TIA Portal V15

The digital revolution

2D

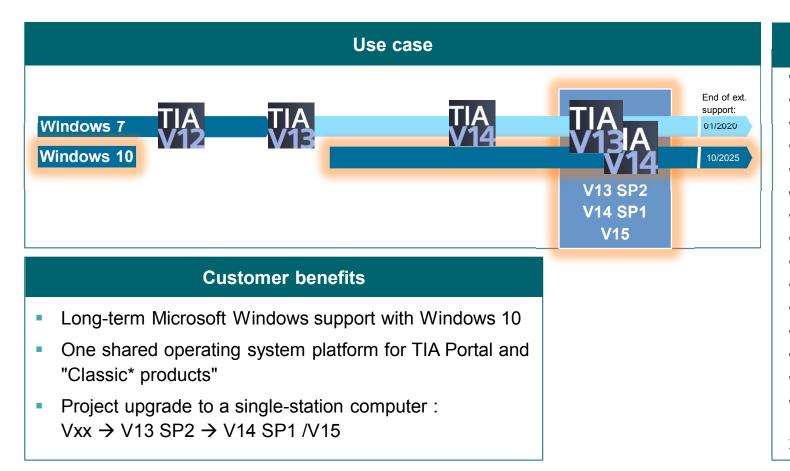
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System functions Win10-Support for TIA Portal





Supported operating systems

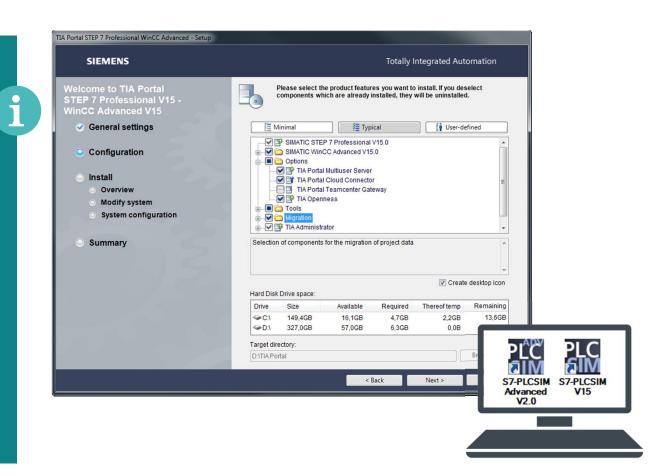
Windows 7 (64-bit) Windows 7 Home Premium SP1 * Windows 7 Professional SP1 Windows 7 Enterprise SP1 Windows 7 Ultimate SP1 Windows 10 (64-bit) Windows 10 Home Version 1703 * Windows 10 Professional Version 1703 Windows 10 Enterprise Version 1703 Windows 10 Enterprise 2016 LTSB Windows 10 IoT Enterprise 2015 LTSB Windows 10 IoT Enterprise 2016 LTSB Windows 10 IoT Enterprise 2016 LTSB Windows 10 IoT Enterprise 2016 LTSB Windows Server (64-bit) Windows Server 2012 R2 StdE (full installation) Windows Server 2016 Standard (full Installation)

*for Basic edition only

TIA Portal V15 Installation

Improvements for installation of TIA Portal V15

- New installation package for Step7/WinCC
 - 2 versions: WinCC Adv. and WinCC Prof.
 - · Openness as integral part of default installation
 - User Management Component on DVD2
- Installation in parallel of PLCSIM / PLCSIM Advanced
- Latest TRIAL downloads with Redirect www.siemens.com/tia-portal-trial



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TIA Portal V15

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WinCC Innovations – New approach for supported devices

2016 2017 Q3 Q4 Q1 Q2 Q3 Q4 **TIA Portal** V14 V14 SP1 V15 WinAC MP 177, WinAC MP 277, WinAC MP 377 No support in V15 OP und TP der Serie 70, Serie 170 und Serie 270 No support in V15 No support in V15 Multi Panels der Serie 170, Serie 270 und Serie 370 TIA Portal Panels with V11 Image No support in V15 Only TIA Portal Panels from Image V12

In order to maintain panels with images up to V11 in WinCC V15, they have to be upgraded before.

