SIEMENS

SIMATIC

PCS 7 Process Control System
PCS 7 Readme V9.1 (Online)

Readme

Version: 2021-02(Online)

V9.1
A5E42575789-AA

Legal information

Warning notice system

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**
>
> indicates that minor personal injury can result if proper precautions are not taken.

> **NOTICE**
>
> indicates that property damage can result if proper precautions are not taken.

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 product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

> ⚠ **WARNING**
>
> Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of 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

Security information

<div style="text-align: right; font-size: 2em;">1</div>

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines, and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions form one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. These systems, machines and components should only be connected to the enterprise network or the Internet if and only to the extent necessary and with appropriate security measures (firewalls and/or network segmentation) in place.

You can find more information on protective measures in the area of industrial security by visiting:
https://www.siemens.com/industrialsecurity.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends performing product updates as soon as they are available and using only the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
https://www.siemens.com/industrialsecurity.

Overview

2

Note

Read these notes carefully. They contain important information and additional details about SIMATIC PCS 7.

The information given in this Readme file takes precedence over all the SIMATIC PCS 7 manuals.

You have received version V9.1 of the SIMATIC PCS 7 software.

SIMATIC PCS 7 is the future-oriented process control system used in the "Totally Integrated Automation" concept by Siemens.

- Based on robust, industrial standard SIMATIC hardware and software components

- Modern, distributed system architecture

- Simple and quick system expansion and optimization in runtime

- Scalable from a small laboratory system to networks of plants

- For all applications: continuous and batch applications

- For all industries: process, production and hybrid sectors

- Efficient, plant-wide engineering

- Flexible and simple integration of field devices and drives based on PROFINET, PROFIBUS or Foundation Fieldbus

- Homogeneously integrated safety technology, certified by the TÜV (German Technical Inspectorate)

- Support for open source interfaces based on international standards such as OPC

- Increased availability through redundancy at all levels

- Modular structured and scalable batch system, SIMATIC BATCH

- Flexible route control system, SIMATIC Route Control

- Conformity with EU GMP Guideline Annex 11 and 21 CFR Part 11

We hope that you enjoy using SIMATIC PCS 7 and have great success with it.

Your PCS 7 team

Notes on installation

<div style="text-align: right; font-size: 3em;">3</div>

3.1 General information

Information on SIMATIC PCS 7 on the internet

All product and order information regarding SIMATIC PCS 7:

- Internet link (https://www.siemens.com/PCS7)

Overview of the most important technical information and solutions for SIMATIC PCS 7 in the Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/63481413)

Here, you can also subscribe to the newsletter, which keeps you constantly up-to-date with current information about our products.

- Internet link (https://support.industry.siemens.com/My/ww/en/notifications)

Content of the SIMATIC PCS 7 Readme file

The SIMATIC PCS 7 Readme for SIMATIC PCS 7 V9.1 is available in two versions:

1. SIMATIC PCS 7 Readme (Offline)
   This is the version that is installed during the PCS 7 setup.
   This file only contains general notes and links to documents on the internet.

2. SIMATIC PCS 7 Readme (Online)
   This is the version which contains all information on the installation and use of SIMATIC PCS 7 in the format you are already familiar with.
   This file is now only available on the internet so that we can keep it up to date.
   You can find the current version of this document for download under the entry ID 109780270 in the Industry Online Support:

   – Internet link (https://support.industry.siemens.com/cs/ww/en/view/109780270)

Note

Before you install or use SIMATIC PCS 7 V9.1, it is vital that you read the information from the most recent version of this document.

Each of the products comes with product-specific information in the form of readme files.

The information contained in these readme files also applies to using products in SIMATIC PCS 7.

Electronic manuals and help system on SIMATIC PCS 7

The following documentation can be accessed at any time on the SIMATIC PCS 7 USB flash drive in the folder "_Manuals\English" or "_Product_Information\English".

PCS 7 - Documentation V9.1

PCS 7 - Operating Instructions - OS Process Control V9.1

PCS 7 - Installation Manual - PC Configuration V9.1

PCS 7 - Configuration Manual - Engineering System V9.1

PCS 7 - Configuration Manual - Operator Station V9.1

Complete documentation for SIMATIC PCS 7 on the internet and document updates

The complete SIMATIC PCS 7 documentation is available in multiple languages at the following website:

• Internet link (https://www.siemens.com/pcs7-documentation)

You also have the option for updating the installed SIMATIC PCS 7 help system and post-installing the SIMATIC PCS 7 system documentation. For additional information, please refer to entry ID 109744320 in the Industry Online Support:

• Download link (https://support.industry.siemens.com/cs/ww/en/view/109744320)

Note

Timeliness of online documents

Documents available online can be more up-to-date than the version of documents installed with SIMATIC PCS 7 setup. The statements in documents available online should therefore be given priority over installed documents.

3.2 Type of delivery

3.2.1 Delivery package

The products listed below are delivered with the installation media required for the respective product:

- SIMATIC PCS 7 V9.1 Software Media Package:
    - SIMATIC PCS 7 V9.1 on USB flash drive or as software download
    - Certificate of License
- SIMATIC PCS 7 V9.1 Software Media Package ASIA:
    - SIMATIC PCS 7 V9.1 on USB flash drive
    - Certificate of License

The license keys required to operate the software for the supplied product are located on the License Key USB flash drive.

To simplify your license management, you can also save the license keys for other SIMATIC PCS 7 products on this USB flash drive. Authorizations for older SIMATIC products must be saved on authorization disks.

3.2.2 Licensed commissioning of SIMATIC PCS 7 V9.1 ASIA

You will receive the SIMATIC PCS 7 V9.1 ASIA License Keys on a License Key USB Hardlock as license storage medium.

Use the Automation License Manager to transfer the licenses to the SIMATIC PCS 7 V9.1 ASIA PC during installation or afterwards.

Note the following when handling the license storage medium:

- Do not delete any files from the License Key USB Hardlock.
- Do not copy any data to the License Key USB Hardlock.
- Do not format the License Key USB Hardlock.
- Do not remove the License Key USB Hardlock from the computer while PCS 7 is running.

NOTICE
Demo mode
SIMATIC PCS 7 OS will change to demo mode when you remove the License Key USB Hardlock from the computer.

3.2.3   SIMATIC PCS 7 Trial Mode

The software functions and configuration limits which are activated as part of the 14-day trial mode are not authorized for productive use.

SIMATIC PCS 7 trial mode is characterized by the following features:

* PCS 7 trial mode can be activated via the PCS 7 system setup or after the first start, and used for up to 14 calendar days in non-productive operation.
After 14 days, it can no longer be used.

* The maximum capacity in Engineering and Runtime is 250 process objects. Please note that the "System blocks" in the PCS 7 trial mode are added to the limit count (for example, OB BEGIN, etc.). These "System blocks" are not displayed in the CFC process object statistics.

* OS Runtime operation including SFC visualization is possible on a single station (no client server, no web server, no redundancy).

* SIMATIC BATCH can be used with up to 10 units.

* The BATCH API cannot be used in trial mode.

* SIMATIC Route Control can be used for up to 30 routes.

* All other PCS 7 functions/configurations/capabilities (for example Import/Export Wizard, Client server, more than 250 PO) are not available in the PCS 7 trial mode.

* After installing the licenses for productive operation (see the catalog ST PCS 7), the PCS 7 trial mode can also be installed for indefinite productive operation with a scope of functions corresponding to the license that was purchased and installed.

3.2.4   Notes on the license contract for the SQL server

Note that SIMATIC PCS 7 also includes the SQL Server software licensed by Microsoft Corporation. With the use of SIMATIC PCS 7, you agree to be bound by and to abide by the attached Microsoft terms and conditions for end customers for the Microsoft SQL Server.

The Microsoft "SQL Server" supplied with PCS 7 must not be used outside the PCS 7 environment without prior written consent from Siemens.

3.3 Hardware requirements

3.3.1 PC hardware

3.3.1.1 Recommended PC 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, Process Historian, Information Server, PCS 7 OS / SIMATIC BATCH / SIMATIC Route Control on a PC, Engineering station, OS server, OS single station, Maintenance Station, SIMATIC PAM 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 SIMATIC Management Console	OS client, BATCH client, Route Control client
Basic PC (see catalog)	SIMATIC IPC 547G / 647D / 847D / 647E / 847E	SIMATIC IPC 547G / 647D / 847D / 647E / 847E / 627D / 677D / 627E / 677E
Processor	>= Core i5-4570TE (2C/4T, 2.7 GHz, 4MB Cache, TB, VT-d, AMT)	>= Core i3-4330TE (2C/4T, 2.4 GHz, 4MB Cache)
Work memory (RAM)	>=16 GB (64-bit operating system)	>=4 GB (64-bit operating system)
Hard disk Partition size	>=200 GB HDD/SSD C:\ 100 - 128 GB	>=160 GB HDD/SSD C:\ 100 - 128 GB
Network adapter / Communications interfaces • For terminal bus communication • For plant bus communication	• RJ45 on-board gigabit Ethernet • CP 1623 or BCE network adapter	• RJ45 on-board gigabit Ethernet

Parameters	OS client
Basic PC (see catalog)	SIMATIC IPC427E / IPC477E
Processor	Core i5-6442EQ (4C/4T, 1,9(2,7)GHz, 6MB Cache)
Work memory (RAM)	>= 4.0 GB
Hard disk Partition size	>=160 GB HDD/SSD C:\ 100 GB - 128 GB
Network adapter/communications interfaces	2 x RJ45 on-board Gigabit Ethernet without PROFINET or PROFIBUS interface
Purpose	Approved for OS/Batch client operation only

Parameters	SIMATIC PDM MS
Basic PC (see catalog)	SIMATIC IPC427E
Processor	Core i5-6442EQ (4C/4T, 1,9(2,7)GHz, 6MB Cache)
Work memory (RAM)	= 16.0 GB
Hard disk Partition size	>=160 GB HDD/SSD C:\ 100 GB - 128 GB
Network adapter/communications interfaces	3 x RJ45 on-board Gigabit Ethernet
Purpose	Approved for PDM MS operation only

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

Parameters	SIMATIC IPC 627D / 677D / 627E / 677E	SIMATIC IPC427D
Processor	>= Core i3-4330TE (2C/4T, 2,4GHz, 4MB Cache, VT-x)	Core i7-3517UE (2C/4T, 1.7(2.8)GHz, 4MB Cache)
Work memory (RAM)	>= 16 GB (64-bit operating system)	4.0 GB
Hard disk Partition size	>=200 GB HDD / SSD C:\ 100 - 128 GB	SSD: 80 GB
Network adapter/communications interfaces	• 2 x RJ45 on-board Gigabit Ethernet • CP 1623 or BCE network adapter (BCE also via onBoard Gigabit Ethernet)	• 2 x RJ45 on-board Gigabit Ethernet • onBoard PROFIBUS CP 5622 • onBoard PROFINET CP 1616
Purpose	SIMATIC IPC627 / IPC677 is released as part of the PCS 7 BOX compact systems.	PCS 7 AS RTX based on SIMATIC IPC427D only released for AS operation.

Note

- In the case of multi-user 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. In addition to the Microsoft recommendation of "15% free space", we recommend that you reserve at least 2 GB of free space (depending on the size of the project) on the system partition.

- Integrity check fails if a new file/folder is added to the PCS 7 Bundle.

- When using Process Historian, also read the notes in the "Hardware requirements" section in the Process Historian 2020 installation manual.

