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Software Update from PCS 7 V8.2 to PCS 7 V8.2 SP1

SIMATIC PCS 7

<https://support.industry.siemens.com/cs/ww/de/view/39980937>

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1 Preparation

Proceed as follows to prepare for updating.

1. Backup

We recommend making a backup of the partitions of all the computers concerned before starting this task.

You can use the "SIMATIC Image & Partition Creator" software for this.

<https://support.industry.siemens.com/cs/ww/en/view/109740914>

2. Save project

Save the project and your own libraries before starting the update.

3. Save licenses

Updating does not delete the licenses installed on the system. Save all existing licenses before making a complete reinstallation.

4. PDM data

Save the device descriptions of the PDM devices. Updating of PCS 7 removes the device catalog of SIMATIC PDM. You must reinstall the device descriptions after updating.

5. Disable WinCC Autostart

If being used, you must disable the "WinCC Autostart" function before the software update.

- OS client:
"Start > All Programs > Siemens Automation > SIMATIC > WinCC > Autostart"
- OS server:
"Start > All Programs > Siemens Automation > SIMATIC > WinCC > Autostart" or
"Start > All Programs > Siemens Automation > SIMATIC > SIMATIC NET > Communication Settings > SIMATIC NET Configuration > Autostart"

After disabling WinCC Autostart, restart the PC station.

6. Remove the password protection for projects

Any password protection must be disabled before updating the software.

Note

If you use the SIMATIC Management Console for the installation, the Autostart functions are automatically switched off by the SIMATIC Management Console during the installation. Start the Runtime only after the project has been loaded. Reconfigure the "WinCC Autostart" function.

2 Starting the PCS 7 Update Installation

WARNING

Delta loading capability

The AS projects can be delta loaded as long as no blocks (FB, FC) with interface changes have been used in CFC.

No interface changes were made in PCS 7 V8.2 SP1.
See "List of Changed Blocks" in chapter 6.

Note

Before you install PCS 7 V8.2 SP1, read the instructions concerning system and software requirements in the *PCS 7 Readme*.

<https://support.industry.siemens.com/cs/ww/en/view/109755478>

Note

More information about updating PCS 7 is available in the manuals below.

- *Process Control System PCS 7; Software updates with utilization of new functions:*
<https://support.industry.siemens.com/cs/ww/en/view/109485962>
- *Process Control System PCS 7; Software updates without utilization of new functions:*
<https://support.industry.siemens.com/cs/ww/en/view/109485952>

1. Start the Setup of PCS 7 V8.2 SP1. Select the "Update" option for the Setup type.
2. Install any libraries and faceplates used from "DVD 2 > Additional Products".

Note

After installing older libraries you have to reinstall the PCS 7 V8.2 SP1 - Libraries (PCS7 Basis Library, for example) via the basic setup of PCS 7 V8.2 SP1.

3 Updating the Project

3.1 Updating Blocks

With master data library

Proceed as follows.

1. Copy blocks

Copy all the blocks used in the project from the new libraries (PCS 7 APL V8.2 SP1 Upd3, for example) into the master data library.

Note

When you copy the blocks a dialog opens with a message asking whether or not you want to overwrite the blocks. Here, via the "Synchronize attributes..." button, you can have the different attribute values shown in the source and target and synchronize your project-specific changes.

2. Update block types

Select the block folder in the master data library of the multiproject and then select the menu command "Options > Charts > Update block types".

In the dialog that opens you can select or deselect all the programs. Click the "Next" button.

All the block types are displayed for selection/deselection. Select the blocks for system updating from the "List of changed system blocks". Click the "Finish" button.

There then follows a query as to whether there is to be format conversion of the CFC charts to the current version. Acknowledge the dialog with "Yes".

Without master data library

Proceed as follows for all S7 programs and each library used:

1. Open the library

Open the new library (PCS 7 APL V8.2 SP1 Upd3, for example) from which you use blocks (PCS 7 APL V8.2, for example) in you projects.

2. Update block types

Select the block folder of the library and select the menu command "Options > Charts > Update block types".

In the dialog that opens you can select or deselect all the programs. Click the "Next" button.

All the block types are displayed for selection/deselection. Select the blocks for system updating from the "List of changed system blocks". Click the "Finish" button.

There then follows a query as to whether there is to be format conversion of the CFC charts to the current version. Acknowledge the dialog with "Yes".

Note

If you do not update the block types, because you want to continue using the block versions already configured, you can convert the format of the CFC charts as follows:

- Open a CFC chart.
- Move a block.
- Acknowledge the dialog for converting the CFC charts.

Note

Both these procedures replace all the block types in the block folders of the project and do a block type import in all the chart folders of the project.

3.2 Compiling Configuration Data of the AS

Execute the "Save and Compile" function in the HW Config and in NetPro for all ASs.

3.3 Compiling Charts of the S7 Programs

Compile the program of each AS with these settings:

- Changes
- Generate module drivers

Note

As required, you can compile the program of the AS with just the option "All". However, this does not affect the delta loading capability.

