SIEMENS

SIMATIC

Process Control System PCS 7 Software update with utilization of new functions

Service Manual

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Valid for PCS 7 V7.1 SP3 or higher to V8.0 Update 1

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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

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

CAUTION

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

NOTICE

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

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

Qualified Personnel

The 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

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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.

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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.

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Preface

1

Purpose of this documentation

This documentation provides a comprehensive overview of the steps you must take to adapt your existing PCS 7 process control system to the new SIMATIC PCS 7 version 8.0. It supports you in updating PCS 7 projects and guides you through installation and commissioning of the current software.

The contents of the documentation are directed toward service personnel, commissioning personnel, and experienced PCS 7 users with the necessary system knowledge. The documentation provides instructions for carrying out the software update.

Refer to the documentation for specific products for information regarding the handling of these products.

Options for accessing PCS 7 documentation

Note

PCS 7 Readme

The information given in the *PCS 7 Readme* on the Internet takes precedence over all the PCS 7 manuals. Please read this *PCS 7 Readme* carefully; it contains important information and amendments on PCS 7.

- The *PCS 7 Readme* on the *Process Control System; SIMATIC PCS 7* DVD includes important notes on PCS 7 and takes precedence over the documentation supplied for PCS 7.
- Following the installation of PCS 7, you can find documents such as Process Control System *PCS 7; PCS 7 Readme* and *What's New in PCS 7?* via the submenu **SIMATIC > Product Information > <Language>**.

As of PCS 7 V8.0, you receive basic PCS 7 system documentation with the *Process Control System; SIMATIC PCS 7* DVD.

The PCS 7 Internet site http://www.siemens.com/pcs7-documentation (http:\\www.siemens.com/pcs7-documentation) provides convenient access to the complete PCS 7 documentation. You can find the following for current PCS 7 versions:

- **In the section "Hardware manuals for SIMATIC PCS 7 ..."**
  - The manuals for components approved for a PCS 7 version
- **In the section "Software manuals for SIMATIC PCS 7 ..."**
  - The complete system documentation
  - The separate setup program for PCS 7 documentation and the PCS 7 help system for download. After the installation of the setup program, you will find the documentation at the following locations on the Engineering Station:
    - as online help (CHM file) for the SIMATIC Manager application
    - as PDF file in the Windows Start menu with the SIMATIC documentation
  - The complete documentation for PCS 7 as a *Manual Collection*

Documentation for the Software Update

You will find all documentation on the topic of "Software update" on the Internet.

Documentation	Contents
Manual *Software Update Without Utilization of the New Functions*	Describes the procedure for the software update of PCS 7 version 7.1 SP3 or higher to V8.0 Update 1 without utilization of the new functions.
Manual *Software Update with Utilization of the New Functions*	Describes the procedure for the software update of PCS 7 version 7.1 SP3 or higher to V8.0 Update 1 with utilization of the new functions.

Additional documentation for the software update

Additional information from the following documentation is required for carrying out the software update:

Documentation	Contents
Manual *Process Control System PCS 7;* Service Support and Diagnostics	Ensuring the Availability of a PCS 7 System; contains information on creating backups and how to perform firmware updates.
Manual *Process Control System PCS 7;* PC Configuration and Authorization	PCS 7 PC - Hardware and Installation; Windows settings and tools; Software packages and authorizations required.
Configuration manual *Process Control System PCS 7; Engineering System*	Guide to configuration steps in SIMATIC Manager, CFC, SFC, NetPro
Configuration manual *Process Control System PCS 7; Operator Station*	Guide to configuration steps in WinCC
Manual *Process Control System PCS 7; Fault-tolerant Process Control Systems*	Guide to configuration steps for fault-tolerant process control systems

Documentation	Contents
Documentation *Process Control System PCS 7; Released Modules*	All modules released for SIMATIC PCS 7 are listed together with the following information: • Product designation • Order number • Firmware version • Brief description
Online Help for *WinCC Information System*	Describes the updating of WinCC projects.
Manual *Process Control System PCS 7; Web Option for OS*	Describes the installation and use of the Web Option for OS in PCS 7
Process Control System PCS 7; OpenPCS 7 Manual	Describes how an OPC A&E server with hierarchical access is used in PCS 7 systems
Function manual *Process Control System PCS 7;* *Fault-tolerant Process Control Systems*	Describes the principles of use of fault-tolerant (redundant) components in SIMATIC PCS 7.
SIMATIC manual *S7 F/FH Automation Systems* Readme for SIMATIC S7 F Systems V7.1	Describes the configuration and programming of S7 F/FH failsafe systems using S7 F systems. Contains important information which must be taken into account when installing and using the S7 F system optional package in PCS 7.
What's new?	Information on the differences between this version and the previous version of PCS 7

Validity of the documentation

This documentation is valid for the software package *Process Control System; SIMATIC PCS 7 DVD V8.0 including Update 1*.

Required Basic Knowledge

General knowledge in the area of automation engineering and basic knowledge of PCS 7 is required to understand this documentation. You also need to know how to use PCs with Windows operating systems.
The following documentation provides basic information on working with PCS 7:

- Configuration manual *Process Control System PCS 7; Engineering System*
- Configuration manual *Process Control System PCS 7; Operator Station*
- Getting Started *Process Control System PCS 7; Part 1*

Software update up to PCS 7 V7.1.3

Up to PCS 7 version 7.1.3, the update process for all projects comprises a number of steps. You will receive the necessary instructions with the associated software packages.

Conventions

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

Changes compared with previous versions

Below, you will find an overview of the most important changes compared with previous versions:

- **As of PCS 7 V8.0 Update 1**
  - Use of PCS7 Library V6.1 SP1 Update 17. This library allows the software update of projects from PCS 7 V6.1 SP4 to PCS 7 V8.0 Update 1 without an automation system STOP, although the project must first be updated to PCS 7 V7.1 SP3.
- **As of PCS 7 V8.0:**
  - Use of the Advanced Process Library (APL) V8.0 as standard library for configuration.
- **PCS 7 V7.1 or higher:**
  - PCS 7 setup automatically installs the necessary hotfixes and SQL server.
  - Use of OS clients as maintenance clients (default configuration for an OS client in terms of the maintenance server)
  - You can find information on Microsoft Windows settings and security settings in the whitepaper *SIMATIC Process Control System PCS 7; Security Information Note*
    This can be downloaded via the Internet at Customer Support (http://www.siemens.automation.com/service) under the following entry ID 26462131 (http://support.automation.siemens.com/WW/view/en/26462131)
  - Information on virus scanners can be found in the whitepaper *SIMATIC Process Control System PCS 7; Security Information Note; Setting Virus Scanners*
    This can be downloaded from the Customer Support (http://www.siemens.automation.com/service) Web pages under the following entry number 26366540 (http://support.automation.siemens.com/WW/view/en/26366540).
  - The architecture for SIMATIC PDM has been modified.
    For more information on this, refer to section "How to configure the SIMATIC PDM Server (Page 59)".

See also

Licensing with the Automation License Manager (Page 15)

How to Prepare the Software Update with Central Archiving (Page 23)

How to Configure Extensions for Online Trend Control (Page 70)

Introduction

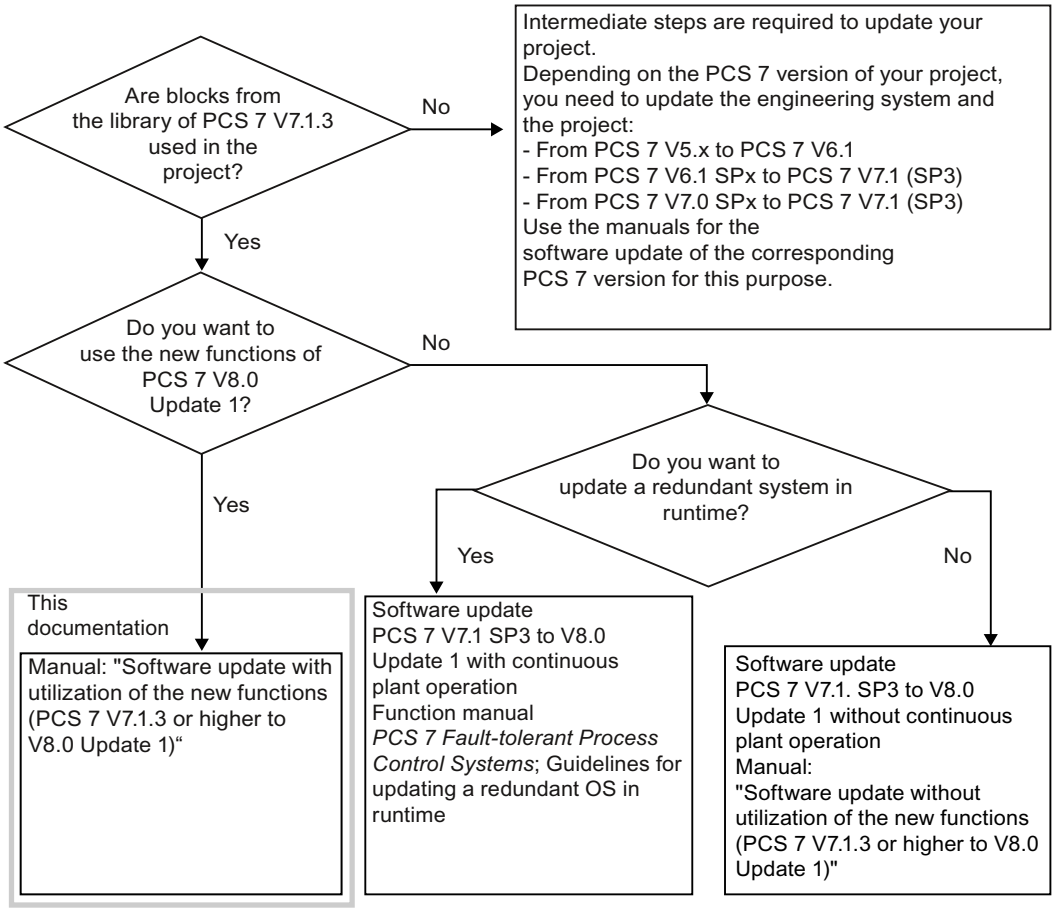
2

2.1 Selecting the Correct Documentation

Decision Process

The selection and use of the correct documentation depends on the comprehensiveness of your software update. the current status of the software and any boundary conditions that may exist.

The following flow chart shows you the documentation to use when updating a PCS 7 plant.



2.2 General Requirements

The following requirements must be met regardless of whether you execute the software update with or without the utilization of new functions:

General Requirements for Updating the Software

- Your PC hardware must meet the hardware requirements for PCS 7 V8.0 .
  For more information, refer to the *pcs7-readme* documentation on your Process Control System; SIMATIC PCS 7 DVD.
- A PC on which the PCS 7 software is to be installed must meet one of the following requirements:
  - The PC can access a DVD drive via a network.
  - It has its "own" DVD drive (example: USB DVD drive).

  Note

  You must complete the software update before beginning with any additional changes to the configuration.

- The project must be updated on PCS 7 V7.1 SP3 because only the AS blocks of the following PCS 7 versions can be operated and monitored with the PCS 7 V8.0 libraries:
  - PCS 7 V7.1 SP3
  - PCS 7 V8.0

2.3 Important Information for Updating Software with Utilization of New Functions

Requirements for Performing a Software Update

- The software update with utilization of new functions requires that the CPU be switched to STOP mode.
- The manual contains some sections that are not listed in the overview. Observe the information provided in these sections when updating the software and check whether this information is relevant to your PCS 7 system.
- The project must be fully compatible with a project that was configured in PCS 7 V7.1.3 or higher. Pay particular attention to the following if you have carried out earlier updates without utilization of new functions.
- If you switch to the Windows 7/Windows Server 2008 R2 operating system, you will have to update the version of the communication components in the Station Configuration Editor and HW Config. The version depends on the version of SIMATIC NET installed on the target station.
  - SIMATIC NET V8.1.x is installed as of Windows 7 and Windows Server 2008 R2 (e.g. for CP 16xx -> SW 8.1.1).
  - The CP 1613 A1 communication processor is no longer supported by PCS 7 on operating systems as of Windows 7/Windows Server 2008.

- PCS 7 can only be executed on the operating systems listed in the *PCS 7 - Readme* file. This file contains additional information pertaining to the operating systems and necessary service packs.
  The operating system is required for the following PC stations:
  - Engineering station (also for installation of SIMATIC PDM)
  - Single station system (redundant and non-redundant) for OS, SIMATIC BATCH, SIMATIC Route Control
  - Clients (OS, SIMATIC BATCH, SIMATIC Route Control, OpenPCS 7)

  The Server operating system is required for the following PC stations:
  - Server (redundant and non-redundant) for OS, SIMATIC BATCH, SIMATIC Route Control
  - Server for Web Option for OS
  - Server for engineering station with multiproject (central data store) for engineering with multiple engineering stations
- If using ultra-precise time stamping in PCS 7, you should configure it in accordance with PCS 7 V8.0.
- When updating the BIOS or the components' firmware, we recommend that these components be completely separated from any connected networks.
- If PCS 7 functions require certain modules and a firmware update cannot be performed, these modules must be replaced.
- In an AS, the blocks of all PCS 7 libraries for a PCS 7 version can be operated together.
- The software update of password-protected projects requires SIMATIC Logon on an ES.
- For projects with activated FDA access protection for WinCC tag export, you have to open the WinCC project in SIMATIC Manager beforehand.

Setting up the passivation reaction of the CPU modules

The passivation reaction of the modules depends on the library used:

- Starting with the "Redundant IO" V5.0 library, this setting is defined for specific channels.
- The "Redundant IO" V4.0 library allows you to select a channel-specific setting, depending on the module used.
- The "Redundant IO" V3.0 library only allows you to select module-specific settings.

The "Redundant IO" library V5.0 or higher allows you to automatically identify the possible passivation reaction for a module, based on the configured hardware. The passivation reaction is automatically adjusted during generation of the user program to suit the reaction with the smallest number of passivated module channels.
for further information, refer to the documents in *Process Control System PCS 7; Redundant process control systems*.

Time synchronization in a PCS 7 system

Following the software update, the time synchronization of all OS components corresponds to the PCS 7 V8.0 standard (not V5-compatible mode).

Result of the Software Update

- Following the software update with utilization of new functions, an updated PCS 7 project will behave in a similar way to a project created in PCS 7 V8.0 Update 1.

2.4 Information on the Operating System

Recommendation

In Windows domains, too, you must always use the operating systems approved for PCS 7 if you want to connect your system to other PCs via Intranet or Internet, or if using the *PCS 7 Web Option for OS*. For more information on the approved operating systems, refer to the *PCS 7 Process Control System; PCS 7 Readme* documentation.

Naming conventions for a PC station name and its computer names

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

- The name of a PC must be set before PCS 7 is installed.
- The computer name starts with a letter.
- The computer name contains only uppercase letters and numbers.
- The first 12 characters (max. 15 characters) in the computer name are unique.

Note

When using the Windows 7 and Windows Server 2008 operating systems, verify that the naming conventions for computer names have been adapted in accordance with RFC1123. However, a dash "-" character in the computer name is invalid in PCS 7!

- The following names must be identical when you configure an OS or BATCH Server and an Engineering Station:
  - Computer name
  - Name of the PC Station (in the PCS 7 project)

Note

Additional naming conventions for projects are specified in:

- *WinCC Information system* "Working with projects > Appendix > Invalid characters"
- C:\Program Files\SIEMENS\WINCC\Documents\English\Projects.pdf

2.5 Information on Products from the PCS 7-Add On Catalog

Important Information

If you used PCS 7 add-on products (software packages or hardware components) in your process control system, contact your SIMATIC PCS 7 representative

2.6 Licensing with the Automation License Manager

Managing the License Keys

Both license keys and authorizations can be transferred using the Automation License Manager. In the following, the term "license key" is always used even when a product uses the old license scheme based on authorizations.

Different types of licenses are used in the Automation License Manager.

Each license consists of a basic license type and a license type.

Licensing levels

You can find an overview of the licenses and quantity structures in the *ST PCS 7* catalog or on the Internet at Technical Support (http://www.siemens.com/automation/service):

- Keyword: PCS7 licenses and quantity structures:
  Process Control System SIMATIC PCS 7; Licenses and Quantity Structures documentation.

Additional information

- Manual *Process Control System PCS 7; PC Configuration and Authorization*
- Online help for *Automation License Manager*

Overview of Upgrade Steps 3

3.1 Information about software update procedure

-The following tables provide an overview of all of the necessary steps for updating software with utilization of new functions.

Rules to Follow Based on the Tables

- Use these tables as guidelines for systematically carrying out all of the updating steps in a sequence.

  Note

  The exact sequence of configuration steps specified in this documentation must be followed in order to carry out the software update.

- You will receive information for every step as to where you must carry out the configuration work.
- If you do not require some of the new PCS 7 functions, you do not need to activate them. It is possible to activate them later. However, we recommend the complete upgrade of functions described in this document.

Exchanging Data Via OPC A&E

If exchanging data in the PCS 7 system by means of OPC A&E, note the information in the *Process Control System PCS 7; OpenPCS 7* documentation when updating the software.

3.2 Overview of the Procedure

The following is a general overview of the procedure for updating software. This document contains comprehensive instructions on every step in the table below.

Note

You must complete the software update before beginning with any additional changes to the configuration.

Recommendation:

Finish updating the engineering system and the project before you begin to update the other PC stations.

Legend for overview

X - perform this step at the relevant stations.