- In the case of multi-VGA configurations with extensive graphical engineering, a CPU clock frequency that is as high as possible is recommended. In these cases deactivating Hyper-Threading in the BIOS of the OS Client can result in increased performance of the graphics output.

- When using Microsoft Windows Server 2019 Standard with Hyper-V Virtualization on IPC647E / IPC847E, read the notes in the "Hardware requirements" chapter of the *PCS 7 Virtualization - Project Engineering and Configuration* manual.

Additional information

The catalogs of the PCS 7 system components (*ST PCS 7 for SIMATIC PCS 7 V9.1*) as well as the add-on catalog (*ST PCS 7 for V9.1*) is provided in the Information und Download Center:

- Internet link (https://new.siemens.com/global/en/products/automation/topic-areas/process-automation/catalogs-for-process-automation.html)

3.3.1.2 Compatibility matrix SIMATIC IPC and accessories for PCS 7 V9.1

Compatibility matrix SIMATIC IPC and accessories for PCS 7 V9.1

PCS 7 V9.1	Article no.	Windows 7 Ultimate 32-Bit SP1	Windows 10 Enterprise LTSC 2019 64-Bit	Windows Server 2019 Standard Edition, Datacenter Edition (SIVaaS only) 64-Bit
RACK IPC				
IPC547G	6ES7 660-7....-....	-	X	X
IPC647D	6ES7 660-5....-....	-	X	X
IPC647E	6ES7 661-0....-....	-	X	X
IPC847D	6ES7 660-6....-....	-	X	X
IPC847E	6ES7 661-1....-....	-	X	X

PCS 7 V9.1	Article no.	Windows 7 Ultimate 32-Bit SP1	Windows 10 Enterprise LTSC 2019 64-Bit	Windows Server 2019 Standard Edition, Datacenter Edition (SIVaaS only) 64-Bit
BOX IPC				
IPC627D, IPC677D[2]	6ES7 650-4B...-....	-	X	-
IPC627E, IPC677E[2]	6ES7 650-4C...-....	-	X	X
Microbox				
IPC427D, PCS 7 AS RTX (RTX 2010)	6ES7 654-0UE23-0XX1	X	-	-
IPC427D, PCS 7 AS RTX (RTX 2010)	6ES7 654-0UE23-0XX2	X	-	-
IPC427E, IPC477E OS clients	6ES7 650-0VG..-....	-	X	-
IPC427E, PDM MS V4.0	6ES7 650-0RJ04-0YX0	-	X	-
CPs				
CP 1623	6GK1 162-3AA00	-	X	X
CP 1628	6GK1 162-8AA00	-	X	X
Accessories				
Intel Gigabit CT desktop adapter (EXPI9301CT)	A5E02639550	-	X	X
NVIDIA NVS315	A5E36966175	-	X	X
NVIDIA QUADRO P400	A5E44936965	-	X	X
SIMATIC PCS 7 USB smart card reader (OK3121)	6ES7 652-0XX02-1XC0	-	X[1]	X[1]
TCOS 3.0 smart cards	6ES7652-0XX00-1XD2	-	X	X
Signal module, PCI card for installation in an operator station	6DS1 916-8RR	-	X	X

Legend for the table:

"-" = incompatible

"X" = compatible

Footnotes:

[1]   With SIMATIC Logon.

[2]   WinAC RTX Operation with PCS 7 V9.1 on PCS 7 BOX compact system is no longer supported.

3.3.1.3   Network

Network configuration

> The network for the PCS 7 systems must be isolated via switches, routers or gateways in such a way that no external interference can affect the PCS 7 network.

> You can find recommendations for this in the document:

> • PCS 7 Security Concept PCS 7 & WinCC (Basic)

> The document is available for download under the entry ID 109780811 in the Industry Online Support:

> • Download link (https://support.industry.siemens.com/cs/ww/en/view/109780811)

3.3.2   AS hardware

Documentation on hardware

> The versions of the AS hardware components that are approved for PCS 7 V9.1 are described in the manual "PCS 7 - Released Modules". You can find this document on the website for SIMATIC PCS 7 Technical Documentation (https://siemens.com/pcs7-documentation).

Time synchronization

> We generally recommend the use of a central system clock.

> You can find notes on central time clock in the "PCS 7 – Time synchronization" function manual. You can find this document on the website for SIMATIC PCS 7 Technical Documentation.

> • Internet link (https://siemens.com/pcs7-documentation)

> You can find additional information on SICLOCK products under entry ID 67638218 in the Industry Online Support:

> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/67638218)

> We have tested the compatibility of products from the BÜRK MOBATIME GmbH company with regard to time synchronization.

> You can find notes on time synchronization with BÜRK MOBATIME GmbH products under entry ID 109760344 in the Industry Online Support:

> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/109760344)

> When using the internal Ethernet/PROFINET interface, the CPUs 6ES7414-3EM05-0AB0, 6ES7414-3EM06-0AB0, 6ES7414-3EM07-0AB0, 6ES7416-3ER05-0AB0, 6ES7416-3ES06-0AB0 and 6ES7416-3ES07-0AB0 can only be synchronized with the NTP method. For the previous CPU types, we continue to recommend that you use the SIMATIC method.

3.4 Installation of the software, software requirements

3.4.1 Software installation

3.4.1.1 Requirements

Released operating systems

The following operating systems are supported in PCS 7 V9.1:

- Windows 10 Enterprise LTSC 2019
- Windows Server 2019 Standard Edition
- Windows Server 2019 Datacenter Edition

Note

The Windows Server 2019 Datacenter Edition is only supported in conjunction with the service contract SIMATIC Virtualization as a Service (SIVaaS). For additional information, please refer to entry ID 109762004 in the Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/109762004)

Note

Installation to PCS 7 V9.1

Before you start with the installation of PCS 7 V9.1 on your computers, ensure that the currently released MS patches for the respective operating system are installed on the computers.

For information about the handling of current Microsoft security patches in PCS 7 please refer to the topic "*Patch management and security updates*" in this section.

Released processor architectures

Only the x64 platform is used for processor architectures which support 64-bit memory addressing.
Systems with Intel Itanium CPU architecture (IA64) are not supported.

Compatibility list of the PCS 7 PC configurations and operating systems

Not all configurations are suitable for every operating system. The following table shows the relationship of the most common configurations of PCS 7 to the operating systems.

Before performing the installation, refer to the product-specific readme files to ensure that the product being installed is suitable for the desired operating system.

SIMATIC PCS 7 V9.1 SW components	Windows 10 Enterprise LTSC 2019	Windows Server 2019 Standard Edition	Windows Server 2019 Datacenter Edition (SIVaaS only)
ES	X	X	X
OS-Single Station	X	X	X
ES/OS-Single Station	X	X	X
OS-Server		X	X
OS-Client	X	X	X
Web-Server	X	X	X
Web-Client	X	X	X
Process Historian[1]		X	X
Information Server	X	X	X
SIMATIC Management Console	X	X	X
SIMATIC PAM Station		X	X
SIMATIC PDM MS	X		
SIMATIC Batch Single Station	X	X	X
SIMATIC Batch Client	X	X	X
SIMATIC Batch Server		X	X
SIMATIC Route Control Server		X	X
SIMATIC Route Control Client	X	X	X
OpenPCS 7	X	X	X
PCS 7 BOX	X	X	
OS-Client Microbox	X		
Microsoft Windows Domain Controller		X	X

[1] With PCS 7 V9.1 the PH software is only usable as single PH

Note

Released operating systems

The specifications of released operating systems made in this Readme take precedence over any other contradictory specifications made in the Readme files of the individual products.

Microsoft Internet Explorer

Only Internet Explorer 11 is permitted.

- Internet link (https://windows.microsoft.com/en-US/internet-explorer/ie-11-worldwide-languages)

Internet Explorer 11 attempts to automatically install the required Microsoft Patches (KB) during the installation. If this installation fails, the installation procedure is aborted. In this case, you need to install the required KBs manually before you can install Internet Explorer 11.

- Internet link (https://support.microsoft.com/kb/2872074)

Note

Google Chrome or Mozilla Firefox is required to access the Information Server.

Microsoft .NET Framework

The Microsoft .NET Framework feature must be enabled prior to the installation of the SIMATIC PCS 7 software.

Windows Server 2019

Read the information from Microsoft:

- Internet link (https://msdn.microsoft.com/en-us/library/hh506443(v=vs.110).aspx)

If you enable the ".NET Framework" feature without an internet connection, you can use the Windows installation medium as the file source:

1. Insert the Windows installation medium.

2. Run the following command in the command prompt with higher-level rights:
   Dism.exe /online /enable-feature /featurename:NetFx3 /All /Source:<DVD drive letter>:\sources\sxs /LimitAccess

PCS 7 system setup

Other required parts of the Microsoft .NET Framework are automatically installed with the SIMATIC PCS 7 system setup.

Microsoft SQL Server

Microsoft SQL Server 2017 is installed automatically by the PCS 7 system setup. The computer name must be set before SQL Server is installed. The computer name cannot be changed afterwards.

Note

SQL Server Management Studio (SSMS) will not be delivered with PCS 7 V9.1. The user can download the software from here - Download SQL Server Management Studio (SSMS) (https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-2017).

Notes on installing the operating system

Before installing PCS 7, you must install an operating system released for the planned PCS 7 configuration.

The use of tools such as Windows Easy Transfer to transfer data and settings between different operating systems or to perform a direct upgrade from a previous operating system (e.g. from Windows 7 to Windows 10) has not been approved.

The use of the following operating system features has not been approved for PCS 7:

- HomeGroup (only available with Windows 10)

- Parental Control (only available with Windows 10)

- BitLocker

- Fast User Switching (The use of this feature can be disabled by the administrator via a group policy. You can find additional information on the procedure on the SIMATIC PCS 7 USB flash drive in the folder _Manuals\English "PCS 7 - PC Configuration.pdf" in the section "How to disable user switching").

Windows Software Update Services (WSUS)

The WSUS cannot install software versions that are not described in this document as a minimum system requirements. This includes service packs for Microsoft operating systems, SQL Server, Office or new versions of Internet Explorer.

This guideline does not apply to the mentioned patch classifications published under entry ID 18490004:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/18490004)

You need to operate the WSUS at least on the basis of Windows Server 2019 for patch management of plant computers using the Windows 10 and Windows Server 2019 operating systems.

Also read the information from Microsoft for setting up the WSUS:

- Windows Server Update Services (WSUS) (https://docs.microsoft.com/en-us/windows/deployment/update/waas-manage-updates-wsus)

Patch management and security updates

You can find information on the use of the latest Microsoft updates in the Industry Online Support under entry ID 18490004:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/18490004)

To ensure secure and stable operation of the operating system and therefore PCS 7, we recommend the installation of the mentioned updates.

Note

Configuration for automatic updates with Windows 10 Enterprise LTSC 2019 and Windows Server 2019

The "Patch management" section of the configuration manual "PCS 7 Compendium Part F - Industrial Security" (https://support.industry.siemens.com/cs/ww/en/view/109782722) describes the recommended PCS 7 settings for automatic updates.

If these settings are enabled, the user is notified about available updates by the Windows operating system.

The WinCC option "Disable shortcut keys for operating system access" prevents the operator from accessing the operating system level. Notification of available updates is prevented.

