Software update from PCS 7 V7.1 SP1 to PCS 7 V7.1 SP2

PCS 7

FAQ • September 2010

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Question

How do you update from PCS 7 V7.1 SP1 to PCS 7 V7.1 SP2?

Answer

This document gives a brief description of how to update from PCS 7 V7.1 SP1 to PCS 7 V7.1 SP2.

Requirements

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

Please also note that for this update you need to upgrade the AS Engineering license from STEP 7 V5.4 to V5.5. You can procure this license upgrade with order number: **S79220-B2546-F888**.

There is further information available in the following Update:
http://support.automation.siemens.com/WW/view/de/44263415

Contents

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 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. Please also note that for this PCS 7 update you need to upgrade the AS Engineering license from STEP 7 V5.4 to V5.5. You can procure this license upgrade with order number: **S79220-B2546-F888**.
4.	**PDM data** Updating does not delete the PDM devices installed on the system. You can continue to use them after the update. Save all the installation files of the PDM devices before making a complete reinstallation.
5.	**Disable WinCC Autostart** If being used, you must disable the "WinCC Autostart" function before the software update. • OS client: "Start > SIMATIC > WinCC > Autostart" • OS server: "Start > SIMATIC > WinCC > Autostart" or "Start > SIMATIC > SIMATIC Net > Set PC station > Applications > Autostart" After disabling WinCC Autostart, restart the PC station.
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 SP2, 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 SP2. 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 blocks are 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 containers of the project and does a block type import in all the chart containers 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 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

Proceed as follows.

Table 3-3

Step	Procedure
1.	**Convert CFC charts** Open the attached CFC chart and move a block contained in it. Confirm the "Apply 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 **Note:** Here, you are obliged to update certain blocks (MOD_D1, OB_BEGIN, for example). This updating does not cause an AS STOP.

3.4 Compiling Configuration Data of the OS

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

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: • Amendments • Tags and messages • Picture Tree

3.7 Loading Target Systems

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

Perform loading in the following order.

Table 3-6

Step	Procedure
1.	**OS servers** • Start overall loading of all OS servers. • Start the OS Runtime of the servers.
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. **WARNING:** 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 calibration.
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 calibration.

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". New functions have been implemented with the new RC library. An AS STOP is required in order to use the new RC library. A list of the changed blocks is included in the attachment. The local data areas have been increased for various blocks of the RC library. This might cause warnings or failures when loading CFC. Increase the local data areas of the priority levels displayed accordingly (CPU properties) and then repeat the loading procedure. **Note:** You can find more information about the changes of the RC-Library in the documents „SIMATIC Route Control – Readme“ and „SIMATIC Route Control – Whats new“.
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. You must disconnect any connected backup databases from the CAS before updating the software. The error message "Error when disconnecting backup databases from the SQL server!" might be displayed when updating the software. You can ignore this message as long as there are no backup databases connected. You can reconnect the disconnected databases after the software update. 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 tables list all the changed system blocks compared with PCS 7 V7.1 SP1.

6.1 PCS 7 Basis Library V71

Table 6-1

Library	Block no.	Block name	Version	Supports delta loading
PCS 7 Basis Library V71	FB91	MOD_1	6.10	✓
	FB92	MOD_2	6.10	✓
	FB93	MOD_D1	6.10	✓
	FB94	MOD_D2	6.10	✓
	FB95	MOD_3	6.10	✓
	FB96	MOD_MS	6.10	✓
	FB97	MOD_HA	6.5	✓
	FB98	MOD_CP	6.10	✓
	FB99	MOD_PAL0	6.10	✓
	FB100	OB_BEGIN	6.10	✓
	FB108	DPAY_V0	6.10	✓
	FB109	PADP_L00	6.5	✓
	FB110	PADP_L01	6.5	✓
	FB112	MOD_PAX0	6.10	✓
	FB118	OB_DIAG1	6.5	✓
	FB119	MOD_4	6.10	✓
	FB126	FM_CNT	6.10	✓
	FB129	IMDRV_TS	6.10	✓
	FB134	MOD_D3	6.10	✓
	FB137	MOD_64	6.10	✓

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

6.2 PCS 7 Library V71

Table 6-2

Library	Block no.	Block name	Version	Supports delta loading
PCS 7 Library V71	FB120	SND341	6.10	✓
	FB121	RCV341	6.10	✓
	FB208	REC_BO	6.6	✓
	FB210	REC_R	6.6	✓

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

6.3 SIMATIC BATCH Blocks

Table 6-3

Library	Block no.	Block name	Version	Supports delta loading
SIMATIC BATCH Blocks	FB251	IUNIT_BL	7.1	✓
	FB253	IEOP	7.1	✓
	FB254	IEPH	7.1	✓
	FB258	IEPAR_ST	7.1	✓
	FB260	IEPAR_PI	7.1	✓
	FB261	IEPAR_PO	7.1	✓

Note The new SIMATIC BATCH library replaces the existing library when you update SIMATIC BATCH.

