree view, select "System > Local Users and Groups > Users".
5. Select the menu command **Action > New User** to create all users (with password) and user groups in the Windows network (Windows server).

### Requirements for defining user roles with SIMATIC Logon

- SIMATIC Logon is installed on every computer with a PCS 7 application.
- The group "Logon\_Administrator" is created on one PC (logon computer).

### Information on the next steps

- You will find instructions on how to use SIMATIC Logon to set-up user roles and assign them to the defined Windows user groups in the manual *SIMATIC; SIMATIC Logon*.
- You will find information on the additional settings you need to make in the documentation relating to the applications that use SIMATIC Logon for access management purposes.

### More information

- Manual *SIMATIC; SIMATIC Logon*

A user must be a member of the following groups in order to access an OS project:

- "SIMATIC HMI" group
- "SYSTEM" group

### Requirement

You are logged on as an Administrator.

## Procedure

1. Open Windows Explorer.
2. In the tree view, select the drive on which the OS project is stored.
3. Select the menu command **File > Properties**.  
The "... Properties" dialog box opens.
4. Select the "Security" tab.
5. If they are not listed already, add the "SIMATIC HMI" and "SYSTEM" groups to the "Groups or User Names" list.
6. Enter all authorizations for the "SIMATIC HMI" and "SYSTEM" groups.

### 4.7.3 How to assign the SQL access permissions for OS users

#### Microsoft SQL Server 2005

Since Microsoft SQL Server 2005 does not support additional user groups, you must enter all members of the "SIMATIC HMI" user group into the following user group:

"SQLServer2005MSSQLUser\$<RECHNERNAME>\$WINCC"

#### Requirement

- The local users for PCS 7 process mode have been created.
- The users for process mode are members of the "SIMATIC HMI" user group.
- You are logged on as an Administrator.

#### Procedure

1. Select the menu command **Start > Settings > Control Panel > Administrative Tools > "Computer Management"** dialog.
2. In the tree view, select folder **System > Local Users and Groups > Users**.  
All local users are displayed in the detailed window.
3. Check that all local users have been created for process mode.
4. In the tree view, select folder **System > Local Users and Groups > Groups**.  
All local groups are displayed in the detailed window.
5. Select group "SQLServer2005MSSQLUser\$<RECHNERNAME>\$WINCC".
6. Select the menu command **Action > Add Member....**  
The "SQLServer2005... Properties" dialog box opens.
7. Click the "Add" button.  
The "Select Users, Computers or Groups" dialog box opens.
8. Enter the members of the "SIMATIC HMI" user group as users of the "SQLServer2005MSSQLUser\$<RECHNERNAME>\$WINCC" group.

#### More information

- Online help *WinCC Information System*

## 4.7.4 How to set the language for a user (MUI)

### Introduction

To work with PCS 7 optimally, we recommend that you make all the language settings to meet the needs for the specific system.

In PCS 7 you can set the interface language to one of the following for the engineering system and for process mode (depending on the languages installed):

- Chinese
- German
- English
- French
- Italian
- Spanish

### Requirement

An operating system with a multilanguage user interface is installed.

---

#### **Note**

When installing the central archive server and StoragePlus, set the same language for the logged on user and the default user.

---

## Procedure

1. Select the menu command **Start > Settings > Control Panel > Regional and Language Options**.
2. Select the "Regional Options" tab.  
Recommendation: Make these settings in accordance with your PCS 7 plant.
3. Select the "Languages" tab.
4. In the "Language used in menus and dialogs" area, select the desired language from the drop-down list box.

---

### Note

The drop-down list box only contains languages which are installed.

---

5. If you want to use this language for the default user (all new users), perform the following steps:
  - Select the "Advanced" tab.
  - Recommendation: In the "Language for non-Unicode programs" area, select the language in which you want to install PCS 7 from the drop-down list box.
  - Recommendation: In the "Language for non-Unicode programs" area, select the language in which you want to install PCS 7 from the drop-down list box.
  - Recommendation: In the "Code page conversion tables" area, check the box for the language in which you want to install PCS 7.
  - In the "Default user account settings" area, check the "Apply all settings to the current user account and to the default user profile" box.
  - Restart the PC.

---

### Note

Once the central archive server and StoragePlus have been installed, you can change the language for the default user.

---



## 4.7.5 How to configure communication modules

### Introduction

Below you will find information about how to select the communication modules you will use to configure the PC stations.

### Setting the network connection to the terminal bus

---

#### Note

If you use a PC station as a single-station system with no connection to other PC stations, the following steps do not need to be taken.

---

1. Select the PC station (My Computer) in the tree view of Windows Explorer.
2. Select the "SIMATIC Shell" folder.
3. Select **Settings** in the context menu.  
The "Select Terminal Bus" dialog box opens.
4. In the "Network Adapters" group, select the communication module via which you want to communicate on the terminal bus.
5. Click "OK".

NOTICE
If you confirm the dialog box that follows, the network connection to this PC station will be temporarily interrupted.

6. Confirm the dialog box that follows.  
The network adapter is reinitialized.

### Selecting the redundancy interface

If you want to establish a redundancy connection between two OS servers, you must select the connection path to the redundant partner in the "SIMATIC Shell" dialog box. The redundancy connection can be established via the "Serial Port" or a "Network adapter".

1. Select the PC station (My Computer) in the tree view of Windows Explorer.
2. Select the "SIMATIC Shell" folder.
3. In the shortcut menu, select the menu command "Settings".
4. The "Select Terminal Bus" dialog box opens.
5. Select the PC station (My Computer) in the tree view of Windows Explorer.
6. Select the "SIMATIC Shell" folder.
7. In the shortcut menu, select the menu command **Redundancy Settings ....**  
The "Redundancy Settings" dialog box opens.
8. In the "Optional connection to the redundant partner" area, select the connection path.
9. Click "OK".

### Configuring redundant network adapters

1. Select the menu command **Start > Settings > Network Connections**.  
The "Network Connections" dialog box opens.
2. Select the menu command **Advanced > Advanced Settings**.  
The "Advanced Settings" dialog box opens.
3. Select the "Adapters and Bindings" tab.
4. Check that the connection via which the PC station on the terminal bus is to communicate is at the top of the "Connections" list. If necessary, move this connection to the top.

---

#### Note

If redundant network adapters are used, the shared TEAM connection must be at the top of the list. You will find more information on this topic in the documentation *Process Control System PCS 7; Fault-Tolerant Process Control Systems*.

NOTICE
Once new network adapters have been installed, the most recently entered connection appears at the top of the list. Ensure that the connection via which the PC station on the terminal bus communicates is at the top of the list.

5. Click "OK".

## 4.7.6 How to configure the PC station in the configuration console

### Introduction

You next check or assign the addresses on the plant bus and select the access point for downloading and configuring the PC stations.

You perform the following steps:

- PC stations on the plant bus  
Check or assign addresses of the network adapters:
  - PC station on plant bus connected via CP 1613 communications processor
  - PC station on plant bus connected via standard network adapter (only if the ISO protocol is used on the plant bus)
- All PC stations:
  - Select the access point for each PC station

### Requirement

The Configuration Console has been opened via the menu command **Start > SIMATIC > SIMATIC NET > Configuration Console**.

### PC station on plant bus connected via CP 1613 communications processor

If the PC station on the plant bus is to communicate via the CP 1613 communications processor, perform the following steps for all CP 1613 processors:

---

#### Note

If you have reinstalled the PCS 7 software on the PC station, the first two steps preceded by "Standard" are not required.

---

1. "Standard": In the tree view, select "Modules > <Network Adapter for Communication with the Plant Bus> > General".
2. "Standard": Set the operating mode to "PG mode" for **every** PC network module you want to configure.
3. In the tree view, select "Modules > <Network Adapter for Communication with the Plant Bus> > Address".
4. Set the addresses (either TCP/IP address or MAC address, depending on the protocol).

### **PC station on plant bus connected via standard network adapter**

If you want to use the ISO protocol on the plant bus, but you do not know the MAC addresses of the network adapters, perform the following steps for all standard network adapters:

1. In the tree view, select "Modules > <Network Adapter for Communication with the Plant Bus> > Address".
2. Make a note of the MAC address, which you will need when configuring the PC station.

### **Selecting the access point for each PC station**

Perform the following steps on all PC stations:

1. In the tree view, select the "Access Points" folder.
2. In the list, select "S7ONLINE".
3. Select the menu command **File > Properties**.  
The "S7ONLINE" dialog box opens.
4. Select the "PC internal (local)" entry from the "Assigned interface parameters" drop-down list box.
5. Click "OK".

## 4.7.7 How to make the settings for standard network adapters

### Procedure

If you want to use the TCP/IP protocol on the plant bus, you will need to perform the following tasks for all standard network adapters on the plant bus:

1. Select the menu command **Start > Settings > Network Connections**.  
The "Network Connections" dialog box opens.
2. Select the plant bus in the "Network Connections" dialog box.
3. Select the menu command **File > Properties**.
4. Select "Internet Protocol (TCP/IP)" from the list.
5. Click "Properties".
6. Configure the TCP/IP address:  
Typical: "Use the following IP address:" check box
  - Enter the IP address.
  - Enter the subnet mask.
7. Click "OK".  
The TCP/IP addresses are set.

### Settings when using two or more network adapters

---

#### Note

##### Setting the order

If several standard network adapters are used (e.g., 3COM), the adapter for the terminal bus must appear first (Network Properties: "Advanced > Advanced Settings"). Any non-functioning network adapters which are inserted must be disabled.

Following a PCS 7 installation, a dialog appears, where you must select the network adapter for the terminal bus. If an adapter is selected, confirm it with "OK" and then confirm the "Reinitialize" dialog with "Yes".

---

## 4.7.8 How to change the transmission rate and the mode in the PC network

### Introduction

For communication in a network, make sure that the following parameters are set consistently for all network nodes:

- Transmission rate
- Operating mode

---

#### Note

The factory settings for Siemens devices are set so that parameters for the transmission rate and operating mode are identified **automatically** (autonegotiation).

This setting **only** needs to be changed if nodes which do not have access to the autonegotiation setting must be communicated with in the network.

---

### Automatic identification of the transmission rate and operating mode

Autonegotiation refers to the automatic identification/negotiation of the transmission rate (10/100 Mbit/s) and the operating mode (full duplex/half duplex).

- Full duplex is an operating mode with bidirectional data communication, where the communication partners can send data on the transmission link independently of one another.
- Half duplex is an operating mode with bidirectional data communication, where only one communication partner can send data on the transmission link.

### Requirement

The **autonegotiation** setting needs to be changed if nodes which do not have access to this setting must be communicated with in the network.