Additional information on the topic of industrial security and plant security

You can find additional documents and information on the topic of industrial security and plant security in the Industry Online Support, in the "All-round protection with Industrial Security - Plant Security" entry list and the document:

*   Internet link (https://support.industry.siemens.com/cs/ww/en/view/109782722)

Permitted domain controllers (DC)

*   Domain controller (DC) based on Windows Server 2019

*   Domain controller (DC) based on Windows Server 2016

Operating system languages

When you use PCS 7, you will have to set the required language and region at every point in the Windows language settings. This affects all the settings available under "Region and Language".

If you use PCS 7 ASIA, make the following settings in the Windows regional and language options:

*   Select "Chinese (PRC)" for "Language for non-Unicode programs". You need to make these settings before installing the PCS 7 software.

*   For the "Display language", select "English (USA)" if you have set the language of the PCS 7 user interfaces to English.

*   For the "Display language", select "English (USA)" or "Chinese (Simplified)" if you have set the language of the PCS 7 user interfaces to Chinese.

*   For the "Format", select "Chinese (PRC)".

Then copy these settings for the following accounts:

*   Welcome page and system accounts

*   New user accounts

Rules for computer names

The selection of the computer name is critical for the entire project configuration:

*   Illegal characters: . , ; : ! ? " ' ^ ´ ` ~ - + = / \ ¦ @ * # $ % & § ° ( ) [ ] { } < > space, hyphen ("-"), underscore ("_")

*   Max. 15 characters

*   Uppercase letters only

*   The first character must be a letter.

It is always advisable that only alphanumeric characters are used for the computer name. You should choose a name consisting of uppercase Latin letters (A-Z) and digits (0-9) only, starting with a letter and containing a maximum of 15 characters.

Before installing the PCS 7 software

- Message queuing must be enabled for PCS 7.

Security settings

You can find information about the security settings in the "_Manuals\English" folder, "PCS 7 - PCS 7 PC Configuration.pdf" document on the SIMATIC PCS 7 USB flash drive in the sections "PC configuration security settings" and "Firewall in PC stations".

Settings need to be made in the registry, the DCOM configuration and the exception list of the Windows firewall for the PCS 7 software to operate correctly.

These settings are made during the installation of PCS 7 (system setup) by the "Security Controller" application.

The "Setup - System Settings" dialog box appears before the installation begins. There, the system settings to be changed are listed.

To continue the setup, you need to agree to the change to these system settings.

Note

Please note the following:

- The settings must be applied again if the work environment changes (domain, workgroups). You can open the Security Controller with the menu command:
  - Windows 10 Enterprise LTSC 2019: Start > All Apps > Siemens Automation > Security Controller > Repeat Settings.
  - Windows Server 2019: Start > Siemens Automation > Security Controller > Repeat Settings.
- Start the Security Controller after the PC has been added to the domain and rebooted. Remember that the Windows services that are required for the Security Controller are not immediately available after Windows logon. If the tool is started without entries, restart it after a brief interval.
- 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 manually.
- If you need to make local Windows firewall settings that differ, they should be adapted afterwards.

OPC XML DA

OPC XML DA has not been released.

Setting the permissions for restarting the system

When using Windows Server operating systems, users without administrator rights must be provided authorization for "System Shutdown".

Without these rights, the system cannot be restarted.

As an administrator, you can set the permission for other user groups using a group policy as follows:

1. Use the search box in the start menu to open the file "gpedit.msc".
   The "Local Group Policy Editor" dialog box opens.

2. In the tree view, select **Local Computer Policy > Computer Configuration > Windows Settings > Security Settings > Local Policies > User Rights Assignment**.

3. Double-click the "Shutdown the system" object in the detailed window.
   The "Properties of shutdown the system" dialog box opens.

4. Click the "Add Users or Group" button.
   The "Select Users or Groups" dialog box opens.

5. Select all desired users or groups.

6. Click the "OK" button to apply the settings.

Note

As of Windows Server 2019, the local Administrators group can no longer be used in this context.

Notes on installing the software over a network

To be able to install on multiple computers at the same time, you need to make the contents of the SIMATIC PCS 7 USB flash drive is available in one storage location (shared network path).

The following rules apply to the storage:

• The folders must be located within a shared folder.

• The name of the access path to the network copy of the USB flash drive cannot contain more than 85 characters.

Note

The PCS 7 installation source share access rights for the users who wants to install software from this repository needs to be restricted to read only.

Use of additional software for creating and viewing PDF documents

The PDF-XChange 8.0 software for creating and viewing PDF documents has been tested with PCS 7 V9.1 for compatibility and can be installed subsequently.

3.4.1.2 Notes on installing the software

New installation

There are two possible ways to install PCS 7:

1. Installation of a previously backed up image of the operating system.
   This image cannot contain a PCS 7 installation and a redundant PH.
   You can then install PCS 7 on this image.

2. New installation of the operating system followed by new installation of PCS 7.

You can find detailed information about the installation requirements and procedure in the "PCS 7 PC Configuration.pdf" document in the "_Manuals\English" folder on the SIMATIC PCS 7 USB flash drive.

Steady state

During the installation of the PCS 7 software, the system must be in steady state:

Make sure that no updates are being performed for antivirus software or the Windows Software Update Services (WSUS) during the installation. You can ensure this by temporarily disabling the corresponding options in each program.

Installation on computers with multi-core processor

When you install the PCS 7 software on PC hardware with multi-core processors in which the number of processors does not equal 2^n, or when you use NUMA (Non Uniform Memory Access), you must follow the instructions under entry ID 59703368:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/59703368)

PC hardware based on SIMATIC IPC recommended for PCS 7 is not affected by this.

Installation via network

When performing a network installation of PCS 7, ensure that read only access to the setup procedure is guaranteed, even if the computer reboots during the PCS 7 setup. If the computer is not in a domain, you must enter the logon information of the user in order to access the network share for the server in the Windows Credential Manager.

Note

The PCS 7 installation source share access rights for the users who wants to install software from this repository needs to be restricted to read only.

Close the Internet Explorer (IE11) before starting the installation

Before starting the PCS 7 setup, make sure you have correctly closed IE11. Close any processes still running (iexplore.exe), for example, by using the Windows Task Manager.

Installation of Information Server 2020 web application

The Information Server 2020 web application can be installed in two modes:

- Website
- Virtual directory

Subscriptions for automatic creation of IS Excel reports are only possible, if the Information Server is installed as a website.

Installation via SIMATIC Management Console

You cannot install the following products from the "Additional_Products" folder of the SIMATIC PCS 7 USB flash drive using the SIMATIC Management Console:

- DiagMonitor
- MTU
- SAS-DC
- Information server BATCH options
- Crystal Reports XI for Route Control
- SIMIT_VC_for_PDM_MS

When creating and using setup packages for the installation of SIMATIC software, it is mandatory to input English characters for some entries. If you wish to use setup packages, always input English characters for the following entries (Asian characters are not permitted):

- Name of the software or the software package
- Name of the required, shared storage location

You can find a list of all products and PCS 7 components that can be installed via the SIMATIC Management Console under entry ID 107796665 in Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/107796665)

Installation of the SIMATIC Management Agent

The SIMATIC Management Agent is automatically installed with every installation of PCS 7 to facilitate the integration of your computers in a plant managed with the SIMATIC Management Console.

However, if it was not explicitly selected for installation, the associated service of the same name is disabled.

The computer cannot be managed through the SIMATIC Management Console in this state.

To enable its active use, proceed as follows:

1. Open the Microsoft Management Console for services using Start > Run: enter "services.msc".
2. Change the "Startup type" to "Automatic" for "SIMATIC Management Agent".
3. Start the service by pressing the "Start" button.
4. Click "OK" to close the dialog box.

Note of the documentation packages in PUD Manager Help Viewer

With the installation of PCS 7 V9.1, the help system is delivered with inbuilt PUD files of the following manuals along with the documentation of various product components of PCS 7:

- PCS 7 - Documentation V9.1
- PCS 7 - Operating Instructions - OS Process Control V9.1
- PCS 7 - Installation Manual - PC Configuration V9.1
- PCS 7 - Configuration Manual - Engineering System V9.1
- PCS 7 - Configuration Manual - Operator Station V9.1

The user can update or customize his own Manual collection. For more details, please refer to Process Control System PCS 7; PUD Manager Online Help (https://support.industry.siemens.com/cs/ww/en/view/109748882).

Notes on uninstalling PCS 7

Uninstalling PCS 7 software components via the system setup is not supported.

The Uninstallation of single software components via the Windows control panel is not recommended.

3.4.1.3   Notes on update

Updating PCS 7 projects

Users can upgrade their projects from PCS 7 V8.2 SP1 or PCS 7 V9.0 SP3 to PCS 7 V9.1. When updating the software, read the manuals "Software Updates Without Utilization of New Functions" or "Software Updates With Utilization of New Functions". You can find both documents on the website for SIMATIC PCS 7 Technical Documentation:

- Internet link (www.siemens.com/pcs7-documentation)

Updating the PCS 7 Software

General

Update installation is not supported as of PCS 7 V9.1.

Updating a Process Historian/Information Server system

PCS 7 V9.1 contains the version "Process Historian/Information Server 2020".

Note
- Process Historian/Information Server of older versions cannot be upgraded to the latest version as of PCS 7 V9.1.
- PCS 7 V9.1 does not support the redundant Process Historian.

You can find the "InstallNotesPRHIdeDE.pdf" file on the SIMATIC PCS 7 USB flash drive in the folder "27b_PH+IS_Install_and_Release-Notes".

3.4.2   Microsoft Windows settings

General information

You can find information about the settings on the SIMATIC PCS 7 USB flash drive in the folder "_Manuals\English" in the document "PCS 7 - PCS 7 PC Configuration.pdf".

Settings for the Microsoft Internet Information Service (IIS)

The Internet Information Service is a prerequisite for the installation and use of certain PC stations (Web server, Information Server).

You can learn about the settings required to configure the IIS in the documentation for the respective product used (e.g. the Web server installation instructions). You also need to read the information on configuration of the IIS in the document "PCS 7 - PCS 7 - PC Configuration.pdf".

3.4.3   Installation of engineering station (ES) and operator station (OS) on a single PC

If you wish to install an "Engineering Station" on an existing OS, it is essential that it should completely be a new installation as uninstallation is not supported in PCS 7 V9.1.

3.4.4   Installation of SIMATIC NET products

SIMATIC NET products always must be installed by using the system setup for PCS 7.

Possible applications for the SCALANCE S, CP 443-1 Advanced and CP 1628 security products in the PCS 7 environment

You can learn how to use the SIMATIC security products SCALANCE S, CP 443-1 Advanced and CP 1628 with PCS 7 from entry ID 67329379 in Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/67329379)

3.4.5 Use of the Media Redundancy Protocol (MRP)

Network topologies

It is absolutely necessary to operate the PROFINET fieldbus ring with MRP (Media Redundancy Protocol) when using rings with PROFINET. The media redundancy protocols HRP (High Speed Redundancy Protocol) and MRP cannot be used simultaneously in the same ring. The PROFINET fieldbus ring can only consist of devices that support MRP functionality.

The MRP (Media Redundancy Protocol) can be used as a standard for terminal bus, plant bus and fieldbus. The advantage of using of MRP, is the continuous usage of MRP-I (Media Redundancy Protocol Interconnect) as redundant connection between MRP rings.