6.4 RC Library V71SP2

Table 6-4

Library	Block no.	Block name	Version	Supports delta loading
RC Library V71SP2	FB800	RC_IF_ROUTE	7.1	✗
	FB801	RC_ROUTE	7.1	✗
	FB802	RC_ROUTE_XC_REC	7.1	✗
	FB803	RC_ROUTE_RCE_ON	7.1	✗
	FB804	RC_ROUTE_RCE_OFF	7.1	✗
	FB805	RC_ROUTE_TIME	7.1	✗
	FB806	RC_ROUTE_XC_SEND	7.1	✗
	FB807	RC_ROUTE_STATE_OS	7.1	✗
	FB808	RC_ROUTE_TELEGR	7.1	✗
	FB809	RC_ROUTE_STATES	7.1	✗
	FB810	RC_TIME_RCE	7.1	✗
	FB816	RC_ROUTE_XC_SND_ORDER	7.1	✗
	FB817	RC_ROUTE_XC_PE_ACTV	7.1	✗
	FB818	RC_ROUTE_GET_EXT_PE	7.1	✗
	FB819	RC_ROUTE_MAT	7.1	✗
	FB821	RC_IF_REMOTE_CE	7.1	✗
	FB822	RC_IF_MOTOR	7.1	✓
	FB823	RC_IF_MOT_REV	7.1	✓
	FB824	RC_IF_MOT_SPED	7.1	✓
	FB825	RC_IF_VAL_MOT	7.1	✓
	FB826	RC_IF_VLAVE	7.1	✓
	FB829	RC_IF_USER_CE	7.1	✓
	FB832	RC_XC_REMOTE_SEND	7.1	✗
	FB834	RC_XC_REMOTE_RECV	7.1	✗
	FB841	RC_IF_SFC_SB	7.1	✗
	FB842	RC_IF_REMOTE_SE	7.1	✗
	FB843	RC_IF_REMOTE_PE	7.1	✗
	FB845	RC_IF_SENSOR	7.1	✗
	FB846	RC_IF_CONDUCT	7.1	✗
	FB847	RC_SE_COMMON	7.1	✗
	FB848	RC_IF_USER_SE	7.1	✗
	FB849	RC_IF_SFC	7.1	✗
	FB852	RC_MASTER_FUNC	7.1	✗
	FB853	RC_ROUTEMASTER_TELEGR	7.1	✗

Library	Block no.	Block name	Version	Supports delta loading
	FB854	RC_ROUTEMASTER	7.1	✗
	FB855	RC_ROUTEMASTER_TELE99	7.1	✗
	FB856	RC_MASTER_BUFFER	7.1	✗
	FB857	RC_MASTER_MSG	7.1	✗
	FB858	RC_MASTER_XC_SND	7.1	✗
	FB859	RC_MASTER_TIMES	7.1	✗
	FB860	RC_MASTER_MATERIAL	7.1	✗
	FB899	RC_CLOCK	7.1	✓
	FC240	@SFC_OPI	7.1	✓
	FC241	@SFC_OPDI	7.1	✓
	FC242	@SFC_OPR	7.1	✓
	FC243	@SFC_OPB	7.1	✓
	FC244	@SFC_OPS	7.1	✓
	FC805	RC_XC_CALL	7.1	✓
	FC810	RC_PE_COMMON	7.1	✓
	FC812	RC_ROUTE_CE_ERR	7.1	✓
	FC813	RC_ROUTE_SE_ERR	7.1	✓
	FC814	RC_CALL_KILLER	7.1	✓
	FC822	RC_ROUTE_PE_DGRAM	7.1	✓
	FC823	RC_UPD_CESEPE	7.1	✗
	FC824	RC_UPD_CESEPE_EX	7.1	✗
	FC825	RC_LE_DGRAMM	7.1	✓
	FC826	RC_XFER_LE	7.1	✓
	FC829	RC_XFER_MON_FLT	7.1	✓
	FC836	RC_MAT	7.1	✓
	FC882	RC_XC_PUTX_RECV	7.1	✓
	FC885	RC_XC_JOB_USER	7.1	✓
	FC891	RC_FIFO_DEBUG_SEND	7.1	✓

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 for the extended functions of some of the blocks of the APL. More information on changing the blocks is available in the document "PCS 7 Advanced Process Library V7.1 – Readme".

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 blocks that have been changed compared with the previous version.

