Software Update from PCS 7 V7.1 to PCS 7 V7.1 SP1

PCS 7

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Question

How do you update from PCS 7 V7.1 to PCS 7 V7.1 SP1?

Answer

This document gives a brief description of how to update from PCS 7 PCS 7 V7.1 to PCS 7 V7.1 SP1.

Requirements

Please also carefully read the notes in the "PCS 7 Readme", as they contain important information about installing and using PCS 7.

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1 Preparation

Proceed as shown in the table below to prepare for upgrading.

Table 1-1

Step	Procedure
1.	**Backup** It is recommended to backup the partitions of all the computers concerned before starting this task. You can use the "SIMATIC Image & Partition Creator" software for this. http://support.automation.siemens.com/WW/view/de/38400496
2.	**Save project** Save the project and any custom libraries before starting the update.
3.	**Save licenses** Updating does not delete the licenses installed on the system. When doing a complete reinstallation, save all existing licenses first.
4.	**PDM data** Updating does not delete the PDM devices installed on the system. You can continue to use them after the update. When doing a complete reinstallation, save all the installation files for the PDM devices first.
5.	**Disable WinCC Autostart** If being used, you must disable the "WinCC Autostart" function before upgrading. • OS Client: “Start > SIMATIC > WinCC > Autostart” • OS Servers: “Start > SIMATIC > SIMATIC Net > Configuration Console > Applications > Autostart” Please reboot you PC Station after disabling the WinCC Autostart function.
6.	**Special features when using the APL** WARNING: Make sure that you are familiar with the special features of APL (Chapter 7 "What Should You Watch Out For When Using the Advanced Process Library (APL)?") before updating the software.

2 Starting the PCS 7 Update Installation

WARNING **Before you install PCS 7 V7.1 SP1, read the instructions concerning system and software requirements in the PCS 7 Readme.**

Note

You can find more information on updating PCS 7 in the following manuals:

- "PCS 7 – Software Updates With Utilization Of New Functions"
- "PCS 7 – Software Updates Without Utilization Of New Functions"

Table 2-1

Step	Procedure
1.	**Install the PCS 7 update** Start the basic setup of PCS 7 V7.1 SP1. Select the "Update" option for the setup type.

3 Updating the Project

3.1 Updating Blocks

With Master Data Library

Proceed as follows.

Table 3-1

Step	Procedure
1.	**Copy blocks** Copy all the blocks used in the project from the new libraries (e.g. PCS 7 Library V71, RC Library V71SP1) into the master data library. The existing blocks will be overwritten. If you have made changes to the original blocks, then you must change the new blocks accordingly.
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 on the "Continue" button. All the block types are displayed for selection/deselection. Select the blocks for system updating from the "List of changed system blocks". Click on the "Finish" button.

This procedure replaces all the block types in the block folder of the project and does a block type import in all the chart folder of the project.

Without Master Data Library

Proceed as follows for each library used.

Table 3-2

Step	Procedure
1.	**Open the library** Open the library from which you use blocks 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 on the "Continue" button. All the block types are displayed for selection/deselection. Select the blocks for system updating from the "List of changed system blocks". Click on the "Finish" button.

This procedure replaces all the block types in the block folder of the project and does a block type import in all the chart folder 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

Proceed as follows.

Table 3-3

Step	Procedure
1.	**Convert CFC charts** Open any CFC chart and move a block contained in it. Confirm the "convert format" message. This converts all CFC/SFC charts to the new version.
2.	**Compile S7 program** Compile the program of each AS with these settings: • Entire program • Generate module drivers

3.4 Compiling Configuration Data of the OS

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

Note

A new profile for the Softnet/BCE communication (IE General) has been introduced in PCS 7 V7.1 SP1. To ensure functionality, you must update the profile for each PC station with "IE General".

In this case, you configure the "IE General V7.1" interface for each OS concerned. After upgrading the PC stations, you load the HW Config.

3.5 Updating OS Projects

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

Table 3-4

Step	Procedure
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:** More system messages have been added in the new version. This is why it is necessary to start the OS project with the "Complete Configuration" option. This updates the faceplates and integrates new functions in the project.

3.6 Modification Compiling of the OS Server

Proceed as follows.

Table 3-5

Step	Procedure
1.	**Compile the OS server** Start compilation for all OS servers with these options: • Changes • Tags and messages • Picture Tree

3.7 Loading Target Systems

Update the PCS 7 software on the PC stations concerned before uploading the OS projects to the OS servers / OS clients.

Perform loading in the following order.