	HRP	Standby	MRP	MRP-I
Separate terminal and plant bus	X	X	X	X
Common terminal and plant bus	X	X	X	X
PROFINET fieldbus	-	-	X	-

Note

The SCALANCE XC/XP/XF2xx switches with a firmware version V4.2 is coming with MRP-I.
The SCALANCE XR/XM switches with a firmware version V6.3 is coming with MRP-I.

Configuration of the watchdog time for PROFINET fieldbus

In the event of a transmission line failure, reconfiguration of the network (switching to the redundant transmission line) can take up to 200 ms.

Increase the watchdog time for each station by:

• Selecting the "Fixed update time" setting

• Increasing the update time to a value that is smaller than the fastest update of the process image partition (PIP) for this station

• Increasing the number of accepted update cycles with missing I/O data, so that the watchdog time is > 200 ms

See also, entry ID 46636225

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/46636225)

3.4.6 Settings for standard network adapters (BCE and Softnet)

3.4.6.1 Plant bus with TCP/IP protocol

Make the following settings for the plant bus:

- Disable "File and Printer Sharing for Microsoft Networks"
- Disable "Client for Microsoft Networks"
- Activate the "SIMATIC Industrial Ethernet (ISO)" log

Refer to the information in the PCS 7 Engineering System Configuration Manual, PCS 7 Operator Station Configuration Manual and the WinCC Information System: "Special aspects of communication in a server with multiple network adapters".

3.4.6.2 BCE and time synchronization

When synchronizing the time via BCE, select the following settings:

- 1 - 10 sec. intervals on the external time transmitter
- The ISO protocol be installed and enabled for the network adapter.
- Only one network adapter (BCE) can be used for time synchronization on an OS.
- Use the following multicast destination address for time synchronization with BCE: 09-00-06-01-FF-EF
- Broadcast cannot be used

You can find additional information on the configuration of time synchronization in a PCS 7 plant in the "PCS 7 Time Synchronization" manual.

3.4.6.3 SIMATIC Shell

The SIMATIC Shell dialog appears after new installation of the PCS 7 software. However, if it does not appear, the user must manually open the dialog and make the required communication settings. For more information on how to set the communication settings, refer "How to set the communication module for connecting to the terminal bus" section in the *PCS 7 PC configuration V9.1* manual.

3.4.7 Installation of older versions of PCS 7 libraries

Post-installation of the current version

Following the installation of PCS 7 V9.1, when you install or remove an Older version of the PCS 7 Library, the PCS 7 Basis Library or PCS 7 Advanced Process Library, you must subsequently re-install the current version of the PCS 7 Basis Library. This is necessary in order to guarantee proper functioning of the CFC driver generator.

Downloading older versions

> You can find the libraries of older PCS 7 versions available for download under entry ID 109480136 in the Industry Online Support:
>
> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/109480136)

Compatibility of older versions

> You can check the compatibility of older libraries under entry ID 64847781 in the Industry Online Support:
>
> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/64847781)

3.4.8 Using antivirus software and whitelisting protection mechanisms

Approved antivirus software

> You can find additional documents and information on the topic of industrial security and plant security in the Industry Online Support, in the "All-round protection with Industrial Security - Plant Security" entry list and the "PCS 7 Compendium Part F - Industrial Security" manual:
>
> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/50203404)
> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/109782722)
>
> The following virus scanners have been tested with PCS 7 V9.1 for compatibility and can be installed subsequently even with an existing PCS 7 installation:
>
> • Windows Defender
>
> You can find the product version of the corresponding virus scanner suitable for your PCS 7 version in the regularly updated entry ID 64847781 in the Industry Online Support:
>
> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/64847781)

Using Whitelisting protection mechanisms

> Whitelisting mechanisms provide protection for the installation of PC systems by prohibiting the execution of unauthorized software or modification of installed applications.
>
> Additional security applications are installed to enable such protection.
>
> The following application Whitelisting software has been tested with PCS 7 V9.1 for compatibility:
>
> • McAfee Application Control
>
> You can find the product version of McAfee Application Control (V8.3.2) suitable for your PCS 7 version in the regularly updated entry ID 64847781 in the Industry Online Support:
>
> • Internet link (https://support.industry.siemens.com/cs/ww/en/view/64847781)

You can find additional information on the "Utilization of Whitelisting with McAfee Application Control in a PCS 7 / WinCC Environment" in Industry Online Support under entry ID 88653385:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/88653385)

3.4.9 Digital certificates

Take note of entry ID 87057037 for checking digital certificates in your system. Checking of the certificates is necessary to ensure secure operation of the system and to avoid timeouts. It also helps in preventing error messages of the digital signature during installation of the Web Client and the required Web plug-ins.

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/87057037)

3.4.10 Shutting down Windows, standby mode / hibernation

Whenever you shut down Windows on your PCS 7 computers, use the command "Start > Shutdown Computer" and then select "Shutdown" or "Restart".
The use of "Standby mode" and "Hibernation" has not been released as part of PCS 7.

3.4.11 SIMATIC Logon

SIMATIC Logon

The term "SIMATIC Logon Admin Tool" has been replaced by "SIMATIC Logon Role Management".

Note on the use of smart cards

All smart cards that were formatted with SIMATIC Logon < V1.3 must be formatted again with a version > V1.3. This is necessary because SIMATIC Logon uses improved encryption for smart cards as of V1.3. If you attempt to log on with a smart card that is not updated, the attempt will fail. However, you can always log on with your username and password via the keyboard.

Only smart cards with TCOS version 3.0 are supported as of PCS 7 V9.1.

Note

If you have logged on with a chip card and remove this chip card during configuration in the SIMATIC Logon role management, all the changes that you have not saved up to this point are discarded.

Reinserting the card will not solve this problem.

Notes on the Windows workgroup

If you require high availability of the user logon, you must operate PCS 7 in a domain environment, because SIMATIC Logon does not support redundant logon servers in a Windows workgroup.

Notes on the SIMATIC Logon Event Log Viewer

If you want to print the events in the event log, proceed as follows:

• Click "Export" and export the events in PDF format.

• Print out the exported file.

Instead of the file size of the event log, the number of recorded events corresponding to the configured filter is displayed.

The filter dialog box always shows the date and time based on the settings you have selected for the date and time in Windows. Display in conformity to ISO 8601 is not possible.

3.4.12 Using Microsoft Office

The following Microsoft Office products have been tested for compatibility with PCS 7 V9.1:

• Microsoft Office Professional 2019 32-Bit (Excel, Word, Access and PowerPoint)

On client computers (OS, BATCH, Maintenance, WEB), the Microsoft Office applications Word, Excel and Access can be used in process mode. This is also the case when the SIMATIC Management Console is operated on these computers. However, their use can result in significantly reduced performance in some situations. Microsoft Office must not be used in process mode on any other operator stations and BATCH stations.

You can find additional information on the compatibility of SIMATIC PCS 7 under entry ID 64847781 in the Industry Online Support:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/64847781)

3.4.13 Ethernet settings

Make sure there are no inconsistencies in Ethernet CPs, switches and network adapters in terms of their settings/properties for data transmission rate and bus access procedure.

We recommend using the default **Autonegotiation** setting (procedure for the automatic negotiation of the best transmission mode between two network interfaces which are directly connected to one another).

You can find information in the section "How to change the transmission rate and operating mode in the PC network" of the document "PCS 7 - PCS 7 PC Configuration.pdf" on the SIMATIC PCS 7 USB flash drive in the folder "_Manuals\English".

3.4.14 Remote service and remote operation

Use of the Remote Desktop Protocol (RDP) is permitted only for remote maintenance of PCS 7 OS clients. The RealVNC software should be used for remote access to other computers in a distributed PCS 7 plant (for example, OS servers, engineering stations). Only one remote session is allowed per PCS 7 station at any given time.

RDP

Note the following constraints when using RDP:

- No server services (for example, WebNavigator server, DataMonitor server, OPC server) are permitted to be active on the PCS 7 OS clients. The reason for this lies in the handling of remote desktop sessions by the Microsoft operating system.

- The existing Windows session must be accepted using the account of the Windows user logged on locally.

- The remote station cannot be in the Windows logon screen.

VNC

The "RealVNC" Enterprise Edition software has been tested in PCS 7 V9.1 for compatibility for remote service access.

You can find the RealVNC edition suitable for your PCS 7 version in the regularly updated entry ID 64847781 in the Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/64847781)

⚠ **CAUTION**

Access to the operating system level of the local PCS 7 Operator Station (OS) with remote access

During remote access to an OS via RealVNC, the remote operator has the possibility of accessing the operating system level of the local OS. The local operator of the OS thus also has the opportunity - for example via Windows Explorer opened by the remote operator - to access the operating system level of the local OS at the same time as the remote operator.

You can find more information about the use of "RealVNC" in PCS 7 plants in the Industry Online Support under entry ID 55422236:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/55422236)

SIMATIC Management Console

Remote access to the SIMATIC Management Console is generally not approved.

3.4.15   Remote access to OS projects

All users must have been assigned to the "SIMATIC HMI" user group. This also applies to users who want to open the OS projects remotely. Check in particular the following users:

- Users who want to connect a Connectivity Pack Client to a Connectivity Pack Server: These users must be registered members of the "SIMATIC HMI" group on the Connectivity Pack Server.

- Users accessing the Web center of DataMonitor:
  1) If you set up a connection to the OS database, you require an additional Windows user and password. Assign this user the necessary authorizations for access to the OS database. For this purpose, set up a separate Windows user on the server and assign this user to the "SIMATIC HMI Viewer" Windows group.
  2) To enable access to a remote computer from the DataMonitor server, the Windows user and the same password must have been set up on the DataMonitor server and relevant remote servers. Register this user and the password in the connection administration of the Web center. For this purpose, proceed as specified under point 1.

- Users who want to connect an OPC client with an OpenPCS 7 server:
  These users must be registered members of the "SIMATIC HMI" group on the OpenPCS 7 server.

3.4.16   Information about changing faceplate style variants from Classic style to APL style for SIMATIC BATCH or Route Control faceplates

You can only install one of the two style variants (Classic style or APL style) at a time, and change the style again by running PCS 7 Setup -> Install -> User-defined installation.

3.5 Licensing

3.5.1 PCS 7 licenses and quantity structures

An overview of the PCS 7 licensing concept and the quantity structures associated with licensing is available in the document "SIMATIC Process Control System PCS 7; Licenses and configuration limits".

This document is located on the website for SIMATIC PCS 7 Technical Documentation:

• Internet link (https://siemens.com/pcs7-documentation)

3.5.2 Managing AS runtime licenses

In order for the licenses to be available in sufficient quantities following the activation of the license check, we recommend keeping these licenses on the engineering station from where the controller usually loads them.

Note

Installation of the AS RT PO licenses

Select the appropriate AS RT PO license installation for your engineering environment:

1. **AS RT PO license installed on the local engineering PC**
   Install the AS RT PO license(s) in sufficient numbers on the engineering PC. The favorites list in the Automation License Manager (see menu "File > Settings") must not contain entries or the PCs listed do not have AS RT PO licenses.

2. **AS RT PO license installed on a license server**
   Install the AS RT PO license(s) in sufficient number on the license server PC. The favorites list in the Automation License Manager (see menu "File > Settings") must contain the name of the license server PC. The local engineering PC must not have an AS RT PO license.