X1 - to be performed only for the central archive server

X2 - to be performed only on the StoragePlus server for central archiving

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
Adaptations for central archiving					
1	Determine archive server configuration data (Page 22)		X1, X2		
2	Prepare for the software update on the central archive server (Page 23)		X1, X2		
3	Detach linked archive segments (Page 23)		X1, X2		
4	Back up archives from the central archive server (Page 24)		X1, X2		
Backing up the PCS 7 project					
5	Back up PCS 7 project data (Page 26)	X			
6	Back up the libraries you created (Page 28)	X			
7	Export operator and display texts (Page 30)	X			
8	Check the CPs and network cards (Page 31)	X	X	X	
9	Prepare projects with high precision time stamping (Page 32) (only required for projects with high-precision time stamping)	X			
10	Back up the license keys and authorizations (Page 33)	X	X	X	
Update of Hardware					
11	Prepare for replacing hardware (Page 36)				X
12	Update and replace hardware (Page 37)				X
Installation and settings on the ES and OS					
13	Prepare the PC station (Page 39)	X	X	X	
14	Install the PCS 7 software (Page 40)	X	X	X	
15	Set the operating mode "configured mode"/"PG mode" (Page 43)	X	X		
16	Configure and download the PC stations (Page 44)	X	X	X	
17	Install additional PCS 7 libraries (Page 48)	X			
18	Install additional non-standard libraries (Page 51)	X			
19	Installing additional faceplates on the OS (Page 49)		X		
General adaptations in the project					
20	Updating the OS with the Project Migrator (Page 55)	X			
21	Check PH consistency (Page 55)	X			
Adaptations in HW Config					
22	Configuring replaced hardware (Page 57)	X			
23	Setting the CPU properties (Page 57)	X			

Step	Action	ES	OS Server	OS Client	AS
24	Updating the hardware configuration (Page 58) (only for projects with SIMATIC PCS 7 BOX RTX or SIMATIC PCS 7 AS RTX)				
25	Configuring the address for the PDM Server (Page 59) (only for projects with SIMATIC PDM V7.0)	X			
Adaptations in NetPro and conversion of the CFC/SFC charts					
26	Checking and adapting the connection data in NetPro (Page 61)	X			
27	Converting the CFC and SFC charts (Page 62)	X			
Steps for updating blocks					
28	Copy objects from other libraries into the master data library (Page 67)	X			
29	Complete the master data library (Page 68)	X			
30	Synchronize blocks (Page 72)	X			
31	Include event texts (Page 74)	X			
32	Import operator texts (Page 75)	X			
33	Adapt operator texts (Page 75)	X			
34	Configure limit values for online trend control (Page 70)	X			
35	Update block types (Page 76)	X			
36	Update SFC block types (Page 78)	X			
37	Compile CFC charts (Page 80)	X			
Adaptation of OS-relevant settings					
38	Synchronize OS basic pictures, local computer actions, and faceplates (Page 81)	X			
39	Update picture objects (Page 83)	X			
Adaptations for the Maintenance Station					
40	Changing the OPC Server and adapting the SNMP configuration (Page 85)	X			
41	Updating the diagnostics settings (Page 87)	X			
42	Updating the diagnostics screens (Page 88)	X			
Additional options					
43	Updating the PCS 7 Web Option for OS (Page 89)	X	X		
44	Updating PCS 7 Components that Use SIMATIC Logon Services (Page 90)	X	X	X	
Work for the OS in SIMATIC Manager					
45	Specifying the compilation mode (Page 91)	X			
46	Compiling the OS (Page 92)	X			
47	Adapting the OS Client (Page 94)	X			
Adjustments when using the Advanced Process Library V8.0					
48	Creating the project library (Page 100)	X			
49	Copying blocks to the project library (Page 101)	X			
50	Creating a reference list (Page 102)	X			
51	Replacing APL blocks (Page 102)	X			

Step	Action	ES	OS Server	OS Client	AS
52	Copying blocks to the block folder (Page 104)	X			
53	Importing blocks to the chart folder (Page 104)	X			
54	Interconnecting block I/Os (Page 105)	X			
Adjustments for the central archive server					
55	Adapting the central archives (Page 107)		X1, X2		
Downloading to target systems					
56	Downloading of Target Systems (Page 109) For more information on the download options, refer to the *Process Control System PCS 7; Engineering Station* Configuration Manual.	X	X	X	X
Overview of activating the operator stations					
	Sequence for activating operator stations The following sequence applies when activating process mode (runtime): • Master Server (OS Server) • Standby server (redundant OS Server) • OS clients				
57	Checking the settings of the OS Servers (Page 111)		X		
58	Checking the settings on the OS Clients (Page 112)			X	
SIMATIC BATCH software update					
59	Updating SIMATIC BATCH (Page 113)	Only for projects with SIMATIC BATCH			
SIMATIC Route Control software update					
60	Updating SIMATIC Route Control (Page 115)	Only for projects with SIMATIC Route Control			

Preparing for the software update

4

4.1 Adapt the central archive server

4.1.1 Overview of Adaptations for Central Archiving

Introduction

If archive data is to be available after the software update, you must perform the steps listed below.

Note

The steps in this section apply only if one of the following servers is used for archiving in the PCS 7 project:

- Central archive server
- StoragePlus server (only recommended for smaller systems)

Preparation time

Start with the preparations for updating the Central Archive Server or StoragePlus Server before you start updating the PCS 7 project.

The amount of time you have for updating the archive server is the amount of time in which archive data can be stored in the short-term archive on the OS servers. The time will depend on the following system-specific features:

- Available memory for the short-term archive of the OS server
- Scope defined for the short-term archive of the OS server
- Available memory for page files

Overview of the Procedure

Step	Action	ES	OS server	OS client	AS
1	Determine archive server configuration data (Page 22)		X1, X2		
2	Prepare for the software update on the central archive server (Page 23)		X1, X2		
3	Detach linked archive segments (Page 23)		X1, X2		
4	Back up archives from the central archive server (Page 24)		X1, X2		

X1 - to be performed only for the central archive server

X2 - to be performed only on the StoragePlus server for central archiving

4.1.2 How to determine the configuration data on the Archive Server

Introduction

You need this information when you reinstall the archive server and do not wish to make any configuration changes.

Requirement

Before you run the software update, perform these steps directly on the archive server (Central Archive Server (CAS), or StoragePlus Server).

Determining the database name, database path and archive share name

1. Use Windows Explorer to search for the "C:\Program Files\SIEMENS\StoragePlus \Common" folder.
   - When you have found the folder, look for the "StoragePlus.config" file in the detail view. Continue editing with Step 6.
   - If you do not find the folder, perform the following steps.
2. In Windows Explorer, click "Search".
3. In the "Find the Following Files and Folders:" input box:" enter the "StoragePlus.config" configuration file.
4. In the "Search in" drop-down list: select the "Local hard drives (...)" setting.
5. Click "Find Now".
   The "StoragePlus.config" configuration file is searched for.
   In the case of a standard installation, the configuration file will be located in folder "C: \Program Files\SIEMENS\StoragePlus\Common".
6. Select the "StoragePlus.config" file from the list.
7. In the shortcut menu, select the menu command **Open with > Notepad**.
8. Search the entries for the following configuration information:
   - Database (<Database> "**name of the database**" <Database>)
   - DatabasePath (<Database> "**path of the database**" <Database>)
   - Logpath (<Logpath> " **path of the data log**" <Logpath>)
   - ArchivePath (<ArchivePath> "**directory of the archive**" <ArchivePath>)
9. In the Windows Control Panel, double-click the "Administrative Tools" icon and then "Computer Management".

10. In the tree view, select the folder **System > Shared Folders > Shares**.
11. Look for the archive path in the list in the "Shared Path" column.
    The **archive share name** for the OS archives is displayed in the "Shared Folders" column in this line.

4.1.3 How to Prepare the Software Update with Central Archiving

Requirement

Before you run the software update, perform these steps directly on the archive server (Central Archive Server (CAS), or StoragePlus Server).

Lock Archiving

To prevent new data from being entered in the central archive server, the archive server can be locked for archiving. The data is then saved on the OS server.

1. In the Windows Control Panel, double-click the "Administrative Tools" icon and then "Computer Management".
2. In the tree view, select the folder **System > Shared Folders > Shares**.
3. Select the archive path from the list.
4. Select the menu command **Action > Clear Share**.
   The "Shared Folders" dialog box is displayed.
5. Click "Yes".

Note

The CAS downtime must not exceed the shortest circular archive time of the OS servers.

4.1.4 How to Detach Attached Archive Segments on the Central Archive Server

Requirements

- Before you run the software update, perform these steps directly on the archive server (Central Archive Server (CAS), or StoragePlus Server).
- You are authorized to access the Windows user interface on the CAS.

Procedure

1. In the Windows Start menu, select the "Administration Console" command from the **SIMATIC > StoragePlus** submenu.
2. In the detail view, click "Detach".
   The catalog of all linked archive segments which have already been swapped out is displayed.
3. Select an archive segment you wish to remove from the archive.
4. Click "Open".
   The selected archive segment is detached from the archive. Once the archive segment has been detached from the archive, the archive segment is deleted from the hard disk of the CAS. A message window whether the archive segment has been deleted.
5. Click "OK".
6. Repeat steps 2 through 5 for all closed archives.

4.1.5 How to Back Up the Archives of the Central Archive Server

Requirements

- Before you run the software update, perform these steps directly on the archive server (Central Archive Server (CAS), or StoragePlus Server).
- You are authorized to access the Windows user interface on the CAS.

Note

Before you update the central archive server software (SW update installation), you need to disconnect any *.SPB (StoragePlus Backup) databases that may be linked to the project.
SPB databases come from CAS/StoragePlus PCS 7 < V7.0 or up to V1.1.1 inclusive.

Testing and disconnection takes place via the StoragePlus Administration Console.

Preparation

Perform the following tasks for the software update:

1. Double-click "Add or remove programs" in the Windows Control Panel.
2. Click the "Add/Remove Windows Components" button in this dialog.
3. Remove the "StoragePlus" software package.

Note

Path of the directories to be backed up

For additional information, refer to the "How to determine the configuration data on the Archive Server (Page 22)" section.

Procedure

1. Open Windows Explorer.
2. Select the database directory (DatabasePath).
3. Back up all the files from this directory (to CD or DVD, for example).

Additional information

Section "Overview of Updating the Servers for Central Archiving (Page 107)"

4.2 Necessary preparations

4.2.1 Overview of preparations

Overview of the procedure

NOTICE
You must perform the steps listed below prior to carrying out an update, in order to prevent data being lost.

Always backup your PCS 7 project before you run the software update.

Step	Action	ES	OS Server	OS Client	AS
5	Back up PCS 7 project data (Page 26)	X			
6	Back up the libraries you created (Page 28)	X			
7	Export operator and display texts (Page 30)	X			
8	Check the CPs and network cards (Page 31)	X	X	X	
9	Prepare projects with high-precision time stamping (Page 32) (only required for projects with high-precision time stamping).	X			
10	Backing Up the License Keys and Authorizations (Page 33)	X	X	X	

Additional preparations

Note
Update of SIMATIC BATCH

If you want to update SIMATIC BATCH that you may be using in the project, you must strictly observe the update information provided in section "Updating SIMATIC BATCH (Page 113)".

4.2.2 Exchanging Data Via OPC A&E

If you exchange data in the PCS 7 system by means of OPC A&E, observe the information in the *Process Control System PCS 7; OpenPCS 7* documentation when updating the software.

4.2.3 How to Back Up PCS 7 Project Data

NOTICE
Before you install or update PCS 7, you must prepare and backup your original project so that you can perform the software update.

Carry out the following instructions in succession.

Archiving a project

1. In SIMATIC Manager, select the menu command **File > Archive**.
   The "Archive" dialog box opens.
2. Select the "Multiprojects" (or "User Projects") tab.
3. Click "Browse" and select the project you want to archive from the list.
4. Click "OK" to save your settings.
   The "Archive - Select Archive" dialog box opens.
5. Make the following settings for archiving:
   - Select the drive and the folder for the archive file from the "Save" drop down list box.
   - Enter the name under which the archive file should be saved in the "File name" text box.
     Recommendation:
     Choose a name for the project's archive file which indicates the date on which archiving took place. Example: "yearmonthdayprojectname"; 091230name

6. Click "Save" to apply your entries.
   The "Archive – Options" dialog box opens.
   If you wish to archive your project on a disk, select the disk size.
   You can find additional information on this dialog box by clicking the "Help" button.
7. Click "OK".
   The archiving process begins.

When the "Archive" dialog box closes, archiving is finished.

Note

The archived project will reflect the state of the project before the software update.

Comparing Time Stamps

1. Open your PCS 7 project in SIMATIC Manager.
2. In the component view, select the chart folder of an AS.
3. Double-click on any chart.
   The CFC editor opens.
4. Select the menu command **CPU > Compare**.
5. Compare the time stamps "Last compilation" and "Compilation of the loaded program".

If the time stamps are...	... Then
Identical	1. Click "Close". The dialog box is closed.
Different	1. Select the menu command **CPU > Download**. 2. Select the "Changes" check box and apply all other standard settings. 3. Click "OK". Changes start to be downloaded. 4. If changes have been downloaded without errors, select the menu command **CPU > Compare**. The "Last offline program change" and "Last online program change" time stamps must match up.

6. Perform steps 2 to 5 for each automation system.

Reading Back the AS Parameter Settings

If parameters which are not in the configuration have been set in the AS, you will be able to read these settings back into the project.

⚠ CAUTION

Please note that the parameters in the configuration will be overwritten. The decision concerning whether to use this function will depend on the nature of the system involved and must be made by the skilled personnel with responsibility for the system.

1. Open your PCS 7 project in SIMATIC Manager.
2. In the component view, select the chart folder of an AS.
3. Double-click on any chart.
   The CFC editor opens.
4. Select the menu command **Chart > Read Back**.
5. Select the entries "Program on the CPU" and "Only data relevant for operator control and monitoring" in the "Read Back" dialog box.
6. Click "OK".
   The read-back process begins.
7. Perform steps 2 to 6 for the automation systems whose current parameters you require.

Backing Up OS Data

If you want to operate the OS server on a newly installed PC following the software update, we recommend you back up the OS project of the OS server.

By default, the configuration data and the archive data of the OS are stored in the OS project of the OS server.

To back up data, compress the project paths in this folder and save them on a suitable medium (such as a CD).

SIMATIC PDM

SIMATIC PDM configuration data is included automatically in the backup of a SIMATIC project.

4.2.4 How to Back Up User Created Libraries

Introduction

Generate a backup copy of any project library that contains a collection of user-specific blocks for the project to be updated so that you can retrieve this data after having updated the software. Carry out these steps for each library that you would like to back up.

Procedure

1. Start SIMATIC Manager.
   No PCS 7 project must be open.
2. In SIMATIC Manager, select the menu command **File > Archive**.
   The "Archiving" dialog box opens.
3. Open the "Libraries" tab.
4. Select the library to be backed up and click "OK".
   The "Archiving - Select an Archive" dialog box opens.

5. Specify the file name and the storage path.
6. Click on the "Save" button.

Additional information

- Online help for *STEP 7*

4.2.5 Operator and Display Texts in Blocks

Information in Faceplates

Faceplates visualize processes on the operator station and provide the plant operator with information, such as:

- Measured values
- Operating limits
- Units
- Block operator texts

Change in Operator and Display Texts in Blocks

If you have modified the operator texts or display texts in the blocks so that they do not correspond to the delivery state and you want to use the new PCS 7 blocks, you must back up these "old" operator texts or display texts.

Diagnostic screens with project-specific adaptation

In a project created with a version lower than PCS 7 V7.0 SP1, backup the diagnostic screens that were adapted to a specific project.

Exporting Operator and Display Texts

SIMATIC Manager supports the export of information pertaining to parameters, signals, and messages to a file (format: *.csv).

You can edit this file in standard MS Office applications such as Excel and Access. The same mechanisms are used for the export as are used for changeover to project-specific languages.

4.2.6 How to Export Operator and Display Texts

Requirement

- The required language is installed in your project.

Note

You can view the languages available in the project in SIMATIC Manager using the menu command **Options > Language for Display Devices.** The number of available languages is specified when Windows is installed (system characteristics).

Procedure

1. Open the project to be updated in the SIMATIC Manager.
2. Select the master data library folder in the Component View.
   If this folder is not available, select the project folder.
3. Select the **Options > Manage Multilingual Texts > Export** menu command.
   The "Export user texts" dialog opens.
4. Make the following settings:
   - In the "Text tables" group, select the storage location and the format of the export file (possible formats: *.xls and *.csv).
   - Select the target language and source language that correspond with the display language in the "Language" area.
5. Click "OK".
6. If you are managing multilingual projects, repeat steps 3 thru 5. Make sure that you specify different destination directories or export file names.

4.2.7 Unauthorized CPs and Network Adapters

Communications Processors that Are No Longer Supported

Note

General rules as of PCS 7 V7.0:

PROFIBUS is no longer supported as the plant bus. Only Industrial Ethernet is supported as the plant bus.

For this reason, the following PCS 7 communication processors (CPs) are no longer supported:

- CP 1413 Industrial Ethernet
- CP 5412 A2 PROFIBUS
- CP 5613 PROFIBUS

These CPs must be uninstalled and removed.

Communications Processors that Are Not Detected

The following communication processors cannot be detected during installation of the operating system:

- Non-"Plug&Play" compatible communications processors
- ISA plug-in cards as communications processors

Replace these CPs with "PCI" cards prior to installation of the operating system .

Communications Processors in the PC Stations

Note that you must also remove the hardware specified above from the PC stations of your PCS 7 project.