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TIA Portal V15

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WinCC Innovations – Delivery of Panel Images



The delivery of Images was changed with TIA Portal V15

DVD1: SIMATIC WinCC / STEP 7 Professional Current Panel Images for V15 (V12.0, V14.1, V15.0)



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Villkommen bei TIA Portal TEP 7 Professional V15 - VinCC Advanced V15	Bitte wählen Sie die gewünschte Produktkonfiguration. Wenn Sie bereits installierte Bestandteile abwählen, werden diese deinstalliert.						
Allgemeine Einstellungen	📜 Minimal 🗮 Typisch 💱 Benutzerdefiniert						
 Konfiguration Installation Überblick System anpassen Systemkonfiguration 	SIMATIC STEP 7 Professional V15.0 SIMATIC WinCC Advanced V15.0 SIMATIC WinCC Advanced V15.0 SIMATIC WinCC Engineering System SIMATIC WinCC Current Panel Images for V15 SIMATIC WINCC Gareting System SIMATIC WINCC Clareting System SIMATIC WINCC Glassical Content of	E					
 Zusammenfassung 	Engineeringwerkzeug zur Programmierung von S7-300/400/1200/1500 Controllern Gespert durch : SIMATIC WinCC Engineering System TIA Openness	×					



Install
Coverview
Modify system
System configuration
Summary
SilMATIC WinCC Legacy Panel Images: Containing V13.0.0, V13.0.1 and V14.0.0
Images

also as SIOS download

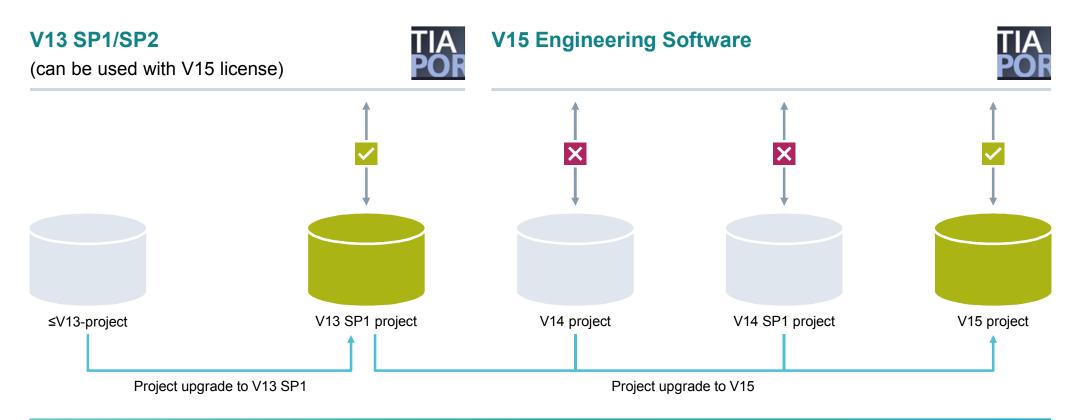
Note: The Panels can be configured, created and simulated in the TIA Portal even if the Image/Runtime is not installed. These are required however for downloading the device or the ProSave functions





System Functions – Project upgrade

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Side-by-side installation of V13 SP1/SP2, V14 SP1 and V15 allows access to all project versions

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TIA Portal V15

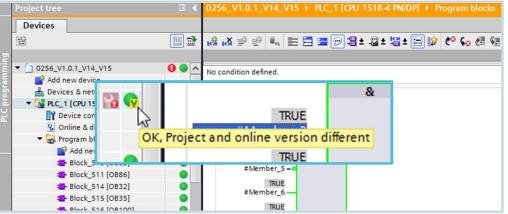
STEP 7 Innovations – Online compatibility