3.6 Compatibility information

Performing compatibility tests for PCS 7 with various applications

PCS 7 V9.1 has been tested successfully for compatibility with the following applications at the time of its release:

Application	PCS 7 V9.1
S7 F Systems	V6.3 and V6.2 Upd1
Safety Matrix	V6.3 Upd2 and V6.2 SP2 Upd2
PLCSim	V5.4 SP8 Upd1
WinCC C&A	V16 Upd4
Sinema Server	V14 SP2
SIMIT	V10.2 Upd1
VMware ESXi version 6.7	Hardware versions 11 and 13
Microsoft Defender	With a built in version of the operating system
McAfee Application Control	V8.3.2
Microsoft SQL Management Studio	V18.8
Adobe Acrobat Reader DC	-
Microsoft Office Professional	2019 32-bit
SINEC NMS	V1.0 SP2

Note

To check the compatibility of your PCS 7 installation with various applications, please use the compatibility tool. The latest possible limitations as well as additional compatibility tests that were conducted after the release are constantly published there.

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/64847781)

BANY Compatibility to PCS 7

BanyScope V2.0 is compatible with PCS 7 engineering station, operator station, clients and maintenance station. The PROFINET network analysis is also possible via ServiceBridge (the BANY CTRL port connected via ServiceBridge to the host system with BanyScope).

Notes on usage

<div style="text-align: right; font-size: 2em;">4</div>

4.1 Automation system (AS)

4.1.1 Switching times for H CPU in connection with a fail-safe application

If you load F-modules, you must select the monitoring time of each F-module as longer than the switching time of the active channel in the H system. Notes on the high limit of this changeover time can be found in the manual "S7 F/FH Systems - Configuring and Programming," in Section "A.7".

Run, F-monitoring, and response times:

A table with formulas for calculating the high limit is available under entry ID 22557362 in the Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/22557362)

If you do not follow this instruction, F-modules can malfunction when the active channel is switched.

You can find additional information in the Safety Engineering in SIMATIC S7 system manual under entry ID 12490443:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/12490443)

4.1.2 ET 200SP

Module AI ENERGY METER ST

You must interconnect and evaluate the data from the process image manually when using the AI ENERGY METER ST V1.0. Observe the information about reading out measured values under entry ID 81714201 in Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/81714201)

We recommend using and configuring the AI ENERGY METER ST V2.0 module, because the channel block FbEnMe is available for this module in the PCS 7 Advanced Process Library. You can upgrade an existing AI ENERGY METER ST V1.0 module to the firmware version V2.0. You can find the firmware update under the entry ID 98709668 in the Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/98709668)

Read the notes in the manual "PCS 7 Released Modules (V9.1)".

Value status

The "Value status" functionality for ET 200SP modules is not supported.

4.1.3 ET 200pro

The use of ET 200pro with CP 443-5 Extended is only approved with the 6GK7 443-5DX04-0XE0 module, firmware version V6.4 or later.

The modules from the ET 200pro series must be configured in DPV1 mode in HW Config. In DPV0 mode, no interrupts are sent to the PCS 7 diagnostic blocks.

4.1.4 Using S7 PLCSIM

Simple application tests can be carried out with PLCSIM without the availability of AS hardware.

The required adjustments in the PCS 7 project are described in the "How to test with S7-PLCSIM" section of the "Process Control System PCS 7 Engineering System (V9.1)" manual.

In addition, you must set the "Send/receive raw data block" option to "No" in the connection settings for AS-OS compilation.

Note

After using PLCSIM, it might be necessary to re-establish the real connection and recompile the changes made to relevant AS including the real connection to the OS.

OS connections with a simulated WinAC Controller (WinLC RTX or WinAC Slot) are not possible. See the notes on simulation of a WinAC Controller in the PLCSIM Readme.

4.1.5 Changing the address range of HART modules in ET 200iSP / ET 200M / ET 200SP leads to address displacements

If HART auxiliary variables are configured retrospectively for HART modules, this leads to an enlargement of the address field required for these modules. The I/O field might therefore be redefined. In doing this, the ability to make configuration changes in RUN is lost. Note that your project might need to be adapted (symbol tables, CFC charts).

We recommend configuring the modules with a "CiR" address placeholder in the address range of the HART auxiliary variables during configuration. This ensures that the max. address range is used and avoids address displacement.

4.1.6 Fast Mode functionality for HART devices

The HART Fast Mode functionality is supported as of configured module version 6ES7 33?-? TF01-0AB0 V3.x.

Update 6ES7 33?-?TF01-0AB0 firmware to V3.x

Download firmware:

- 331-7TF01-0AB0:
  Entry ID 33273268 (https://support.industry.siemens.com/cs/ww/en/view/33273268)

- 332-8TF01-0AB0:
  Entry ID 32011516 (https://support.industry.siemens.com/cs/ww/en/view/32011516)

Replace modules 6ES7 33?-?TF00-0AB0 with 6ES7 33?-?TF01-0AB0 V3.x

- To activate HART-Fast-Mode, you will have to replace the HART module in HW Config (6ES7 33?-?TF00-0AB0 with 6ES7 33?-?TF01-0AB0 V3.x).

- Then delete the HART field devices and renew the configuration.

- Then activate "HART-Fast-Mode" in the module configuration and "HART RIO SHC Mode" in the PDM settings.

Replace modules 6ES7 33?-?TF01-0AB0 with 6ES7 33?-?TF01-0AB0 V3.x

- To activate HART-Fast-Mode, you will have to replace the HART module in HW Config (6ES7 33?-?TF01-0AB0 with 6ES7 33?-?TF01-0AB0 V3.x).

- Then activate "HART-Fast-Mode" in the module configuration and "HART RIO SHC Mode" in the PDM settings.

Redundant modules

HART-Fast-Mode is not possible for redundantly configured modules.

4.1.7 Configuration in RUN (CiR) with FM 350-1, FM 350-2, FM 355, FM 355-2, CP 341

The modules FM 350-1, FM 350-2, FM355, FM 355-2 and CP 341 are CiR-compatible, which means that a configuration in RUN can be used so that they can be plugged or pulled via (hot-swapped) when the AS is in RUN.

Note the following about these modules when configuring in operating mode RUN:

- FM 350-1 and FM 350-2, CP 341:
  Changing the module parameters when the CPU is in operating mode RUN resets the module and is equivalent to restarting the module.

- FM 355 and FM 355-2:
  Bumpless channel-specific changes to module parameters when the CPU is in operating mode RUN are possible to a limited extent; refer to the documentation of the FM modules.

4.1.8 Isochronous mode in PCS 7

PCS 7 does not support isochronous mode.

4.1.9 Fault-tolerant connections via internal ETHERNET/PROFINET interface

The S7-400 H as of firmware V6.0 supports fault-tolerant connections via your internal ETHERNET/PROFINET interface.

If you would like to use fault-tolerant AS-AS connections via the internal interface of the V6.0 H-CPU, you need to be aware that the connections to the communication partner can only be configured via the internal interface of the V6.0 H-CPU or CP 443-1 EX30.

4.1.10   Using PROFINET

Shared Device

The use of PROFINET Shared Device with PCS 7 V9.1 is not supported.

Assigning device numbers

Only device numbers up to 255 are supported by the driver generator in the PROFINET IO system.

CiR functionality

If you would like to use the CiR functionality on the PROFIBUS master system for S7-400 PN/DP CPU with firmware <= V6.0.2 (article number 6ES7 414-3EM06-0AB0 and article number 6ES7 416-3ES06-0AB0), you cannot configure PROFIBUS and PROFINET I/O simultaneously for the internal interfaces.

Firmware to be used with IM 153-4 PN IO

If you are using the PROFINET module IM 153-4 PN IO (article number 6ES7 153-4BA00-0AB0), you need to use a firmware version >= V4.0.1.

You can find information about updating the operating system and downloading the latest firmware versions in Industry Online Support under entry ID 26331274:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/26331274)

4.1.11   Using HART auxiliary variables with 4 F-AI HART modules

The configured HART auxiliary variables of the following module are not supported by the PCS 7 channel blocks:

• 4 F-AI HART (article number 6ES7 138-7FA00-0AB0)

You can obtain additional information in the operating instructions "ET 200iSP Distributed I/O Device - Fail-safe Modules" under entry ID 47357221 in the Industry Online Support:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/47357221)

4.1.12 Using PROFIBUS field devices with IE/PB Link

When using SIMATIC PCS 7 AS-RTX you must observe the following:

- Parameter assignment of PROFIBUS field devices which are connected to an IE/PB Link is not possible via Industrial Ethernet connections from the PCS 7 Engineering Station (ES).

- To assign PROFIBUS field device parameters with SIMATIC PDM, connect the ES directly to PROFINET of the IE/PB Link.

4.1.13 Compact Field Unit (CFU)

Note that you must not make any changes in HWConfig to the PA slots (FB0- FB7) for a CFU station opened in PDM.

4.1.14 Taking advantage of the increased I/O scaling when using CPU 410 SMART.

As of firmware version 8.2.1, CPU 410 SMART I/O scaling for each interface has been increased from 1.5 KB to 3 KB. To use the increased scaling, the following requirements must be fulfilled:

1. Object exchange in HW Config to V8.2.1.

2. Use/upgrade to FW V8.2.1 for CPU 410 SMART

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/109476571)

4.2 Engineering system (ES)

4.2.1 Notes on DocPro

As of PCS 7 V9.1 DocPro is no longer part of PCS 7.

If the user still needs DocPro, it can be downloaded from the Internet (https://support.industry.siemens.com/cs/us/en/view/109780528).

If DocPro is not needed but DocPro objects are existent in the project, an instruction on how to remove them in order to avoid error messages is provided when the user opens the project in PCS 7 V9.1 environment.

4.2.2 Client engineering

Opening clients on the ES can sometimes take a very long time, since it involves an implicit update of all server data (packages) that are not up-to-date. Operator input to the SIMATIC Manager is not possible during this time.

4.2.3 Notes on Configuration in RUN

Changes can be made to the distributed I/O of an S7-400 AS configuration during ongoing operation; these are described in the following documents:

Method	System configuration	Documentation
CiR Configuration in Run	Standard automation system (e.g. AS 410S)	Configuration manual for PCS 7 Engineering System; Modifying the System during Operation via CiR
H-CiR Configuration in Run	Fault-tolerant automation system (e.g. AS 410H)	Fault-tolerant Systems S7-400H, chapter 17 • Internet link (https://support.industry.siemens.com/cs/ww/en/view/60458386)

4.2.4 CFC/SFC: Download of the automation system (AS)

Programs created with CFC/SFC can only be downloaded with the following functions:

- In CFC/SFC with menu command "PLC > Download"

- In SIMATIC Manager (component view), select the project or station and then the menu command "PLC > Compile and Download Objects"

- In the SIMATIC Manager (component view), select charts and then the menu command "PLC > Download".

- in SIMATIC Manager using the menu command "Charts > Selective loading"

Only the loading function of the CFC/SFC guarantees that the engineering data will be consistent with the PLC data. Downloading changes to the CFC/SFC in the RUN mode of the S7 CPU is only possible when the download is performed exclusively with these functions.

4.2.5 Special characters for the nomenclature

Only certain characters are allowed in names, depending on the language and components. It is not recommended to use national special characters.

Special restrictions:

- A comma "," in tag names (process tags, archive tags etc.) is generally not allowed.

- The project name, picture name, and computer name must not contain multibyte characters (e.g. Chinese).

For other naming conventions for projects, refer to:

- "Engineering System Configuration Manual"

- WinCC Online Help, using the search term "Illegal characters"

4.2.6 Notes on exporting SNMP variables

Access-protected PCS 7 projects

For projects with activated FDA access protection, you must open the OS project in SIMATIC Manager before exporting the OPC configuration.

