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PCS 7 Software Update from PCS 7 V8.1 to PCS 7 V8.1 SP 1 - Brief Instructions

Process Control System PCS 7

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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/de/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

NOTICE	**Delta loading** The AS projects can be delta loaded as long as no blocks (FB, FC) with interface changes have been used in CFC. Please note in chapter 6 the "List of Changed Blocks".

Note	Before you install PCS 7 V8.1 SP1, 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 V8.1 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 must re-install the PCS 7 V8 libraries (APL and Basis) via the Setup of PCS 7 V8.1 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 V8.1 Upd2, for example) into the master data library.

Note   When copying the blocks a window will appear which shows the message if you want to overwrite the blocks.
In this window you can use the button "Adjust Attributes…" to show the different attribute values in the source and the destination and make 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 (and sample solutions). Click "Continue".

   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 each S7 Program and library used.

1. **Open the library**

   Open the new library (PCS 7 APL V8.1 Upd2, for example) from which you use blocks (PCS 7 APL V8.1, for example) in your projects.

2. **Update block types**

   Select the blocks used and then select the menu command *Options > Charts > Update block types*.

   In the dialog that opens you can select or deselect all the programs (and sample solutions). 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 procedures replaces all the block types in the block containers of the project and does a block type import in all the chart containers 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 only
- Generate module drivers

Note

> Maybe you can compile the AS program only with the option "Entire program". However, this does not affect the online 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 execute the menu command "Options > Regenerate Header".

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".

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. 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 OS servers.
2. Update the OS clients that are connected to the standby OS server (via preferred server).
3. Do a complete download of the OS projects to the standby servers and the OS clients.
4. Start the standby OS servers and OS clients. Wait for the redundancy synchronization
5. Download the control program into the AS.
6. Update the master OS servers.
7. Update the OS clients that are connected to the master OS server (via preferred server).
8. Do a complete download of the OS projects to the standby servers and the OS clients.
9. Start the master OS servers and OS clients. Wait for the redundancy synchronization.

Additional 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. Then 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 tables below list all the blocks which have been changed compared to PCS 7 V8.1. More information about the libraries is available in the readme of each library.

6.1 PCS 7 Advanced Process Library V8.1

Update information version V8.1 Upd1

Steps required for updating the software from PCS 7 APL V8.1 to PCS 7 APL V8.1 Upd1:

1. Compile AS **Delta compilation**
2. Download AS program **Download changes**
3. AS Stop necessary **No**
4. Compile the OS **Not necessary**

List of the changed blocks in PCS 7 Advanced Process Library V8.1 Upd1

Table 6-1

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB1809	DoseL	3.0	No	Yes
FB1850	MotL	3.0	No	Yes
FB1851	MotRevL	3.0	No	Yes
FB1910	MotS	3.0	No	Yes
FB1854	MotSpdCL	3.0	No	Yes
FB1856	MotSpdL	3.0	No	Yes
FB1874	PIDConL	3.0	No	Yes
FB1875	PIDConR	3.0	No	Yes
FB1830	PIDConS	3.0	No	Yes
FB1878	PIDStepL	3.0	No	Yes
FB1882	RateLim	3.0	No	Yes
FB1897	Vlv2WayL	3.0	No	Yes
FB1896	VlvAnL	3.0	No	Yes
FB1899	VlvL	3.0	No	Yes
FB1900	VlvMotL	3.0	No	Yes
FB1911	VlvS	3.0	No	Yes

Note   The comment [Release 08.01.00.01] is inserted in all the changed blocks. The new PCS 7 Advanced Process Library replaces the existing library when you update PCS 7.

Update information version V8.1 Upd2

The following holds for updating the software from PCS 7 APL V8.1 to PCS 7 APL V8.1 Upd2:

1.	Compile AS	**Delta compilation**
2.	Download AS program	**Download changes**
3.	AS Stop necessary	**No**
4.	Compile the OS	**Not necessary**

List of the changed blocks in PCS 7 Advanced Process Library V8.1 Upd2

Table 6-2

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB1905	FbDrive	8.0	No	Yes
FB1851	MotRevL	3.0	No	Yes
FB1854	MotSpdCL	3.0	No	Yes
FB1856	MotSpdL	3.0	No	Yes
FB1900	VlvMotL	3.0	No	Yes

Note	The comment [Release 08.01.00.02] is inserted in all the changed blocks. The new PCS 7 Advanced Process Library replaces the existing library when you update PCS 7.

6.2   PCS 7 Basis Library V8.1

Update information version V8.1 SP1

The following holds for updating the software from PCS Basis Library V8.1 to PCS 7 Basis Library V8.1 SP1:

1. Compile AS   **Change with driver generation**
2. Download AS program   **Download changes**
3. AS Stop necessary   **No**
4. Compile the OS   **Complete compilation**