## Parameterizing network nodes

Location of use	Network node	Calling the parameterization dialog window	Parameter setting
PC	CP 1613 communications processor	<ol style="list-style-type: none"> <li>1. <b>Start &gt; SIMATIC &gt; SIMATIC NET &gt; Configuration Console</b></li> <li>2. <b>PC Station &gt; Modules &gt; Network Parameters</b></li> </ol>	Select duplex mode and transmission rate radio buttons
PC	INTEL network adapter (or other similar standard network adapter) setting	<ol style="list-style-type: none"> <li>1. <b>Start &gt; Settings &gt; Control Panel &gt; Administrative Tools &gt; Computer Management &gt; Device Manager &gt; Network adapters</b></li> <li>2. Select network adapter.</li> <li>3. <b>File &gt; Properties</b></li> <li>4. "Advanced" tab</li> </ol>	Set values for the property. Typical property designation (depending on the network module used): <ul style="list-style-type: none"> <li>• Link Speed &amp; Duplex Mode</li> <li>• Link Speed &amp; Duplex</li> </ul>
Switches	SCALANCE X400 SCALANCE X 300 SCALANCE X200 SCALANCE X 200IRT ESM OSM	<ul style="list-style-type: none"> <li>• Configuration via Telnet or Web Based Management (WBM)</li> <li>• Call the parameterization dialog box for the switch via Internet Explorer:  http : \\&lt;TCP/IP address&gt;</li> </ul>	Port configuration
AS	CP 443-1 communications processor	HW Config: CP 443-1 properties > "Options" tab > "Individual Network Settings" group	In the "Transmission medium/Duplex" drop-down list box (default setting: Automatic setting)

## More information

- Operating instructions SIMATIC NET; Industrial Ethernet Switches SCALANCE X-200
- Operating instructions SIMATIC NET; Industrial Ethernet Switches SCALANCE X-300
- Operating instructions SIMATIC NET; Industrial Ethernet Switches SCALANCE X-400
- Configuration manual SIMATIC NET; Industrial Ethernet Switches; SCALANCE X-300; SCALANCE X-400
- Manual SIMATIC NET; Industrial Ethernet OSM/ESM

## **4.7.9 Installing security patches, hotfixes, service packs**

### **Introduction**

Security patches, hotfixes, and service packs are software packages, which serve to eliminate security vulnerabilities, unwanted software properties, and similar.

Information is provided with the software package explaining the properties that need to be changed and the requirements for its installation.

---

#### **Note**

You will find information on the software version for the current PCS 7 version in the pcs7-readme file.

---

### **Microsoft security patches**

Siemens tests the compatibility of Microsoft security patches for the Microsoft operating system, the SQL server and Internet Explorer. You will find information on security patches for PCS 7 online from SIMATIC Customer Support under the entry ID: 18490004 (<http://support.automation.siemens.com/WW/view/en/18490004>).

### **More information**

- Section "How to install operating system service packs (Page 68)"



## 4.7.10 How to retro-activate the security settings for PCS 7

### Introduction

Perform the following tasks if you want to activate the security settings.

<b>NOTICE</b>
When the PCS 7 system is operated in a domain, the security settings must be coordinated over the entire domain. Coordinate the security settings with the administrator responsible.

### Requirement

You are logged on to the PC station as an administrator.

### Procedure

If you want to make the settings required for PCS 7 on a PC at a later point in time, perform the following steps:

1. Select the menu command **Start > SIMATIC > SIMATIC Security Control > All Settings**.  
The "SIMATIC Security Control" dialog box opens.
2. Read the information in the lower section of the "SIMATIC Security Control" dialog box and select the appropriate button.
  - "Save" button  
The settings are not applied. The settings that can be applied to PCS 7 are saved in an XML file.
  - "Print" button  
The settings are not applied. The settings that can be applied to PCS 7 are sent to the printer.
  - "Apply" button  
The settings are applied.
  - "Close" button  
The settings are not applied.

### Activating the firewall

The status of the Windows firewall remains unchanged in this case.

#### **4.7.11 How to change the settings of the Windows firewall for Open PCS 7**

##### **Introduction**

The following settings are only required if PC stations that communicate with the PCS 7 plant via Open PCS 7 are located outside the local network (subnet) of the PCS 7 plant.

##### **Procedure**

1. Select the menu command **Start > Settings > Control Panel > Windows-Firewall**.  
The "Windows-Firewall" dialog box opens.
2. Select the "Exceptions" tab.
3. Activate the following check boxes in the "Programs and Services" list:
  - For a connection via OPC: "CCEServer" check box
  - For a connection via OLE DB: "SQL Server 2005" check box
4. Click "Edit".  
The "Edit Program" dialog box opens.
5. Click "Change Area".  
The "Change Area" dialog box opens.
6. Enable the "User-defined list" check box.
7. Enter the subnets with which the PC stations communicate in the input box.
8. Click "OK" in the dialog boxes until the "Windows Firewall" dialog box closes.

#### 4.7.12 How to activate redundancy for fault-tolerant PCs

Additional steps are required to configure redundant stations.

- You must establish a connection via a redundant cable for redundant PC stations. The redundant stations are the PC stations of a pair (server and single station systems).
- With a server-client architecture, you will need to assign the clients to the servers.

##### Redundant cable for PC stations

The following redundancy connection options exist:

- Network cable (cross-over cable) to an additional Ethernet network adapter
- For OS servers: Null modem cable to the COM interface

##### Additional steps for servers and single station systems (OS, BATCH)

Configure redundant pairs:

1. Connect the PCs with a redundant cable.
2. Follow the instructions in the function manual *Process Control System PCS 7; Fault-Tolerant Process Control Systems*.

##### Additional steps for clients (OS, BATCH)

Connect the clients with the redundant servers:

1. Follow the instructions in the function manual *Process Control System PCS 7; Fault-Tolerant Process Control Systems*.

##### Additional steps for SIMATIC Route Control

1. Follow the corresponding instructions contained in the manual *Process Control System PCS 7; SIMATIC Route Control*.

### **4.7.13 Downloading the network configuration to the PC stations**

#### **Introduction**

To allow you to configure, download and test all automation systems and PC stations (OS, BATCH, RCS) of a PCS 7 project from a central engineering station (ES), make the following network settings and download the configuration to all PC stations.

#### **Additional information**

The required steps are described in the configuration manual *Process Control System SIMATIC PCS 7; Engineering System*.

## **4.8 Notes on add-ons and utilities**

### **4.8.1 Overview of add-on programs and utilities for PCS 7**

#### **Introduction**

This section provides you with information on add-ons and utilities for PCS 7.

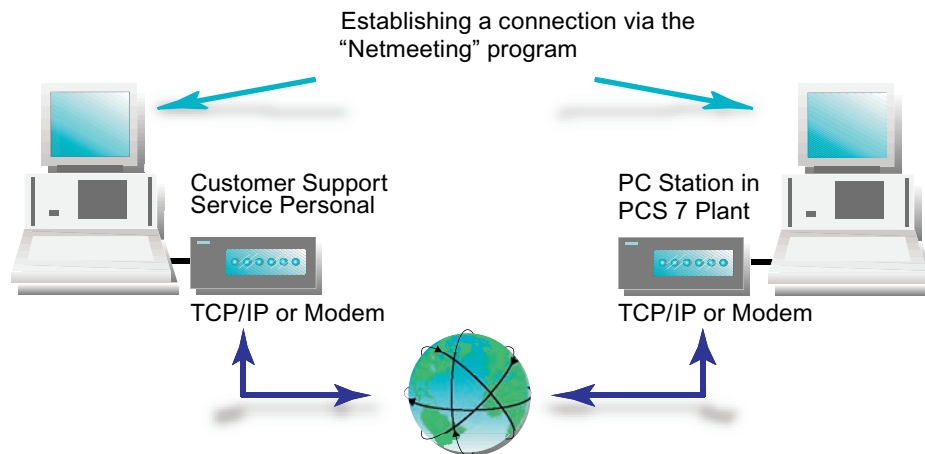
#### **Overview**

- Add-ons:
  - Remote diagnostics functions (Page 150)
  - Virus scanners (Page 153)
  - Burner software (Page 153)
  - DiagMonitor (Page 154)
- Utilities:
  - Screen savers (Page 157)
  - Defragmentation programs (Page 158)

## 4.8.2 Remote diagnostics functions

### Options for remote diagnostics and remote administration of a PCS 7 plant

We recommend that you use the "NetMeeting" operating system function for the remote diagnosis of PCS 7 plants and administrative access to PC stations with Windows XP Professional and Windows Server 2003.



### Transmission paths

Data can be transmitted on the following paths:

- Telephone line (modem)
- TCP/IP connection (plant-internal network connection)

### Security requirements

If you want to perform remote diagnostics on a PCS 7 plant, you must protect that plant against unauthorized access.

Several steps have to be taken in order to implement a security concept. Only when taken together as a whole will these security measures offer the plant optimum protection.

## Enabling NetMeeting with an active firewall

If the Windows firewall has been activated, you must set up exceptions for when you use NetMeeting.

1. Select the menu command **Start > Settings > Control Panel > Windows Firewall**.  
The "Windows Firewall" dialog box opens.
2. Select the "Exceptions" tab.
3. Check the "Remote Desktop" box.
4. Click "Add Program...".  
The "Add a Program" dialog box opens.
5. Click "Browse".  
In the "Browse" dialog box, select the "C:\Program Files\NetMeeting" folder.
6. Select the "conf.exe" file.
7. Click "Open". Click "OK".  
The "NetMeeting" program is added to the "Programs and Services" list. The "NetMeeting" box is checked.
8. Click "OK".  
Select "NetMeeting" in the "Programs and Services" list.
9. Click "Edit".  
The "Edit a Program" dialog box opens.
10. Click "Change scope...". Make your plant-specific setting.  
Recommended: Custom list (enter the addresses of the authorized computers)
11. Click "OK".
12. Click "OK".  
The "Windows Firewall" dialog box opens. The "Exceptions" tab is selected.
13. Click "Add Program...".  
The "Add a Program" dialog box opens.
14. Click "Browse".
15. Select file "mnmsvc.exe" in the operating system's system folder.  
In the case of a standard installation, you will find this file in "C:\Windows\System32".
16. Click "Open". Click "OK".  
File "mnmsvc.exe" is added to the "Programs and Services" list. The "mnmsvc.exe" box is checked.
17. Click "OK".
18. Click "Edit".  
The "Edit a Program" dialog box opens.
19. Click "Change scope...". Make your plant-specific setting.  
Recommended: Custom list (enter the addresses of the authorized computers)
20. Click "OK".
21. Click "OK".  
The "Windows Firewall" dialog box opens.
22. Click "OK".  
The settings are applied.

**More information**

- Manual *Process Control System PCS 7; Security Concept PCS 7; Recommendations and Notes*
- Operating system online help
- Internet: <http://support.microsoft.com/kb/878451/en-us>



### 4.8.3 Virus scanners

#### Virus scanners

Virus scanners approved for PCS 7 can be installed later.