Function

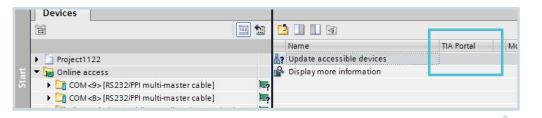
- All online functions (e.g. block supervision, online/offline comparison, ...) directly after upgrading the project
- Display of project version in the life list (details)
- Upgrading of online CPU in run
 - For software changes
 - Only if no F program is available
 - Complete download in run since all blocks have to be "upgraded"
- Precondition: CPU was loaded with STEP 7 V14 or higher

Customer benefits

- No system downtime following project upgrade
- Troubleshooting possible during operation with new TIA Portal version









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TIA Portal V15



Hardware Configuration – Overview of SIMATIC S7-1500 – The right CPU for every application

	Compac	t CPUs			Standar	d-CPUs				MFP			
CPU types	1511C-1 PN	1512C-1 PN	1511F-1 PN	1513F-1 PN	1515F-2 PN	1516F-3 PN/DP	1517F-3 PN/DP	1518F-4 PN/DP	1511TF-1 PN	1515TF-2 PN	1516TF-3 PN/DP	1517TF-3 PN/DP	1518F-4 PN/DP MFP
Interfaces	1	1	1 1	1 1	1 2 1	1 2 1	1 2 1	1 2 1 3	1	1 2 1	12	12	1 2 1 3
Program/ data storage	175 KB 1 MB	250 KB 1 MB	150/ 225 KB 1 MB	300/ 450 KB 1.5 MB	500/ 750 KB 3 MB	1/ 1.5 MB 5 MB	2/3 MB 8 MB	4/6 MB 20 MB	225/ 225 KB 1 MB	750/ 750 KB 3 MB	1.5/ 1.5 MB 5 MB	3/3 MB 8 MB	4/6 MB 20 MB 50 MB ¹
Bit- performance	60 ns	48 ns	60 ns	40 ns	30 ns	10 ns	2 ns	1 ns	60 ns	30 ns	10 ns	2 ns	1 ns
Max. number of connections	96	128	96	128	192	256	320	384	96	192	256	320	384
Positioning axes Typical ² Maximum ²	5 10	5 10	5 10	5 10	7 30	7 30	70 128	128 128	5 10	7 30	65 80	70 128	128 128
Width	85 mm	110 mm	35 mm	35 mm	70 mm	70 mm	175 mm	175 mm	35 mm	70 mm	175 mm	175 mm	175 mm
Additional 50 MP m											New		New

1 Additional 50 MB memory for ODK applications; 2 For 4ms Servo/IPO cycle

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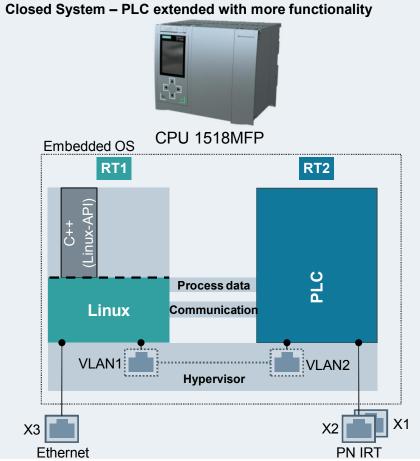
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TIA Portal V15



PLC based Multifunctional Platform CPU 1518MFP – C/C++ Runtime Linux based





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V15 solution with S7-1518MFP

- Standard S7-1518 PLC
- Linux distribution based on Yocto Project
 - Versatile functionality
 - Experience with IOT2000
 - Long-term maintaining support by Siemens CT
 - SDK (cross build tools) support for application development with eclipse
- Communication and access to process data via virtual Ethernet interface, provided by hypervisor

Customer benefit

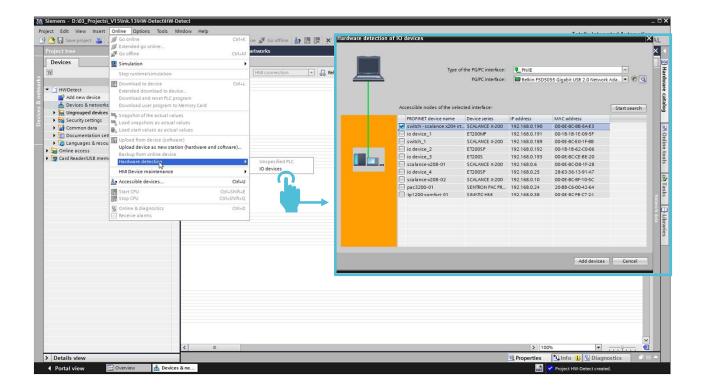
 Long-term compatibility without reengineering, even for next CPU-generation