The AS projects can be delta loaded as long as no blocks (FB, FC) with interface changes have been used in CFC. Information about this is given in chapter 6 "List of Changed Blocks".

3.4 Compiling Configuration Data of the OS

Execute the "Save and Compile" function in the HW Config and in NetPro for all PC stations.

3.5 Updating OS Projects

Open the projects of all the OS servers and OS single stations and OS clients on the ES one after the other and proceed as follows.

1. Generate header

Open the Global Script C editor and select the "Tools > Regenerate Header" menu command.

2. Start the OS project editor

Start the OS project editor with the option "Complete Configuration (loss of support for online delta loading capability)" in the "General" tab.

Note

If you are using the template pictures for the APL block icons of PCS 7 V7.1 SP3, please refer to the function manuals "Software updates with utilization of new functions" / "Software updates without utilization of new functions":

<https://support.industry.siemens.com/cs/ww/en/view/109485952>

3.6 Compile the OS Server/OS Single Stations

Start compilation for all OS servers and all OS single stations with these options:

- Tags and messages
- SFC Visualization
- Picture Tree
- With interconnection partner (SFC option)
- Complete compilation with overall reset

3.7 Loading Target Systems

Update the PCS 7 software on the PC stations concerned before loading the OS.
Perform loading in the following order.

1. OS Server/OS Single Stations

- Start overall loading of all OS servers/OS single stations.
- Start the OS Runtime of the servers/single stations.

2. OS clients

- Start overall loading of all OS clients.
- Start the OS Runtime of the clients.

3. AS program

- Start delta loading of the S7 programs of all ASs.

Note The AS projects can be delta loaded as long as no blocks (FB, FC) with interface changes have been used in CFC. Information about this is given in chapter 6 "List of Changed Blocks".

Note Sequencers of SFC charts are not stopped during the software update as long as no changes have been made in the sequencers concerned.

4 Updating Redundant Systems in Runtime

Proceed as follows to update redundant systems.

1. Update the standby servers.
2. Update the clients that have the standby server as preferred server.
3. Do a complete download of the OS projects to the standby servers and the clients.
4. Start the standby servers and clients. Wait for the redundancy calibration.
5. Download the migrated control program into the AS.
6. Update the master servers.
7. Update the clients that have the master server as preferred server.
8. Do a complete download of the OS projects to the master servers and the clients.
9. Start the master servers. Wait for the redundancy calibration.

Note

If you are using a Process Historian in the plant, it must be updated and be in the "Active" state before starting the migration of the OS servers.

Further information

More information on updating redundant systems is available in the manual *Process Control System PCS 7; Fault-tolerant Process Control Systems*, in the section entitled "Instructions for updating a redundant OS in runtime":

<https://support.industry.siemens.com/cs/ww/en/view/109485961>

5 Options

SIMATIC Route Control

Start the "Route Control Wizard" in projects with Route Control. Then run through the "Todos" displayed in the log files of the "Route Control Wizard".

Note

More information about the RC library is available in these documents: "SIMATIC Route Control – Readme" and "SIMATIC Route Control – What is new":
Readme for SIMATIC Route Control V8.2 and Updates:

<https://support.industry.siemens.com/cs/ww/en/view/109479773>

SIMATIC Route Control Manual:

<https://support.industry.siemens.com/cs/ww/en/view/109738713>

SIMATIC BATCH

1. Regenerate and repropagate the "BATCH types" and group all the batch instances together.
2. Reload all the components.
3. Execute the "Transfer messages" function. In this way, all the batch message texts are transferred to the OS project.
4. Download the OS.
5. In the Batch Control Center you execute the "Update plant data (PCell Update)" function.

Web Option

Web servers are to be considered as OS clients. You must also start the "Web View Publisher" and the "Web Configurator".

When you restart the Internet Explorer on the web clients, you are prompted to install an update of the web client. You can fetch the installation files from the web server.

After installing the web client, update the plugins.

Process Historian (PH)

After a reinstallation/update installation of the servers (OS servers, Batch...) you must once again run the "PH-Ready Configuration" before enabling the Process mode.

The Process Historian must be in operation in the "Active" state before the updated servers are started for the first time. Start the Process mode of the OS servers once again to establish a new connection to the PH.

Maintenance Station

After compilation of your automation system you execute the "Create/Update Diagnostic Screens" function.

You must recompile and reload the Maintenance Station.

PDM

When using the PDM server function you have to run the "PDM Server Configuration" and enable the firewall rules for the HTTP protocol used.

6 List of Changed Blocks

The following table lists all the changed blocks compared with PCS 7 V8.2. More information about the libraries is available in the associated "Readme" of each library.