The following virus scanners are approved for PCS 7:

- Symantec AntiVirus Corporate Edition
- McAfee VirusScan Enterprise
- Trend Micro OfficeScan Corporate Edition

---

**Note**

You will find information on the software version for the current PCS 7 version in the *pcs7-readme* file.

---

#### Virus protection

<b>NOTICE</b>
Only copy scanned data to a PC station.

#### More information

Function manual *Process Control System PCS 7; Notes and Recommendations for Configuring Virus Scanners*

### 4.8.4 Burner software

#### Introduction

In the interests of maintaining performance levels, data archiving devices must not be used on PC stations in process mode. We recommend that you only use data archiving devices (e.g., CD/DVD burners) on the engineering station.

#### Bundle PC

If you have purchased an engineering station as part of a bundle, that bundle will include burner software. This burner software can be installed after the main installation. During installation, follow the instructions of the burner software manufacturer.

## **4.8.5 DiagMonitor**

### **Introduction**

The DiagMonitor software is used for early detection and reporting of hardware and temperature problems on the SIMATIC PC. Messages can appear via:

- Ethernet (SNMP)
- Internet/telephone
  - E-mail
  - SMS
- OPC (forwarded to the SIMATIC software applications)
- Web browser

The DiagMonitor software monitors, reports, alarms and visualized application-specific operating states on SIMATIC PCs.

### **Hardware requirements**

Only SIMATIC PCs can be used as monitored computers:

- SIMATIC Box PC 620
- SIMATIC Box PC 620 V2
- SIMATIC Box PC 627
- SIMATIC Box PC 627 B
- SIMATIC Box PC 840
- SIMATIC Box PC 840 V2
- SIMATIC Microbox PC 420
- SIMATIC Panel PC IL 70
- SIMATIC Panel PC IL 77
- SIMATIC Panel PC 477
- SIMATIC Panel PC 670
- SIMATIC Panel PC 677
- SIMATIC Panel PC 870
- SIMATIC Panel PC 877
- SIMATIC Rack PC 547B
- SIMATIC Rack PC 627 B
- SIMATIC Rack PC 840
- SIMATIC Rack PC 840 V2
- SIMATIC Rack PC IL 40 S
- SIMATIC Rack PC IL 40 S V2
- SIMATIC Rack PC IL 43

## Software requirements

The DiagMonitor software can be used with the following operating systems:

- Microsoft Windows XP
- Microsoft Windows Server 2003
- Microsoft Windows XP Embedded (SIMATIC PC BOX)

## Restrictions

---

### Note

Remote monitoring is only possible with the TCP/IP Internet protocol since the required SNMP protocol is available in this protocol family.

---

## Installing the DiagMonitor software

1. Insert the PCS 7 Toolset DVD in the DVD drive.
2. In the Windows Explorer, open the folder **Additional\_Products > DiagMonitor**.
3. Run file Setup.exe.
4. Select the language in which the installation is to be performed.
5. Click "OK".  
The "SIMATIC PC DiagMonitor Setup" dialog box opens.
6. Follow the on-screen instructions.  
If you do not want to install the DiagMonitor software in the specified target folder, you can change it by clicking "Browse".

Three installation options are available in the "Setup Type" window:

- Custom  
With the Custom installation, only the components you select during setup will be installed.
- Development  
With the Development installation, only the components which enable the user to develop monitoring applications will be installed.
- Full  
With the Full installation, all components will be installed. This includes the components of the Custom and Development setups.

7. Select "Custom" and click "Next".

---

**Note**

Siemens industrial PCs support DiagMonitor software.

---

8. Click "Next".  
The "Question" dialog box opens.
9. If you want to configure the SMS service, answer this question with "Yes" and select your service provider.  
You will find more information on this topic in the section "Configuring SMS services".
10. Click "Exit".  
You must restart Windows/your computer before you can use the program.

### **Configuring SMS services**

1. Select the menu command **My Computer > Manage > Services and Applications > Services**.
2. Select "SNMP service" or "SNMP".
3. In the shortcut menu, select the menu command **Action > Properties**.
4. Select the "Security" tab.
5. Select one of the following options:  
"Accept SNMP packages" option activated by **every** host
  - No other settings are required."Accept SNMP packages" option activated by **this** host
  - The local address or the local computer name and the address of the maintenance station (both addresses for a redundant MS server) must be entered for the station being monitored.
  - The local address or the local computer name must be entered for the maintenance server.
6. Enter the name with read/write access used in the configuration under "Accepted community names".

## Configuring DiagMonitor

---

### Note

The diagnostic monitor's "Management Station" configuration tool can only be started by a user with administrator rights. Perform the configuration on all monitored stations.

---

1. Select the menu command **Start > SIMATIC > PC DiagMonitor > Management Station**. The "SIMATIC PC DiagMonitor" dialog box opens.
2. Select the menu command **Station > Add**.
3. Make the following settings:  
Select "Local station" or check the "Allow access to all stations" box, or click "Add" and enter the "Name or IP address" of individual PC stations (e.g., of the maintenance server).
  - If desired, configure the necessary events, e.g., cyclic operating hours alarms (optional setting).
  - If you want to stop the "SIMATIC PC DiagMonitor" Management Station from automatically starting up each time someone logs on, delete the "Management Station" entry under **Start > Programs > Autostart**.

## 4.8.6 Screen savers

### Using a screen saver

It is **not** recommended to use a screen saver on the PC with PCS 7 for the following reasons:

- The screen saver takes CPU time and can lead to a system overload.
- The screen saver continuously reduces the usable RAM. It is known that some screen savers do not release the memory area they use.

If you use a screen saver, you should disable it when running PCS 7.

## 4.8.7 Defragmentation programs

### Using defragmenters

Defragmentation programs are used to optimize the time it takes to access a hard disk.

<b>NOTICE</b>
Defragmentation programs that move fixed blocks on a hard disk can destroy license key files and the files required for the authorization of software packages.
<b>Recommendation:</b> Always exclude authorizations/license keys from the defragmentation.

### Excluding authorizations/license keys from processing

You have the following options to exclude authorizations/license keys from optimization procedures:

- Transfer all authorizations/license keys to an authorization diskette / license key diskette.
- Transfer all authorizations/license keys to a partition that will not be defragmented (a backup partition, for example).
-

## Appendix

### 5.1 Appendix A - Use of software packages

#### 5.1.1 Software packages for basic engineering

##### Brief description of the basic engineering applications

The following applications for basic engineering are installed by the PCS 7 system setup from the PCS 7 Toolset DVD. License keys are required for use.

You will find more information on this topic in the section "Licensing and authorizing the PCS 7 software (Page 112)".

Applications	Brief description
Automation License Manager	For transferring and managing license keys
STEP 7	PCS 7 basic engineering: <ul style="list-style-type: none"> <li>• SIMATIC Manager for managing project objects</li> <li>• HW Config for the hardware configuration</li> <li>• NetPro for the network configuration</li> </ul>
SCL	<b>Structured Control Language (S7 SCL)</b> High-level language for programming user function blocks in accordance with IEC 61131-3
CFC	<b>Continuous Function Chart (CFC)</b> - For the graphical configuration of continuous automation functions in accordance with IEC 61131-3, with test and commissioning functions
SFC	<b>Sequential Function Chart (SFC)</b> - For the graphical configuration of sequential production sequences (step sequencers), with test and commissioning functions
PH	<b>Plant Hierarchy (PH)</b> - For displaying a project in a plant view; which enables the user to gain a quick overview of project resources
IEAPO	<ul style="list-style-type: none"> <li>• <b>Process Object view (PO)</b> - For providing a process-control oriented view of basic automation data</li> <li>• <b>Import Export Assistant (IEA)</b> You will find more information on this topic in the section "Optional software packages (Page 164)"</li> </ul>
PCS 7 Library	Standardized process-control libraries with preconfigured and tested blocks and drivers for hardware (e.g., blocks for I/O modules)

Applications	Brief description
WinCC	Visualization and configuration software containing standards for the fast implementation of simple to complex visualization tasks in single or multiple station operation
AS-OS Engineering	AS/OS connection for faceplates, messages, and tags
PV InsInfo-Server	Tool which supplies the WinCC variable browser with ES variables
SIMATIC NET PC Software	Software components for configuring and identifying network adapters installed in the PC
BATCH Engineering	Components for BATCH Engineering: BATCH Base, BATCH Builder, BATCH Blocks, BATCH WinCC Client Options, BATCH WinCC Server Options, BATCH Getting Started You will find more information on this topic in the section "Software packages for SIMATIC BATCH (Page 162)".
Route Control Engineering	Components for Route Control Engineering: Route Control Base, Route Control Engineering, Route Control Library, Route Control Faceplates You will find more information on this topic in the section "Software packages for SIMATIC Route Control (Page 163)".
PDM	Components for engineering field devices You will find more information on this topic in the section "Optional software packages (Page 164)".



## 5.1.2 Software packages for operator stations

### Brief description of the operator station applications

The following applications for operator stations are installed from the PCS 7 system setup on the PCS 7 Toolset DVD. License keys are required for use.

For more information please refer to the section "Licensing and authorization of the PCS 7 software (Page 112)".

Program name	Brief description
Automation License Manager	For transferring and managing license keys.
WinCC	Visualization and configuration software for visualization in single station or multiple station mode. Scope of the license keys You will find information on this topic in the section "Selecting the correct license keys/authorizations (Page 117)".
SFC Visualization	Allows you to display and operate sequential control systems.
PCS 7 Faceplates	Contains standardized libraries with tested, ready-to-use blocks (connection to AS and faceplates)
SIMATIC NET PC software	You can configure and detect the network adapters installed in the PC using the provided software components

### 5.1.3 Software packages for SIMATIC BATCH

#### Brief description of SIMATIC BATCH applications

The following applications for SIMATIC BATCH are installed from the PCS 7 system setup on the PCS 7 Toolset DVD. License keys are required for use.

For more information please refer to the section "Licensing and authorization of the PCS 7 software (Page 112)".

Program name	Brief description
Automation License Manager	For transferring and managing license keys.
BATCH Base	Basis for all BATCH installations Includes the installation of the client database You require a license key for BATCH API to interface with a factory or enterprise-wide information system.
BATCH Builder	Software package installed on the PCS 7 ES for creation and configuration of BATCH project data <ul style="list-style-type: none"> <li>• OM</li> <li>• Builder</li> </ul>
BATCH Fastobjects	For installation of a database server. <ul style="list-style-type: none"> <li>• POET Server</li> <li>• BATCH DBMON</li> </ul>
BATCH Client	<ul style="list-style-type: none"> <li>• BCC - the Batch Control Center (Batch CC) is the central component in SIMATIC BATCH for batch planning and control. Batch CC manages all data relating to SIMATIC BATCH. You can therefore log all data in Batch CC.</li> <li>• The BATCH Recipe Editor is suitable for simple graphic creation and management of any number of recipes.</li> <li>• BATCH REPORT - The user-friendly print function of BATCH</li> </ul>
BATCH Server	<ul style="list-style-type: none"> <li>• BCS - Sequential control system of BATCH and allocation of units</li> <li>• CDV (BDM) - Batch Data Management collects, stores, logs, and exports batch data.</li> <li>• Scope of the license keys You will find information on this topic in the section "Selecting the correct license keys/authorizations (Page 117)".</li> </ul>
BATCH Blocks	BATCH interface blocks
BATCH WinCC Client Options	Faceplates for the PCS 7 OS
BATCH WinCC Server Options	Faceplates for the PCS 7 OS
BATCH Getting Started	Sample project for SIMATIC BATCH

## 5.1.4 Software packages for SIMATIC Route Control

### Brief description of the applications for SIMATIC Route Control

The following applications for SIMATIC Route Control are installed during the PCS 7 setup from the Toolset DVD. License keys are required for use.