Note

You must reconfigure the connections after the communications processors are removed.

4.2.8 How to Check the CPs and Network Adapters

Introduction

After you have installed the operating system on the PCs, you should check whether the CPs or network adapters being used are recognized by the operating system.

Procedure

1. Click the "Workspace" icon on the desktop.
2. In the context menu, select the menu command **Properties**.
3. Open the "Hardware" tab.
4. Click the "Device Manager" button.
   The "Device Manager" dialog opens.
   The detected modules can be found in the "Device Manager":
   - The detected communication processors (CPs) are listed in the"SIMATIC NET" folder.
   - The detected network adapters can be found in the "Network Adapters" folder.
5. Close the dialog box.

Additional information

- Documentation: *PCS 7; Released Modules*

4.2.9 How to prepare projects with high-precision time stamping

These steps are only required for projects in which the PCS 7 function "high-precision time stamping" is used.

Note

Blocks of the Advanced Process Library (APL)

If you intend to use the APL functions, you need to reconfigure the project in accordance with the *Process Control System PCS 7; High-precision time stamping* documentation.

Requirements

- The current version of all SIMATIC stations has been compiled and transferred.

Procedure

For each CPU with time stamping:

1. Select the following path from the "Project" **>** "SIMATIC Station" **> CPU > S7 Project > Charts** tree structure.
2. Select **Options > Charts > Chart Reference Data**.
   The "Chart ref.: Chart reference data.." dialog box opens.
3. Select the **View > Block types** menu command.
4. Click the "Block type" header of the table.
   The blocks of this CPU are displayed in sorted order.
5. Search for "IM_DRV" in the "Chart ref.: Chart reference data.." dialog box.
6. Double-click on the "IM_DRV" entry.
   The CFC associated chart opens.
7. Select the **Chart > New...** menu command in the CFC editor
   The "Open" dialog box opens.
8. Go to the "Object name" input line and type in a name (e.g. TEMP_IM_DRV_"Number") for the temporary CFC chart (e.g. TEMP_IM_DRV_1).
9. Select the **Window > Arrange > Tile vertically** menu command in the CFC editor.
10. Drag-and-drop the IM_DRV block from the system chart to the temporary CFC chart (e.g. TEMP_IM_DRV_1).
11. Save the CFC charts.

12. Repeat steps 5 through 11 for all IM_DRV blocks in the CPU.

Note

The system chart will no longer contain any IM_DRV blocks after you have successfully moved them all to temporary CFC charts. The name of system charts starts with the "@" character.
The path name is available in the "Chart ref.: Chart reference data..." column in the dialog window.

13. Repeat steps 1 through 12 for all SIMATIC stations in your project.

Updating PCS 7 on a new engineering station

If you wish to perform the update on a new engineering station or with a newly installed operating system, you will need to archive the PCS 7 project again (see section titled "How to Back Up PCS 7 Project Data (Page 26)"; archiving projects).
Perform the update with the rearchived project.

Generating the AS

NOTICE
Do not generate this automation system after having moved the IM_DRV blocks. The blocks would be moved to the system charts automatically and the message texts would be deleted in the course of your software update.

4.2.10 Backing Up the License Keys and Authorizations

Introduction

You must backup the license keys/authorizations stored on your hard disks **before** changing the operating system or using new PC stations.

Note

You can backup all License Keys to a License Key USB stick that is available as of PCS 7 V7.1.
You must transfer the authorizations to a License Key disk/multi-authorization disk.

Program for backing up the License Keys

Use the Automation License Manager for this purpose.

Note

Reinstall the License Keys from the backup file using "Automation License Manager" (available on the *Process Control System; SIMATIC PCS 7* DVD) after having installed the operating systems to enable an upgrade of the License Keys (Upgrade License Key and Power Pack License Key). You can only upgrade the License Keys if the License Keys to be updated are available on the corresponding PC station.

Additional information

- Online help for *Automation License Manager*
- Online help for *WinCC Information System > Authorization*

Adaptations to the Hardware

5

5.1 Overview of Update of the Hardware

Overview of the procedure

Step	Action	ES	OS server	OS client	AS
11	Prepare the hardware replacement (Page 36)				
12	Update and replacement of the hardware (Page 37)				

5.2 Planning and preparation

If you want to use the new PCS 7 V8.0 functions, all hardware components (modules) of the process control system in the PCS 7 system must meet the requirements of the PCS 7 version.

Necessity of Updating or Replacing Hardware Components

To determine whether it is necessary to update a hardware component, refer to the *PCS 7; Released Modules* documentation. It does not automatically follow that you will be able to use the new PCS 7 V8.0 functions if you have earlier product releases and versions.

Contact your Siemens representative if replacement of a module is required.

Result of the Analysis

An analysis of the hardware can result in the following scenarios:

- Module can continue to be used in its full scope.
- Module can be updated.
- Current module must be replaced with a new module.

CAUTION
A STOP of the AS may be required to update or replace a component. Example: During a CPU firmware update, or when the plant bus is changed from PROFIBUS to Industrial Ethernet.

5.3 How to Prepare for Replacement of the Hardware

Options for Reading Out Module Information

You can read out information about the following modules in HW Config:

Component	Information concerning
Network components	Menu command **Object Properties > Diagnostics: NCM S7 Diagnostics**
CPU	Menu command **Object Properties**
Interface modules • IM 153 • IM 157 • IM 151	Menu command **CPU > Module information** The interface module (IM) product version can be found of the front panel at the lower right.

Basic procedure

The following tasks are required if you plant to replace hardware in an AS:

1. Analyze the actual state of the modules used.
2. Define the desired state:
   Define what the future structure of your system should be. Define your future automation objectives and coordinate these with the requirements specified in the *PCS 7; Released Modules* documentation.
   For more information on the various modules, refer to the *Process Control System PCS 7; PC Configuration and Authorization* Manual.
3. Carry out the module planning:
   Produce planning documents, which establish the following:
   - Parts of the plant that should remain
   - Parts of the plant that should be expanded
   - Old modules that should still be used
   - Parts of the plant that should be upgraded with new modules in order to utilize the full functional scope of SIMATIC PCS 7 V8.0 Update 1

Special Information via the Internet

You can find special information about the firmware update and the corresponding updates on the Internet at:

http://www.siemens.com/automation/service (http://www.siemens.com/automation/service)

Select **Search** and enter "CP1623 firmware update" in the search window, for example.

5.4 How to Perform Updates and Replace the Hardware

Introduction

The following table offers an overview of the hardware updates that may be required. You can find detailed step-by-step instructions for the procedure in the manual *Process Control System PCS 7; Service Support and Diagnostics*.

Overview of the Hardware Updates with Supplemental Information

Hardware Update, Hardware Replacement	Basic procedure	For additional information...
Updating the CPU Operating System	1. Check the type and product release of the module. 2. If required: Perform an update or replace the module.	*Process Control System PCS 7; Service Support and Diagnostics* Manual, section "Update of the CPU Operating System".
Firmware update of CP 443-5 Extended	1. Check the type and product release of the module. 2. If required: Perform an update or replace the module.	*Process Control System PCS 7; Service Support and Diagnostics* Manual, section "CP 443-5 Extended: Firmware Update".
Firmware update of CP 443-1	1. Check the type and product release of the module. 2. If required: Perform an update or replace the module.	*Process Control System PCS 7; Service Support and Diagnostics* Manual, section "CP 443-1: Firmware Update".
Replacing IM 153-2 and IM 157	1. Check the type and product release of the module. 2. If required: Perform an update or replace the module. 3. Take into account the necessary bus modules.	*Process Control System PCS 7; Service Support and Diagnostics* Manual, section "Update of an Interface Module (IM)".

Hardware Update, Hardware Replacement	Basic procedure	For additional information...
Firmware update of Y coupler	1. Check the type and product release of the module. 2. If required: Perform an update or replace the module. 3. In addition, take into account the necessary bus modules.	*Process Control System PCS 7; Service Support and Diagnostics* Manual, section "Update of an Interface Module (IM)".
Replacement of diagnostic repeaters	1. Check the type and product release of the module. 2. If required: Perform an update or replace the module.	• The Diagnostics Repeater with the order number 6ES7 972-0AB01-0XA0 supports the functions introduced with PCS 7 V6.0. • The Diagnostics Repeater with order number 6ES7 972-0AB00-0XA0 does not support the functions introduced with PCS 7 V6.0.

Additional information

You can find additional information in the following documentation:

In the Windows Start menu, **SIMATIC > Product information** submenu, in the corresponding language folder:

- File *PCS 7-WhatsNew.wri*

In the Windows Start menu, **SIMATIC > Documentation** submenu, in the corresponding language folder:

- Documentation *PCS 7 - Released Modules*
- Manual *Process Control System PCS 7; PC Configuration and Authorization*
- Manual *STEP 7; Modifying the System during Operation via CiR*
- Manual *Process Control System PCS 7; Service Support and Diagnostics*

Installation of PCS 7 and settings on the ES and OS 6

6.1 Overview of Installation and Settings on the ES and OS

Overview of the procedure

Step	Action	ES	OS server	OS client	AS
13	Prepare the PC station (Page 39)	X	X	X	
14	Install the PCS 7 software (Page 40)	X	X	X	
15	Set the operating mode "configured mode"/"PG mode" (Page 43)	X	X		
16	Configure and download the PC stations (Page 44)	X	X	X	
17	Install additional PCS 7 libraries (Page 48)	X			
18	Install additional non-standard libraries (Page 51)	X			
19	Installing additional faceplates on the OS (Page 49)		X		

6.2 Preparing the PC Station

Preparing the PC Station

The further procedure depends on the operating system of the PC Stations to be updated. The operating systems recommended for PCS 7 are listed in the *PCS 7 Readme* file on the Process Control System; SIMATIC PCS 7 DVD.

Recommendation

Use the latest approved operating systems for PC Stations (workstation and server).

- Consult with a network administrator about the configuration of the networks.
- You can find information about backing up data in the manual *Process Control System PCS 7; Service Support and Diagnostics*
- You can find information about the installation and configuration of the PC stations in the "Installing the Operating System" section of the *Process Control System PCS 7; PC Configuration and Authorization* manual.

Note

Re-installing the operating system

You can re-install the operating system directly if the operating system partition does not contain project or archive data.

Additional information

- Manual *Process Control System PCS 7; PC Configuration and Authorization*
- *PCS 7 - Readme* file

6.3 How to install PCS 7

Requirements

- The PCS 7 project data is backed up.
  You can find detailed information about how to back up project data in the *Process Control System PCS 7; Service Support and Diagnostics* documentation, section "Safeguarding Availability, Data Backup".
- The hardware planning and hardware update are complete.
- The necessary preparations have been made.
- Read the current information about installation and software and hardware requirements in the *PCS 7 Readme* file on the DVD *Process Control System; SIMATC PCS 7*.
- In the case of PC stations with INTEL network adapters, the driver for the network adapters must be updated before the service packs for the operating systems are installed. You can find the driver on the "*Process Control System; SIMATC PCS 7* DVD in the folder "Addtional_Products\Drivers\NETWORK\Intel".
- The operating system of the PC station will be updated.
- Install the software for time synchronization when updating SIMATIC PCS 7 BOX and SIMATIC PCS 7 AS RTX.
  You can find information on the software for the automation system of SIMATIC PCS 7 BOX in the *PCS 7 Readme* documentation on DVD 1 *Process Control System; SIMATC PCS 7*.

Note

Software update of password-protected projects

The software update of password-protected projects requires SIMATIC Logon on an ES.

Note

Windows User Groups

Members of the Windows user group "SIMATIC HMI" should not be members of the Windows user group "SQLServer2005MSSQLUser$<computer name>$WINCC" at the same time.

Members of the "SQLServer2005MSSQLUser$<computer name>$WINCC" group have administrator rights on the SQL Server. You should therefore remove **all** Windows users who only need restricted access to the OS database from this group.

Note

Hotfix and SQL server

PCS 7 Setup automatically installs the necessary hotfix and SQL Server.

Note

Replacing the operating system of servers

Observe the following instructions if the server operating system is replaced during a software update:

- Shut the redundant server down completely if you do **not** want to perform a server software update during operation.
- Restart the servers following installation.

SIMATIC PDM

If you are using the PCS 7 Maintenance Station and the project contains intelligent field devices configured with SIMATIC PDM , install SIMATIC PDM on the Engineering Station. Select "User-defined settings"in the setup dialog.

Note

Installation of SIMATIC PDM

Remove SIMATIC PDM before you install a new version.

WebNavigator client and WebNavigator diagnostics client

Please note the following when updating software:

- You can update the software (without removing it beforehand) on the WebNavigator client.
- With the WebNavigator diagnostics client, you will have to uninstall and then reinstall the software.

Procedure

1. Insert the *Process Control System; SIMATC PCS 7* DVD into the DVD drive.
2. Select the "Install" setup type.
   You will find a more detailed description of how to install the required software in the *Process Control System PCS 7; PC Configuration and Authorization* documentation, section "How to Install PCS 7 Software".

NOTICE
Only this setup type installs all new PCS 7 components.

3. Restore the old project data from the backup copy to the PC.

Note

Required access rights for changing the project path

The project path in "Storage location for projects/multi-projects" is set by default to "SIEMENS\STEP7\S7Proj" and all necessary access rights are set for this project path.

If you use another project path, you need to set the necessary access rights using the "SimaticRights.exe" tool.

For more information, refer to the *Process Control System PCS 7; PC Configuration and Authorization* manual, section "How to set authorizations for project paths".

Installed libraries as of PCS 7 V8.0

The libraries of PCS 7 are updated with each PCS 7 version. As of PCS 7 V8.0 , the following libraries are installed by default.

- **PCS 7 Basic Library**
  Contains the blocks of the PCS 7 Basic Library of PCS 7. The PCS 7 Basic Library is a prerequisite for the use of the PCS 7 Library and the Advanced Process Library.
- **Advanced Process Library**
  Contains the blocks of the Advanced Process Library of PCS 7.

Additional information

- *Process Control System PCS 7; PC Configuration and Authorization* Manual

6.4 Updating SIMATIC PCS 7 AS RTX

Update package

You need the following product for the update of SIMATIC PCS 7 AS RTX :

PCS 7 AS RTX V8.0 Update Package

Basic procedure

1. Backing up user and network settings
2. Backing up license keys
3. Updating SIMATIC PCS 7 AS RTX in accordance with the *SIMATIC PCS 7; PCS 7 AS RTX V8.0 Update Package* product information
4. Creating user and network settings
5. Loading SIMATIC PCS 7 AS RTX

Additional information

- Product information *SIMATIC PCS 7; SIMATIC PCS 7 AS RTX*

6.5 Modules in Configured Mode and PG Mode

Operating Modes

Two operating modes are always differentiated:

- Module in configured mode
- Module in programming device (PG) mode

Module in "Configured Mode"

You can only transfer configured connections from NetPro to the module in "Configured Mode". All of the logs provided by SIMATIC NET are available when using this operating mode. For this reason, we recommend using this setting.

As a requirement for the "Configured Mode" setting, your PCS 7 project must contain a SIMATIC PC station with a WinCC application for the engineering station (ES). Check whether this requirement has been met for your PCS 7 project.

Module in "PG Mode"

In "PG mode", you can assign parameters for the network module. You can assign the network-related parameters, such as station address and transmission speed, with the "Set PG/PC Interface" configuration program. The configuration can only be set locally on the computer. No communication is possible with the PC stations in this operating mode.

Requirements

- The network addresses and network settings of the PC stations are configured.
- The configuration of the PC stations match in HW Config and in the Station Configuration Editor.

- The configuration of the PC stations is loaded on the PC stations.
- The connection data of the PC stations are loaded.

Procedure

1. In the Windows Start menu, select **SIMATIC > SIMATIC NET**, menu command **Configure PC Station**.
2. In the tree view, select the "Modules> <Network Card on System Bus> >General" folder.
3. Select the appropriate entry from the "Module Mode" drop-down list box.
4. Click "Apply".

NOTICE
For process mode, the network card must be set to "Configured Mode".

6.6 How to Configure and Download the PC Stations

Introduction

The project-specific network settings for the communication types (Ethernet) of the Engineering Station are downloaded directly to the PC station.

Requirements

- The following is installed on each PC station:
  - Operating system
  - Specific software for the PC station (e.g., PCS 7 Engineering, OS Server)
- All PC stations to be downloaded are linked to the engineering station by means of at least one network.
- The protocol for the communication on the terminal bus is set to TCP/IP.
- The network is administered (terminal bus and system bus). The network addresses of the PC stations are configured.
- The PC station access point is set on each PC station as follows: "S7ONLINE: = PC internal (local)".

Procedure

Note

Perform the following steps for the engineering station first before configuring and downloading the other PC stations.

1. In SIMATIC Manager, open the PCS 7 project.
2. In the Component View, select the target computer.
3. Select the menu command **CPU > Configure**.
   The "Configure" dialog box opens.
4. From the "Local Network Connection" drop-down list box, select the network connection to be used to access the target computer.
5. Click "Update".
   The list of accessible computers is updated.
   The PC station selected in the project is entered in the "Target computers" area.
6. Select the desired target computer (PC station).

   Note

   If the selected PC station does not appear in the list, this suggests network problems or a faulty configuration in the project.

7. Click "Configure".
   Dialog box "Configure: <Selected Station>" opens.
8. In the "Configure: Target Computer" dialog box, click "OK".
9. Click "OK" in the "Information" dialog box. The configuration data is transferred to the PC station. To activate the network connections, you must then download the network settings to this PC station. The completion of the "Configuration" step is indicated in the dialog box message line.
10. Click "Close".
11. For the computer selected in step 2, select the menu command **CPU > Download**.
    The "Download to CPU in Current Project" dialog box opens.