Table 7-1

Library	Block no.	Block name	Version	Supports delta loading
PCS 7 AP Library V714	FB1804	Average	1.1	✓
	FB1805	ConPerMon	1.2	✗
	FB1806	CountScL	1.2	✗
	FB1807	DeadTime	1.1	✓
	FB1808	Derivative	1.1	✓
	FB1809	DoseL	1.2	✗
	FB1811	Event	1.1	✓
	FB1812	EventTs	1.2	✗
	FB1813	FbAnIn	6.2	✗
	FB1814	FbAnOu	6.1	✗
	FB1815	FbDiIn	6.2	✗
	FB1816	FBDiOu	6.3	✗
	FB1818	FmCont	6.3	✗
	FB1819	FmTemp	6.3	✗
	FB1820	GainSched	1.1	✗
	FB1823	Integral	1.2	✓
	FB1824	Intlk02	1.2	✗
	FB1825	Intlk04	1.2	✗
	FB1826	Intlk08	1.2	✗
	FB1827	Intlk16	1.2	✗
	FB1828	Lag	1.1	✓
	FB1832	MeanTime	1.1	✓
	FB1843	ModPreCon	1.2	✗

Library	Block no.	Block name	Version	Supports delta loading
	FB1845	MonAnL	1.2	✗
	FB1847	MonDi08	1.3	✗
	FB1848	MonDiL	1.3	✗
	FB1850	MotL	1.3	✗
	FB1851	MotRevL	1.3	✗
	FB1854	MotSpdCL	1.3	✗
	FB1856	MotSpdL	1.3	✗
	FB1864	CountOh	1.2	✗
	FB1865	OpAnL	1.2	✗
	FB1866	OpDi01	1.2	✗
	FB1867	OpDi03	1.2	✗
	FB1868	OpTrig	1.1	✗
	FB1869	Pcs7AnIn	6.2	✓
	FB1870	Pcs7AnOu	6.1	✗
	FB1871	Pcs7DiIn	6.2	✓
	FB1872	Pcs7DiIT	6.2	✗
	FB1873	Pcs7DiOu	6.1	✗
	FB1874	PIDConL	1.2	✗
	FB1875	PIDConR	1.2	✗
	FB1878	PIDStepL	1.2	✗
	FB1881	Polygon	1.1	✓
	FB1882	RateLim	1.1	✓
	FB1883	Ratio	1.2	✗
	FB1888	SelA16In	1.1	✗
	FB1896	VlvAnL	1.2	✗
	FB1897	Vlv2WayL	1.3	✗
	FB1899	VlvL	1.3	✗
	FB1900	VlvMotL	1.3	✗
	FB1903	AV	1.2	✗
	FB1904	EventNck	1.1	✓
	FC351	Add04	1.1	✓
	FC352	Add08	1.1	✓
	FC358	Div02	1.2	✓
	FC360	Mul04	1.1	✓
	FC361	Mul08	1.1	✓
	FC372	SplRange	1.1	✓
	FC381	Sub02	1.1	✓

7.2 Changing the Faceplates of the APL

With the new "Advanced Process Library V7.1 SP4", some of the block icons and faceplates have been changed. More information on the changes is available in the document "PCS 7 Advanced Faceplates V7.1 – Readme".

7.2.1 Corrected block icons

The table below lists the corrected block icons.

Table 7-2

Block icon	Version	Change
VlvL Vlv2WayL	All	Script adapted for minifaceplates command selection
DoseL MonAnL	All	Trend colors adapted
ModSpdCL	1-4	Use of RbkUnit and RbkOpScale
PIDConL PIDConR PIDStepL	All	Trend configuration with LoopClosed I/O
FmCont FmTemp	All	Trend configuration with LoopClosed I/O
CountOh	All	Correction of internal interconnection tooltip text

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 the new block icons accordingly.

7.2.2 Corrected faceplates

The table below lists the corrected block faceplates.

Table 7-3

Faceplate	Change
CountOh	Changed internal structure of the user objects External scripts corrected Labeling of values can be changed via FlutXTmIn I/O (only for MonDiL and MonDi08) Display texts in the standard view can be freely configured (only for OpDi01 and OpDi03) "RbkUnit" and "RbkUnit" replace "SP_Unit" and "SP_OpScale" (only for MotSpdCL) New elements for monitoring the setpoint value difference (only MotSpdCL) Display of the text " Identifier " of the AVxx input parameter (only for IntIk02, IntIk04, IntIk08 and IntIk16) Display of "Motor protection" signal in the preview (only for VlvMotL) New elements for motor monitoring in the Parameter view (only for VlvMotL)
CountScl	
IntIk02	
IntIk04	
IntIk08	
IntIk16	
MonAnL	
MonDi08	
MonDiL	
MotL	
MotRevL	
MotSpdCL	
MotSpdL	
OpAnL	
OpDi01	
OpDi03	
OpTrig	
Ratio	
SelA16In	
VlvMotL	
OpStations	Local operator authorization
DoseL	Optimization of trend colors Fixed display of flow values in % (only for DoseL)
MonAnL	
PIDConL	The "LoopClosed" I/O is displayed in the Trend view instead of "AutAct"
PIDConR	
PIDStepL	
FmCont	
FmTemp	
Drives family	Local elements hidden in the preview New status display "Demand 0/1"
Dosage family	New status display "Demand 0/1"
All types	Operator authorization for the "Out of Service" operating mode is uniformly set to the default setting "higher-order process operation". Operator authorization for the "Ramp" operating mode is uniformly set to the default setting "low-order process operation".