For more information please refer to the section "Licensing and authorization of the PCS 7 software (Page 112)".

Program name	Brief description
Automation License Manager	For transferring and managing license keys.
Route Control Base	Basis for all route control installations Contains the documentation for SIMATIC Route Control
Route control client	For detailed diagnostics of the route and its elements
Route Control Engineering	For creating and administrating any number of partial routes with elements
Route Control Server	For route searching and as an interface between Route Control Center and/or PCS 7 OS and the automation systems Scope of the license keys You will find information on this topic in the section "Selecting the correct license keys/authorizations (Page 117)".
Route Control Library	Contains interface blocks for the interconnection between user and other process blocks and faceplates for operator control and monitoring of routes on the Route Control client
Route Control Faceplate	Faceplates for the OS of PCS 7

### 5.1.5 Optional software packages

#### Introduction

The following applications can be used for engineering special applications. You will need additional license keys.

For more information please refer to the section "Licensing and authorization of the PCS 7 software (Page 112)".

#### Add-ons in the PCS 7 setup

You can install these programs directly in the PCS 7 system setup.

Applications	Brief description
IEAPO	Import-Export-Assistant (IEA) - tool for fast basic engineering (e.g., importing models and process tags) Note: IEA license required
PLC simulation	CPU simulation
SFC Visualization	This option allows you to display and control sequential control systems.
VXM (Version Cross Manager)	Compares engineering data versions with graphic display of differences
PCS 7 PID Tuner	Optimizes closed-loop control loops
DOCPRO	This allows you to create plant documentation and wiring manuals
Open PCS 7	OPC interface as the basis for enterprise-wide data communication
PCS 7 Faceplates	Faceplates for the operator station
DotNet Framework	
SIMATIC Logon	<ul style="list-style-type: none"> <li>• Assignment of roles defined for the PCS 7 applications to Windows users/user groups with corresponding administrator rights</li> <li>• Activation of user dialogs for applications managed with SIMATIC Logon</li> <li>• Sharing and logging of functions</li> </ul>
SIMATIC PDM	Configuration, parameter assignment, commissioning, and diagnostics of intelligent process devices. SIMATIC PDM allows a wide variety of process devices to be configured using a uniform user interface.
Remote Publisher	

### Add-ons on separate installation media

These applications are not included on the PCS 7 Toolset DVD.

Applications	Brief description
S7 F Systems	Used to configure fail-safe functions of a SIMATIC S7-400F/SIMATIC S7-400FH - automatically adds functions for fault-detection and fault reaction to CFC charts created by the user and provides support functions, e.g., for comparison or acceptance tests for F programs.

### Additional information

You will find more information on the software packages and their areas of application in the product brief **Process Control System SIMATIC PCS 7** or the catalog *ST PCS 7*.

## 5.2 Appendix B - Licensing of software packages

### 5.2.1 Software packages and required license key

#### Introduction

---

**Note**

In this section, we only use the term **license key** even when an older authorization is used for a product.

---

#### Software packages and required license keys

The table below shows which license keys you require for each software package.

---

**Note**

The "Version" column is empty so that you can enter the correct data for your plant documentation. The versions for the current *Process Control System; PCS 7 Toolset V7.0* program package can be found in the *pcs7-readme* file.

---

Product name	Version	License	System setup	Engineering station	Single station or client for OS, BATCH or Route Control	All servers for OS, Web, SIMATIC BATCH or Route Control redundant and non-redundant	Remark X = installation required (X) = installation optional
Operating systems							Outside the scope of PCS 7
MS Windows XP Professional		Microsoft license	No	X	X		With product bundles the product is preinstalled and available on the Recovery DVD.
Windows Server 2003 (server operating system)		Windows Server 2003 (connection licenses, 5 or 10 as standard)	No	For multiproject engineering		X	With product bundles the product is preinstalled and available on the Recovery DVD.
Operating system service pack			No	X	X	X	With product bundles the product is preinstalled and available on the Recovery DVD.
<b>Note on installing a server</b> - Ensure that you have a sufficient number of licenses available.							

Product name	Version	License	System setup	Engineering station	Single station or client for OS, BATCH or Route Control	All servers for OS, Web, SIMATIC BATCH or Route Control redundant and non-redundant	Remark X = installation required (X) = installation optional
Other							
MS SQL Server 2005			No	X	X	X	
Internet Explorer			No	X	X	X	Supplementary CD for OPC (V6.1)
Adobe Acrobat Reader			Yes	X	(X)	(X)	
PKZIP for Windows			No	X	(X)	(X)	
Automation License Manager			Yes	X	X	X	

				ES package		OS package			Remark
Product name	Version	License key	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the correct license keys/authorizations (Page 117)"
PCS 7 ES									
Runtime License AS		AS RT PO		(z)	(z)				Scope: Limited to the number of process objects that can be loaded into the AS.
STEP 7		STEP 7	Yes	X	X				H systems are integrated.
		SIK/SIMATIC H Systems Vx.y		(X)	(X)				For H systems: (X) product is always installed if STEP 7 is installed.
CFC		CFC (z)	Yes	(z)	(z)				Configuration limited to the number of process objects (PO = operator-controllable function block with attribute S7_m_c).
SFC		SFC	Yes	X	X				
SCL		S7 SCL	Yes	X	X				
PH		PH PO	Yes	X	X				
IEAPO		IEA	Yes	X	X				License key only required to use the IEA option.
AS-OS Engineering			Yes	(X)	(X)				(X) Product is always installed if STEP 7 and WinCC are installed.
PV InsInfo-Server			Yes	(X)	(X)				
SFC Visualization		SFC Visualization	Yes	(X)	(X)	(X)	(X)	(X)	(X) Product is always installed if WinCC is installed.
DOCPRO		SIK/SIMATIC DOCPRO	Yes	(X)	(X)				
Version Cross Manager		Version Cross Manager	Yes	(X)	(X)				
S7 PLC Simulation		PLCSIM	Yes	(X)	(X)				



				ES package		OS package			Remark
Product name	Version	License key	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the correct license keys/authorizations (Page 117)"
PCS 7 Library 7.0			Yes	X	X				
PCS 7 Faceplates			Yes	X	X	X	X	X	
PCS 7 PID Tuner		SIK/SIMATIC PID Tuner	Yes	(X)	(X)				
Version Trail			Yes	X	X				
SIMATIC BATCH Engineering			Yes	(X)	(X)				(X) Product only required for SIMATIC BATCH.
Route Control Engineering		Route Control Engineering	Yes	(X)	(X)				(X) Product only required for SIMATIC Route Control.
Maintenance ES		Maintenance ES	Yes	(X)	(X)				(X) Product only required for the maintenance station.

				ES package		OS package			Remark
Product name	Version	License keys	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional
Optional packages for all PCS 7 PCs									
SIMATIC Logon Service		Logon Service	Yes	(X)	(X)	(X)	(X)	(X)	(X) All stations which use applications managed by SIMATIC Logon Service require the SIMATIC Logon Service.
SIMATIC Security Control			Yes	(X)	(X)	(X)	(X)	(X)	(X) Activate security settings for PC stations.

				ES package		OS package			Remark
Product name	Version	License keys	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional
PCS 7 - AS									
SIMATIC NET PC SW		BCE	Yes	X	X	X	X		License only for a standard Ethernet interface module (not required for SIMATIC NET CP 1613)
		Industrial Ethernet Softnet S7 Basic							
		Industrial Ethernet Softnet S7 Power Pack							
		Industrial Ethernet S7 1613							
		Industrial Ethernet S7 REDCONNECT							
		SNMP OPC Server Basic							
		SNMP OPC Server Power Pack							
S7 F Systems		SIK/SIMATIC S7 F Systems V(x.x)	No	(X)	(X)				Product is supplied on a separate CD.

				ES package		OS package			Remark
Product name	Version	License keys	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional
SIMATIC PDM									
SIMATIC PDM Basic Software		PDM BASIC – (up to 4 TAGs) The following TAG licenses are also available as options: - PDM ("*z")  *z = 128, 512, 1024, 2048, unlimited Number of TAGs (devices)	Yes	X	X				SIMATIC PDM Basic Software V6.0 includes the following licenses: <ul style="list-style-type: none"> <li>• Communication via HART modem</li> <li>• Communication via RS232</li> <li>• Communication via PROFIBUS DP/PA, 4 TAGs</li> </ul> You will find more information in the documentation relating to SIMATIC PDM.
		PDM Integration in STEP7	Yes	(X)	(X)				This is only required if PDM is to be integrated in HW Config.
		PDM Routing	Yes	(X)	(X)				Routing via S7-4xx
		PDM Hart Mux	Yes	(X)	(X)				Communication via standard HART multiplexer

				ES package		OS package			Remark	
Product name		Version	License keys	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
Operator station										
WinCC	Basic System		WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	(z)	(z)	(z)	Only WinCC RT PO Client for OS client
			WinCC Server	Yes	(X)			X		
			WinCC Redundancy	Yes				(X)		Only required for redundancy
			WinCC User Archives	Yes		(X)	(X)	(X)	(X)	
	LTO		WinCC Advanced Process Ctrl	Yes	X	X	X	X	X	
			Chip Card	Yes		(X)	(X)	(X)	(X)	WinCC chip card reader required (only active in process mode)
Drivers (Multi VGA)				No	(X)	(X)	(X)	(X)	(X)	Suitable graphics card drivers for the version (see readme.wri)
PCS 7 Faceplates				Yes	X	X	X	X	X	Automatically installed with WinCC
OPC				Yes	X	X	X	X	X	Automatically installed with WinCC
SIMATIC NET BCE			BCE	Yes	X	X	X	X		License only for a standard Ethernet interface module (not required for SIMATIC NET CP 1613)
			S7 REDCONNECT		X	X	X	X		Only required for connecting to redundant AS

				ES package		OS package			Remark
Product name	Version	License keys	System setup	ES	Single station	OS single station	OS server	OS client	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
WinCC Connectivity Station		WinCC Connectivity Station							
Web Server		WinCC WebNavigator (z)	Yes			(z)		(z)	<b>Note:</b> Server operating system required