    Note

    The configured network address of the Ethernet interface in the PC station must match the preset address in the target system.

12. When the dialog box tells you that you are overwriting the configuration data, respond as follows:
    - During initial commissioning, click "Yes".
    - If the PC station is in process mode, you can only click "Yes" when a communication interruption is permissible.

    The "Stop Target Module" dialog box opens.
13. In the "Stop Target Module" dialog box, click "OK" to confirm.
    The "Download" dialog box opens.
14. Click "OK" to confirm.
    The download is performed.
    Once the configuration has been applied, the PC station is ready to operate.
15. Repeat steps 2 through 14 for all of the PC stations.

Switching the Logs on the Bus (Industrial Ethernet)

NOTICE
You must not deactivate the TCP/IP protocol or the ISO protocol during operation. These protocols are mandatory for the configured operating mode!

If a bus within a system must be switched to a different protocol (for example, from TCP protocol to ISO protocol), you must temporarily set a mixed protocol (TCP and ISO) on the engineering station. You then download the configuration data to the AS and the operator control and monitoring systems.

Additional information

- *SIMATIC NET; Commissioning PC Stations - Manual and Getting Started* manual

6.7 Transmission Rate and Operating Mode in the PC Network

Introduction

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

- Transmission rate
- Operating mode

Automatic Recognition of the Transmission Rate and the Operating Mode

The term autonegotiation denotes the automatic identification and negotiation of transmission rate and operating mode (full duplex/half duplex).

- Full duplex is an operating mode with bidirectional data exchange, in which the communication partners can send data independently of one another on the transmission link.
- Half duplex is an operating mode with bidirectional data exchange, in which only one communication partner at a time can send data on the transmission link.

Requirement

With their factory settings, Siemens devices used in PCS 7 **automatically** identify (autonegotiation) the transmission rate and operating mode parameters.

This setting must be changed **only** if communication in the network is necessary with nodes that do not have the autonegotiation setting.

Assigning Parameters to Network Nodes

Location of Use	Network Node	Steps for Calling Parameter Assignment Dialog Box	Parameter Setting
PC	Communication processor CP 1613 / CP 1623	1. In the Windows Start menu, select the **SIMATIC > SIMATIC NET** submenu, menu command **Configure PC-Station** 2. **PC Station > Modules > Network Parameters**	Selects options for duplex mode and transmission rate
PC	INTEL network adapter settings (or similar standard network adapters)	1. In the Windows control panel, select "Administrative Tools" > "Computer Management" > "Device Manager" > "Network adapters" 2. Select network card 3. **File > Properties** 4. Advanced" tab	Set the values for the property. Typical name for the property (depends on the network module used): • Speed and duplex mode • Link speed & duplex
Switches	SCALANCE X400 SCALANCE X200 ESM OSM	• To call parameter assignment dialog box (Web-based management) of the switch via Internet Explorer: http : \\<TCP-IP address> • Configuration via telnet (DOS window: telnet)	Port configuration
AS	Communication processor CP 443-1	• HW Config: CP443-1 Properties > "Options" tab > "Individual network settings" group "Transmission medium/duplex" drop-down list box	Automatic Setting" default

Additional information

- Operating Instructions *SIMATIC NET; Industrial Ethernet Switches SCALANCE X-400*
- Configuration manual *SIMATIC NET; Industrial Ethernet Switches SCALANCE X-400*

6.8 Installation of Additional PCS 7 Libraries

Overview

Observe the following specifications with regard to the PCS 7 libraries when updating the software:

The PCS 7 Library V7.1 SP3 must be post-installed on the engineering station for the software update to PCS 7 V8.0 Update 1 if the blocks of this PCS 7 Library are also to be used in the PCS 7 project.

- If you wish to operate a mixture of APL V8 blocks and PCS 7 standard blocks, you need to update the blocks with the blocks stored in the PCS 7 Library V7.1 SP3 in the "ChnBlocks for PCS7 V8" folder.
- If you are using the PCS 7 Library in the project to be updated under PCS 7 V8.0 Update 1 , you need to install the PCS 7 V7.1 SP3 PCS 7 Faceplates on the following PC stations after a new installation of PCS 7 :
  - Engineering station
  - All operator stations

Note

You can find the setup program for the faceplates on the *Process Control System; SIMATIC PCS 7* DVD in the folder "Additional_Products \PCS7Faceplates__V7.1+SP3".

Basic Installation Procedure

The procedure is described in the section "How to install additional PCS 7 libraries (Page 48)".

NOTICE
Only the AS blocks of the same PCS 7 version may be loaded on an AS.

6.9 How to Install Additional PCS 7 Libraries

NOTICE
Post-installing or removing PCS 7 libraries If you install or remove an older version of the PCS 7 Library, PCS 7 Basic Library or PCS 7 Advanced Process Library after the installation of PCS7 V8.0 including Update 1, you must re-install the latest versions of the PCS 7 Basic Library or PCS 7 Advanced Process Library via the PCS 7 system setup afterwards. Do not use the product setup of these libraries to do this. This relates, for example, to PCS 7 Library V6.1+SP1+Upd17, PCS 7 Basis Library V7.1 SP3+Upd6 and PCS 7 Advanced Process Library V7.1 SP5+Upd3, which are located on the SIMATIC PCS 7 DVD 2/2 in the Additional_Products folder. This is necessary in order to guarantee proper functioning of the CFC driver generator.

Requirements

- The operating system including the required components is installed.
- PCS 7 has been installed.

- All applications are closed.
- The PCS 7 software package with the required library is available on the *Process Control System; SIMATC PCS 7* DVD, for example.

Procedure

The following steps serve as an example.

1. Run the "SETUP" program.
   The libraries and corresponding setup program are available on the *Process Control System; SIMATIC PCS 7* DVD in the "Additional_Products" directory.
2. Select a setup language.
3. Click "Next".
4. Follow the instructions of the setup wizard and then close the setup program.

NOTICE
Only the AS blocks of the same PCS 7 version may be loaded on an AS.

5. Install the latest version of this library from the current *Process Control System; SIMATC PCS 7* DVD.

Additional information

Included with the PCS 7 libraries delivered:

- PCS 7 Basis Library: *bli-readme.rtf* file
- PCS 7 Library: *LIB-Readme.wri* file
- PCS 7 Advanced Process Library: *APL-Readme.rtf* file
- PCS 7 Faceplates: *fpd-readme.wri* file

6.10 How to install additional faceplates on operator stations

Important information

Only follow the instructions below if you are using blocks from PCS 7 Standard Library of PCS 7 V7.1.3 in the automation system and you have performed a new installation of PCS 7 V8.0 Update 1 (not an update installation).

Requirements

- The operating system including the required components is installed.
- PCS 7 has been installed.

- All applications are closed.
- The PCS 7 software package with the required library is available on the *Process Control System; SIMATC PCS 7* DVD, for example.

Procedure

The following steps serve as an example.

1. Run the "SETUP" program.
   The faceplates and corresponding setup are available in the "Additional_Products" folder on your *Process Control System; SIMATIC PCS 7 V8.0* DVD.
2. Select a setup language.
3. Click "Next".
4. Follow the instructions of the setup wizard and then close the setup program.

Additional information

On the faceplates supplied with PCS 7:

- PCS 7 Faceplates_<...>: *fpd readme.wri* file

Additional information

You can find additional information about modifying libraries in the *WinCC Online Help; Faceplate Designer*

6.11 What are the requirements for using the Advanced Process Library?

You need the following libraries to use the functions provided in PCS 7 V8.0 or higher:

- PCS 7 Advanced Process Library (APL)
- PCS 7 Basic Library

The PCS 7 Advanced Process Library (APL) can only be used if the PCS 7 Basic Library is installed.

Note

When upgrading PCS 7 with utilization of new functions, you must always upgrade all libraries. It is not allowed to use the new functions only for one library in the PCS 7 project!

The use of APL blocks requires application-specific configuration.

Additional information

- Section "Using the APL V8.0 (Page 99)"

6.12 How to Install Additional Non-standard Libraries

Introduction

Note this section if you are using and would like to continue using libraries in the PCS 7 project to be updated that are not standard in PCS 7 or that contain modified blocks.

Requirement

The library has been archived with the menu command **File > Archive** in SIMATIC Manager.

Procedure

1. Start the SIMATIC Manager. A PCS 7 project does not have to be open.
2. In SIMATIC Manager, select the menu command **File > Retrieve**.
   The "Retrieving - Select Archive" dialog box opens.
3. Specify the path to the archived library.
   Click "Open".
   The "Select Destination Directory" dialog box opens.
4. Set the destination directory.
5. Click "OK".

NOTICE
Only the AS blocks of one PCS 7 version may be loaded on an AS.

Additional information

Information concerning the modification of libraries is available in the following documentation:

- Manual Process Control System *PCS 7; Programming Instructions for Blocks*
- Manual Process Control System *PCS 7; Programming Instructions for Driver Blocks*
- Online help for *WinCC; Faceplate Designer*

6.13 How to update user-specific APL faceplates

Introduction

You need to make certain adaptations for APL faceplates that were created in accordance with APL style guide using APL version SP4.
You should also observe the instructions in the Readme file with regard to APL faceplates SP5.

NOTICE
Take into account that you have to re-enter the parameterization of the objects you replaced.

Requirements

Advanced Process Library Version SP5.

Procedure

Replace the following objects in your basic faceplate picture (e.g. @PG_MyAPLFP.PDL) with the corresponding object from the @PCS7ElementsAPL.pdl picture.

- The "AlwaysOnTop" object with the "APL_PIN_BUTTON" object Version >= 10061101.
- The "ObjCollection" object with the "ObjCollection" Version >=10102501.
- The "@Faceplate" object with the "@Faceplate" Version >= 10110501.
- Copy the complete C-script from the @PG_PIDConL.pdl picture of APL SP5, ViewWindow/Height/OnPropertyChanged and completely replace the script in your own basic picture, ViewWindow/Height/OnPropertyChanged.
- Copy the complete C-script from the @PG_PIDConL.pdl picture of APL SP5, ViewWindow \PictureName\OnPropertyChanged and completely replace the script in your own basic picture, ViewWindow\PictureName\OnPropertyChanged.

NOTICE
Take into account that you have to re-enter the parameterization of the objects you replaced as specified in the APL style guide, chapter 1.3.2.

- Change the following parameter assignments:
  - In the "@Faceplate" object, change the "Firstview" property to the new picture name, e.g. "PG_MyAPLFP_Standard.PDL".
  - In the "ObjCollection" object, change the "BlockType" property to the name of the new faceplate type (server name), e.g. "MyAPLFP".

NOTICE
When using controllable objects with APL SP5, it is imperative to create a tag link at the "PermissionTag" or "LinkTag3" property. A parameter assignment as specified in the APL style guide, chapter 1.3.7, will no longer be functional.

Adaptations in the PCS 7 Project on the ES 7

7.1 Update of a PCS 7 Project

Basic procedure

This section describes how to update your PCS 7 project for use with SIMATIC PCS 7. The PCS 7 project is updated on the ES in offline mode. Thus, system operation is not affected. The target stations will only be loaded once all the update steps listed below have been performed. For more information on downloading, refer to the *Process Control System PCS 7; Engineering Station* Configuration Manual

Once you have completed all of the following update steps on the ES and continue with the configuration of the updated PCS 7 project, you may need to complete specific steps such as compiling CFC charts and downloading changes or the complete project to the AS.

7.2 General adaptations

7.2.1 Overview of General Adaptations in the Project

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
20	Updating the OS with the Project Migrator (Page 55)	X			
21	Check PH consistency (Page 55)	X			

7.2.2 Update of Operator Stations with the Project Migrator

The Project Migrator is used to update the pictures and libraries of an OS.

Requirement

Projects that were created with PCS 7 versions earlier than V7.1 SP3 must first be updated to PCS 7 V7.1 SP3.

Length of the Updating Process

Note

Depending on the scope, the updating process can take several hours.

7.2.3 Changing the Configuration of Multilingual Texts

If you want to use additional interface languages, please take note of the information below.

Changing Multilingual Texts

If you want to display text in more than one language in PCS 7 (for example, message texts or OS area IDs), always use the export/import function to change the multilingual texts (menu command **Options > Manage Multilingual Texts > Export** and then **Import** after the changes have been made).

NOTICE

If you change individual texts with the functions in CFC, SFC or PH, be sure to immediately compile the texts in all locations (for example, all block types and all copies of a blocks). Otherwise, inconsistencies may occur and lead to the display of an incorrect language version of this text.

7.2.4 Importing Data from the User Archives

Import Runtime Data

NOTICE

You must always import runtime data from the user archives in the language in which the runtime data was exported.

7.2.5 How to Update Operator Stations with the Project Migrator

Requirements

- Projects that were created with PCS 7 versions prior to V7.1.3 must first be updated to PCS 7 V7.1 SP3.
- Only for password-protected projects:
  Deactivate password protection for the following actions.

Procedure

Carry out the following steps for each OS project:

1. In the Windows Start menu, select **SIMATIC > WinCC > Tools**, menu command **Configure PC Station**.
   The "CCMigrator" dialog opens with "Step 1 of 3".
2. Click "Next".
   "Step 2 of 3" opens.
3. Select the MCP file in the project path for the OS.
   OS projects are located in the PCS 7 project path under "wincproj".
4. Click "Finish" in "Step 3 of 3".
   The update is performed automatically.
5. Repeat these steps for every OS of your PCS 7 project.

Additional information

- Online help *WinCC Information System > Migration*
- Online help *WinCC Information System > Working with WinCC > Archiving process values*
- *Process Control System PCS 7; Operator Station* Configuration Manual

7.2.6 How to Check the PH Consistency

Introduction

This step shows you if all the data in the "plant hierarchy" are consistent.

Requirements

- The project is opened in the Plant View in SIMATIC Manager.

Procedure

The following steps can be performed for the multiproject or for each individual project (in the multiproject).

1. In the tree view, select the object to be checked (e.g., the multiproject).
2. Select the **Options > Plant Hierarchy > Check Consistency** menu command.
   The PH will be checked.
   The "Check Consistency - Log" dialog box opens.
3. Correct any errors that were found.

Note

If you need more information about the possible errors, click the "Help" button in the "Check Consistency – Log" dialog box.

7.3 Adaptations in HW Config

7.3.1 Overview of Adaptation of the Hardware

Important information

The PCS 7 configuration data must be adapted in the following cases:

- When a module is replaced with a different type.
- When the CPU operating system or the firmware for CPs or IMs is updated.
- If you switch to the Windows 7/Windows Server 2008 R2 operating system, you will have to update the version of the communication components in the Station Configuration Editor and HW Config. The version depends on the version of SIMATIC NET installed on the target station.
  - SIMATIC NET V8.1.x is installed as of Windows 7 and Windows Server 2008 R2 (e.g. for CP 16xx -> SW 8.1.1).
  - The CP 1613 A1 communication processor is no longer supported by PCS 7 on operating systems as of Windows 7/Windows Server 2008.

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
22	Configuring replaced hardware (Page 57)	X			
23	Setting the CPU properties (Page 57)	X			
24	Updating the hardware configuration (Page 58) (only for projects with SIMATIC PCS 7 BOX RTX or SIMATIC PCS 7 AS RTX)	X			
25	Configuring the address for the PDM Server (Page 59) (only for projects with SIMATIC PDM V7.0)	X			

7.3.2 How to Configure Replaced Hardware

After you have replaced modules in your process control system or performed a firmware update, the hardware version status must be updated in your PCS 7 project.

Requirements

- The PCS 7 project operator stations have been updated with the Project Migrator.

Procedure

1. Open HW Config.
2. Drag the object (e.g. CPU: type, firmware version x.x) from the hardware catalog to the corresponding slot in the AS configuration table.
   The following system message is displayed: "Do you want to replace the component ... with component ...?"
3. Check the hardware types.
4. Click "Yes".
5. Select the menu command **Station > Save/Compile**.

7.3.3 How to Set the CPU Properties

Reason for Checking the CPU Properties

When you update a firmware version of a CPU, for example, in HW Config, certain parameters might not be accepted and might be replaced by default values during the update. In this case a message will appear. When this occurs, check the settings of the CPU properties and adapt them if necessary.

Requirements

- A message indicates that not all parameters were applied when the modules were replaced.
- HW Config is open.

Procedure

1. Select the CPU being used in the configuration table in HW Config.
2. In the context menu, select the menu command **Object Properties**.
3. Open the "Diagnostics/Clock" tab and check the settings in the "Clock" area:
   - The "In AS" synchronization must be set to the "As slave" synchronization type.
   - The "On MPI" synchronization must be set to the "None" synchronization type.
4. Open the "Cycle/Clock Memory" tab and check the settings:
   - If you are using module drivers from PCS 7 V6.0 and higher, the "Update OB1 process image cyclically" check box must be selected.
   - From the "OB85 Call for I/O Access Errors" drop-down list box, select "Only for incoming and outgoing errors".
5. Select the menu command **Station > Save/Compile**.

7.3.4 How to update the hardware configuration for SIMATIC PCS 7 BOX RTX and SIMATIC PCS 7 AS RTX

The steps described below only have to be carried out for project with SIMATIC PCS 7 BOX RTX or SIMATIC PCS 7 AS RTX implementation.

Replace the automation system in the hardware configuration of the PC station.

Requirements

- The AS version in HW Config is not up to date (Version 3.3 or older)
- The assignments of CPs to the master systems are known.