Hardware Configuration – Hardware detection of PROFINET IO devices

Hardware detection of PROFINET IO devices

- Time savings through automatic detection of IO devices
- Instead of manual configuration from the hardware catalog, insertion of IO devices including modules from the system/machine in the project by means of hardware detection





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STEP 7 Innovations – Breakpoints on the CPU S7-1500

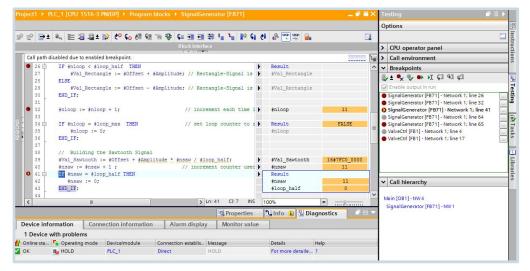
S7-1500 🗸 S7-1200 🗙 S7-300/400/WinAC 🗸

Function

- Setting of breakpoints in SCL/STL programs (also possible in mixed LAD/FBD blocks)
- Maximum number of active breakpoints per CPU:
 - ≤CPU 1516/CPU 1515SP PC: 8
 - ≥CPU 1517/CPU 1507S/S7-PLCSIM: 20
- From firmware version V2.5 of CPU S7-1500

Customer benefits

- Testing of SCL and STL program code with the aid of breakpoints
- Step-by-step isolation of errors
- Simple and fast analysis of complex programs in the office **before** actual startup



When a breakpoint is reached, the CPU enters **hold** mode



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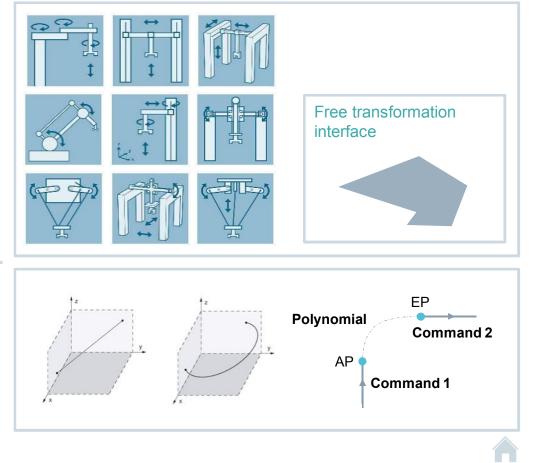
TIA Portal V15

STEP 7 Innovations – Motion control – Kinematics for handling tasks



S7-1500T 🗹 S7-1200 🗙 S7-300/400/WinAC 🗙

- Technology object kinematics (TO kinematics) for simple interconnection of positioning axes to form a kinematic unit
- Predefined 4D kinematics for simple use of standard kinematics (SCARA, Portal, Articulated Arm, Roll Picker, Delta Picker, Cylindrical Robot, Tripod)
- User transformation as function block for integrating user-defined kinematics
- 4D interpolation, linear and circular movement with geometric blending including orientation guidance (e.g. rotation of the gripper)
- Motion queue programming for advance motion processing with dynamic adaptation



TIA Portal V15

STEP 7 Language Innovations – New statements – FileReadC/FileWriteC

S7-1500 🗹 S7-1200 🗙 S7-300/400/WinAC 🗙

Function

- Read data from an ASCII file from the SIMATIC memory card
- Write data to an ASCII file on the SIMATIC memory card

Customer benefits

Complex file structures are used in free ASCII format on the SIMATIC memory card, for example to

- Import recipes in cases where CSV is not flexible enough
- Import complex parameterizations or configuration files
- Output complex files for documentation