Table 3-6

Step	Procedure
1.	**OS servers** • Download the entire OS project to all OS servers. • Start the OS Runtime on the servers.
2.	**OS clients** • Download the entire OS project to all OS clients. • Start the OS Runtime on the clients.
3.	**AS program** Download changes for the S7 programs to all CPUs. **WARNING:** An AS STOP is required when updating the Advanced Process Library. You must then update the AS with a complete download.

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.

Table 4-1

Step	Procedure
1.	Update the standby servers and all clients.
2.	Do a complete download of the OS projects to the standby servers and the clients.
3.	Start the standby servers and clients. -> Wait for the redundancy synchronization to complete.
4.	Download the control program into the AS.
5.	Update the master servers.
6.	Do a complete download of the OS projects to the master servers.
7.	Start the master servers. -> Wait for the redundancy synchronization to complete.

Note

More information on updating redundant systems is available in the manual "Fault-tolerant Process Control Systems", in the section entitled "Instructions for updating a redundant OS in runtime".

5 Options

Table 5-1

Option	Description
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".
SIMATIC BATCH	Regenerate and repropagate the "BATCH types" and group all the batch instances together. Then reload all the components. Execute the "Transfer messages" function. In this way, all the batch message texts are transferred to the OS. Execute the "PCell update / Update plant data" function.
Web option	Web servers are to be seen 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.
CAS	The CAS (Central Archive Server) is the first computer taken from the computer network and the last to be put back into operation. The CAS failure time must not exceed the shortest circular log time of the OS servers. The same procedure applies for CAS as for OS servers. Refer also to the information on "Updating archive servers" in the PCS 7 readme.

6 List of Changed Blocks

The following table lists all the changed system blocks compared with PCS 7 V7.1.

Table 6-1

Library	Block no.	Block name	Supports delta loading
PCS 7 Library V71	FB51	PT1_P	✓
	FB62	DIG_MON	✓
	FB131	MSG_TS	✓
	FB141	GAIN_SHD	✓
	FB142	MPC	✓

Table 6-2

Library	Block no.	Block name	Supports delta loading
PCS 7 Basis Library V71	FB106	SUBNET	✓
	FB134	MOD_D3	✓

Table 6-3

Library	Block no.	Block name	Supports delta loading
RC Library V71SP1	FB803	RC_ROUTE_RCE_ON	✓
	FB858	RC_MASTER_XC_SND	✓

Note

In the case of the PCS 7 Standard Library, the blocks changed by a hotfix are replaced in the Standard Library. By comparison, the hotfixes of the RC Library V71SP1 lie in parallel to the RC Library V71 in the S7LIBS folder. This means that these libraries are to seen as separate items in the Open dialog of the libraries.

7 What Should You Watch Out For When Using the Advanced Process Library (APL)?

7.1 Changing the Blocks of the APL

An AS STOP is required to update the functionality.

If it is not possible to put the plant into STOP, you must continue using the previous "APL".

The table below gives you an overview of the changed blocks.

Table 7-1

Library	Block no.	Block name	Supports delta loading
PCS 7 AP Library V71	FB1805	ConPerMon	✗
	FB1809	DoseL	✗
	FB1812	EventTs	✓
	FB1813	FbAnIn	✓
	FB1815	FbDiIn	✓
	FB1816	FbDiOu	✗
	FB1818	FmCont	✗
	FB1819	FmTemp	✗
	FB1823	Integral	✓
	FB1824	Intlk02	✗
	FB1825	Intlk04	✗
	FB1826	Intlk08	✗
	FB1827	Intlk16	✗
	FB1843	ModPrCon	✓
	FB1845	MonAnL	✗
	FB1847	MonDi08	✗
	FB1848	MonDiL	✗
	FB1850	MotL	✗
	FB1851	MotRevL	✗
	FB1854	MotSpdCL	✗
	FB1856	MotSpdL	✗
	FB1864	CountOh	✗
	FB1865	OpAnL	✓
	FB1866	OpDi01	✓
	FB1867	OpDi03	✓

Library	Block no.	Block name	Supports delta loading
	FB1869	Pcs7AnIn	✗
	FB1871	Pcs7DiIn	✓
	FB1872	Pcs7DilT	✓
	FB1874	PIDConL	✗
	FB1875	PIDConR	✗
	FB1878	PIDStepL	✗
	FB1883	Ratio	✗
	FB1897	Vlv2WayL	✓
	FB1899	VlvL	✓
	FB1900	VlvMotL	✗
	FB1903	AV	✗
	FC369	SelST16	✓
	FC376	StruAnOu	✓
	FC378	StruDiOu	✓

7.2 Changing the Block Icons of the APL

With the new "Advanced Process Library V7.1.3", the call of the faceplate has been changed for some block icons.