Procedure

1. Open the PC station in HW Config (SIMATIC PCS 7 BOX RTX or SIMATIC PCS 7 AS RTX).
2. Select the PROFIBUS CP to which the distributed I/O is connected.
3. Select the **Edit > Master system > Disconnect** menu command.
4. Select the CP.
5. Select the **Edit > Delete** menu command.
6. Select the "Win LC RTX" CPU in the rack in HW Config.
7. Go to the"SIMATIC PC-Station > Controller > Win LC RTX" folder in HW Config.

8. Double-click the object "V4.4".
   The "Insert ..." dialog box opens.
9. Click "Yes".
   The controller is replaced.
10. Go to the"SIMATIC PC-Station > Controller > Win LC RTX > V4.4" folder in HW Config.
11. Select the PROFIBUS CP used (default: CP 5613).
12. Drag-and-drop the selected PROFIBUS CP to the controller slot in the station window.
    The "Properties ..." dialog box opens.
13. Select the entry of the associated bus system from the "Subnet" list.
14. Click "OK".
    The "Insert master system" dialog box opens.
15. Select the entry of the associated bus system from the "Subnet" list.
16. Click "OK".
17. Select the **Station > Save and Compile** menu command.

7.3.5 How to configure the SIMATIC PDM Server

Requirements

- The project/multiproject has been created.
- The SIMATIC PDM (Server) software package is installed on the Engineering Station.

Note
Requirements for the use of SIMATIC PDM

Please observe the conditions for the use of SIMATIC PDM versions.

Selecting the name of the PC station

Note
Restrictions

The following restrictions must be observed:

- Valid characters: [A-Z 0-9]{1,32}
- Use uppercase letters only.
- The first character of the PC station's name must be a letter.
- Maximum length: 32 characters

Note

We recommend that the PC name is the same as the name of the station.

Procedure

1. Select the **Options > SIMATIC PDM > Settings** command in SIMATIC Manager.
   The "SIMATIC PDM settings" dialog box opens.
2. Select the "Maintenance Station" tab.
3. Go to the input field and enter the project/multiproject in which you have defined the MS server or execute the following steps:
   - In a multiproject:
     Click "Current Multiproject" or "Browse." You can select the current project using the "Browse" button.
   - For a project:
     Click on "Current Project" or "Browse." You can select the current project using the "Browse" button.
4. Click "OK".
5. Open SIMATIC Manager in the component view.
6. In the project, select the engineering station in which you wish to insert the "PDM Server" object.
7. Double-click the "Configuration" object in the detail view.
   The hardware configuration of the SIMATIC PC station opens.
   If you cannot see the hardware catalog, select the **View > Catalog** menu command.
   The hardware catalog opens.
8. Select **SIMATIC PC Station > PDM Server** from the list in the folder.
9. Drag and drop the "PDM Server" object to the PC station of the engineering station.
10. Select the menu command **File > Save**.
11. Download the configuration to the engineering station.

Requirements for diagnostics with SIMATIC PDM

Diagnostics can only be performed on the PDM devices for a given station (OS client, maintenance server, etc.) if SIMATIC PDM is active on the engineering station. This is the default scenario after the configuration has been downloaded.

Additional information

- STEP 7 and SIMATIC PDM Online Help
- Whitepaper *SIMATIC; Security concept PCS 7 and WinCC - Main document*

7.4 Adaptations in NetPro and conversion of the CFC/SFC charts

7.4.1 Overview of Adaptation of OS-relevant Settings

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
26	Checking and adapting the connection data in NetPro (Page 61)	X			
27	Converting the CFC and SFC charts (Page 62)	X			

7.4.2 How to Check and Adapt the Connection Data in NetPro

In NetPro, you check the configuration to the target stations:

- Connection data
- Configuration data
- after a change of operating system:
  Processing sequence of network adapters in the system

Requirements

- The PCS 7 project is open on the ES.

Procedure

1. In SIMATIC Manager, select the PCS 7 project.
2. Select the menu command **Options > Configure Network**.
   NetPro opens.
3. Select the menu command **View > Cross-Project Network View**.
   The cross-project network view is displayed.
   This allows you to toggle directly between all projects in the multiproject.

4. Check the connections to the various stations: AS-OS, AS-AS, ES-AS.
   You can make any necessary changes when the "cross-project network view" is deactivated.
   You must configure the connection between the ES and AS if you want to check the communication for process mode (runtime) on the ES. This requires the following steps to be taken:
   - Select the menu command **New Connection** in the shortcut menu of the WinCC application.
   - Select the destination: AS or OS.
   - Select the connection.
   - Select the name for the connection.
   - Click "OK".

   Recommendation
   To enable you to easily identify the connections, we recommend that they be assigned default names in accordance with the name of the target.
   Example:
   You configure an OS to AS_X connection.
   The corresponding connection name could be "ASX_connection".
5. If you are using time synchronization, you must check the time settings of the network adapter (e.g. communications processor) for the ES and OS. Double-click the network adapter of the OS/ES. Time-of-day mode must be selected for time synchronization on the "Options" tab.
6. If you have made changes in NetPro, you must perform a "Save and Compile" operation with the "Save and Compile All" option.

7.4.3 How to Convert CFC Charts and SFC Charts

Requirements

The PCS 7 project is opened on the ES.

Procedure

Note

This procedure must be carried out for all S7 programs in your PCS 7 project.

1. Open a CFC chart and move any block contained within it.
   This action will cause the conversion dialog to open immediately.
2. Click "Yes".
   The "Convert Format" message window opens.

3. Click "Yes".
4. Click "OK".

7.5 Updating the blocks

7.5.1 Overview of tasks for updating blocks

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
28	Copy objects from other libraries into the master data library (Page 67)	X			
29	Complete the master data library (Page 68)	X			
30	Synchronize blocks (Page 72)	X			
31	Include event texts (Page 74)	X			
32	Import operator texts (Page 75)	X			
33	Adapt operator texts (Page 75)	X			
34	Configure limit values for online trend control (Page 70)	X			
35	Update block types (Page 76)	X			
36	Update SFC block types (Page 78)	X			
37	Compile CFC charts (Page 80)	X			

7.5.2 Integration of a New Master Data Library

Basic Procedure

Creating a multiproject will also create an empty master data library. You copy all blocks from the first AS from the "Offline" block folder with the version to be updated to the master data library. Then compare the blocks in the master data library with the "Offline" block folder of the next AS. If it contains other blocks that have not been stored in the master data library, you also copy these to the master data library. Repeat this procedure through to the final AS.

NOTICE
Only the AS blocks of one PCS 7 version may be loaded on a SIMATIC station.

7.5.3 Language of Message Texts in Faceplates

Texts in Faceplates

If you want to convert messages displayed in the faceplates and generated from the ES data management from the English default to other languages, such as Italian or Spanish, you must perform the following procedure:

- Copy objects from other libraries to the master data library
- Copy the blocks used in the project to the master data library
- Edit the event texts and operator texts in the faceplates
- Update the block types in the project

Message Texts in Block Instances

Message texts from block instances that were created by copying block types have no type reference.

If other display languages (such as Italian, Spanish) are added after the software update, the message texts of these added display languages are shown in English in the block instances of the block types.

Including Message Text in the Block Import

If you want to include messages text in a block import, you need to make settings for the block type in the library (master data library).

NOTICE
The message texts will be overwritten for all block instances of the block type in the entire S7 program!

Additional information

You can find additional information about this in the section "How to Include Event Texts from the Block Type in the Block Import (Page 74)".

7.5.4 Editing Texts for Faceplates

Applications

The procedure steps in the section "Adapting Operator Texts with Import File" must be executed under the following conditions:

- You want to convert texts displayed in the faceplates from the default language (English) to another language, such as German or French.
- If you want to retain the old operator texts of your project.

Operator Texts in Block Instances

Note

You can no longer re-integrate the operator texts by importing a block type if you have made changes to the operator texts in the block instances in your CFC charts. You can then only change the operator texts in the block instances.

7.5.5 Rules for Copying Objects from Other Libraries

Rules for Copying

- If you want to copy the process tag types supplied in the *PCS 7 library* to your master data library, select only the process tag types you require in the "Templates" folder. Copy these types and paste them into your master data library's "Charts" folder.
- If you copy blocks into the master data library from different libraries, it is possible that blocks will be assigned different names (and functions) but the same block numbers. If this does occur, a dialog box will open where you can rename the block or synchronize the attributes.
  Blocks can only be renamed (reassigned) when they are copied to the "Offline" block folder.
- The symbolic name is also copied when you copy the blocks from a library. The symbolic name is lost and must be subsequently entered in the symbol table if you copy blocks from an S7 program and not from a library.

NOTICE
Only the AS blocks of one PCS 7 version may be loaded on a SIMATIC station.

Rules for Multi-instance Blocks

- In the case of blocks whose codes are used to call other blocks (multiple instance blocks), these lower-level blocks must be copied in the right version too.
  Any missing lower-level FBs are displayed when the user program is compiled.

  Note

  Note that the ES does not identify the missing FCs when the user program is compiled.

  If an FC is missing from the user program, the AS CPU will enter the STOP mode following download.

  If necessary, test the executability of a user program with a "reduced library" on a separate CPU.

- The code of the multiple instance block always stores the numbers of the blocks it calls. You can edit those numbers and, therefore, the program code itself, using the **Options > Rewire ...** menu command in SIMATIC Manager.
  Exception: The numbers of protected blocks cannot be changed.

7.5.6 Rules for Editing the Operator Texts

Introduction

Comply with the following rules when modifying default texts.

Rules

- The new texts must not be longer than the default texts. If longer texts cannot be avoided, you must check to see whether the message is displayed correctly on the faceplate.
- The "s7_unit" attribute does not have to be considered for the translation since blank spaces or international codes were used as default values.

- If you need multilingual texts, use the WinCC Editor "Text Library" to translate these to other languages.
  In SIMATIC Manager, you must therefore set exactly the dialog language that is to be used by default to configure the operator texts and display texts (usually "English") for display devices. This is the only way to ensure that the translated messages are not overwritten the next time the OS is translated.
- When the OS is compiled, the column that is always used as a reference is the one containing the language set in SIMATIC Manager as the "Standard language for display units".
  The texts in the Text Library of WinCC Explorer are automatically entered by PCS 7. Change the texts only if you have adapted unit and operator texts.

Note

If you recompile the OS, you cannot switch the "Default language for display devices" in SIMATIC Manager. In this case, translated entries can be overwritten.
For more information, refer to the *Process Control System PCS 7; Operator Station* documentation, section "Relationship between Compile OS and Text Library".

7.5.7 How to Copy Objects from Other Libraries to the Master Data Library

This section describes how to transfer objects from the libraries supplied with your PCS 7 version, or other libraries provided by external suppliers, to the master data library.

Note

During the software update, copy only the objects with versions that were used in the project to be updated from PCS 7 V8.0 to the new master data library.

NOTICE
Only the AS blocks of one PCS 7 version may be loaded on a SIMATIC station.

Updating libraries used in the project

Depending on the blocks used, you need to update these with the blocks of the following libraries:

- PCS 7 Basic Library
- PCS 7 Advanced Process Library (APL)
- PCS 7 Library (For information on this, refer to the "How to Install Additional PCS 7 Libraries (Page 48)" section)

Requirement

- The master data library has been created in the project to be updated.

Procedure

1. Select the menu command **File > Open** in the SIMATIC Manager.
2. Open the "Libraries" tab.
3. Select the required library and click "OK".
   The library opens.
4. Select the library section to be copied from the open library (source).
5. Select the menu command **Edit > Copy** (e.g., process tag types, blocks).
6. Select the folder in the master data library (target) where the copied library section is to be stored.
7. Select the menu command **Edit > Paste**.
   The copied library section is saved in the master data library.

Adapting default texts

Adapt the default texts in the master data library in which you have replaced the blocks (created in PCS 7 V7.1. SP3, for example) with PCS 7 V8.0 blocks.

Additional information

- Section "Editing Texts for Faceplates (Page 65)"

7.5.8 How to fill the master data library

The following tasks are only necessary if you update a project that has not been completely configured from the master data library.

Requirements

- The master data library has been created and is open.
- The "Offline" block folder of a SIMATIC station is open.
- You are only using the original blocks from the PCS 7 libraries in the SIMATIC stations.
- You are not using blocks from different PCS 7 versions in the SIMATIC stations and wish to continue using the blocks from a single PCS 7 version following the PCS 7 update.

Note

Only the AS blocks of one PCS 7 version may be loaded on a SIMATIC station.

Procedure

1. Select the menu command **View > Details**.
2. Select the detail view and click the column heading "Author".
   This arranges the blocks used in your project and contained in the offline block folder according to "Author".
3. Select all blocks listed with an "older" version number in the "Author" column (e.g. DRIVER60, "...60", "...70", ...)
   Keep the <Ctrl> key pressed to select several blocks.

   Note

   You also need to select the following BATCH blocks for projects with BATCH configuration:
   - All blocks with the "BATCH" entry in the "Family" column
   - The blocks READ_CLK and NOTIFY_8P, when they are used
4. Select the blocks or block areas that are not available in the master data library.
5. Select the menu command **Copy** in the shortcut menu.
6. Select the "Blocks" folder in the open master data library.
7. Select the menu command **Paste** in the shortcut menu.
   If you have selected the "Always prompt for settings" check box in the "Set Message Range" dialog box, the "Message Number Assignment Selection" dialog box appears when you copy blocks.
8. Select the "Always assign CPU-oriented unique message numbers" check box.
9. Select the next "Offline" block folder and compare its blocks to the blocks that are already contained in your master data library. If the "Offline" block folder contains additional blocks, copy these blocks to the master data library you have created.
10. Repeat the steps 5 through 9 with all other "Offline" block folders.

7.5.9 Trend Control for Displaying Archive Values

Display in Trend Control

The following notes only need to be taken into account if you want to display archive values in trend control.

This section is not relevant for displaying online tags in trend control.

Name of the Available Archive

If the project being updated contains an archive called "Process Value Archive", the archive tags generated by the system are saved in an archive called "SystemArchive".

If these archive values are to be accessed using the trend control display, the following settings must be changed in the block icon properties in the Graphics Designer:

- ReturnPath:
  Transfers trend data for the corresponding process tag.
- StandardTrend:
  Used to define the trend functionality to be visualized in the trend view.

Procedure

1. In the tree structure, select the "Styles" object.
2. Make the following settings:
   - StandardTrend:
     Change from 2 to 3.
   - ReturnPath:
     Add the following in the return path: *archivname:Systemarchiv*asia:
     Example: U:CO_DKGREEN*archivname:SystemArchive*asia:

Additional information

Manual *Process Control System PCS 7; Programming Instructions for Blocks*

7.5.10 How to Configure Extensions for Online Trend Control

You can specify the following parameters for automatically displaying value axis values in online trend control as part of process control:

- Limit values
  - Maximum value (high limit)
  - Minimum value (low limit)
- Unit

These parameters for displaying a tag in online trend control are automatically adopted by the associated function block when the OS is compiled.

Parameter Attribute "S7_trend"

Parameter attribute "S7_trend" can be assigned for function block I/Os, if the data type is one of the following:

- INT
- DINT
- Real

Requirements

- Parameter attribute "S7_m_c" is set to **TRUE** for the block and corresponding I/Os to be taken into account with (high and low) limit values in online trend control.
- The "Online trend control" object is inserted in the process picture.

Note

The "automatic" check box is activated by default for "Online Trend Control" objects (Properties, "Value axis" tab, "Range selection" group).

Note

Automatic adaptation of the high an low limits for archive tags in the Online Trend Control requires the following CFC configuration:

Set the archiving parameter (that is assigned parameter S7_trend) when you configure the associated block in the CFC.

Configurations using WinCC Tag Logging are not supported in PCS 7.

Procedure

1. Open SIMATIC Manager in the component view.
2. Select the block (block type) in the library (master data library).
3. Select the menu command **Edit > Open Object**.
   The "LAD/FBD/STL" dialog box opens.

   Note

   If a message appears that the block is write-protected, just ignore it.

4. In the tree structure, select the block I/O for which you want to specify parameters.
5. Select the menu command **Edit > Object Properties**.
6. Select the "Attributes" tab.
7. In an empty line, select the "S7_trend" entry from the drop-down list box.
8. Enter the name of the block I/Os at which you want to parameterize high and low limits for the selected I/O in the "Value" column. A comma separates the names (for example, LL_Name,HL_Name).
9. Click "OK".
10. Select the menu command **File > Save**.
    The "Save ..." dialog box opens.
11. Click "Yes".
12. Select the menu command **File > Close**.

Additional information

- Online help *STEP 7*

7.5.11 How to Update the Master Data Library

Introduction

The blocks of the master data library you created must be replaced with blocks of the current PCS 7 library.

Note

PCS 7 libraries

As of PCS 7 V7.1, the PCS 7 blocks included on the Process Control System; SIMATC PCS 7 DVD are distributed to different libraries.

Library for Redundant I/O Modules

If you are using redundant modules in the project, then you must also update the "Redundant IO (V1)" library.

Requirements

- The master data library contains all blocks of the project being updated.
- The master data library is open.
- It does not contain any PCS 7 V4 or V5 blocks (types: IN_..., Out_ ..., and PA_blocks of a block version lower than 5.2).

Rule

Note

The attributes of the individual blocks must be synchronized when replacing the blocks in the project being updated. Individual attributes of the old blocks can be applied if you have assigned the"S7_m_c" attribute to additional outputs, for example. You can apply the attributes of the new blocks if you have not made any changes to the default settings.

Validity

Note

The procedure described in the sections that follow is only valid for blocks whose object name and name (header) have not changed between library versions.