				OS package		Remark	
Product name		Version	License keys	System setup	OS server for BATCH	OS client for BATCH	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the correct license keys/authorizations (Page 117)"
Operator station for BATCH							
WinCC	Basic System		WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	Only WinCC RT PO Client for OS client
			WinCC Server	Yes	(X)	X	
			WinCC Redundancy	Yes		(X)	Only required for redundancy
			WinCC User Archives	Yes	(X)	(X)	
	LTO		WinCC Advanced Process Ctrl	Yes	X	X	
			Chip Card	Yes	(X)	(X)	WinCC chip card reader required (only active in process mode)
SFC Visualization				Yes	X	X	
PCS 7 Faceplates				Yes	X	X	Automatically installed with WinCC
SIMATIC NET			BCE	Yes	X		License only for a standard Ethernet interface module (not required for CP 1613)
BATCH WinCC Client Options				Yes	X	X	
BATCH WinCC Server Options				Yes	X		

Product name		Version	License keys	System setup	Central archive server	Redundant central archive server	Remark X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
Central archive server							
WinCC	Basic System		WinCC RT (128) WinCC Archive (z)	Yes	(z)	(z)	Only WinCC RT PO Client for OS client
			WinCC Server	Yes	(X)	(X)	
			WinCC Redundancy	Yes		(X)	
			WinCC User Archives	Yes	(X)	(X)	
	LTO		WinCC Advanced Process Ctrl	Yes	X	X	
			Chip Card	Yes	(X)	(X)	WinCC chip card reader required (only active in process mode)
StoragePlus			StoragePlus	Yes	X	X	X
Batch Report				Yes	X	X	X



Product name		Version	License keys	System setup	Open PCS 7 station	OS client with Open PCS 7	Remark X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
Open PCS 7							
Open PCS 7			OpenPCS 7 Station		X	X	
WinCC	Basic System		WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes		(z)	Only WinCC RT PO Client for OS client
			WinCC Server	Yes		X	
			WinCC Redundancy	Yes		(X)	Only required for redundancy
			WinCC User Archives	Yes		(X)	
	LTO		WinCC Advanced Process Ctrl	Yes		X	
			Chip Card	Yes		(X)	WinCC chip card reader required (only active in process mode)
SFC Visualization				Yes		X	
PCS 7 Faceplates				Yes		X	Automatically installed with WinCC

Product name	Version	License keys	System setup	ES	BATCH single station	BATCH server, redundant BATCH server	BATCH client	BATCH Engineering	Remark X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
SIMATIC BATCH									
BATCH Base			Yes	X	X	X	X	X	Basic installation for all SIMATIC BATCH PCs
BATCH Builder			Yes	X				X	
BATCH Blocks			Yes	X				X	
BATCH Server		BATCH (z) UNITS	Yes		(z)	(z)			
BATCH API		BATCH API			X	X			
BATCH Fastobjects					X	X			License
BATCH Separation Procedures/Formulas		BATCH Formula			X	X			
BATCH Hierarchical Recipe		BATCH Hierarchical Recipe			X	X			
BATCH ROP Library V7.0		BATCH Library			X	X			
BATCH Client - BCC		BATCH BatchCC	Yes				X		And/or BATCH Recipe System
BATCH Client - RZE		BATCH Recipe System	Yes				X		And/or BATCH Control
BATCH Client - Report							X		
BATCH Planning		BATCH Planning					X		
Getting Started			Yes				X		

				ES package		Route Control package				Remark
Product name	Version	License keys	System setup	ES	Single station	Route Control single station	Route Control server	Route Control client	Route Control Engineering	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
SIMATIC ROUTE Control										
Route Control Base			Yes	X	X	X	X	X	X	
Route Control Engineering		Route Control Engineering	Yes	X	X				X	Wizard in context of SIMATIC Manager, library blocks, engineering tool
Route Control Server		Route Control Server (z)	Yes		(z)	(z)	(z)			(also redundant)
Route Control Client		Route Control Center	Yes		X	X		X		
Route Control Library			Yes	X	X	X			X	
Route Control Faceplate			Yes	X	X	X		X	X	

				Maintenance station				Remark
Product name	Version	License keys	System setup	ES	Single station	MS server	Redundant MS server	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
Maintenance station								
Maintenance Station		Maintenance RT (z)	Yes		(z)	(z)	(z)	
Maintenance Station Engineering		Maintenance ES	Yes	X	X			

				SIMATIC PCS 7 BOX 416		SIMATIC PCS 7 BOX RTX		Remark
Product name	Version	License keys	System setup	With AS OS ES	With AS OS	With AS OS ES	With AS OS	X = installation required (X) = installation optional (z) Level of license keys - Section "Selecting the right license keys/authorizations (Page 117)"
SIMATIC PCS 7 BOX								
WinAC for SIMATIC S7 Slot CPU 416-2 PCI		WinAC for SIMATIC S7 Slot CPU 416-2 PCI	No	X	X			
WinLC RTX		WinLC RTX	No			X	X	
Software on the PCS 7 Toolset DVD (ES installation)			Yes	(z)		(z)		
Software on the PCS 7 Toolset DVD (OS installation)		WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	(z)	(z)	
Software on the PCS 7 Toolset DVD (SIMATIC PDM)			Yes	(z)		(z)		
Software on the PCS 7 Toolset DVD (SIMATIC BATCH)		BATCH (z) UNITs	Yes	(z)	(z)			
Maintenance Station		Maintenance RT (z)	Yes	(z)	(z)	(z)	(z)	

## Compete systems (product bundles)

---

### Note

The product is preinstalled with product bundles and available on the Recovery DVD.

---

## Required operating system

---

### Note

You can find information about the software version of the latest PCS 7 version in the *pcs7-readme* file.

---

PC station	Operating system	Service pack	License
<b>Single station or Client</b> for: <ul style="list-style-type: none"> <li>OS</li> <li>SIMATIC BATCH</li> <li>SIMATIC Route Control</li> </ul>	MS Windows XP Professional (32-bit version)	Required	Microsoft license
<b>Engineering station</b>		Required	Microsoft license
<b>Engineering station</b> for multiproject engineering	MS Windows Server 2003 (32-bit version)	Required	Microsoft license
<b>Server</b> (redundant and non-redundant) for: <ul style="list-style-type: none"> <li>OS</li> <li>Archive servers</li> <li>Maintenance server</li> <li>Web</li> <li>SIMATIC BATCH</li> <li>SIMATIC Route Control</li> </ul>		Required	<b>Note on installing a server:</b> We recommend licensing <b>per workplace</b> . With licensing per server, you need to ensure a sufficient number of licenses.
<b>File server for multiuser engineering</b>		Required	

## Introduction

### Note

In this section, we only use the term **license key**, even if a product is still using the older "authorization".

**Legend for the tables below**

Column	Value	Meaning
PCS 7 setup	Yes	Software is installed by means of the PCS 7 setup.
	No	Software is not installed by means of the PCS 7 setup.
	No entry	Software is automatically installed, with the software named in the Remark column, by means of the PCS 7 setup.
PC station (type of PC station)	X	Installation required
	(X)	Installation optional, see the Remark column
	(Z)	You will find information on license key levels in the section "Selecting the correct license keys/authorizations (Page 117)".

## Software packages and required license keys

The table below shows which license keys you require for each software package.

### Note

The versions for the current Process Control System; PCS 7 Toolset *V7.0* program package can be found in the *pcs7-readme* file.

Product name	License	PCS 7 setup	PC station		Remark
			ES	Single station	
PCS 7 ES					
Runtime License AS (only required for loading the AS)	AS RT PO	No	(z)	(z)	Scope: Limited to the number of process objects that can be loaded into the AS.
STEP 7	STEP 7	Yes	X	X	H systems are integrated.
H System (License)	SIK/SIMATIC H Systems Vx.y		(X)	(X)	For H systems: (X) product is always installed if STEP 7 is installed.
CFC	CFC (z)	Yes	(z)	(z)	Configuration limited to the number of process objects (PO = operator-controllable function block with attribute S7_m_c).
SFC	SFC	Yes	X	X	
SCL	S7 SCL	Yes	X	X	
PH	PH PO	Yes	X	X	
IEAPO	IEA	Yes	X	X	License key only required to use the IEA option.
AS-OS Engineering		Yes	(X)	(X)	(X) Product is always installed if STEP 7 and WinCC are installed.
PV InsInfo-Server		Yes	(X)	(X)	



			PC station		
SFC Visualization	SFC Visualization	Yes	(X)	(X)	(X) Product is always installed if WinCC is installed.
DOCPRO	SIK/SIMATIC DOCPRO	Yes	(X)	(X)	
Version Cross Manager	Version Cross Manager	Yes	(X)	(X)	
S7 PLC Simulation	PLCSIM	Yes	(X)	(X)	
PCS 7 Library 7.0		Yes	X	X	
PCS 7 Faceplates		Yes	X	X	
PCS 7 PID Tuner	SIK/SIMATIC PID Tuner	Yes	(X)	(X)	
Version Trail		Yes	X	X	
SIMATIC BATCH Engineering		Yes	(X)	(X)	(X) Product only required for SIMATIC BATCH.
Route Control Engineering	Route Control Engineering	Yes	(X)	(X)	(X) Product only required for SIMATIC Route Control.
Maintenance ES	Maintenance ES	Yes	(X)	(X)	(X) Product only required for the maintenance station.

Product name Version	License	PCS 7 setup	PC station		Remark
			SIMATIC PCS 7 BOX 416	SIMATIC PCS 7 BOX RTX	
SIMATIC PCS 7 BOX (ES, OS, AS)					
WinAC for SIMATIC S7 Slot CPU 416-2 PCI	WinAC for SIMATIC S7 Slot CPU 416-2 PCI	No	X		
WinLC RTX	WinLC RTX	No		X	
Software on the PCS 7 Toolset DVD (ES installation)		Yes	(z)	(z)	
Software on the PCS 7 Toolset DVD (OS installation)	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	
Software on the PCS 7 Toolset DVD (SIMATIC PDM)		Yes	(z)	(z)	
Software on the PCS 7 Toolset DVD (SIMATIC BATCH)	BATCH (z) UNITs	Yes	(z)		
Maintenance Station	Maintenance RT (z)	Yes	(z)	(z)	

## Introduction

### Note

In this section, we only use the term **license key**, even if a product is still using the older "authorization".

**Legend for the tables below**

Column	Value	Meaning
PCS 7 setup	Yes	Software is installed by means of the PCS 7 setup.
	No	Software is not installed by means of the PCS 7 setup.
	No entry	Software is automatically installed, with the software named in the Remark column, by means of the PCS 7 setup.
PC station (type of PC station)	X	Installation required
	(X)	Installation optional, see the Remark column
	(Z)	You will find information on license key levels in the section "Selecting the correct license keys/authorizations (Page 117)".

**Software packages and required license keys**

The table below shows which license keys you require for each software package.