6.1 PCS 7 Advanced Process Library V8.2 SP1

Update information version V8.2 SP1 including Update 3

Steps required for updating the software from PCS 7 APL V8.2 to PCS 7 APL V8.2 SP1 incl. Update 3:

- | | |
|------------------------|-----------------------------|
| 1. Compile OS | Complete compilation |
| 2. Download AS program | Delta loading |
| 3. AS Stop necessary | No |
| 4. Compile OS | Complete compilation |

List of the changed blocks in PCS 7 Advanced Process Library V8.2 SP1 incl. Update 3

Table 6-1

Number	Name	Block version	Interface change (AS STOP is not necessary, if CPU 410-5H is being used with TCiR)	Code change
FC389	FlipFlop	4.1	No	Yes
FB1806	CountScL	3.0	No	Yes
FB1809	DoseL	4.0	No	Yes
FB1810	TimerP	4.1	No	Yes
FB1818	FmCont	8.8	No	Yes
FB1819	FmTemp	8.8	No	Yes
FB1820	GainSched	4.1	No	Yes
FB1821	Trigger	4.1	No	Yes
FB1829	Limit	4.1	No	Yes
FB1830	PIDConS	4.1	No	Yes
FB1833	Pcs7Cnt1	8.7	No	Yes
FB1845	MonAnL	4.1	No	Yes
FB1847	MonDi08	4.0	No	Yes
FB1848	MonDiL	4.0	No	Yes
FB1850	MotL	4.1	No	Yes
FB1851	MotRevL	4.1	No	Yes
FB1854	MotSpdCL	4.1	No	Yes
FB1856	MotSpdL	4.1	No	Yes
FB1866	OpDi01	4.1	No	Yes
FB1867	OpDi03	4.1	No	Yes

6 List of Changed Blocks

Number	Name	Block version	Interface change (AS STOP is not necessary, if CPU 410-5H is being used with TCiR)	Code change
FB1870	Pcs7AnOu	8.7	No	Yes
FB1874	PIDConL	4.1	No	Yes
FB1875	PIDConR	4.1	No	Yes
FB1877	PIDKernR	4.1	No	Yes
FB1878	PIDStepL	4.1	No	Yes
FB1888	SelA16In	4.1	No	Yes
FB1891	Snd_DigVal	8.7	No	No
FB1892	Rcv_DigVal	8.7	No	Yes
FB1893	Snd_AnaVal	8.7	No	No
FB1894	Rcv_AnaVal	8.7	No	No
FB1896	VlvAnL	4.1	No	Yes
FB1897	Vlv2WayL	4.1	No	Yes
FB1899	VlvL	4.1	No	Yes
FB1900	VlvMotL	4.1	No	Yes
FB1905	FbDrive	8.7	No	Yes
FB1907	FbSwtMMS	8.7	No	Yes
FB1910	MotS	4.1	No	Yes
FB1911	VlvS	4.1	No	Yes
FB1917	ShrdResL	4.1	No	Yes
FB1918	VlvPosL	4.1	No	Yes

Note

The new PCS 7 Advanced Process Library replaces the existing library when you update PCS 7.

PCS 7 Advanced Process Library Operating Manual

<https://support.industry.siemens.com/cs/ww/en/view/109741449>

6.2 PCS 7 Basis Library V8.2

Update information version V8.2

The following holds for updating the software from PCS Basis Library V8.2 to PCS 7 Basis Library V8.2 incl. Update 6:

- | | |
|------------------------|-----------------------------|
| 1. Compile AS | Complete compilation |
| 2. Download AS program | Delta loading |
| 3. AS Stop necessary | No |
| 4. Compile OS | Change compilation |

List of the changed blocks in the PCS 7 Basis Library V8.2 incl. Update 6

Table 6-2

Number	Name	Block version	Interface change (AS STOP is not necessary, if CPU 410-5H is being used with TCiR)	Code change
FB82	SUBNET_PN	8.0	No	Yes
FB90	RACK_PN	8.0	No	Yes
FB97	MOD_HA	8.0	No	Yes
FB99	MOD_PAL0	8.0	No	Yes
FB100	OB_BEGIN	8.0	No	Yes
FB106	SUBNET	8.0	No	Yes
FB107	RACK	8.0	No	Yes
FB108	DPAY_V0	8.0	No	Yes
FB112	MOD_PAX0	8.0	No	Yes
FB116	PADP_L10	8.0	No	Yes
FB118	OB_DIAG1	8.0	No	Yes
FB124	FF_MOD32	8.0	No	Yes
FB128	CPU_RT	8.0	No	Yes
FB129	IMDRV_TS	8.0	No	Yes
FB130	OB_BEGIN_PN	8.0	No	Yes
FB139	FFDP_L1	8.0	No	Yes
FB145	FFD_CIF	8.0	No	Yes
FB146	OB_DIAGF	8.0	No	Yes
FB148	MOD_DRV	8.0	No	Yes
FB149	MOD_SWT	8.0	No	Yes
FB200	MOD_HA_PN	8.0	No	Yes
FB202	OB_DIAG1_PN	8.0	No	Yes
FB205	OB_BEGIN_HPN	8.0	No	Yes
FB416	OB_DIAG2	8.0	No	Yes
FB417	MOD_HA_PN1	8.0	No	Yes
FB418	OB_DIAGF2	8.0	No	Yes

Note

The new PCS 7 Basis Library replaces the existing library when you update PCS 7.

SIMATIC PCS 7 Basis Library Function Manual:

<https://support.industry.siemens.com/cs/ww/en/view/109738089>