You can find additional information about exporting SNMP variables, for example, for the PCS 7 maintenance station, in the function manual "PCS 7 Maintenance Station".

4.2.7 Compiling and downloading S7 connections – downloading to an AS

If connections are to be downloaded to an AS via "PLC > Compile and Download Objects", the connections of all connection partners are compiled and loaded. Connection partners here are also all the AS that have a configured connection to the same OS as the AS to be downloaded. When downloading the connection data to the respective AS, there is a temporary break in the connection between AS and OS or between the AS with AS-AS communication.

Note

Monitoring times for fault-tolerant S7 connections

When using fault-tolerant S7 connections via TCP/IP, keep in mind that sufficient monitoring times must be configured. Additional information on this topic is available in your SIMATIC NET version under entry ID 15227599 in the Industry Online Support:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/15227599)

4.2.8 Download

When a "Download" performed from an ES to an OS, the Windows user logged on to the ES must be known on the target station and a member in one of the following groups there: At least "User", "SIMATIC HMI" "SIMATIC NET", "SIMATIC BATCH" and required SIMATIC Route Control "RC_..." groups. In addition, the user also needs full access rights for the folder into which the project should be downloaded. This includes the sharing and security settings.

4.2.9 Notes on cross AS interconnections

• When using cross AS interconnections, the S7 program names in the multiproject must be different.

• Hardware requirements:

  – S7-400 CPU with firmware version >= V3.1

  – Communications processor >= 443-1EX10 V2.1.

  – PCS 7 AS RTX

• If there is an overload on the S7-400 CPU or if there are network disruptions, the following messages can appear: "Overload sender: S7 connection ID xxxx". This means that a data transfer cycle could not be executed. The data will be transferred in the next cycle.

4.2.10 F-monitoring time of F-modules and F-field devices downstream from a Y-Link/DP-PA Link

By extending the calculation of the monitoring times for updating the reserve, it is possible as of PCS 7 V7.1 SP1 to consider F-monitoring times of F-modules and F-field devices downstream from a Y-Link/DP-PA Link.

Note

When you activate the option "Calculate F-modules after Y-Link" you will change the CRC for the F-module configuration. You will have to compile the F-program once again.

You might have to adjust the F-monitoring times of the affected F-modules and F-field devices prior to the calculation.

Use the Excel file "s7ftime" to determine the F-monitoring times for F-modules after Y-Link and F-field devices on PROFIBUS PA.

SIMATIC S7 F Systems: execution times of fail-safe blocks, runtime of F-shutdown group, monitoring and reaction times.

Entry ID 22557362:

• Internet link (https://support.industry.siemens.com/cs/ww/en/view/22557362)

4.2.11 Configuration of fail-safe modules in ET 200M PROFINET stations

In order to operate fail-safe applications on PROFINET, the following requirements must be met:

• All configured devices and the employed F-drivers must support PROFIsafe V2 mode

• The S7 F Configuration Pack version used must be V5.5 SP13

Note the following before the first compilation of the hardware configuration:

• For fail-safe operation on PROFINET, be sure to use only fail-safe modules that are listed in the "PCS 7 V9.1" module filter under PROFINET IO -> I/O -> ET 200M.

• Be sure to use a version >= V1.3 of the SIMAITC S7 F Systems library in your project. If you have not yet used F-blocks in your project, place at least one F-block from the F-library version >= V1.3 within a CFC (for example, F-channel drivers).

4.2.12 Merging projects after distributed editing (multiproject engineering)

If you merge projects into a multiproject, you have to execute the following menu command: "File > Save as... > With Reorganization (slow)".

4.2.13 Note on upgrading process objects of a CPU 410-5H system expansion card

During the upgrade of the process objects of a CPU 410-5H system expansion card (SEC), only one instance of the Automation License Manager (ALM) can be active.

4.2.14 Notes on AS-OS compilation

Using named connections

Within the context of PCS 7, we recommend using "named connections" for the AS-OS connection.

If you are using a connection type other than "named connections", you take note of the "Send/receive raw data block" option in the connection settings during AS-OS compilation. You should set this option to "No" if it is not needed for special applications.

4.2.15 Notes on updating block contacts at SFC types

There is a possibility that changes which have not been applied yet, which means updates of block contacts at SFC types, are present in existing projects. Therefore, check your project (if you are using SFC types with block contacts) to see if any such changes have been made.

To do this, select the menu command "Options > Block contacts" in the SFC Editor while the SFC type is open.

If there are still block contacts that still have to be updated, select them and click "Update".

Note

After these updates, the respective SFC instances must be stopped for downloading.

Refer to the entry ID 109751583 in the Industry Online Support for instructions on how to handle updates of block contacts at SFC types that have not been adopted:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/109751583)

4.2.16 Configuration of fault-tolerant S7 connections with max. redundancy (with 4 connection paths)

Configuration of fault-tolerant S7 connections with max. redundancy (with 4 connection paths) is possible if the recommended connection schema of the interfaces to the plant bus is used.

The recommended connection schema is:

Rack0: CP1 or CPU 410-5H.X5 -> Plant bus 1

Rack0: CP2 or CPU 410-5H.X8 -> Plant bus 2

Rack1: CP1 or CPU 410-5H.X5 -> Plant bus 2

Rack1: CP2 or CPU 410-5H.X8 -> Plant bus 1

4.2.17   How to handle CiR in PCS 7

Handling CiR in PCS 7 is explained in detail in the *Process Control System PCS 7: Engineering System V9.1* configuration manual.

4.2.18   TCiR in PCS 7 environment

TCiR in PCS 7 environment is supported only with a CPU firmware version V8.2 (or higher).

4.2.19   Export entire plant configuration

The customer must perform the complete export once for existing devices of type switch in order to correct the variables that are created already.

The user needs to execute the step: "HW Config > OPC Server > SNMP > Tag Export > Export entire plant configuration"

4.3   PCS 7 libraries

4.3.1   Upgrading the project

When upgrading your project, be sure to consider the compatibility of the PCS 7 libraries according to "Compatibility Tool for Automation and Drive Technology". For more information, refer Internet (https://support.industry.siemens.com/cs/ww/en/view/64847781).

Also, follow the steps mentioned in the *Software update without utilization of new functions* upgrade manual. For more information, refer Internet (https://support.industry.siemens.com/cs/ww/en/view/109767558) and select appropriate date from the drop-down list.

4.3.2   Diagnostic alarms for digital input modules SM 321-7BH00 and SM 321-7BH01

Diagnostic evaluation for channel-based diagnostic interrupts of the module

When using digital input modules SM 321-7BH00 and SM 321-7BH01, the diagnostic evaluation for a channel-based diagnostic interrupt is performed in channel groups.

When using digital input module SM 321-7BH01 HF, the channel-related diagnostic interrupt takes place for each individual channel.

Diagnostic option: Missing encoder supply

SM 321-7BH00 and SM 321-7BH01

*   Digital input channels 0 to 7 are combined into channel group 0.
*   Digital input channels 8 to 15 are combined into channel group 1.

Eight alarms are output for each channel group if the encoder supply is missing.

*   "Error channel 00" to "Error channel 07" or
*   "Error channel 08" to "Error channel 15"

Diagnostic option: Wire break

For SM 321-7BH01 only

*   Digital input channels 0 and 1 are combined into channel group 0
*   Digital input channels 2 and 3 are combined into channel group 1
*   Digital input channels 12 and 13 are combined into channel group 6
*   Digital input channels 14 and 15 are combined into channel group 7

The channel involved can therefore not be clearly identified in the text of the diagnostic interrupt/ diagnostic message.

4.3.3 Faceplate Designer

Creation and modification of user-specific faceplates

The creation and modification of user-specific faceplates using the "Faceplate Designer" is no longer supported as of version V9.0.

4.3.4 Using Basis Library V9.0.3 with PCS 7 V9.1

To use Basis Library V9.0.3 with PCS 7 V9.1, the version of the Basis Library should be greater than or equal to V9.0.3.1.

4.3.5 IE/PB Link HA as S2-Devices on H-System

When IE/PB Link HA is connected with the intelligent DP slaves in a H-system, use PCS 7 Basis Library as of V9.1 Update 1.

4.4   Operator station (OS)

4.4.1   OS-specific information and notes on installation and use

You will find PCS 7 OS-specific information and notes on installation and use of this component in the readme file of the product.

4.4.2   Customized user programs

If you create your own applications, system tests in the relevant environment are necessary to ensure the stability of the entire system.

4.4.3   Starting process mode on the OS server

- Process mode will not be started on an OS server if this server is not connected to the network.

- When you start process mode on a redundant server, make sure that the first server takes over process mode completely before the redundant partner is started. No client should be active before process mode is started on a server for the first time. The OS clients can then be activated.

4.4.4   Deactivating a redundant OS server

Before deactivating a redundant server, ensure that the partner server is in a state that is fault-free and operational (for example, there are no process coupling faults). Archive synchronization must be completed before deactivation, which can be recognized with the corresponding process control message.

4.4.5   OS change download

Procedure for extensive changes

If an AS has been added, a redundancy switchover and entries in the message system can occur when changes are download. The following procedure is recommended when extensive changes are involved: Configure the changes in single steps ("packet-by-packet") on the ES and then transfer them to the OS in individual "packets".

Changes to tags with access to an OPC-DA-Client application

It might happen during configuration that tags are deleted from a project that are requested at this time by an OPC-DA-Client application using a Subscription. Restoration of these tags in the project will not automatically initiate an update of the tags by means of OPC. Provided the tags in question are available in an OS server project and the OPC DA server is running on an OS client or OpenPCS 7 station, it is sufficient to initiate a redundancy switchover of the corresponding OS server project to trigger an update of the tags. Otherwise, the OPC-DA-Client application needs to re-register the tags in question.

4.4.6 Setting access permissions in the operating system

A PCS 7 OS automatically sets the "SIMATIC HMI" local user group following installation under Windows. The currently logged on user and local administrator are registered in this user group. Enter the users who should have access to PCS 7 OS in the "SIMATIC HMI" group with their logon information.

You can find more detailed information in:

- The WinCC Information System under "Installation Notes > Installation Requirements > Access Permissions in the Operating System"

- The document "PCS 7 - PC Configuration.pdf" on the SIMATIC PCS 7 USB flash drive in the folder "_Manuals\English"

- The PCS 7 Compendium Part F - Industrial Security.
  Internet link (https://support.industry.siemens.com/cs/ww/en/view/109782722)

All Window users who work with PCS 7-, PCS 7 OS or Route Control projects must also be members of the "SIMATIC NET" group.

4.4.7 Controls

Using controls from third-party suppliers can lead to errors such as performance problems or system blockage. The user of the software must assume responsibility if problems are caused by third-party controls. We highly recommend that you run a system test to ensure safe operation before putting them into use.

4.4.8 User interface and design

In PCS 7, make the following setting for the appearance of the user interface in process mode:

- Design "WinCC 3D"

All other WinCC designs are not supported by PCS 7.

Note the following:

- Make sure that the design is set in a uniform manner for all the projects of a plant.

- If you change the setting of the design, check the visualization of self-generated objects and adapt these if necessary.

- Retain the setting if you update the software. During a software update, changing the setting for the appearance of the user interface in process mode could cause considerable changes.