TIA Portal V15

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SIMATIC MEMORY CARD

S SMC_042801408

12 GB S C-EI FS.90

STEP 7 Language Innovations – New statements – Scatter/Gather

S7-1500¹ 🗹 S7-1200 🗙 S7-300/400/WinAC 🗙

Convert data for further processing

- SCATTER decomposes bit sequences (Byte, Word, etc.) into a bit array
- GATHER assembles a bit array to form a bit sequence
- SCATTER_BLK/GATHER_BLK for decomposing/assembling bit
- Support for STRUCT and PLC data types with exclusively boolean elements

Sample application

Decompose, process or also simply assemble control and status words

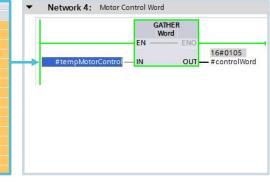
	F		EN - 16#0031 #statusWord - IN mpMotorStatus. #temp	MotorStatus.	lotorStatus VlotorOK	1 2 3 4 5 6 7 8 9 10	
	1	Nam		Data type		10 11 12 13 14 15 16	
	1	1			Value	-	
4	-	- :	#tempMotorControl	*typeMotorControlWord*	1	*	The second se
1	-	• :	tempMotorControl ON_OFF1	"typeMotorControlWord"	TRUE	-	A COLORED OF THE OWNER
2	€	• ; = =	tempMotorControl ON_OFF1 OC_OFF2	*typeMotorControlWord* Bool Bool	TRUE FALSE	-	No. of Concession, Name
23		* : * *	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3	*typeMotorControlWord* Bool Bool Bool	TRUE FALSE TRUE	•	No. of Concession, Name
2 3 4		* : * *	ttempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable	*typeMotorControlWord*	TRUE FALSE TRUE FALSE	•	
2 3 4 5		* 2 * * *	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna	*typeMatarControlWord" I Bool Bool Bool Bool Bool	TRUE FALSE TRUE FALSE FALSE		
2 3 4 5 6	66666 6	* : * : * : * :	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna ContinueRampFunctionGen	*typeMatarControlWord" I Bool Bool Bool Bool Bool	TRUE FALSE TRUE FALSE FALSE FALSE	-	
2 3 4 5 6 7	00000000000000000000000000000000000000	* : * * * *	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna ContinueRampFunctionGen SpeedSetpointEnable	*typeMotorControlWord* I Bool Bool Bool Bool Bool Bool	TRUE FALSE TRUE FALSE FALSE	•	
2 3 4 5 6 7 8	000000000000000000000000000000000000000	* 5 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna ContinueRampFunctionGen SpeedSetpointEnable AcknowledgeFault	*typeMotorControlWord* 1 Bool Bool Bool Bool Bool Bool Bool	TRUE FALSE TRUE FALSE FALSE FALSE FALSE FALSE	-	
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2 3 4 5 6 7 8 9 10	66666666666	* 2 * * * * * * *	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna ContinueRampFunctionGen SpeedSetpointEnable AcknowledgeFault JogBit0 JogBit1	*typeMotorControlWord* Bool Bool Bool Bool Bool Bool Bool Boo	TRUE FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE	-	
2 3 4 5 6 7 8 9 10 11 12	666666666666666	* 2 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1 * 1	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna ContinueRampFunctionGen SpeedSetpointEnable AcknowledgeFault JogBit0 JogBit1 MasterControlByPLC	*typeMotorControlWord* 1 Bool Bool Bool Bool Bool Bool Bool Boo	TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	-	
2 3 4 5 6 7 8 9 10 11 12 13	66666666666666		tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna ContinueRampFunctionGen SpeedSetpointEnable AcknowledgeFault JogBit0 JogBit1 MasterControlByPLC DirectionReversal	*typeMotorControlWord* Bool Bool Bool Bool Bool Bool Bool Boo	TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE		
2 3 4 5 6 7 8 9 10 11 12 13 14	00000000000000000000000000000000000000	* 1 * * * * * * * * * * * * * * * *	tempMotorControl ON_OFF1 OC_OFF2 OC_OFF3 OperationEnable RampFunctionGeneratorEna SpeedSetpointEnable AcknowledgeFault JogBit0 JogBit1 MasterControlByFLC DirectionReversal Reserved	*bpeMotorControlWord* 1 Bool Bool Bool Bool Bool Bool Bool Boo	TRUE TRUE FALSE TRUE FALSE FALSE		