Procedure

1. Select the menu command **File > Open** in the SIMATIC Manager.
2. Open the "Libraries" tab.
3. Select a library from which you want to import blocks (e.g. *PCS 7 AP Library V80*). Click "OK".
   The library opens.
4. Double-click the "Blocks+Templates" folder and then on the "Blocks" folder.
5. Arrange the library one beneath the other so that the contents of both windows can be easily seen and the master data library is on the top.
6. Keeping the <Ctrl> key pressed, select all blocks which also exist in the master data library from the library you selected.
7. Right-click a selected block or block area, and select the menu command **Copy** in the shortcut menu.
8. Select the "Blocks" folder in the master data library, and select the menu command **Paste** in the shortcut menu.
9. Synchronize the attributes for each block individually by clicking the "Synchronize Attributes" button.
   If various attributes are found, a dialog box displays the differences between the block attributes.
10. Check the attributes and the project-specific settings.

    Note

    We recommend applying the default settings.

    Note

    If you click the "All“ button in the "Insert Function Block" dialog box, all blocks will be copied without synchronizing the attributes.

11. Click "OK".
    If no differences between the attributes are identified, a dialog box indicating this is displayed.
12. Click "OK".

13. Click "Yes".
    The corresponding block is copied to the master data library with the synchronized attributes.
14. Repeat those steps to select additional libraries.

Note

For projects with BATCH configuration, repeat the procedure with the SIMATIC BATCH BLOCKS library.

7.5.12 How to include event texts from the block type in the block import

Introduction

One aspect that should be noted with a software update of projects, is that the message texts of block instances, generated by copying block types, have no type references. If other display languages (such as Italian, Spanish) are added after the software update, the message texts of these display languages are shown in English in the block instances of the block types.

Importing and Editing Message Text of Block Instances

The following setting is required if you want to automatically overwrite the message texts of all instances in a block type for the entire S7 program.

If you want to edit the message texts of the instances, you need to deactivate this setting and perform an import again.

Procedure

1. Open the SIMATIC Manager in the Component View.
2. Select the block (block type) in the library (master data library).
3. Select the **Edit > Special Object Properties > Message Numbers** menu command.
   The "PCS 7 message configuration" dialog opens.

4. Complete the following settings in the message texts column on the right side of the "Event" column of the table: The symbol appears as follows:

   – Activate the check box for the message texts you want to import from the block type.
   – Deactivate the check box for the message texts you do not want to import from the block type.

NOTICE
The message texts will be overwritten at all block instances of the block type in the S7 program! If you wish to modify the instances of the block types again, you must clear the corresponding check marks and perform another block import.

5. Click "OK".

7.5.13 How to import the operator texts

Requirements

The user texts have been exported from the project to be updated.

Importing User Texts

1. Open the project to be updated in the SIMATIC Manager.
2. Select the master data library folder in the Component View. If this folder is not available, select the project folder.
3. Select the **Options > Manage Multilingual Texts > Import** menu command.
   The "Import User Texts" dialog opens.
4. Specify the storage location and the format of the import file (possible formats: *.xls and *.csv).

7.5.14 How to adapt the operator texts

Requirements

- The master data library contains the PCS 7 V8.0 Update 1 blocks.
- The master data library is open.
- You have noted down the texts of the"S7_shortcut", "S7_string_0" and "S7_string_1" parameter attributes and the corresponding PCS 7 blocks.

Procedure

There are different procedures for adapting the operator texts:

- Adapting for block types
  You can find more information about this in the manual *Process Control System PCS 7; Operator Station* in the section "How to Edit Texts for a Block Type".
-
  You can find additional information in the *"Process Control System PCS 7; Operator Station*" manual in the section "How to Edit Texts in a Block Type."

We recommend that you adapt the operator texts for block types. This ensures the following:

- Operator texts of identical blocks are consistent in the different automation systems.
- Adapted texts are readily available for subsequent configuration.

You must also adapt the block type in the modified block instance if you have already adapted operator texts in CFC block instances in manual mode.

Additional information

- Manual *Process Control System PCS 7; Programming Instructions for Blocks* in the section "ES Texts for Operator Control of Analog and Binary Values"
- Configuration manual *Process Control System PCS 7; Operator Station* in section "Adapting the Unit and Operating Texts".

7.5.15 How to update the block types in the project

NOTICE
It is only possible to work with a master data library if blocks with the same designation have the same structure and attributes in all projects of the multiproject.

Requirement

The master data library has been created with the current block types.

Procedure

1. Select all blocks that to be updated in the block folder of the master data library.
2. Select the menu command **Options> Charts > Update Block Types**.
   The "Update Block Types" dialog box opens.
3. Select the S7 programs to be analyzed for the selected block types that differ from those in the master data library.

4. Click "Next".
   All S7 programs selected are checked and another dialog for selecting the block types opens. This provides information about the potential consequences of updating the block types.
5. Specify the block types to be updated for the various S7 programs. You must select all the block types to be updated. You can exclude selected block types from the update. If there are no block types available for updating, no block types are displayed. In this case, close the dialog box.
6. Click "Next".

Cleaning up block folders

Once the block types in the project have been updated, it is advisable to clean up the block folder in all automation systems. This action prevents inconsistency in data management caused by unused blocks.

1. Open the CFC chart for each AS.
2. In the CFC Editor, select **Options > Block types**.
   The "Block types" dialog opens.
3. Click "Clean Up".
   The "Clean up block types in the block folder" dialog opens.
4. Select the block you do not need from the list.
5. Click "OK".

Result

The block types are updated in all selected S7 programs and a log is displayed.

Project with SFC

Note

If you use SFCs in your project, please note that you need to update the SFC blocks. Refer to the SFC Readme.

Additional information

- Online help on the dialog boxes

7.5.16 How to update the SFC block types in the project

NOTICE
It is only possible to work with a master data library if blocks with the same designation have the same structure and attributes in all projects of the multiproject.

Listing components with "old" versions of a block type

After having inserted a new version of a block type orSFC type into the master data library, or after you customized a block type in the master data library, you can use the "Update Block Types" function to list all components in which an older version of the modified block type is still in use. Throughout the entire multiproject, you can also select the components in which the modified block type will be updated.

Requirements

- The master data library has been created with the current block types.

Procedure

1. Select one or more SFC types in the chart folder of the master data library.
2. Select the menu command **Options> Charts > Update Block Types**.
   The "Update Block Types" dialog box opens.
3. Select the S7 programs to be checked for differences compared with the block types/SFC types selected in the master data library.
4. Click "Next".
   All S7 programs selected are checked and another dialog for selecting the block/SFC types opens. The dialog also provides information about the possible effects of the update of the block/SFC types.
5. Specify the block/SFC types to be updated for the S7 programs. You have selected all block/SFC types to be updated. You can exclude selected block types from the update, if required.
6. If there are no block/SFC types to be updated, no block/SFC types will be displayed. In this case, close the dialog box.
7. Click "Make".

Result

The block/SFC types are updated in all selected S7 programs and a log is displayed.

Additional information

- Online help on the dialog boxes
- *Process Control System PCS 7; Engineering System* Manual

7.5.17 Sequences during Compiling of CFC Charts

Driver Blocks for Compiling the CFC Charts

Since new block types were imported in the chart folder, you need to compile all CFC charts. This will use the imported driver blocks and optimize the program.

Relationship between the Driver Blocks and the Master Data Library

Note

In the case of PCS 7 libraries, the reference to the associated library is assumed by the driver generator.

When compiling with the "Generate module drivers" option, you can select an additional library (for example, a master data library) under "Settings Module Drivers". All driver blocks contained in the project must then be in this library.

F Charts/F Blocks

NOTICE
If your project contains F charts/blocks and you do not upgrade to the new F technology, the F-@ charts should not be deleted. Otherwise, your F program will receive a different signature. The F system would then have to undergo the acceptance process again according to the country-specific guidelines due to the changed signature .

7.5.18 Compiling the CFC Charts

Procedure

1. Perform a complete compilation of the S7 program.

Additional information

- *Process Control System PCS 7; Engineering System* Manual

7.6 Adaptation of OS-relevant settings

7.6.1 Overview of Adaptation of the Operator Stations

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
38	Synchronize OS basic pictures, local computer actions, and faceplates (Page 81)	X			
39	Update picture objects (Page 83)	X			

User interface and design

After the software update to PCS 7 V8.0, the user interface for process mode must be set up according to the "WinCC 3D" design.

You must check or edit this setting for existing projects.

This setting is available automatically in projects created in PCS 7 V8.0.

- It is important to ensure a uniform design setting is made for all projects within a system.
- When changing the setting for the WinCC design, check the visualization of user objects and customize these if necessary.

7.6.2 Synchronization of OS Basic Pictures, Local Computer Actions and Faceplates

You have to transfer OS basic pictures and local computer actions to your project. The faceplates of the project can continue to be used.

Synchronization in the OS Project Editor

You perform this procedure with the OS project editor, which is included in WinCC Explorer.

7.6.3 How to Synchronize OS Basic Pictures, Local Computer Actions, and Faceplates

Requirements

- The operator stations contained in the PCS 7 project have been updated with the Project Migrator.
- The PCS 7 OS is open in WinCC Explorer.

Procedure

1. Select the OS Project Editor and select the menu command **Open** in the shortcut menu.
2. Select the "Complete configuration" check box on the "General" tab.
3. Click the "Layout" tab.
4. Select the required layout and the monitor configuration.
5. Click the "Basic Data" tab. Make the required settings in accordance with the "Basic Data" table below.
6. Only carry out this step if the "For observation only" authorization level must be activated for some users after the software has been updated.
   Select the "Message Display" tab.
   Activate the required message filters (see the "Message Filters" table below).

   Note

   No settings are necessary for the software update on the remaining tabs. The default settings can be applied.

7. Click "OK".

Basic Data

Dialog Area	Note	Action
Top left window	This window lists all basic pictures having a different product version and project version change date. Every basic picture with a selected check box is overwritten in the project version at the start of the OS Project Editor with pictures from the product version.	Activate the check boxes for all of the basic pictures identified with a red "X".
Top right window	This window lists all local computer actions having a different product version and project version change date. Every local computer action with a selected check box is overwritten in the project version at the start of the OS Project Editor with the corresponding local computer action from the product version.	Activate the check boxes for all of the basic pictures identified with a red "X".
Bottom left window	This window lists all faceplates having a different product version and project version change date.	You can replace the faceplates available in the project with those of the relevant product version by transferring the default settings.

Message Filters

Parameters	Meaning
Messages that can be acknowledged in a separate list	The message windows have two message lists. One list shows all messages from the area for which the user has access rights for all "operator process controls". The user can acknowledge messages in this list. The other list shows all messages from the area for which the user has an "authorization for area" but no access rights for "operator process controls". The user cannot acknowledge messages in this list. The message line in the overview area only shows messages that can be acknowledged with the access right for "operator process controls".
Messages that can be acknowledged on a separate page (switch-selectable)	Both of the message pages indicated above are available to the user. Only messages from areas for which the user has access rights for "operator process controls" are displayed on the message page with only one list and in the message line of the overview area.

Additional information

- Online help *WinCC Information System* > Options > Options for Process Control > OS Project Editor
- Online help *OS Project Editor*

7.6.4 Update of Picture Objects

Introduction

In the course of the update of picture objects, the block icons of the PCS 7 version to be updated are replaced with block icons of the current PCS 7. This is necessary in order to enable you to use all functions of PCS 7 V8.0 Update 1.

Rules

Only the block icons of the selected picture template are updated. For this reason, you must use the corresponding picture template for updating the picture objects, depending on the template you have used for configuration.

- Use "@TemplateAPLV8.pdl" or "@PCS7TypicalsAPLV8.pdl" for the APL block icons.
- "@Template.pdl" or "@@PCS7Typicals.pdl" for block icons of the PCS 7 Library.

It is recommended to perform the update once on each individual picture template.

7.6.5 How to Update the Picture Objects

Introduction

If you have manually inserted and interconnected picture objects from a picture template into a process picture, you must manually update these picture objects.

When you update picture objects, the block icons of the previous PCS 7 version are replaced with the latest PCS 7 block icons.

You have to use the corresponding picture template that you used for configuration to update the picture objects.
Recommendation: Perform the update one by one with each picture template of the library used.

- For block icons of the PCS 7 library:
  "@Template.pdl" or "@@PCS7Typicals.pdl"
- For APL block icons
  - PCS 7 V8 template pictures:
    - "@PCS7TypicalsAPLV8.pdl"
    - "@TemplateAPLV8.pdl"

Note

Using a picture template for APL block icons of PCS 7 V7.1.3

The APL picture templates of PCS 7 V7.1.3 can continue to be used in PCS 7 V8.0 for updating picture objects:

- "@PCS7TypicalsAPLV7.pdl"
- "@TemplateAPLV7.pdl"

By using these picture templates in PCS 7 V8.0, the display of the block icons remains unchanged.

Please note that **executing the project editor** copies the files "@PCS7TypicalsAPLV8.pdl"/"@TemplateAPLV8.pdl" into the project.

- Delete the "@PCS7TypicalsAPLV8.pdl"/"@TemplateAPLV8.pdl" files. In this way, these picture templates ("@PCS7TypicalsAPLV7.pdl" / "@TemplateAPLV7.pdl") are used when executing the function "Create/update block icons" and in compilation processes.
- It is imperative that you always use the same versions of the @TemplateAPL<Version>.pdl" and "@PCS7TypicalsAPL<Version>.pdl" files.

Overwriting default settings

User scripts and modified properties of the picture objects are overwritten by the default settings.

Only the block icons of the selected picture template are updated.

Requirements

- The operator stations contained in the PCS 7 project have been updated with the Project Migrator.
- All basic pictures are replaced with the OS Project Editor.
- The PCS 7 OS is open in WinCC Explorer.

Procedure

1. Open any WinCC picture containing a picture object in the Graphics Designer. Select the picture object.
2. In the dynamic wizard, open the "Picture Functions" tab and select "Update Picture Objects". This "Dynamic Wizard" dialog opens.
3. Click "Next".
4. Select the "Yes, all pictures" check box.
5. Click "Next".
6. Select the template in the list which has been configured with the picture objects of the OS. (Default:@Template.pdl)
7. Select the default "TemplateControl.cfg" configuration file from the "Please specify name of configuration file" field.
8. Click "Next".
9. Click "Finish".
   Generation of the picture objects is initiated in the Dynamic Wizard.

7.7 Adaptations for the Maintenance Station

7.7.1 Overview of the Maintenance Station update

Along with the steps specified for the OS Server, you also need to complete a sequence for updating an MS server. The corresponding additional steps are listed below.

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
40	Changing the OPC Server and adapting the SNMP configuration (Page 85)	X			
41	Updating the diagnostics settings (Page 87)	X			
42	Updating the diagnostics screens (Page 88)	X			

7.7.2 How to change the OPC Server and adapt the SNMP configuration

OPC Server version

Run a compatibility check after migration to a different operating system, as the OPC Server version is dependent on the operating system used.

If incompatible, replace the OPC Server.

The following table lists the compatibilities:

Operating system of the MS Server	OPC Server version
Windows XP Windows Server 2003 Windows Server 2008	V7.0
Windows Server 2008 R2 Windows 7	V8.1

Requirements

- The blocks, charts and OS pictures of the project are updated.
- The SIMATIC programs and OS are compiled.
- The PC stations of the Maintenance Station (MS Server and MS Client) are updated in a similar way to an OS.
- MS multiple station system
  - The OPC Server is configured on the PC Station of the MS Server.
  - In a system with redundant MS Servers, you configured an OPC Server both for the PC Station of the MS Server and for the PC Station of the redundant partner.
- MS single station system
  - An OPC Server is configured on the PC Station of the MS single station system.

Procedure

1. Select the PC station in the Component View.
   - In an MS multiple station system, this is the PC Station of the MS Server or of the redundant partner.
   - In an MS single station system, this is the PC Station of the MS single station system.
2. Double-click the "Configuration" object in the Detail View to open HW Config.
   The hardware configuration of the SIMATIC PC station opens.
   If you cannot see the hardware catalog, select the **View > Catalog** menu command.
   The hardware catalog opens.
3. Select the current version of the OPC Server from the hardware catalog at **SIMATIC PC Station > User application > OPC Server** and drag-and-drop it to the position of the OPC Server.

4. Click "OK" to confirm the replacement of the OPC Server.
5. Save and compile your changes.
6. Select the "OPC Server" object in the rack.
7. Select the menu command **Station > Properties**.
8. Open the "SNMP" tab.
9. Click the "Export Tags for WinCC" button.
10. Select the **Station > Save and Compile** menu command.
11. Repeat steps 1 to 5 if using the MS Server in a redundant MS multiple station system.
12. Perform the following actions if the project contains field devices that were configured in SIMATIC PDM:
    - Select the **Options > SIMATIC PDM > Settings** command in SIMATIC Manager. The "SIMATIC PDM settings" dialog box opens.
    - Select the "Maintenance Station" tab.
    - Enter the file path of the PCS 7 project.
    - Click "OK".

Updating SIMATIC PDM to V8.0

Install SIMATIC PDM. Refer to the PDM Readme.

The SIMATIC PDM-related project data is updated automatically after the project is opened in SIMATIC Manager.

NOTICE
During the update, new PLT IDs are assigned to the configured ASSETMON objects. Then, perform the following steps: • Adapt these PLT IDs to the corresponding ASSETMON block instances. • Compile the automation systems. • Create the diagnostics screens again. • Compile the corresponding operator stations.