**Note**

The versions for the current Process Control System; PCS 7 Toolset *V7.0* program package can be found in the *pcs7-readme* file.

Product name		License key	System setup	OS single station	OS server	OS client	Remark
Operator station							
WinCC	Basic System	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	(z)	Only WinCC RT PO Client for OS client
		WinCC Server	Yes		X		
		WinCC Redundancy	Yes		(X)		Only required for redundancy
		WinCC User Archives	Yes	(X)	(X)	(X)	
	LTO	WinCC Advanced Process Ctrl	Yes	X	X	X	
		Chip Card	Yes	(X)	(X)	(X)	WinCC chip card reader required (only active in process mode)
Drivers (Multi VGA)			No	(X)	(X)	(X)	Suitable graphics card drivers for the version (see readme.wri)
PCS 7 Faceplates			Yes	X	X	X	Automatically installed with WinCC
OPC			Yes	X	X	X	Automatically installed with WinCC
SIMATIC NET BCE		BCE	Yes	(X)	(X)		License only for a standard Ethernet interface module (not required for SIMATIC NET CP 1613)
		S7 REDCONNECT		(X)	(X)		Only required for connecting to redundant AS
WinCC Connectivity Station		WinCC Connectivity Station					
Web Server		WinCC WebNavigator (z)	Yes	(z)		(z)	<b>Note:</b> Server operating system required

Product name		License key	System setup	Central archive server	Redundant central archive server	Remark
Central archive server						
WinCC	Basic System	WinCC RT (128) WinCC Archive (z)	Yes	(z)	(z)	Only WinCC RT PO Client for OS client
		WinCC Server	Yes	(X)	(X)	
		WinCC Redundancy	Yes		X	
		WinCC User Archives	Yes	(X)	(X)	
	LTO	WinCC Advanced Process Ctrl	Yes	X	X	
		Chip Card	Yes	(X)	(X)	WinCC chip card reader required (only active in process mode)
StoragePlus		StoragePlus	Yes	X	X	X
Batch Report			Yes	X	X	X

Product name		License key	System setup	Single station	MS server	Redundant MS server	Remark
Maintenance station							
Maintenance Station		Maintenance RT (z)	Yes	(z)	(z)	(z)	
Maintenance Station Engineering		Maintenance ES	Yes	X			

Product name		License key	System setup	OS single station	OS server	OS client	Remark
PCS 7 - AS							
SIMATIC NET PC SW		BCE	Yes	X	X		License only for a standard Ethernet interface module (not required for SIMATIC NET CP 1613)

Product name		License key	System setup	OS server for BATCH	OS client for BATCH	Remark
Operator station for BATCH						
WinCC	Basic System	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	Only WinCC RT PO Client for OS client
		WinCC Server	Yes		X	
		WinCC Redundancy	Yes		(X)	Only required for redundancy
		WinCC User Archives	Yes	(X)	(X)	
	LTO	WinCC Advanced Process Ctrl	Yes	X	X	
		Chip Card	Yes	(X)	(X)	WinCC chip card reader required (only active in process mode)
SFC Visualization			Yes	X	X	
PCS 7 Faceplates			Yes	X	X	Automatically installed with WinCC
SIMATIC NET		BCE	Yes	X		License only for a standard Ethernet interface module (not required for CP 1613)
BATCH WinCC Client Options			Yes	X	X	
BATCH WinCC Server Options			Yes	X		

Product name	License key	System setup	SIMATIC PCS 7 BOX 416 (ES AS OS BATCH)	SIMATIC PCS 7 BOX 416 (only AS OS BATCH)	Remark
PCS 7 BOX					
WinLC RTX	WinLC RTX	No			
Software on the PCS 7 Toolset DVD (ES installation)		Yes	(z)		
Software on the PCS 7 Toolset DVD (OS installation)	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	
Software on the PCS 7 Toolset DVD (SIMATIC PDM)		Yes	(z)		
Software on the PCS 7 Toolset DVD (SIMATIC BATCH)	BATCH (z) UNITS	Yes	(z)	(z)	
Maintenance Station	Maintenance RT (z)	Yes	(z)	(z)	

## Introduction

---

**Note**

In this section, we only use the term **license key**, even if a product is still using the older "authorization".

---

## Legend for the tables below

Column	Value	Meaning
PCS 7 setup	Yes	Software is installed by means of the PCS 7 setup.
	No	Software is not installed by means of the PCS 7 setup.
	No entry	Software is automatically installed, with the software named in the Remark column, by means of the PCS 7 setup.
PC station (type of PC station)	X	Installation required
	(X)	Installation optional, see the Remark column
	(Z)	You will find information on license key levels in the section "Selecting the correct license keys/authorizations (Page 117)".



## Software packages and required license keys

The table below shows which license keys you require for each software package.

### Note

The versions for the current Process Control System; PCS 7 Toolset *V7.0* program package can be found in the *pcs7-readme* file.

Product name	Version License key	System setup	BATCH single station	BATCH server, redundant BATCH server	BATCH client	Remark
SIMATIC BATCH						
BATCH Base		Yes	X	X	X	Basic installation for all SIMATIC BATCH PCs
BATCH Server	BATCH (z) UNITS	Yes	(z)	(z)		
BATCH API	BATCH API		X	X		
BATCH Fastobjects			X	X		License
BATCH Separation Procedures/Formulas	BATCH Formula		X	X		
BATCH Hierarchical Recipe	BATCH Hierarchical Recipe		X	X		
BATCH ROP Library V7.0	BATCH Library		X	X		
BATCH Client - BCC	BATCH BatchCC	Yes			X	And/or BATCH Recipe System
BATCH Client - RZE	BATCH Recipe System	Yes			X	And/or BATCH Control
BATCH Client - Report					X	
BATCH Planning	BATCH Planning				X	
Getting Started		Yes			X	

## Appendix

### 5.2 Appendix B - Licensing of software packages

Product name	License key	System setup	BATCH single station	BATCH server, redundant BATCH server	BATCH client	Remark
PCS 7 - AS						
SIMATIC NET PC SW	BCE	Yes	X	X		License only for a standard Ethernet interface module (not required for SIMATIC NET CP 1613)

Product name		License key	System setup	OS server for BATCH	OS client for BATCH	Remark
Operator station for BATCH						
WinCC	Basic System	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	Only WinCC RT PO Client for OS client
		WinCC Server	Yes		X	
		WinCC Redundancy	Yes		(X)	Only required for redundancy
		WinCC User Archives	Yes	(X)	(X)	
	LTO	WinCC Advanced Process Ctrl	Yes	X	X	
		Chip Card	Yes	(X)	(X)	WinCC chip card reader required (only active in process mode)
SFC Visualization			Yes	X	X	
PCS 7 Faceplates			Yes	X	X	Automatically installed with WinCC
SIMATIC NET		BCE	Yes	X		License only for a standard Ethernet interface module (not required for CP 1613)
BATCH WinCC Client Options			Yes	X	X	
BATCH WinCC Server Options			Yes	X		

Product name	License key	System setup	SIMATIC PCS 7 BOX 416 (ES AS OS BATCH)	SIMATIC PCS 7 BOX 416 (only AS OS BATCH)	Remark
PCS 7 BOX					
WinLC RTX	WinLC RTX	No			
Software on the PCS 7 Toolset DVD (ES installation)		Yes	(z)		
Software on the PCS 7 Toolset DVD (OS installation)	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	
Software on the PCS 7 Toolset DVD (SIMATIC PDM)		Yes	(z)		
Software on the PCS 7 Toolset DVD (SIMATIC BATCH)	BATCH (z) UNITS	Yes	(z)	(z)	
Maintenance Station	Maintenance RT (z)	Yes	(z)	(z)	

## Introduction

---

**Note**

In this section, we only use the term "license key", even if a product is still using the older "authorization".

---

---

**Note**

In this section, we only use the term "license key", even if a product is still using the older "authorization".

---

## Legend for the tables below

Column	Value	Meaning
PCS 7 setup	Yes	Software is installed by means of the PCS 7 setup.
	No	Software is not installed by means of the PCS 7 setup.
	No entry	Software is automatically installed, with the software named in the Remark column, by means of the PCS 7 setup.
PC station (type of PC station)	X	Installation required
	(X)	Installation optional, see the Remark column
	(Z)	You will find information on license key levels in the section "Selecting the correct license keys/authorizations (Page 117)".

## Software packages and required license keys

The table below shows which license keys you require for each software package.

### Note

The "Version" column is empty so that you can enter the correct data for your plant documentation. The versions for the current Process Control System; PCS 7 Toolset V7.0 program package can be found in the pcs7-readme file.

Product name	Version	License key	System setup	Route Control single station	Route Control server	Route Control client	Remark
Optional packages for all PCS 7 PCs							
SIMATIC Logon Service		Logon Service	Yes	(X)	(X)	(X)	(X) All stations which use applications managed by SIMATIC Logon Service require the SIMATIC Logon Service.
SIMATIC Security Control			Yes	(X)	(X)	(X)	(X) Activate security settings for PC stations.

Product name	Version	License key	System setup	Route Control single station	Route Control server	Route Control client	Remark
PCS 7 - AS							
SIMATIC NET PC SW		BCE	Yes	X	X		License only for a standard Ethernet interface module (not required for SIMATIC NET CP 1613)

## Appendix

### 5.2 Appendix B - Licensing of software packages

Product name	Version	License key	System setup	Route Control single station	Route Control server	Route Control client	Remark
SIMATIC ROUTE Control							
Route Control Base			Yes	X	X	X	
Route Control Engineering		Route Control Engineering	Yes				Wizard in context of SIMATIC Manager, library blocks, engineering tool
Route Control Server		Route Control Server (z)	Yes	(z)	(z)		(also redundant)
Route Control Client		Route Control Center	Yes	X		X	
Route Control Library			Yes	X			
Route Control Faceplate			Yes	X		X	

Product name	Version	License key	System setup	SIMATIC PCS 7 BOX 416 (ES, AS, OS, BATCH, SIMATIC Route Control)	SIMATIC PCS 7 BOX 416 (only AS, OS, BATCH, SIMATIC Route Control)	Remark
PCS 7 BOX						
WinLC RTX		WinLC RTX	No			
Software on the PCS 7 Toolset DVD (ES installation)			Yes	(z)		
Software on the PCS 7 Toolset DVD (OS installation)		WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	
Software on the PCS 7			Yes	(z)		

Product name	Version	License key	System setup	SIMATIC PCS 7 BOX 416 (ES, AS, OS, BATCH, SIMATIC Route Control)	SIMATIC PCS 7 BOX 416 (only AS, OS, BATCH, SIMATIC Route Control)	Remark
Toolset DVD (SIMATIC PDM)						
Software on the PCS 7 Toolset DVD (SIMATIC BATCH)		BATCH (z) UNITS	Yes	(z)	(z)	
Software on the PCS 7 Toolset DVD (SIMATIC Route Control)		Route Control (z)	Yes	(z)	(z)	
Maintenance Station		Maintenance RT (z)	Yes	(z)	(z)	

SIMATIC PCS 7 BOX is supplied with preinstalled software and DVDs for restoring the factory state.