In order for the call to work with PCS 7 V7.1 SP1, you must update the block icons in the process pictures. This is done by default with the "Compile OS" function. Alternatively, you can execute the "Update block types" function.

Note

If you have changed block icons and stored them in a user-defined template picture (e.g. "@PCS7TypicalsAPL_CustomProject.PDL"), then you must change them accordingly. A description of this is given in section 7.2.2 onwards.

7.2.1 Corrected Icons

The following table gives a list of the corrected block icons.

Table 7-2

Block icon	Version	Change
DoseL	All	Unit is displayed as icon.
MonDiL	All	Operation on icon only with simulation.
MotRevL	10	Missing properties added.

Block icon	Version	Change
MotSpdCl	3	Background color changed.
Valve2WayL	6	Icon with double line.

7.2.2 Icons with Changed Faceplate Call

The faceplate call (click on the block icon) and the "Operation via block icon" function (right-click on the block icon) have been changed on the following block icons in the template picture "@PCS7TypicalsAPL.PDL".

Table 7-3

Block icon	Version
ConPerMon	All
DoseL	All
FmCont	All
FmTemp	All
GainSched	All
ModPreCon	All
PIDConL	All
PIDConR	All
PIDStepL	All
Vlv2WayL	All
VlvL	All

If you have changed block icons and stored them in a user-defined template picture (e.g. "@PCS7TypicalsAPL_CustomProject.PDL"), then you must replace those block icons with new icons and change them accordingly.

Alternatively, you change the function calls as described below.

7.2.3 Changing the Faceplate Call

Up to APL V7.1.2, the faceplate call is executed by the following C script.

Figure 7-1

```
#include "apdefap.h"
void OnLButtonDown(char* lpszPictureName, char* lpszObjectName, char* lpszPropertyName, UINT nFlags, int x, int y)
{
        //KHE fcaeplates
        #include "sdp.h"
        APL_OPENFACEPLATE_INIT(APL_OBJECTTYPE_BLOCKICON)
        APL_OPENFACEPLATE_ACTION(APL_OBJECTTYPE_BLOCKICON)
}
```

On the "Mouse > Press left button" event you replace the existing C script with the new C script from APL V7.1.3.

The faceplate function call is the same for all block icons.

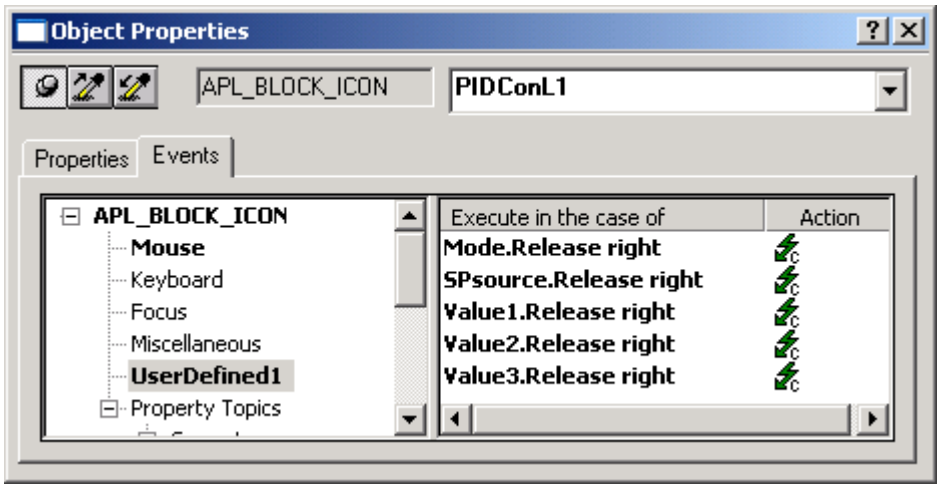
Figure 7-2

```
#include "apdefap.h"
void OnLButtonDown(char* lpszPictureName, char* lpszObjectName, char* lpszPropertyName, UINT nFlags, int x, int y)
{
   APL_OpenFaceplate(lpszPictureName, lpszObjectName,0, NULL, NULL );
}
```

7.2.4 Changing the "Operation via block icon" Function

The "Operation via block icon" function is called via the events under "User-defined1" of the block icons.

Figure 7-3



Replace these C scripts on your changed block icons with the scripts of the original block icons from APL V7.1.3.