4.4.9 Disabling / enabling messages using the WinCC Alarmcontrol

The disabling / enabling messages functionality using WinCC Alarmcontrol has not been approved for PCS 7.

4.4.10 Language setting for C scripts

Note

WinCC now supports Unicode.

To ensure your C scripts run without problems, you need to make sure that the language set in the Global Script C editor is correct.

If you select "Dynamic: Project setting", scripts run in the language that was set globally for the project.

You can make this global project setting under "C scripts with language setting "Dynamic" in Runtime" in the "Options" tab, which is located in the "Project properties" dialog box of the WinCC Explorer.

The "Operating system language for non-Unicode programs" option is preset and recommended as the global project setting for PCS 7. You can find additional information in the WinCC documentation (WinCC Information System) and the WinCC readme.

4.4.11 Consistency between the plant hierarchy and the Picture Tree Manager for SFC visualization

To prevent delays during the start of OS Runtime and during SFC operation on the OS client, you need to ensure the following:

- all areas of the plant hierarchy (PH) that contain SFC charts must also be created by name in the WinCC Picture Tree Manager.

OS areas which should not be available for selection in WinCC Runtime can be configured as invisible via the OS project editor.

4.4.12 Prevent operating system access through key combinations

With the option "Disable shortcut keys for operating system access" in the properties of the PCS 7 OS computer, the key combinations for ease of access are also disabled.

4.4.13 Setting the Windows taskbar for multi-monitor cards

In multi-monitor mode, the same zoom level must be configured for all monitors in the operating system. The Windows taskbar can only be displayed on the primary monitor and cannot be extended to other monitors.

4.4.14 WinCC Service mode

The WinCC service mode is released in connection with PCS 7 OS for the following configurations:

- PCS 7 OS Server
- PCS 7 Maintenance Station
- PCS 7 OS Server combined with PCS 7 Maintenance Station

4.4.15 PCS 7 Process Tag Browser

In the PCS 7 Process Tag Browser, only such process tags are listed which are assigned to the image hierarchy of the OS project.

4.5 SIMATIC BATCH

4.5.1 Compiling and loading BATCH with the "Compile and Download Objects" function

Note that when you modify projects, compiling and loading should always be performed in the following sequence: AS, OS, BATCH.

4.5.2 Access permissions

The following sharing is set for SIMATIC BATCH during the installation:

• BATCH

The PCS 7 software manages the share permissions automatically.

4.6 SIMATIC Route Control

4.6.1 Loading the SIMATIC Route Control server in conjunction with SIMATIC NET Softnet IE-RNA

If the "Unknown" status continues to be displayed after loading the SIMATIC Route Control server from the ES of the SIMATIC RC SERVERDIALOG, you need to do the following:

- Open the Microsoft Management Console for services using Start > Run: Enter "services.msc"
- Change the start type from "Automatic" to "Automatic (delayed start)" for the following services:
  - SCSMonitor
  - SIMATIC Route Control Server
- Reboot the computer.

4.6.2 Autostart of SIMATIC Route Control and WinCC

When autostart of SIMATIC Route Control and WinCC is configured and autologin of Windows Server 2019 is enabled, it is necessary to set the following services to "automatic with delay":

- Open the Microsoft Management Console for services using Start > Run: Enter "services.msc"
- Change the start type from "Automatic" to "Automatic (delayed start)" for the following services:
  - SCSMonitor
  - SIMATIC Route Control Server
- Reboot the computer

4.6.3 Configuration limits - Increasing the maximum number of Route Control Elements (RCE)

The permissible value range of the Route Control Elements is documented in the "Programming and Operating Manual" of the SIMATIC Route Control product in the chapter "Configuration limits".

The maximum number of Route Control Elements (RCE) over all sub-paths of the entire Route Control project is now 100,000* (instead of 64,000).

Note

*This involves theoretical limits which can be further restricted by other system properties.

4.7 SIMATIC PDM

4.7.1 Using the Device Integration Manager

Once you have installed SIMATIC PDM, you must import the devices you are using onto your computer. Run the "Device Integration Manager" program for this.

The devices supported by PDM are included on the supplied "Device Library". You can download the latest version from the Support area of the SIMATIC PDM website.

*   Internet link (https://support.industry.siemens.com/cs/ww/en/ps/16983/dl)

4.7.2 Canceling the module redundancy for HART modules of ET 200M remote IOs

In order to cancel the module redundancy set in the hardware configuration (HWC), you need to adhere to the following procedure:

1. Delete the module in question and then compile the hardware project
2. Remove the deleted module from the process device plant view or network view
3. Configure the module again in HWC

This ensures that the redundancy is removed correctly.

4.7.3 Note on project migration

When migrating a PDM project from a previous version, it is absolutely necessary to do the following:

*   Install all add-on packages used in the project before you open the project for the first time.
*   Projects are migrated automatically when you first open them.

You can find additional important information in the SIMATIC PDM readme in the section "Migrating Projects".

4.8   Process Historian (PH)

Commissioning the PH

If you want to integrate the PH into your system for the first time, you need to consider the following:

The PH only starts to reference data from the OS servers and BATCH servers if it is activated before they are. You therefore might need to restart the OS server or BATCH server to adhere to this sequence of events.

Note

PCS 7 V9.1 supports a non redundant PH.

PH migration from PH2014 to PH2020 is not supported. Hence in a plant with PH system, migration to PCS 7 V9.1 is not possible

4.9 Information Server (IS)

Installation of IS 2020

Read the instructions in "InstallNotesINFSVenUS.pdf" for the installation of IS 2020. You will find the file on the SIMATIC PCS 7 USB flash drive in the folder "27b_PH+IS_Install_and_Release-Notes".

Note

IS migration from IS2014 to IS2020 is not supported. Hence in a plant with IS system, migration to PCS 7 V9.1 is not possible.

Installation of SIMATIC IS - BATCH Options

The installed version of the IS BATCH Options must match the version of the SIMATIC BATCH Server.

4.10 PCS 7 Web Option

PCS 7 Web server

Information about the PCS 7 Web add-on package is available in the "PCS 7 Web Option for OS" manual. This document is located on the website for SIMATIC PCS 7 Technical Documentation:

- Internet link (www.siemens.com/pcs7-documentation)

WinCC/WebUX

As of WinCC/WebUX V7.4, process pictures from PCS 7 projects are also supported. The same restrictions as for process pictures from WinCC projects apply.

4.11 DataMonitor (DM)

Operating and monitoring via the Web

The "Process Screen" function is no longer used for operator control and monitoring via the Web in DataMonitor. Instead, the "WinCCViewerRT" Web viewer can be used on the DataMonitor client.

For more information, please see the "DataMonitor Release Notes".

Restrictions on usage of the DataMonitor server

Always use the DataMonitor server on a computer that is not operated in WinCC ServiceMode.

4.12   OpenPCS 7

Evaluation of "Active Time"

"Active Time" cannot be used for evaluations with Historical Alarm&Event.

Project languages

If you have project languages other than Western European Languages (code page Windows – 1252), an OPC A&E Client can only use the languages "German" or "English", as offered by the OpenPCS 7 OPC server.

Changes to tags with access to an OPC-DA-Client application

Observe the section OS change download (Page 54).

Downloading the OpenPCS 7 station

Following installation or update of OpenPCS 7, you need to perform a "Download" of the OpenPCS 7 station on the engineering station.

4.13 Redundant systems

PCS 7 as of V7.1 SP2 contains advanced self-diagnostics for redundant software systems (servers). If this diagnostics routine detects an internal fault, if the redundant partner server is fully functioning, all communication connections on the server affected by the fault are disconnected (terminal and system bus).

Example:

- WinCC and BATCH Server are running on server (A).

- The full function of the redundant partner server (B) is achieved when WinCC and BATCH Server are running on server (B) and the runtime data of WinCC and BATCH are synchronized.

Automatic restart of the affected server is only performed when this full functionality is achieved.

Requirements

- Use of a PCS 7 OS (multi-station) redundant system, SIMATIC BATCH or SIMATIC Route Control.

- You must make the following configuration settings on the server systems:

  – Automatic Windows logon (not relevant for servers in WinCC service mode)

  – Automatic start of the PCS 7 server applications

- Disable the group policy "Display event logging for shutdown"
  Procedure:

  – Use [Windows button]+[R] to launch the "gpedit.msc" file and open the following path in the group policies editor:
  Computer Configuration > Administrative Templates > System

  – Disable the group policy "Display event logging for shutdown"

- Before a PCS 7 server application is exited, an availability check is carried out on the relevant redundant partner server. The aspect of the data synchronization is also taken into account in the availability check.
  If the partner server is not fully functional, the user is informed of this status and can proceed accordingly.
  For more information, refer to the section "Setting the permissions for restarting the system" under the chapter Requirements (Page 20).

Activation of automatic logon in Microsoft Windows

You can find a description of the options for activating automatic logon in Microsoft Windows under entry ID 23598260 in the Industry Online Support:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/23598260)

Additional information

You can find additional information in the corresponding application descriptions (manual and readme for PCS 7 OS, SIMATIC BATCH, SIMATIC Route Control, SIMATIC NET).

4.14 SIMATIC NET

VLAN architectures for PCS 7

You can find information about configurations with virtual LANs (VLAN) available with PCS 7 in the Industry Online Support under entry ID 66807297:

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/66807297)

Using SIMATIC NET Softnet IE-RNA in connection with WinCC secure communication

If you use secure communication between PC stations, we recommend that you use the "Automation Firewall" released for PCS 7 as a back firewall for communication across the plant.

You can find additional information in section "Setting package size for communication (MTU size)" of the PCS 7 manual "PCS 7 - PCS 7 PC Configuration.pdf".

Internet link (https://support.industry.siemens.com/cs/ww/en/view/109754983)

4.15 SIMATIC Management Console

Using whitelisting with McAfee Application Control

The following functions of the SIMATIC Management Console are not available using active whitelisting with McAfee Application Control:

- Creating setup package
- Starting computer-specific installation

4.16 Maintenance Station

Note regarding "Call configuration data" function in the diagnostic screens of the maintenance station

A warning notice is displayed when a website is called with the "Call configuration data" icon whose HTTPS certificate cannot be checked.

Result:

The operator can use this warning notice to gain access to the operating system level of the local PCS 7 Operator Station (OS) despite enabled keylock.

Remedy:

- Enter all necessary certificates in the list of trusted certificates in Internet Explorer for all PCS 7 operator stations which display diagnostic screens of the maintenance station.

Recommendation:

- To increase security, we recommend replacing the default certificates with appropriate certificates for all web servers.

Asset ID

From this version onwards, Asset ID is made available for all asset devices print report.

SINEC-NMS

Note

If SINEC-NMS is used on a PCS 7 Maintenance Station, minimum of RAM of 16 GB is necessary.

4.17 SIMATIC PAM Station

Note

The stand alone maintenance station for package units and smart field devices is a product of the SIMATIC PCS 7 product family and is installed via the media package from SIMATIC PCS 7. Information on application and engineering can be found in the "*Process Control System PCS 7; Maintenance Station*" manual and on the Internet (https:// support.industry.siemens.com/cs/ww/en/view/109767562). Under "Edition" drop down list, select the latest one.

The SIMATIC PAM Station V2.0 has been developed, tested and released on the following hardware:

SIMATIC IPC 547G, 647E or 847E with OS Windows Server 2019 as SIMATIC PAM operator station

SIMATIC AS-Station 410 V8.2 as SIMATIC PAM signal processing station.