#### NOTICE

The required license keys are on a separate license key diskette in the factory state. Back up the license keys if possible before restoring the factory state.

**Legend for the tables below**

Column	Value	Meaning
PCS 7 setup	Yes	Software is installed by means of the PCS 7 setup.
	No	Software is not installed by means of the PCS 7 setup.
	No entry	Software is automatically installed, with the software named in the Remark column, by means of the PCS 7 setup.
PC station (type of PC station)	X	Installation required
	(X)	Installation optional, see the Remark column
	(Z)	You will find information on license key levels in the section "".



**Preinstalled software and required license keys**

- You can find information about which license keys are needed for the ES installation or SIMATIC PDM in the section "Software packages and required license key (Page 166)".
- You can find information about which license keys are needed for the OS installation in the section "Software packages and required license key (Page 166)".
- You can find information about which license keys are needed for the SIMATIC BATCH in the section "Software packages and required license key (Page 166)".
- You can find information about which license keys are needed for the SIMATIC Route Control in the section "Software packages and required license key (Page 166)".

Product name	License key	System setup	SIMATIC PCS 7 BOX 416 (ES AS OS BATCH Route Control)	SIMATIC PCS 7 BOX 416 (only AS OS BATCH Route Control)	Note
PCS 7 BOX 416					
Software on the PCS 7 Toolset DVD (ES installation)		Yes	(z)		
Software of the PCS 7 Toolset DVD (OS installation)	WinCC RC (z) /WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	
Software of the PCS 7 Toolset DVD (SIMATIC PDM)		Yes	(z)		
Software of the PCS 7 Toolset DVD (SIMATIC BATCH)	BATCH (z) UNITs	Yes	(z)	(z)	

Product name	License key	System setup	SIMATIC PCS 7 BOX 416 (ES AS OS BATCH Route Control)	SIMATIC PCS 7 BOX 416 (only AS OS BATCH Route Control)	Note
Software of the PCS 7 Toolset DVD (SIMATIC Route Control)	Route Control (z) routes	Yes	(z)	(z)	
Maintenance Station	Maintenance RT (z)	Yes	(z)	(z)	

Product name	License key	System setup	SIMATIC PCS 7 BOX RTX (ES AS OS BATCH Route Control)	SIMATIC PCS 7 BOX RTX (only AS OS BATCH Route Control)	Remark
PCS 7 BOX RTX					
PCS 7 ASRTX	RTX	No			
WinAC RTX	WinLC RTX	No			
Software of the PCS 7 Toolset DVD (ES installation)		Yes	(z)		
Software on the PCS 7 Toolset DVD (OS installation)	WinCC RC (z)/WinCC RT (z) WinCC Archive (z)	Yes	(z)	(z)	

Product name	License key	System setup	SIMATIC PCS 7 BOX RTX (ES AS OS BATCH Route Control)	SIMATIC PCS 7 BOX RTX (only AS OS BATCH Route Control)	Remark
Software on the PCS 7 Toolset DVD (SIMATIC PDM)		Yes	(z)		

Product name	License key	System setup	SIMATIC PCS 7 BOX AS RTX	
PCS 7 BOX AS RTX				
PCS 7 AS RTX	RTX	No		
WinAC RTX	WinLC RTX	No		

### See also

- Selecting the correct license keys/authorizations (Page 117)

## 5.3 Appendix C - Approved configurations on a PC station

### 5.3.1 Approved configurations

#### Introduction

You can use a PC station for PCS 7 not only in the standard configuration. By installing additional program packages or taking advantage of special properties, you can use a PC station for several purposes (for example:

- as an engineering station with BATCH client installation (Configurations with engineering station, clients and single station (Page 208))
- as an OS server and operator station (client installation on server (Page 209))
- as an OS server and BATCH server (server on server (Page 208))

#### Standard configurations

The following program packages are offered in the PCS 7 system setup when a PC station is installed:

- Engineering
    - PCS 7 Engineering, BATCH Engineering, Route Control Engineering, PDM
- or
- Runtime
    - For a single station:  
OS Single Station, BATCH Single Station, Route Control Single Station
    - For a server:  
OS Server, OS Server for BATCH, Maintenance Station, Central Archive Server, BATCH Server, Route Control Server
    - For a client:  
OS Client, OS Client for BATCH, BATCH Client, Route Control Client
    - For an Open PCS 7 station:  
Open PCS 7, OS Client with Open PCS 7
    - For a Web server:  
OS Web Server

#### Notes for the reader on this section

---

##### Note

In this section the activation of a standard configuration refers to the activation of an application, e.g., activation of a BATCH client's process mode.

---

## Optimum performance

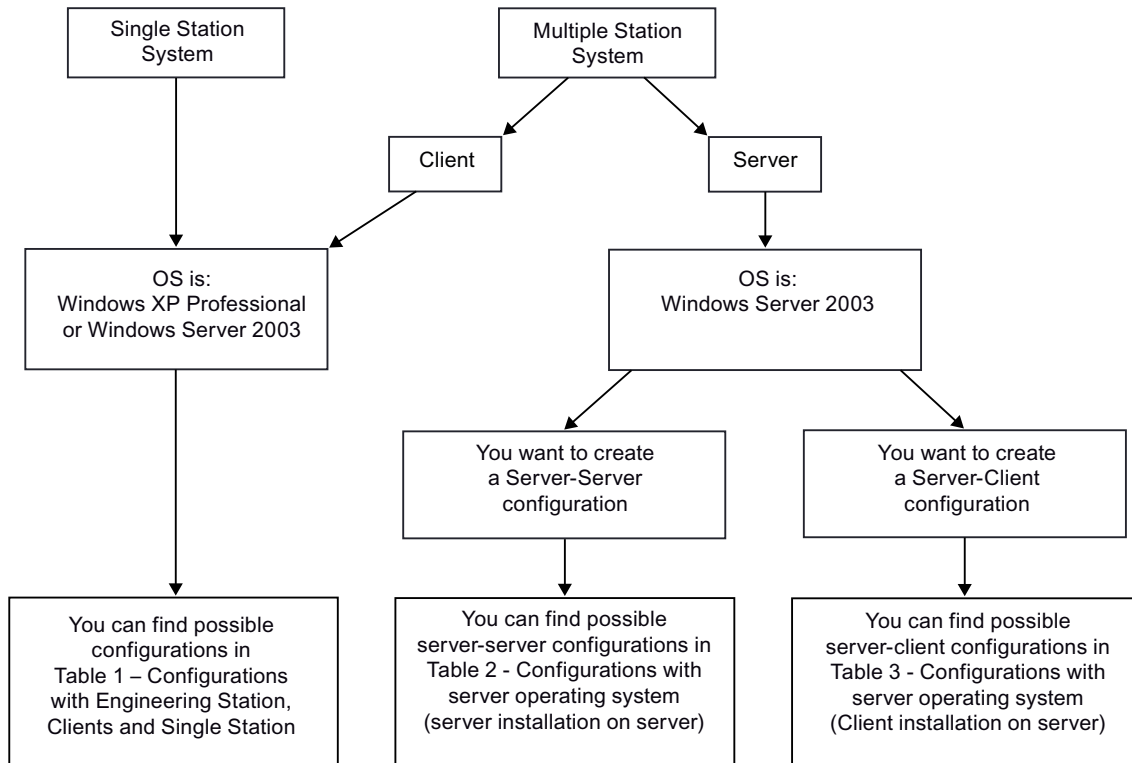
To ensure that PCS 7 performs at its optimum level, we recommend that you only use standard configurations on a PC station. However, plant-specific conditions may mean that you have to equip a PC station with several program packages for standard configurations. If this is the case, you must observe the rules described below.

## Rules

Concerns	Rules
PCS 7 project	Only use the PC configurations described here within a PCS 7 project.
Program packages	Several program packages may be installed on a PC station. However, these stations may only be used simultaneously in exceptional cases (see the configuration tables below).
Performance	Activating several PCS 7 program packages will impair the performance of the individual applications.
Configuring the PC station	More powerful equipment may be required for the PC configurations described here (e.g., larger work memory, operating system). You will find information about the minimum performance requirements of the individual standard configurations in the catalog <i>ST PCS 7</i> .
Using the PC station (installation)	You can activate the properties of several standard configurations on a PC station if: <ul style="list-style-type: none"> <li>• Other program packages have been installed in addition to the standard configuration (e.g., BATCH client on engineering station) or</li> <li>• You activate special properties of the standard configuration (e.g., OS workstation on OS server)</li> </ul>
Number of monitors on a PC station	If you use a server as a workstation also, you can connect a maximum of five workstations (monitors) to that server (workstation on server + workstations on assigned clients).
Central archive server	Only install the central archive server on a separate PC station. A central archive server can be configured redundantly.
Maintenance station	The maintenance station is a configuration in the client-server architecture. You can configure the MS server with PCS 7 servers on a PC station, in accordance with Table 2 below. You must always use an ES with a process connection as an MS client.
Configurations with several servers	In the interests of maintaining performance levels, you must not use more than two server applications on a PC station.
Starting and stopping a PCS 7 server application on redundant servers with several PCS 7 server applications	If several PCS 7 server applications are active in process mode on one server of a pair (e.g., BATCH server and Route Control server), we recommend the following: Make sure that you always start or stop all of a server's PCS 7 server applications. This will allow you to avoid faults should a redundant server fail. Note: Should a PCS 7 server application on a PC of a PCS 7 server pair fail, all PCS 7 applications for this PC's process mode will be terminated automatically.

### Approved configurations - PC station for several PCS 7 applications

The tables below show the approved configurations of PC stations for several PCS 7 applications. The flow chart below displays how the configurations are assigned to the operating systems:



### Example configuration:

Example configuration for a redundant small system with five workstations:

- 1 PC = 1 engineering station = 1 workstation
- + 2 PCs = 1 redundant OS server = 2 workstations
- + 2 PCs = 1 redundant BATCH server = 2 workstations

#### Note

Each workstation can be designed as an OS client and/or a BATCH client.

**Notes for the reader on the tables below**

---

**Note**

Read Tables 1 - 3 carefully from left to right. This means that a PC with a standard installation can also be used for an additional purpose (by using properties or an additional installation by means of the PCS 7 system setup).

**Example:**

If you use a PC station with the standard configuration "engineering station" as an "OS single station" too, the notes and restrictions defined under "A" (configuration type "A") will apply.