Please note that you need to start the SIMATIC PDM ASSET Service in the SIMATIC PDM ASSET Service Manager on the engineering station once manually in order to receive data from PDM. You will find the SIMATIC PDM ASSET Service Manager in the information area of the toolbar of your operating system.

Additional information

- Information about the configuration of user diagnostic structures and user diagnostic screens is available in the *Process Control System PCS 7; Operator Station* Configuration Manual.
- You will find a description of working with the maintenance station in process mode in the manual *Process Control System PCS 7; Operator Station Process Control*.
- *Process Control System PCS 7; Creating Driver Blocks* manual

7.7.3 How to update the diagnostics settings

Introduction

The representation of devices and the block icons have been revised. The modified geometry has an impact on the positioning of objects in the pictures.

The revised design will be used in the pictures if you run the "Migrate diagnostics settings" function.

This has the following implications:

- Overview screen
  The new "overview.pdl" overview screen will be created. Changes you inserted from the previous overview screen will be discarded.
  The previous overview screen will be renamed and saved to the "Graphics" folder of WinCC Explorer.
  Copy the changes from the previous overview screen.

Requirement

- The OS Project Editor is running.
  It is not necessary to make any setting in the OS Project Editor.

Procedure

1. Select the multiproject in the plant hierarchy.
2. Select the **Options > Plant Hierarchy > Settings...** menu command.
   The "Plant Hierarchy - Settings" dialog opens.
3. Activate the "Migrate diagnostics settings" check box.
4. Click "OK".

7.7.4 How to update the diagnostics screens

Updating the diagnostics screens has the following effects:

- Pictures in the AS objects area
  Block icons that represent racks will be repositioned in the picture.
  You can move the block icons to different positions.
- Pictures in the PC Stations and network objects area
  The block icons will possibly overlap in these pictures.
  You can move the block icons to different positions.

Requirements

- A backup copy of the diagnostics screens with project-specific adaptations has been generated.
- An asset ID has been assigned to each AS and PC station in HW Config.
- Diagnostics settings are updated.

Procedure

1. Select the multiproject (project) in the plant hierarchy.
2. Select the **Options > Plant Hierarchy > Create/Update Diagnostics Screens** menu command.
   Update the diagnostics screens. You can find information about this in the *Process Control System PCS 7; Operator Station configuration manual.*
3. Compile the OS of the maintenance station (changes).
4. Update the server data of the MS server.
5. Download the MS server.

Additional information

For information on options for accessing maintenance functions, refer to the following documentation:

- *Process Control System PCS 7; Operator Station* manual
- *Process Control System PCS 7; Web Option for OS* manual
- *Process Control System PCS 7;.OS Process Control* operating instructions
- Information about the configuration of user diagnostic structures and user diagnostic screens is available in the *Process Control System PCS 7; Operator Station* Configuration Manual.
- You will find a description of working with the maintenance station in process mode in the manual *Process Control System PCS 7; Operator Station Process Control*.
- *Process Control System PCS 7; Creating Driver Blocks* manual

7.8 Additional Options

7.8.1 Overview of additional options

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
43	Updating the PCS 7 Web Option for OS (Page 89)	X	X		
44	Updating PCS 7 Components that Use SIMATIC Logon Services (Page 90)	X	X	X	

7.8.2 Updating the PCS 7 Web Option for OS

Requirement

In order to utilize the full functional scope of the *PCS 7 Web Option for OS*, you may only use blocks from the current PCS 7 library in the PCS 7 project.

Procedure

- You update the OS Web server, an OS client, similar to an OS client.
- The process pictures that will be opened on a Web client must be "published" again.
- You only need to update the software when performing a software update for a Web client.
- When updating software for a Web diagnostics client, you will have to remove and then install the software.

Additional information

For more information, refer to the *Process Control System PCS 7; Web Option for OS* Manual.

7.8.3 Updating PCS 7 Components that Use SIMATIC Logon Services

Additional information

- For detailed instructions about the setup, parameter assignment and changes to complete for SIMATIC Logon, refer to the respective components that use SIMATIC Logon.
- Generally valid basic information about SIMATIC Logon is available in the *SIMATIC Logon* Online Help.

7.9 Work for the OS in SIMATIC Manager

7.9.1 Overview of compiling

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
45	Specifying the compilation mode (Page 91)	X			
46	Compiling the OS (Page 92)	X			
47	Adapting the OS client (Page 94)	X			

7.9.2 Information regarding the compilation modes

The compilation mode determines which data are downloaded to the OS Server. The setting must be made separately for each project of a multiproject.

Compilation modes

The following modes are available:

Mode	Meaning
Area-oriented	This setting enables you to assign an OS area of the PH to an OS Server. This is the default setting for projects created as of PCS 7 version 6.1. All data of an OS area are downloaded to the OS Server when this compilation mode is used. This mode can only be set for projects with configured PH.
AS-oriented	This setting enables you to assign an S7 program to an OS Server, i.e. you define which OS accesses data from which automation system. All data of an automation system are downloaded to the OS Server when this compilation mode is used. This mode is set by default for: • Projects created in PCS 7 version previous to V6.1. • Projects without configured PH.

Note

If you use a maintenance station in the project, you need to set "**area-oriented**" compilation mode for the multiproject.

Additional information

- *Process Control System PCS 7; Operator Station* Configuration Manual

7.9.3 How to Specify the Compilation Mode

Requirements

- The Operator Stations in the PCS 7 project have been updated using Project Migrator.

Procedure

NOTICE
After changing the compilation mode, you can only perform an online download after performing a complete download of the OS.

1. Open SIMATIC Manager and select any view. Component view, plant view or process object view.
2. Select a PCS 7 project from the tree structure.

3. Select the menu command **Options > "Compile Multiple OSs" Wizard > Compilation Mode**. The "Compilation Mode" dialog box opens.
4. Select the compilation mode (refer to the introduction of this section above).
5. Click "OK".

The settings for the compilation mode are applied in the "Compile Multiple OSs" wizard.

Note

These settings are applied to all OS servers in a project.

Additional information

- *Process Control System PCS 7; Operator Station* Configuration Manual

7.9.4 How to Compile the OS

Note

You must compile the OS if you changed the target paths on the ES.

Note

Using a picture template for APL block icons of PCS 7 V7.1.3

The APL picture templates of PCS 7 V7.1.3 can continue to be used in PCS 7 V8.0 for updating picture objects:

- "@PCS7TypicalsAPLV7.pdl"
- "@TemplateAPLV7.pdl"

By using these picture templates in PCS 7 V8.0, the display of the block icons remains unchanged.

Please note that **executing the project editor** copies the files "@PCS7TypicalsAPLV8.pdl"/"@TemplateAPLV8.pdl" into the project.

- Delete the "@PCS7TypicalsAPLV8.pdl"/"@TemplateAPLV8.pdl" files. In this way, these picture templates ("@PCS7TypicalsAPLV7.pdl" / "@TemplateAPLV7.pdl") are used when executing the function "Create/update block icons" and in compilation processes.
- It is imperative that you always use the same versions of the @TemplateAPL<Version>.pdl" and "@PCS7TypicalsAPL<Version>.pdl" files.

Overwriting default settings

User scripts and modified properties of the picture objects are overwritten by the default settings.

Requirements

- The PC station has been configured.
- The configuration in CFC and SFC has been completed.

NOTICE
If you have changed unit and operator texts of the block types in the master data library, be sure to set your default language as the "Language for display devices".

Procedure

Note

For more information on compilation options, refer to the *Process Control System PCS 7; Engineering System* Configuration Manual.

1. Select the object (multiproject, project, station) in SIMATIC Manager that you wish to compile or compile/download.
2. Select the **PLC > Compile and download objects** command in SIMATIC Manager.
   The "Compile and download objects" dialog box opens.
3. Open the tree structure.
4. Activate the check box in the "Compile" column for all objects that you want to compile.
5. Click the "Operating State" button and check the operating states of your objects (RUN, activated, etc.) so that you can make the correct settings for compilation.
6. Select the OS that you wish to compile.
7. Click "Edit".
   The "Settings: Compile OS ... Areas ..." dialog box opens.
8. Click "Next".
   The "Settings: Compile OS ... Network Connections ..." dialog box opens.
9. Click "Next".
   The "Settings: Compile OS ... Compilation Data and Scope of Compilation" dialog box opens.
10. In the "Scope" group, activate the "Entire OS" and "With memory reset" check boxes.
11. Click "Apply".

    Note

    Once you have completed your settings for compiling an operator station, please wait until the compilation settings have been saved and the download dialog box appears.

12. Make the required settings for the individual objects.
13. Click "Help" in the dialog box for detailed information about the settings.
14. Click the "Start" button.
    Compilation starts.

15. Follow the instructions on the screen.
16. If you wish to see a log of the compilation once it is complete, click the following buttons in the "Display Log" area:
    - "Single object": the detailed compilation log of the selected OS is displayed.
    - "All": Displays the results of all compilations (without details).

7.9.5 How to make adaptations for the OS clients

Note

The following procedures musts be carried out for each OS Server if there are several OS servers present in the project.

Procedure

1. In the component view of the SIMATIC Manager, select the OS client project on the PC station.
2. Select the menu command **Options > OS > Assign OS Server...**.
   The "**Assign OS Server ...**" dialog box opens.
3. In the list of OS servers, check for the server whose data you would like to view on this client, to ensure the check boxes for this OS Server have been selected.
4. Click "OK".
5. In the component view in SIMATIC Manager, select the "OSC" object of the OS client.
6. Select the menu command **Edit > Open Object**.
   The WinCC Explorer opens.
7. Select the menu command **Configure** in the shortcut menu of the "Server data" editor in order specify the preferred server if there are redundant OS servers.
8. Select the menu command **standard server** in the shortcut menu of the "Server data" editor in order to specify a standard server for interrupts and SSM.
9. Select the OS Project Editor and select the menu command **Open** in the shortcut menu.
10. Activate the "Complete configuration ..." check box on the "General" tab.
11. Click the "Layout" tab.
12. Select the required layout and the monitor configuration.
13. Click the "Basic Data" tab. Make the required settings in accordance with the "Basic Data" table below.
14. Only carry out this step if the authorization level "For observation only" must be activated for some of the users after the software has been updated:

15. Select the "Message display" tab.
    Activate the required message filters (see the "Message Filters" table below).

    Note

    No settings are necessary for the software update on the remaining tabs. The default settings can be applied.

16. Click "OK".
17. In WinCC Explorer, open the "Time Synchronization" editor.
    Activate the "Synchronization via terminal bus (slave)" check box.
    Select the "Use the time from a connected WinCC server" option.
    Close the dialog box.
18. Open the "Lifebeat Monitoring" editor and click the "Update" button in the dialog box. Close the dialog box.

Basic Data

Dialog Area	Note	Action
Top left window	This window lists all basic pictures having a different product version and project version change date. Every basic picture with a selected check box is overwritten in the project version at the start of the OS Project Editor with the pictures from the product version.	Activate the check boxes for all of the basic pictures identified with a red "X".
Top right window	This window lists all local computer actions having a different product version and project version change date. Every local computer action with a selected check box is overwritten in the project version at the start of the OS Project Editor with the corresponding local computer action from the product version.	Activate the check boxes for all of the basic pictures identified with a red "X".
Bottom left window	This window lists all faceplates having a different product version and project version change date.	You can replace the faceplates available in the project with those of the relevant product version by transferring the default settings.

Message Filters

Parameters	Meaning
Messages that can be acknowledged in a separate list	The message windows have two message lists. One list shows all messages from the area for which the user has access rights for all "operator process controls". The user can acknowledge messages in this list. The other list shows all messages from the area for which the user has an "authorization for area" but no access rights for "operator process controls". The user cannot acknowledge messages in this list. The message line in the overview area only shows messages that can be acknowledged with the access right for "operator process controls".
Messages that can be acknowledged on a separate page (switch-selectable)	Both of the message pages indicated above are available to the user. Only messages from areas for which the user has access rights for "operator process controls" are displayed on the message page with only one list and in the message line of the overview area.

7.9.6 Mixed Operation of Faceplates from Different Versions of PCS 7

Definition of Mixed Operation

Mixed operation is the visualization of AS blocks from different PCS 7 versions on one OS client.

Compatibility of the PCS 7 V8.0 faceplates

Note

You can use the PCS 7 V8.0 faceplates to control and monitor the AS blocks of the following PCS 7 versions:

- PCS 7 V7.1.3
- PCS 7 V8.0

Compatibility with faceplates of the Advanced Process Library (APL) of PCS 7 V8.0

Note

The APL faceplates can be used to monitor and control AS blocks of the APL.

Rules

NOTICE
Mixed operation is only permitted on OS clients.

- AS blocks of different PCS 7 versions can be visualized on an OS client if the server data of several OS servers is loaded to the OS client with AS blocks of different PCS 7 versions.
- Only the AS blocks of one PCS 7 version may be loaded on an AS.

Using the APL V8.0

8

8.1 Migrating to APL V8.0

Measures to be taken when migrating to APL V8.0

When migrating to APL V8.0, replace the old blocks and modify the configuration data accordingly. This chapter specifies the measures to take when migrating PCS 7 projects to APL V8.0.

Note

If you are going to use the APL V8.0 blocks, you cannot use blocks of any other APL version in the project.

Note

The APL V8.0 setup routine does not overwrite old libraries.

8.2 Customization overview

Replacing blocks

Replace the following blocks when updating APL V7.1 to APL V8.0:

- Channel blocks (e.g. CH_CNTx)
- Motor starters
- Blocks for high-precision time stamping

Expenditure

- Replacement of APL V7.1 blocks with APL V8.0 blocks
- Corresponding modification of the configuration data for all blocks migrated from the Standard Library to APL.

Note

It is not possible to customize all blocks to suit the new requirements of APL V8.0 by running an operating system update, i.e. it is possibly inevitable to replace hardware.

Requirement

APL V8.0 has been installed.

Procedure

Step	Action	ES	OS Server	OS Client	AS
48	Creating the project library (Page 100)	X			
49	Copying blocks to the project library (Page 101)	X			
50	Creating a reference list (Page 102)	X			
51	Replacing APL blocks (Page 102)	X			
52	Copying blocks to the block folder (Page 104)	X			
53	Importing blocks to the chart folder	X			
54	Interconnecting block I/Os (Page 105)	X			

Note

Run a test prior to commissioning

You are strongly advised to test your reconfigured charts before you start commissioning.

See also

How to import the blocks to the chart folder (Page 104)

8.3 How to create a project library

Optional task

It is not necessary to complete this task if you have already created a project library in your V7.x project. You can use a copy of this project library to complete the further procedures in this chapter. It is advisable to create a project-specific library at this point if you have not already completed that task. The blocks pending replacement in the PCS 7 project are copied to this library.

Requirements

- The Operator Stations in the PCS 7 project have been updated using Project Migrator
- The PCS 7 project is opened (on the ES).

Procedure

1. Select **File** > **New** to open the "New" dialog.
2. Select the "Libraries" tab and set the type: "Library".
3. Enter a name for your new library (e.g. NAME:"NEW_BIB") in the "Name" input field
4. Confirm and save your entries with "OK"
5. Select the folder in the next dialog
6. Insert an S7 program with right-click > **Insert new object** > **S7 program**
7. Select the block folder for the new project-specific library **S7 program\Blocks**
8. Copy the blocks of the same name used or to be used from the PCS 7 V8.0 APL to the new project-specific library.

8.4 How to copy blocks to the project library

Collecting the blocks used in the project library

It is not necessary to carry out this step if a project library was already available in the project before the software update. You can use a copy of this project library to complete the further procedures in this chapter.

Copy the V7.1 blocks of your PCS 7 project from the Offline folder to the new project library.

The objective is to copy all blocks from all automation systems to the project library.

Start by copying all V7.x blocks of the first AS from the "Offline" block folder to the master data library. Compare the blocks in the library with the Offline block folder of the next AS. Copy any additional blocks found to the project library. Complete this task for all automation systems.

Requirement

- The project library is opened
- The block folder is opened and offline.

Procedure

1. Select **View** > **Details** to open the Details View and click in the "Author" column heading. This sorts the V7.1 blocks used in your project and contained in the offline block folder by the "Author" column.
2. Hold down the "CTRL" key and select all APL V7.1 blocks listed in the "Author" column with left-click.
3. Right-click a selected block or block area and select the "Copy" command from the shortcut menu.

4. Select and right-click the "Blocks" folder in the open project library.
   Select "Insert" from the shortcut menu.
   If you have selected the "Always prompt for settings" in the "Set Message Range" dialog, the "Message Number Assignment Selection" dialog appears when you copy blocks.
   Activate the "Always assign CPU-oriented unique message numbers" check box.
5. Select the next offline block folder and compare its block content with the block content of your project library.
   Copy any additional blocks found from the offline block folder to your new project library.
6. Repeat step 5 with all other offline block folders.

8.5 How to create a reference list

Creating reference lists

A reference list of all blocks can be useful when you replace driver blocks.

Procedure

Complete the following actions to create this reference list (block types):

1. CFC: Open any chart of the AS.
2. CFC: Select the **Options > Chart Reference Data** menu command to open the view of chart reference data.
3. Chart ref: Run the **View > Cross-References** menu command.

The list that is now generated covers all blocks.

- Select **Chart Reference Data > Generate Export File** to save the list to a file. It is recommended to review the list in a tool such as MS EXCEL. The list should only contain the references to channel and driver blocks, as well as to the blocks for high-precision time stamping.
- Select **Chart Reference Data > Print** to obtain a printed copy of the list.

8.6 How to replace APL V7.1 blocks with V8.0 blocks

Replacing blocks

APL V7.1 blocks that you copied to your new project library must be replaced with the new APL V8.0 blocks.