List of the changed blocks in the PCS 7 Basis Library V8.1 SP1

Table 6-3

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB82	SUBNET_PN	7.7	No	Yes
FB83	OR_M_8C	7.7	No	Yes
FB84	OR_M_16C	7.7	No	Yes
FB85	OR_M_32C	7.7	No	Yes
FB88	CONEC	7.7	No	Yes
FB89	PS	7.7	No	Yes
FB90	RACK_PN	7.7	No	Yes
FB91	MOD_1	7.7	No	Yes
FB92	MOD_2	7.7	No	Yes
FB93	MOD_D1	7.7	No	Yes
FB94	MOD_D2	7.7	No	Yes
FB95	MOD_3	7.7	No	Yes
FB96	MOD_MS	7.7	No	Yes
FB97	MOD_HA	7.7	No	Yes
FB98	MOD_CP	7.7	No	Yes
FB100	OB_BEGIN	7.7	No	Yes
FB106	SUBNET	7.7	No	Yes
FB107	RACK	7.7	No	Yes
FB108	DPAY_V0	7.7	No	Yes
FB113	DREP	7.7	No	Yes
FB118	OB_DIAG1	7.7	No	Yes
FB119	MOD_4	7.7	No	Yes
FB125	DREP_L	7.7	No	Yes
FB130	OB_BEGIN_PN	7.7	No	Yes
FB133	OR_HA16C	7.7	No	Yes
FB134	MOD_D3	7.7	No	Yes
FB137	MOD_64	7.7	No	Yes

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB145	FF_CIF	7.7	No	Yes
FB146	OB_DIAGF	7.7	No	Yes
FB197	MOD_D8_PN	7.7	No	Yes
FB198	MOD_D16_PN	7.7	No	Yes
FB199	MOD_D24_PN	7.7	No	Yes
FB200	MOD_HA_PN	7.7	No	Yes
FB201	MOD_CP_PN	7.7	No	Yes
FB202	OB_DIAG1_PN	7.7	No	Yes
FB205	OB_BEGIN_HPN	7.7	No	Yes
FB206	MOD_CENTRAL	7.7	No	Yes
FB416	OB_DIAG2	7.7	No	Yes
FB417	MOD_HA_PN1	7.0	No	New block
FB418	OB_DIAGF2	7.0	No	New block

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

6.3   PCS 7 Advanced Process Library V7.1

Update information version V7.1 SP5 Upd3

The following holds for updating the software from PCS 7 APL V7.1 SP5 Upd2 to PCS 7 APL V7.1 SP5 Upd3:

1. Compile AS	**Delta compilation**
2. Download AS program	**Download changes**
3. AS Stop necessary	**No**
4. Compile the OS	**Delta compilation**

List of the changed blocks in PCS 7 Advanced Process Library V7.1 SP5 Upd3

Table 6-4

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB1850	MotL	1.4	No	Yes
FB1910	MotS	1.0	No	Yes
FB1896	VlvAnL	1.4	No	Yes
FB1900	VlvMotL	1.4	No	Yes
FB1899	VlvL	1.4	No	Yes
FB1911	VlvS	1.0	No	Yes
FB1897	Vlv2WayL	1.4	No	Yes
FB1890	Smooth	1.0	No	Yes
FB1864	CountOh	1.3	No	Yes

Note   The comment [Release 07.01.05.03] is inserted in all the changed blocks.

Update information version V7.1 SP5 Upd4

The following holds for updating the software from PCS 7 APL V7.1 SP5 Upd3 to PCS 7 APL V7.1 SP5 Upd4:

1. Compile AS	**Delta compilation**
2. Download AS program	**Download changes**
3. AS Stop necessary	**No**
4. Compile the OS	**Not necessary**

List of the changed blocks in PCS 7 Advanced Process Library V7.1 SP5 Upd4

Table 6-5

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB1869	Pcs7AnIn	6.3	No	Yes
FB1900	VlvMotL	1.4	No	Yes
FB1810	TimerP	1.1	No	Yes
FB1809	DoseL	1.3	No	Yes

Note	The comment [Release 07.01.05.04] is inserted in all the changed blocks.

Update information version V7.1 SP5 Upd5

The following holds for updating the software from PCS 7 APL V7.1 SP5 Upd4 to PCS 7 APL V7.1 SP5 Upd5:

1. Compile AS   **Delta compilation**
2. Download AS program   **Download changes**
3. AS Stop necessary   **No**
4. Compile the OS   **Not necessary**

List of the changed blocks in PCS 7 Advanced Process Library V7.1 SP5 Upd5

Table 6-6

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB1818	FmCont	6.4	No	Yes
FB1819	FmTemp	6.4	No	Yes
FB1850	MotL	1.4	No	Yes
FB1874	PIDConL	1.3	No	Yes
FB1875	PIDConR	1.3	No	Yes
FB1878	PIDStepL	1.3	No	Yes
FB1900	VlvMotL	1.4	No	Yes

Note	The comment [Release 07.01.05.05] is inserted in all the changed blocks.

6.4 PCS 7 Basis Library V7.1

Update information version V7.1 SP3 Upd10

The following holds for updating the software from PCS 7 Basis Library V7.1 SP3 Upd 9 to PCS 7 Basis Library 7.1 SP3 Upd10:

1. Compile AS   **Delta compilation**
2. Download AS program   **Download changes**
3. AS Stop necessary   **No**
4. Compile the OS   **No**

List of the changed blocks in the PCS 7 Basis Library V7.1 SP3 Upd10

Table 6-7

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB93	MOD_D1	6.15	No	Yes

6.5 PCS 7 Library V7.1

Update information version V7.1 SP3 Upd3

The following holds for updating the software from PCS 7 Library V7.1 SP3 Upd2 to PCS 7 Library V7.1 SP3 Upd3:

1. Compile AS   **Delta compilation**
2. Download AS program **Download changes**
3. AS Stop necessary   **No**
4. Compile the OS   **No**

List of the changed blocks in the PCS 7 Library V7.1 SP3 Upd3

Table 6-8

Number	Name	Block version	Interface change (AS Stop necessary)	Code change
FB67	MOT_REV	6.0	No	Yes