**Notes and restrictions:**

You will find information on this topic in the following sections:

- Section "Information on configuration type "X" (Page 210)"
  - Section "Information on configuration type "-" (Page 210)"
  - Section "Information on configuration type "A" (Page 210)"
  - Section "Information on configuration type "B" (Page 210)"
-

## **5.3.2 Configuration tables**

### **5.3.2.1 Configurations with engineering station, clients and single station**

**See also**

- Information on configuration type "A" (Page 210)
- Information on configuration type "-" (Page 210)
- Information on configuration type "X" (Page 210)
- Information on configuration type "B" (Page 210)

### **5.3.2.2 Configurations with server operating system (server to server)**

**See also**

- Information on configuration type "X" (Page 210)
- Information on configuration type "-" (Page 210)



## 5.3.2.3 Configurations with server operating system (client installation on server)

Table 3 - Configurations with server operating system (client installation on server)

Use	Engineering station	OS single station	OS client	BATCH single station	BATCH client	Route Control single station	Route Control client
Standard configuration							
OS server	--- (Page 210)	--- (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)
Redundant OS server	--- (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)
Maintenance server	--- (Page 210)	--- (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)
Redundant maintenance server	--- (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)
BATCH server	--- (Page 210)	X (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)
Redundant BATCH server	--- (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)
Route Control server	--- (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)
Redundant Route Control server	--- (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)	--- (Page 210)	X (Page 210)

### 5.3.3 Information on configurations

#### 5.3.3.1 Information on configuration type "X"

##### No restrictions

Read the configuration notes for the respective standard configurations.

#### 5.3.3.2 Information on configuration type "-"

##### Restriction

This configuration is not approved.

#### 5.3.3.3 Information on configuration type "A"

##### Restriction

If process mode is activated for an OS on the ES, simultaneous OS engineering can only be performed for this activated OS.

#### 5.3.3.4 Information on configuration type "B"

##### Restrictions

- No additional installation of an OS client is necessary since the OS workstation is already included in the standard configuration "Engineering Station".
- Only one PCS 7 application on a PC station can be active during OS configuration (engineering station or OS workstation - no simultaneous operation possible). You cannot use the PC station as an OS workstation during AS configuration.

##### Notes on configuration

- You configure a stand-alone OS client within the project in SIMATIC Manager for this OS workstation.
- You cannot and should not download the OS client project.

##### Notes on process mode

- SIMATIC Manager must be closed when opening the client project. If not, the OS client reads the server data from the engineering station!
- Activate the OS client:
  1. Open WinCC Explorer
  2. Select the OS client project
  3. Change to process mode

# Index

## A

- Activating redundancy, 98, 154
  - OS/BATCH server, 98
- Activating the firewall in PC stations, 102
- Add-ons, 156
- Approved configurations, 213
  - PC station, 213
- Archive servers, 32, 96
  - Central, 84, 96
  - Central, 32
  - Configuration, 84
  - Installation, 96
  - Long-term archiving, 32
- Asset management, 37
- Authorization, 124
  - Selection, 124
- Authorizations, 7, 119, 124, 175, 191, 195, 201, 205
  - Selecting, 124
  - Software, 175, 191, 195, 201, 205
- Automation system, 14
- Autonegotiation, 149

## B

- Basic configuration, 14
- Basic engineering, 168
  - Software, 168
- Basic information, 7
- BATCH, 35, 85, 171
  - Additional services, 85
  - Single station, 35
  - Software, 171
- BATCH station, 14, 28, 136
  - Calculating process objects, 136
  - Determining the license key, 136
  - Multiple station systems, 28
- BCE, 108
- Bundle, 54
- Bundle PC, 138
  - Preparing, 138
- Burner software, 160
- Bus connection, 46

## C

- Calculating the process objects for the central archive server, 133
- Changing the mode, 149
- Changing the transmission rate, 149
- Commissioning, 86
  - Setting the color scheme, 86
  - Setting the font size, 86
- Commissioning wizard, 146
  - Configuration Console, 146
- Communication module, 144
  - Selecting, 144
- Communication modules, 105, 106
  - Driver, 105
  - Installation, 106
- Components, 81
  - Additional, 81
- Configuration, 61, 84
  - Archive servers, central, 84
- Configurations with server operating system client installation on server, 209
- Connecting, 48, 57
  - Plant bus, 48, 57
  - Terminal bus, 48, 57
- CP 1613, 112
- Creating a backup, 87

## D

- Data communication, 157
- Data exchange using OPC, 43
- DCF77 module, 118
- Defragmentation, 165
- DiagMonitor, 161
- Disable, 110
- Disabling
  - Network adapter energy saving options, 110
- Driver, 105
  - Additional, 114
  - Communication modules, 105
  - PCS 7, 114

## E

- Energy saving options, 110
  - Disabling, 110
  - Network adapters, 110
- Engineering station, 14, 18, 19, 23, 24, 25, 129
  - Calculating process objects, 129
  - Determining the license key, 129
  - Single station, 25
  - Single Station, 25
  - Small system, 25

## F

- Firewall, 70, 152

## H

- Hardware, 54, 60, 64
  - Optional, 60
  - PC, 64
- Hotfixes, 151
- How to activate the firewall settings for OPEN PCS 7, 153
- How to create user groups for SIMATIC Logon, 139
- How to create users for the OS, 141
- How to install the Message Queuing Service for Windows Server 2003, 80

## I

- Information on configuration, 210
- Information on configuration type -, 210
- Information on configuration type B, 210
- Information on configuration type X, 210
- Installation, 64, 66, 72, 79, 82, 88, 91, 92, 96, 106
  - Archive servers, 96
  - Communication modules, 106
  - Message Queuing service, 79
  - MS SQL Server, 82
  - Operating system, 72
  - Partitioning hard disks, 66
  - PC, 64
  - PCS 7, 88, 91, 92
  - Software, 66
- Installing, 85
  - Services for SIMATIC BATCH, 85

## L

- Language settings, 142

- License, 119
- License key, 119, 129, 130, 134, 136, 137, 175, 191, 195, 201, 205
  - BATCH station, 136
  - Engineering station, 129
  - Maintenance station, 134
  - Operator station, 130
  - Route control station, 137
  - Software, 175, 191, 195, 201, 205
- License keys, 122, 124
  - Selecting, 124
  - Selection, 124
  - Transferring, 122
- Licenses, 7
- Licensing, 119
- Long-term archiving, 32
  - Archive servers, 32

## M

- Maintenance station, 14, 30, 37, 134
  - Calculating process objects, 134
  - Determining the license key, 134
  - Multiple station system, 30
  - Single station system, 37
- Maintenance Station
  - Multiple station system, 30
- Message Queuing service, 79
  - Installation, 79
- Monitoring the plant bus, 112
- MS SQL Server, 82
  - Installation, 82
- MUI, 142
- Multiple station system, 26, 29, 30
  - Maintenance station, 30
  - Operator station, 26
  - Route control station, 29
- Multiple station systems, 28
  - BATCH station, 28

## N

- Network, 70
  - Protection, 70
- Network adapters, 110
  - Disabling energy saving options, 110
- Network configuration, 155
  - PC stations, 155
- Network security, 70
- Network settings, 70
- Note on installation, 67

Operating system, 67

## O

Operating system, 67, 72  
 Installation, 72  
 Note on installation, 67  
 Operator station, 14, 25, 26, 33, 40, 130  
 Access over a Web client, 40  
 Calculating process objects, 130  
 Determining the license key, 130  
 Intranet/Internet, 40  
 Multiple station system, 26  
 Single station, 25, 33  
 Small system, 25  
 Web client, 40  
 Web server, 40  
 Operator stations, 170  
 Software, 170  
 Option, 60  
 Hardware, 60  
 Options, 173  
 Software, 173  
 Order, 61  
 OS  
 Redundancy connection, 144  
 OS/BATCH server, 98  
 Activating redundancy, 98

## P

Paged memory, 76  
 Paging file, 76  
 Partitioning hard disks, 66  
 Installation, 66  
 PC, 64  
 Hardware, 64  
 Installation, 64  
 Software, 64  
 PC configuration, 70  
 Security settings, 70  
 PC configurations, 38  
 SIMATIC PCS 7 BOX, 38  
 PC station, 146, 213  
 Approved configurations, 213  
 Commissioning wizard, 146  
 Setting, 146  
 PC stations, 138, 155  
 Network configuration, 155  
 Overview of the preparations, 138  
 PCS 7, 88, 91, 92, 114

Additional drivers, 114  
 Installation, 88, 91, 92  
 Software, 88

Plant bus, 14, 46, 48, 57  
 Connecting, 48, 57  
 Process objects, 129, 130, 134, 136  
 BATCH station, 136  
 Engineering station, 129  
 Maintenance station, 134  
 Operator station, 130  
 Product bundle, 54  
 Programs, 165  
 Additional, 156  
 Defragmentation, 165

## R

Recommended basic hardware configuration, 54  
 Redundancy, 16  
 Redundancy connection  
 OS, 144  
 Reinstallation, 103  
 Route control, 36  
 Single station, 36  
 Route control station, 29, 137  
 Calculating routes, 137  
 Determining the license key, 137  
 Multiple station system, 29  
 Route Control Station, 14  
 Routes, 137  
 Route control station, 137

## S

Screen savers, 164  
 Security, 70, 152  
 Security patches, 151  
 Security settings, 70, 152  
 Service pack, 75, 151  
 Installing, 75  
 Service packs, 151  
 Setting, 146  
 PC station, 146  
 Setting the color scheme, 86  
 Setting the font size, 86  
 Setting up a user, 140  
 Settings, 86, 148  
 Color scheme, 86  
 Font size, 86  
 Standard network adapters, 148  
 SIMATIC BATCH, 35, 171

- Single station, 35
- Software, 171
- SIMATIC PCS 7 BOX, 38
  - PC configurations, 38
- SIMATIC PCS 7 BOX, 14
- SIMATIC PCS 7 Web option, 98
- SIMATIC Shell
  - Redundancy, 144
- Single station, 25, 33, 35, 36
  - Engineering station, 25
  - Operator station, 25, 33
  - Route control, 36
  - SIMATIC BATCH, 35
- Single station system, 37
  - Maintenance station, 37
- Softnet CP, 108
- Software, 64, 66, 88, 168, 170, 171, 173, 175, 191, 195, 201, 205
  - Authorizations, 175, 191, 195, 201, 205
  - Basic engineering, 168
  - Installation, 66
  - License key, 175, 191, 195, 201, 205
  - Operator stations, 170
  - Optional, 173
  - PC, 64
  - PCS 7 installation, 88
  - SIMATIC BATCH, 171
- Software packages for SIMATIC Route Control, 172
- Sound card, 117
- Standard communication modules, 108
- Standard network adapters, 148

- Settings, 148
- StoragePlus, 32, 96
- System settings, 77
- System setup, 92

## T

- Terminal bus, 14, 46, 48, 57
  - Connecting, 48, 57
- Time synchronization, 51
- Transferring, 122
  - License keys, 122

## U

- Update, 103
- Updates, 151
- Utilities, 156

## V

- Validity, 7
- Virus scanners, 160

## W

- Web client, 40
  - Operator station, 40