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Software Update from PCS 7 V9.0 after PCS 7 V9.0 SP1

SIMATIC PCS 7

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

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1 Preparation

Proceed as follows to prepare for updating.

1. Backup

Before starting this task, we recommend making a backup of the partitions of all the computers concerned.

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

<https://support.industry.siemens.com/cs/ww/en/view/109587465>

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 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 V9.0 SP1.
See "List of Changed Blocks" in chapter 6.

Note

Before you install PCS 7 V9.0, read the instructions concerning system and software requirements in the *PCS 7 Readme*.

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*
- *Process Control System PCS 7; Software updates without utilization of new functions*

1. Start the Setup of PCS 7 V9.0 SP1. Select the "Update" option for the Setup type.
2. Install any libraries and faceplates used from DVD2\Additional Products.

Note

After installing older libraries you have to reinstall the PCS 7 V9.0 SP1 - Libraries (APL and Basis) via the basic setup of PCS 7 V9.0 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 V9.0 SP1, 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 V9.0 SP1, for example), from which you use blocks (PCS 7 APL V9.0, for example) in your 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. The blocks with interface changes are 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 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".

3.6 Compiling 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. The blocks with interface changes are 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 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".

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".

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 "PCell Update / **Update plant data**" 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 you 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 V9.0. More information about the libraries is available in the associated "Readme" of each library.

6.1 PCS 7 Advanced Process Library V9.0 SP1

Update information version V9.0 SP1

Steps required for updating the software from PCS 7 APL V9.0 to PCS 7 APL V9.0 SP1:

- | | |
|------------------------|---------------------------|
| 1. Compile AS | Change compilation |
| 2. Download AS program | Delta loading |
| 3. AS Stop necessary | No |
| 4. Compile OS | Not necessary |

List of the changed blocks in PCS 7 Advanced Process Library V9.0 SP1

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 |
|--------|----------|---------------|--|-------------|
| FB1803 | CntOhSc | 5.1 | No | No* |
| FB1809 | DoseL | 5.1 | No | Yes |
| FB1813 | FbAnIn | 9.1 | No | Yes |
| FB1817 | FbAnTot | 9.1 | No | No* |
| FB1905 | FbDrive | 9.1 | No | No* |
| FB1908 | FbEnMe | 9.1 | No | No* |
| FB1907 | FbSwtMMS | 9.1 | No | No* |
| FB1828 | Lag | 5.1 | No | Yes |
| FB1850 | MotL | 5.1 | No | Yes |
| FB1851 | MotRevL | 5.1 | No | Yes |
| FB1854 | MotSpdCL | 5.1 | No | Yes |
| FB1856 | MotSpdL | 5.1 | No | Yes |
| FB1869 | Pcs7AnIn | 9.1 | No | Yes |
| FB1870 | Pcs7AnOu | 9.1 | No | Yes |
| FB1931 | Pcs7HaAl | 9.1 | No | Yes |
| FB1932 | Pcs7HaAO | 9.1 | No | Yes |
| FB1875 | PIDConR | 5.1 | No | Yes |
| FB1881 | Polygon | 5.1 | No | No* |
| FB1914 | ShrdResS | 5.1 | No | No* |
| FB1917 | ShrdResL | 5.1 | No | No* |
| FB1890 | Smooth | 5.1 | 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 |
|--------|----------|---------------|--|-------------|
| FB1801 | STRep | 5.1 | No | No* |
| FB1897 | Vlv2WayL | 5.1 | No | Yes |
| FB1896 | VlvAnL | 5.1 | No | Yes |
| FB1899 | VlvL | 5.1 | No | Yes |
| FB1900 | VlvMotL | 5.1 | No | Yes |
| FB1918 | VlvPosL | 5.1 | No | Yes |

* Only attributes, message texts and/or version number changed.

Note

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

6.2 PCS 7 Basis Library V9.0 SP1

Update information version V9.0 SP1

The following holds for updating the software from PCS Basis Library V9.0 to PCS 7 Basis Library V9.0 SP1:

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

List of the changed blocks in the PCS 7 Basis Library V9.0 Upd1

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 |
|--------|-------------|---------------|--|-------------|
| FB128 | CPU_RT | 9.0 | No | Yes |
| FB99 | MOD_PAL0 | 9.0 | No | Yes |
| FB100 | OB_BEGIN | 9.0 | No | Yes |
| FB130 | OB_BEGIN_PN | 9.0 | No | Yes |
| FB205 | OB_BEGIN_HP | 9.0 | No | Yes |
| FB425 | RACK_CFU | 9.0 | No | Yes |
| FB82 | SUBNET_PN | 9.0 | No | Yes |

* Blocks in which only attributes, message texts and/or version number have been changed are not listed.