It is recommended to operate the plant with the appropriate secure hardware in order to protect communication between the stations in the plant. For example, in this case, use a programming device / PC - Industrial Ethernet CP 1628 and S7-400 - Industrial Ethernet CP 443-1 Advanced.

For more information, refer to the notes in the *SIMATIC PCS 7 Release Modules V9.1* manual.

4.18 SIMATIC PDM MS

Note

The stand alone maintenance station for smart field devices is a product of the SIMATIC PCS 7 product family and is installed via the media package from SIMATIC PCS 7. Information on application and engineering can be found in the "*Process Control System PCS 7; Maintenance Station*" manual and on the Internet (https://support.industry.siemens.com/cs/ww/en/view/109767562). Under "Edition" drop down list, select the latest one.

The SIMATIC PDM MS can be operated on IPC stations that meet the performance data of the SIMATIC IPC 427E.

For more information, refer to the notes in the *SIMATIC PCS 7 Release Modules V9.1* manual.

4.19 SIMATIC IPC DiagMonitor

DiagMonitor V5.1 SP5 has been tested with PCS 7 V9.1 for compatibility.

If a version of DiagMonitor < V5.0 is already installed on the system, take note of the following for installation of DiagMonitor V5.1 SP5:

- Reboot the computer once the program has been uninstalled.

Run the following files on the SIMATIC PCS 7 V9.1 USB flash drive under Additional_Products > DiagMonitor_V5.1 + SP5 one after the other to perform the installation:

- DiagMonitor_Silent_Install.bat
- CM_Activate.exe

Reboot the computer after executing the CM_Activate.exe.

You can find additional information on the installation and the approved types of computers in the document "GettingStarted.pdf" in the installation folder.

4.20   SIMATIC Safety Matrix and S7 F Systems

SIMATIC S7 F Systems

SIMATIC S7 F Systems V6.2 Upd1 and V6.3 have been tested with PCS 7 V9.1 for compatibility.

You can find additional up-to-date information on SIMATIC S7 F Systems in the Industry Online Support at:

- Internet link (https://support.industry.siemens.com/cs/ww/en/ps/14363)

See section "4.3 Conversion to S7 F Systems V6.3" in the "SIMATIC Industrial Software S7 F/FH Systems; Configuring and Programming" manual.

- Internet link (https://support.industry.siemens.com/cs/ww/en/view/109773062)

The S7 F Device Integration Pack is part of SIMATIC S7 F Systems. It provides the fail-safe modules of the ET 200SP HA and, in addition to the F-Configuration Pack, fail-safe modules of the ET 200SP in the hardware configuration of STEP 7.

Download S7 F Device Integration Pack V6.3 SP1

- Internet link (https://support.industry.siemens.com/cs/de/en/view/109782016)

SIMATIC Safety Matrix

SIMATIC Safety Matrix V6.2 SP2 Upd2 and V6.3 Upd2 have been tested for compatibility with PCS 7 V9.1.

You can find additional up-to-date information on SIMATIC Safety Matrix in the Industry Online Support at:

- Internet link (https://support.industry.siemens.com/cs/ww/en/ps/14364)

Note

SIMATIC Safety Matrix faceplates are not compatible with the PCS 7 V9.1 OS Webclient.

4.21 Notes on PCS 7 Model Predictive Control (MPC)

As of PCS 7 V9.1, the PCS 7 MPC V8.1 is no longer part of PCS 7.

4.22 SIMATIC Logic Matrix

If a cause is used with digital inputs only, the handling of alarms does not work. This is corrected with Logic matrix V9.1 Update 1.

After installing the update, the OS must be compiled with scope of entire OS.

4.23 Security

Information Integrity and Authenticity (content.cat)

Prior to the software installation in the plant, the integrity and authenticity of the software must be checked.

The integrity and authenticity of software can be safeguarded in various ways:

- Sealed delivery media
- Hash on download page
- Authenticode signatures

For more information, refer Internet (https://docs.microsoft.com/en-us/windows-hardware/drivers/install/authenticode)

Note

We recommend that you obtain the software only from trusted sources.

The physical installation media as well as the software on distribution points (for example: fileshare) must be protected in order to prevent manipulation, for example, through a virus, see *SIMATIC PCS 7 Compendium Part F* chapter "5.6.3. Quarantine station as data exchange point" for more information.
SIMATIC PCS 7 offers multiple possibilities for checking the integrity and authenticity of the software:

- The packaging is sealed.
- Software and firmware downloaded from the support page is signed digitally. Before it is run, this signature is checked by the operating system. A SHA256 checksum with which the integrity can be checked at any time and is also published on the download page.
- The integrity and authenticity of the SIMATIC PCS 7 software is safeguarded with a catalog file available on the Internet (https://docs.microsoft.com/en-us/windows-hardware/drivers/install/catalog-files). This file is supplied on the installation medium and is used to check the integrity of the software before the installation via SIMATIC Management Console.

4.24   Notes on the documentation

PUD Manager links to the Service & Support Portal for Windows Server 2019

For security reasons, links from Plant and User Documentation Manager (PUD Manager) to the Service & Support Portal (SIOS) do not work with Windows Server 2019.

For more information, refer to *Process Control System PCS 7; PUD V2.1 Online Help* under *Technical documentation* (https://www.siemens.com/pcs7-documentation).

PUD Manager

The key points that the user must remember while using the PUD Manager are:

• First Help call needs more time for the initialization of the PUD Manager. The autostart setting is active only on ES/single station. The first startup time ranges from 30s to 120s.

• After the initialization, the PUD Manager stays active in the main memory (RAM) in order to ensure a quick response to subsequent help calls.

• The used RAM can be emptied by the user when it is required. The PUD Manager needs to be shutdown using the option **Tray-Icon > Right Mouse > Exit**. After the exit, the PUD Manager behaves as mentioned in the above two points.

Software components in SIMATIC PCS 7 V9.1   5

SIMATIC PCS 7 SW components	PCS 7 V9.0 SP3 with UC01	PCS 7 V9.1
Products		
Automation License Manager	V6.0 + SP8	V6.0 + SP9 + Upd1
STEP 7 Basis	V5.6 + SP2 + HF5	V5.6 + SP2 + HF6
CFC	V9.0 + SP5	V9.0 + SP5 + Upd2
S7-SCL	V5.6 + Upd 1	V5.6 + HF1
SFC	V9.0 + SP5	V9.0 + SP5 + Upd2
TH	V9.0 + SP5	V9.0 + SP5 + Upd2
IEA-PO	V9.0 + SP5	V9.0 + SP5 + Upd2
PCS 7 Basis Library	V9.0 + SP3 + Upd4	V9.1
PCS 7 Advanced Process Library	V9.0 + SP3 + Upd4	V9.1
PCS 7 MPC	V8.1	n.a.
Logic Matrix Library	V9.0 + SP2 + Upd2	V9.1
Logic Matrix Engineering Tool	V9.0 + SP2 + Upd2	V9.1
VersionCrossManager	V9.0 + SP5	V9.0 + SP5 + Upd1
Version Trail	V9.0 + SP5	V9.0 + SP5 + Upd2
PCS 7 PID Tuner	V8.0 + SP1 + Upd2	V8.0 + SP1 + Upd2
DocPro	V9.0 + SP3	n.a.
S7-PLCSIM	V5.4 + SP8 + Upd1	V5.4 + SP8 + Upd1
SIMATIC WinCC	V7.4 + SP1 + Upd16	V7.5 + SP2 + Upd1
WebNavigator	V7.4 + SP1 + Upd16	V7.5 + SP2 + Upd1
DataMonitor	V7.4 + SP1 + Upd16	V7.5 + SP2 + Upd1
Process Historian	Version 2014 SP2 + Upd5	Version 2020
Information Server	Version 2014 SP2 + Upd5	Version 2020
Process Historian TrendViewer	n.a.	Version 2020
OpenPCS 7	V9.0 + Upd3	V9.1
SFC Visualization	V9.0 + SP5	V9.0 + SP5 + Upd2
AS-OS-Engineering	V9.0 + SP5	V9.0 + SP5 + Upd2
PV InsInfo Server	V9.0 + SP5	V9.0 + SP5
XML TRANSFER	n.a	V9.0 + SP5 + Upd2
PCS 7 Basis Faceplates	V9.0 + SP3	V9.1
PCS 7 Advanced Faceplates	V9.0 + SP3 + Upd3	V9.1
Logic Matrix Faceplates	V9.0 + SP2 + Upd2	V9.1
SIMATIC NET PC-Software	V14 + SP1 + Upd13	V16 + Upd4
SIMATIC NET PC Software Doc	V14 + SP1	V16
SIMATIC NET SOFTNET-IE RNA	V14	V16 + SP1
SIMATIC Management Console	V9.0 + SP1 + Upd2	V9.1
SIMATIC Management Agent	V9.0 + SP1 + Upd2	V9.1

SIMATIC PCS 7 SW components	PCS 7 V9.0 SP3 with UC01	PCS 7 V9.1
SIMATIC PUD Manager	V2.0 + Upd2	V2.1
SIMATIC BATCH	V9.0 + SP1 + Upd6	V9.1
SIMATIC Logon	V1.6 + Upd2	V1.6 + Upd3
SIMATIC PDM	V9.1 + Upd7	V9.2
SIMATIC PDM Devices	Internet download (https://support.industry.siemens.com/cs/ww/en/ps/16983/dl)	
SIMATIC Route Control	V9.0 + Upd4	V9.1
PCS 7 System Documentation	Internet link (https://support.industry.siemens.com/cs/ww/en/view/109744320)	
PCS 7 Tools	V9.0 + SP3 + Upd1	V9.1
SQL Server	2014 SP3	2017
Additional_Products: (manual installation required)		
Crystal Reports for Route Control	V11.0	V11.0
DiagMonitor	V5.1 + SP3	V5.1 + SP5
Information Server BATCH Options	V8.0 + SP1 + Upd22 V8.1 + SP1 + Upd17 V8.2 + Upd10	V8.0 + SP1 + Upd22 V8.1 + SP1 + Upd17 V8.2 + Upd10 V9.0 V9.0 + SP1 + Upd6
HCF_HART-Server	V3.2	n.a.
Report Builder	V3.0	n.a.
MTU	V1.0	V1.0
S7 Block Privacy	V1.0 + SP4	V1.0 + SP4
SIMATIC Assessment Suite - Data Collector	SAS-DC_2019_1	SAS-DC_2020_2
SIMATIC Management Agent	V9.0 + SP1 + Upd2	V9.1
SIMATIC Management Console InventoryDataProfile	V9.0 + SP3	V9.1
SIMIT VC for PDM MS	n.a.	V4.0
PAM_Templates	n.a.	Versionless
Other:		
PKZIP	V14.4	V14.4
DotNetFramework	V4.6.2	V4.8
S7 F Systems	V6.2[1]	V6.3[1]
SIMATIC Safety Matrix	V6.2 + SP2 + Upd2[1]	V6.3 + Upd2[1]
SIMATIC S7F Device Integration Pack		V6.3 + SP1: Download: (https://support.industry.siemens.com/cs/de/en/view/109782016)

[1]   Delivery on separate data storage medium

Change history PCS 7 Readme (Online)

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6

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Changes since delivery release PCS 7 V9.1

Version	Edition	Change
2021-03-04 (ONLINE)	02/2021	Delivery version PCS 7 V9.1