Note

Synchronize the attributes of all APL V7.1 blocks that you replace. You can apply the attributes of the new blocks if you have not made any changes to the default settings.

Requirement

- The project library contains APL V7.1 blocks
- The project library is opened

Procedure

1. In SIMATIC Manager, select the "Libraries" tab and click **File > Open** to open the "PCS 7 AP Library V80".
2. Double-click the "Blocks+Templates" folder and then the "Blocks" folder.
3. Arrange both library windows vertically to obtain a clear view of their contents. The library window should be positioned on the top.
4. In the "PCS 7 AP Library V80", hold down the "CTRL" key and select all blocks that are also contained in the project library with left-click.
5. Right-click a selected block or block area and select the "Copy" command from the shortcut menu.
6. Select and right-click the "Blocks" folder in the project library. Select "Insert" from the shortcut menu.
7. Click "Synchronize Attributes" to synchronize the attributes separately for each block.
8. A dialog displays any attribute differences found. Check the attributes and the project-specific settings.

   Note

   It is recommended to accept the default settings that are offered.

   Click "OK" to copy the corresponding block to the project library, including the synchronized attributes.

   A dialog informs you accordingly if no different attributes are found. Confirm this dialog with "OK".

   Click "Yes" to copy the corresponding block to the project library, including the synchronized attributes.

   Click the "All“ button in the "Insert Function Block" dialog to copy all blocks without synchronizing their attributes.

9. Copy the APL V8.0 counterpart of the remaining blocks that were not replaced to the project library and delete the old blocks.
   Use the overview of old and new blocks that are provided in the annex of this documentation to select the suitable blocks.

Further notes

- For more information on the APL V8.0 blocks, refer to the documentation in the *PCS 7 Library: file LIB-Readme.wri*

8.7 How to copy the new blocks to the block folder

Copying blocks

Copy all new blocks from the project library to the offline folder of the S7 program. Complete the following steps for all S7 programs of your PCS 7 project, or for all offline block folders, as well as for the program folder that possibly contains model solutions.

Requirements

- The APL V7.1 blocks in the project library were replaced with APL V8.0 blocks with attribute synchronization.
- The project library is opened
- The block folder is opened and in "offline" state.

Procedure

1. Select all blocks in your project library and then right-click these.
2. Select "Copy" from the shortcut menu.
3. Left-click in the selected area, hold down the mouse button and move the selected blocks from the project library to the offline folder.
4. Click the "All“ button in the "Insert Function Block" warning dialog as you already synchronized their attributes.
5. Close the project library.

8.8 How to import the blocks to the chart folder

Importing Blocks

Import the newly replaced blocks from the offline folder to the chart folder. Complete the steps specified in the procedures section for all S7 programs of your PCS 7 project, or for all offline block folders, as well as for the program folder that possibly contains model solutions.

Procedure

1. Open a CFC chart from the S7 program in which you have just replaced the library blocks.
2. In the CFC , select **Options > Block types** to open the "Block types" dialog.

3. Select all blocks in the "Chart folder" field on the right side and click "New version". The new block versions are now imported. Confirm all dialogs output during the import with "Yes".
4. Once you completed the block import, click "Clean Up". The first dialog lists the block types that are not in use in your program, but still contained in your chart folder. Select the blocks you no longer need. These blocks will be deleted from the chart folder. The second dialog lists the block types that are not in use in your program, but still contained in your offline block folder, or which are superfluous. Select the blocks you no longer need. These blocks will be deleted from the offline block folder.
5. Close the dialog.

8.9 How to create new interconnections for the block I/O

Inserting and reconnecting blocks

You need to complete this task if blocks of a different library (not APL) are to be replaced with APL V8.0 blocks. The following actions must be completed for all connections of each block to be replaced (block types reference list).

A comparison of the block I/O is available in the "Overview of the block I/O of the 'Pcs7Cntx' blocks (Page 117)" section.

Requirements

- The reference list is open.
- The chart folder contains the APL V8.0 blocks.
- The CPU is in "offline" state.

Procedure

1. Open the chart
2. Copy the new block to the chart
3. Drag the interconnections from the old block (e.g. CH_CNT1 - input LADDR) to the new block (e.g. Pcs7Cnt2 - input Laddr).
4. Repeat steps 1 to 3 for all other blocks to be replaced.

Note

Run a test prior to commissioning

You are strongly advised to test your reconfigured charts before you start commissioning.

Adaptations on the Central Archive Server 9

9.1 Overview of Updating the Servers for Central Archiving

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
55	Adapting the central archives (Page 107)		X1, X2		

X1 - to be performed only on the central archive server

X2 - to be performed only on the StoragePlus server for central archiving

Manually connected databases from CAS/Storage Plus PCS 7 < V7.0

Before you update the central archive server software (SW update installation), you need to disconnect any *.SPB (StoragePlus Backup) databases that may be linked to the project. SPB databases come from CAS/Storage Plus PCS 7 < V7.0 or up to V1.1.1 inclusive.

Testing and disconnection takes place via the StoragePlus Administration Console.

Note

If you still need the values archived in the SPB databases for display, you must reconnect these SPB databases after the update.

- You may see an error message during the software update:
  "Error when disconnecting backup databases from the SQL server!"
  Provided there are no SPB databases connected with the project, you can ignore this message and confirm with "OK".

9.2 How to adapt the archives of the Central Archive Server (CAS)

Requirements

- All archives are swapped out under PCS 7.
- The data (LDF files and MDF files) from the database path are backed up.
- The name of the database of the PCS 7 project to be updated is known.
- The backed up data (LDF files and MDF files) can be accessed from the PC station of the CAS.
- The server data for the OS server are generated.

Procedure

1. Install the software of the archive server (central archive server or StoragePlus server). Make sure the following information is entered correctly (see section titled "Overview of Adaptations for Central Archiving (Page 21)"):
   - Name of the database
   - Path of the database
   - Path of the data log
   - Shared archive directory
2. Check the configuration of the archive server:
   Central archive server
   - In SIMATIC Manager, check the parameterized properties of the CAS and load the "Central Archive Server" target system.
     For more information, refer to the *Process Control System PCS 7; Operator Station* Manual.

   StoragePlus Server
   - In the Windows Start menu, select the "Administration Console" command from the **SIMATIC > StoragePlus** submenu.
   - Check the parameter assignment of the StoragePlus Server in the **System Configuration > Common** folder.
3. In the Windows Start menu, select the "Administration Console" command from the **SIMATIC > StoragePlus** submenu.
4. The data (LDF files and MDF files) are saved to the database path.

Differences between Archiving with the Central Archive Server and StoragePlus

NOTICE
In contrast to StoragePlus, a central archive server only processes the archives when process mode (runtime mode) is activated on the central archive server.

Downloading of Target Systems

10

Once you have updated your PCS 7 project in offline mode, download the changes to the target systems (AS, OS).

NOTICE
If using new or updated blocks from the PCS 7 libraries, set the AS to STOP before you load the target systems.

Requirements

- The network addresses and network settings of the PC stations are configured.
- The configuration of the PC stations in HW Config and in the Station Configuration Editor match.
- The configuration of the PC stations is loaded on the PC stations.

Procedure

1. Download connection and configuration data to the all stations via NetPro. Begin with the ES.
2. Check the setting of the access points on all PC Stations (local).
   In the Windows Start menu, select **SIMATIC > SIMATIC NET**, menu command **Configure PC Station**.
3. You can successively download all target systems systematically and automatically. In SIMATIC Manager, select the menu command **PLC > Compile and Download Objects**.

Additional information

For more information, refer to the *Process Control System PCS 7; Engineering System* manual.

Activate the operator stations 11

11.1 Overview of activating the operator stations

Introduction

The following sequence applies when activating process mode (runtime):

- Master Server (OS Server)
- Standby server (redundant OS Server)
- OS clients

Overview of the procedure

Step	Action	ES	OS Server	OS Client	AS
57	Checking the settings of the OS Servers (Page 111)		X		
58	Checking the settings on the OS Clients (Page 112)			X	

11.2 How to Check the Settings on the OS Servers

Before activating the projects downloaded to the various OS servers, you need to check some of the settings in each OS as a safety precaution.

Requirement

- The PCS 7 OS is open in WinCC Explorer.

Procedure

1. Open the "Redundancy" editor in WinCC Explorer.
2. Check all settings.
3. Click "OK".
4. Open the "Time Synchronization" editor in WinCC Explorer.
5. Check all of the settings in the dialog box.
6. Click "OK".

7. Repeat steps 1 through 6 for the second OS Server and all other redundant OS servers.

Note

If you have installed a new operating system or have changed the settings, restart the computer.

8. Activate process mode on the OS servers.

11.3 How to Check the Settings on the OS Clients

Introduction

Before activating the projects downloaded to the various OS clients you must check some of the settings in each OS.

Requirements

- The PCS 7 OS is open in WinCC Explorer.

Procedure

1. Open the "Time Synchronization" editor in WinCC Explorer.
2. Check all settings.
3. Click "OK".
4. Repeat steps 1 through 3 for the other OS clients.
5. Activate process mode on the OS clients.

Updating SIMATIC BATCH

12

Introduction

Note

Please observe the following when updating the software from PCS 7 V7.1 SP3 (with SIMATIC BATCH V7.1 SP1) to PCS 7 V8.0 (with BATCH V8.0):

- To save the project "with reorganization", you first need to manually replace the BATCH application in the PC stations in HW Config.
- Set the BATCH Start Coordinator to "Manual" start mode before you update the software.

It is essential that you observe these points when you **prepare** the software update. You can find additional information on this topic in the section "Overview of preparations (Page 25)".

For more information on updating SIMATIC BATCH, refer to the following documentation:

- *SIMATIC BATCH Readme*; Part C1, Installation
- Manual *Process Control System PCS 7; SIMATIC BATCH*

Updating SIMATIC Route Control Stations 13

13.1 Updating SIMATIC Route Control

Updating SIMATIC Route Control

You can find information about this in the *Process Control System PCS 7; SIMATIC Route Control* documentation.

NOTICE
STOP of automation system required SIMATIC Route Control V8.0 requires functions from the PCS 7 V8.0 libraries. To load these libraries, a STOP of the automation system is necessary.

Appendix A

A.1 Overview of the block I/O of the 'Pcs7Cntx' blocks

Overview

The following tables list the assignment of block I/O in the Standard Library to the block I/O of APL V8.0:

Standard Library			APL V8.0		
Block name	I/O	Type	Block name	I/O	Type
CH_CNT	LATCH	I	**Psc7Cnt1**	Connect	In
	SET_DO1	I		Laddr	In
	LADDR	I		Channel	In
	CHANNEL	I		EnSetUp	In
	ENSET_UP	I		EnSetDn	In
	ENSET_DN	I		CtrlDO0	In
	CTRL_DO0	I		CtrlDO1	In
	CTRL_DO0	I		CtrlDO2	In
	CTRL_DO2	I		CtrlDO3	In
	CTRL_DO3	I		SetDO0	In
	SET_DO0	I		SetDO1	In
	SET_DO2	I		SetDO2	In
	SW_GATE	I		SetDO3	In
	SET_DO3	I		SwGate_En	In
	GATE_STP	I		StopGate	In
	USE_CNT	I		Cnt_En	In
	USE_MSRV	I		MsrV_En	In
	LAST_ON	I/O		Feature bit 30	In
	LOAD_VAL	I		LoadCnt / LoadCnt_IN (Struct)	In
	CMP_V0	I		CmpV0	In
	CMP_V1	I		CmpV1	In
	CMP_V2	I		CmpV2	In
	CMP_V3	I		CmpV3	In
	LOAD_PRE	I		LoadPre_IN	In
	LOAD_DIR	I		LoadDir_IN	In
	RES_SYNC	I/O		ResSync_IN	In
	R_OP_ERR	I/O		ResOpErr_IN	In
	SIM_ON	I		SimOn	In
	SIM_CNT	I		SimCnt	In

Standard Library			APL V8.0		
	SIM_MSRV	I		SimMsRv	In
	SUBS_CNT	I		SubsCnt	In
	SUBS_MSRV	I		SubsMsRv	In
	SUBS_ON	I		Feature bit 29	In
	FM_DATA	I/O		FM_DATA	In/Out
	MODE	I/O		mode	In/Out
	QBAD	O		Bad	Out
	QMOD_ERR	O		ModErr	Out
	QOP_ERR	O		OpErr	Out
	QSIM	O		SimAct	Out
	QRUN	O		CntRun	Out
	QDIR	O		CntDir	Out
	RES_SYNC	I/O		ResSync_OUT	Out
	QZERO	O		ZeroSt	Out
	QOFLW	O		OFlow	Out
	QUFLW	O		UFlow	Out
	QSYNC	O		CntSync	Out
	QGATE	O		IntGate	Out
	QSW_G	O		SwGate	Out
	QUALITY	O		--	
	QSET	O		Set_DI	Out
	QLAST	O		???	Out
	QLATCH	O		NewLatch	Out
	QSTA	O		StartDI	Out
	QSTP	O		StopDI	Out
	QSUBS	O		???	
	QCMP1	O		CmpVal0	Out
	QCMP2	O		CmpVal1	Out
	QCMP3	O		CmpVal2	Out
	QCMP4	O		CmpVal3	Out
	QCOMP1	O		StCmpV0	Out
	QCOMP2	O		StCmpV1	Out
	QCOMP3	O		StCmpV2	Out
	QCOMP4	O		StCmpV3	Out
	ACT_MSRV	O		MsrV / MsrV_OUT	Out
	ACT_CNTV	O		CntV / CntV_OUT	Out

Standard Library			APL V8.0		
Block name	I/O	Type	Block name	I/O	Type
CH_CNT1	LADDR	I	Pcs7Cnt2	Laddr	In
	LADDR1	I		Laddr1	In

Standard Library			**APL V8.0**		
	LAST_ON	I/O		Feature bit 30	In
	CHANNEL	I		Channel	In
	VALUE	I		Connect	In
	LOAD_VAL	I		LoadCnt / LoadCnt_IN (Struct)	In
	RES_DO	I		ResDO_IN	In
	RES_CNT	I		ResCnt_IN	In
	GATE_STP	I		StopGate	In
	SIM_ON	I		SimOn	In
	SIM_CNT	I		SimCnt	In
	SUBS_CNT	I		SubsCnt	In
	SUBS_ON	I		Feature bit 29	In
	MODE	I/O		mode	In/Out
	QBAD	O		Bad	Out
	QMOD_ERR	O		ModErr	Out
	QOP_ERR	O		OpErr	Out
	QSIM	O		SimAct	Out
	QZERO	O		ZeroSt	Out
	QRES_DO	O		ResDO_OUT	Out
	QRES_CNT	O		ResCnt_OUT	Out
	QSUBS	O		???	Out
	QGATE	O		Gate	Out
	QLAST	O		???	Out
	ACT_CNTV	O		CntV / CntV_OUT (Struct)	Out
	QUALITY	O		--	Out

Standard Library			**APL V8.0**		
Block name	I/O	Type	Block name	I/O	Type
CH_CNT2M / CH_CNT2C	ACT_CNTV	O	**Pcs7Cnt3**	CntV	Out
	ACT_MSRV	O		MsrV / MsrV_OUT	Out
	ACT_LATCH	I		???	
	CMP_VAL1	I		CmpV1	In
	CMP_VAL2	I		CmpV2	In
	CTRL_DO1	I		CtrlDO1	In
	CTRL_DO2	I		CtrlDO2	In
	CTRL_SYN	I		CtrlSync_En	In
	EXTF_ACK	I		AckTrip	In
	L_DIRECT	I		LoadDir	In
	L_PREPAR	I		LoadPre	In
	LADDR	I		Laddr	In

Standard Library			APL V8.0		
	LAST_ON	I		Feature bit 30	In
	LATCH	I		Connect	In
	LOAD_VAL	I		LoadCnt / LoadCnt_IN (Struct)	In
	MODE	I		mode	In
	MSRV	I		MsrV / MsrV_OUT (Struct)	In
	OFLW	I		OFlow / OFlow_IN	In
	QBAD	O		Bad	Out
	QCMP1	O		CmpVal1	Out
	QCMP2	O		CmpVal2	Out
	QCNT_DN	O		CntDown	Out
	QCNT_UP	O		CntUp	Out
	QDI	O		Set_DI	Out
	QDO1	O		DO1St	Out
	QDO2	O		DO2St	Out
	QERR_24V	O		V24Err	Out
	QERR_DO1	O		DO1Err	Out
	QERR_LOAD	O		LoadErr	Out
	QERR_PARA	O		ParaErr	Out
	QGATE	O		IntGate	Out
	QLAS	O		???	
	QMOD_ERR	O		ModErr	Out
	QOFLW	O		OFlow_OUT	Out
	QSIM	O		SimAct	Out
	QSUBS	O		???	
	QSYNC	O		CntSync	Out
	QUALITY	O		--	
	QUFLW	O		UFlow_OUT	Out
	QZERO	O		ZeroSt	Out
	SET_DO1	I		SetDO1	In
	SET_DO2	I		SetDO2	In
	SIM_CNTV	I		SimCnt	In
	SIM_MSRV	I		SimMsRv	In
	SIM_LATCH	I		???	
	SIM_ON	I		SimOn	In
	SUBS_CNTV	I		SubsCnt	In
	SUBS_MSRV	I		SubsMsRv	In
	SUBS_LATCH	I		???	
	SUBS_ON	I		Feature bit 29	In
	SW_GATE	I		SwGate_En	In
	UFLW	I		UFlow / UFlow_IN	In

See also

How to create new interconnections for the block I/O (Page 105)

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