List of the changed blocks in the PCS 7 Basis Library V9.0 SP1

Table 6-3

| 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 | 9.0 | No | Yes |
| FB83 | OR_M_8C | 9.0 | No | Yes |
| FB84 | OR_M_16C | 9.0 | No | Yes |
| FB85 | OR_M_32C | 9.0 | No | Yes |
| FB91 | MOD_1 | 9.0 | No | Yes |
| FB92 | MOD_2 | 9.0 | No | Yes |
| FB93 | MOD_D1 | 9.0 | No | Yes |
| FB94 | MOD_D2 | 9.0 | No | Yes |
| FB95 | MOD_3 | 9.0 | No | Yes |
| FB99 | MOD_PAL0 | 9.0 | 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 |
|--------|--------------|---------------|--|-------------|
| FB106 | SUBNET | 9.0 | No | Yes |
| FB107 | RACK | 9.0 | No | Yes |
| FB112 | MOD_PAX0 | 9.0 | No | Yes |
| FB118 | OB_DIAG1 | 9.0 | No | Yes |
| FB119 | MOD_4 | 9.0 | No | Yes |
| FB124 | FF_MOD32 | 9.0 | No | Yes |
| FB128 | CPU_RT | 9.0 | No | Yes |
| FB129 | IMDRV_TS | 9.0 | No | Yes |
| FB133 | OR_HA16C | 9.0 | No | Yes |
| FB134 | MOD_D3 | 9.0 | No | Yes |
| FB137 | MOD_64 | 9.0 | No | Yes |
| FB138 | OR_32_TS | 9.0 | No | Yes |
| FB148 | MOD_DRV | 9.0 | No | Yes |
| FB149 | MOD_SWT | 9.0 | No | Yes |
| FB197 | MOD_D8_PN | 9.0 | No | Yes |
| FB198 | MOD_D16_PN | 9.0 | No | Yes |
| FB199 | MOD_D24_PN | 9.0 | No | Yes |
| FB415 | RACK_PN1 | 9.0 | No | Yes |
| FB417 | MOD_HA_PN1 | 9.0 | No | Yes |
| FB419 | MOD_ENME | 9.0 | No | Yes |
| FB420 | IM_TS_PN | 9.0 | No | Yes |
| FB421 | MOD_D32_PN | 9.0 | No | Yes |
| FB423 | OR_H16PN | 9.0 | No | Yes |
| FB424 | MOD_D8 | 9.0 | No | Yes |
| FB425 | RACK_CFU | 9.0 | No | Yes |
| FB426 | MHA_CO | 9.0 | No | Yes |
| FB427 | OR_MHA_CO | 9.0 | No | Yes |
| FB431 | OR_32TPN | 9.0 | No | Yes |
| FB432 | RACK_PNT | 9.0 | No | Yes |
| FB433 | MOD_D8_S7P | 9.0 | | New block |
| FB434 | MOD_D16_S7P | 9.0 | | New block |
| FB435 | MOD_HA_S7P | 9.0 | | New block |
| FB439 | OB_DIAG_NC | 9.0 | | New block |
| FB440 | OR_MHA1_CO | 9.0 | No | Yes |
| FB441 | RED_MF | 9.0 | No | Yes |
| FB442 | RED_DI | 9.0 | No | Yes |
| FB443 | RED_DQ | 9.0 | No | Yes |
| FB444 | RED_AI | 9.0 | No | Yes |
| FB445 | RED_AQ | 9.0 | No | Yes |
| FB447 | RED_AIH | 9.0 | No | Yes |
| FB448 | RED_AQH | 9.0 | No | Yes |
| FB449 | MOD_ENME_S7P | 9.0 | | New block |

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 |
|--------|----------|---------------|--|-------------|
| FC261 | PNTS2DT | 1.0 | No | Yes |
| FC289 | RED_F | 9.0 | No | Yes |
| FB81 | PDM_MS** | 9.0 | Yes* | No |

* Blocks in which only attributes, message texts and/or version number have been changed are not listed.

** The PDM_MS block is required for future versions and should not be used at the moment. Changes cannot be downloaded.

Note

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