- Natural 1. Charle Materiature

New

V15

	1	Na	me	Data type	Value
	-	•	#tempMotorStatus	*typeMotorStatusWord*	
	-		ReadyForSwitchingOn	Bool	TRUE
2	-		Ready	Bool	FALSE
3	-		OperationEnabled	Bool	FALSE
ŧ.	-0		FaultPresent	Bool	FALSE
5	-		CoastDownActiveOFF2	Bool	TRUE
5	-		QuickStopActiveOFF3	Bool	TRUE
7	-		SwitchingOnInhibitedActive	Bool	FALSE
3	-		AlarmPresent	Bool	FALSE
9	-		DeviationSetpointActualSpeed	Bool	FALSE
10	-		ControlRequest	Bool	FALSE
11	-		MaximumSpeedReached	Bool	FALSE
12	-		I_M_P_LimitReached	Bool	FALSE
13	-		MotorHoldingBrakeOpen	Bool	FALSE
14	-		AlarmMotorOvertemperature	Bool	FALSE
15	-		MotorRotatesForwards	Bool	FALSE
16	-		AlarmDriveConverterOverload	Bool	FALSE



1 From FW2.1

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STEP 7 Innovations – Download/upload for PLC tag tables

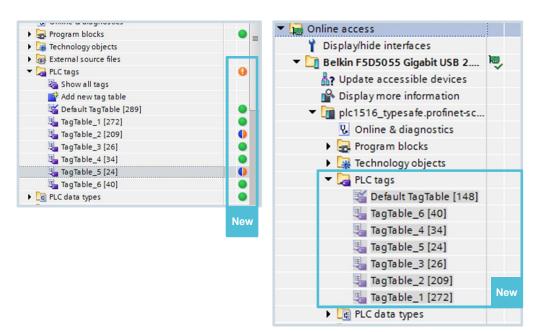
S7-1500 🗸 S7-1200 🗙 S7-300/400/WinAC 🗙

Function

- Download PLC tag tables to the CPU
- Display PLC tag tables also under "Accessible devices" and on the memory card (incl. opening)
- Online status at granular tag level
- Uploading of individual or all PLC tag tables into the predefined structure

Customer benefits

- Tracking of changes done by other user on the CPU
- Quick overview of the online status of the CPU
- Improved team engineering on the CPU



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STEP 7 Innovations – Online/offline comparison for PLC tag tables

S7-1500 🗹 S7-1200 🗙 S7-300/400/WinAC 🗙

Function

- Online/offline comparison at tag table level
- Detailed comparison for individual PLC tag tables
- Detailed comparison for all tags
- · Checksum-based comparison for
 - Tags
 - Constants
 - Comments
 - Language configuration

Customer benefits

Complete overview of all online/offline information

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								Devices						
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3004 V1.0.0 V15: PLC1516 typ	or a fa*	_	_	-		"Online PLC"		Technology	objects		^		Name	_
Name	Address	Ту	Status	Action		Name		External so	urce file	s		1 🖪	Tag_1() Nev
vame ▼ 🚰 PLC1516_typesafe	Address	ıy	Status					PLC tags			0	2 4		
PLC1516_typesate Program blocks				II.		PLC1516_typ	esate	a Show a	II taos			3 4		
Technology objects	_	_			-		_							
▼ 📮 PLC tags				.III.		a the s								
💥 Default TagTable						💥 Default TagTi	able							
TagTable_1					-	TagTable_1								
TagTable_2				Ш	-	TagTable_2								
TagTable_3						TagTable_3								
👆 TagTable_4						TagTable_4	New							
🔚 TagTable_5				Ш		TagTable_5	New							
TagTable_6						TagTable_6								
LC data types														
< III		>				<	ш							
Comparison result: Objects are	different.													
			F	_							,			
			-											
			TagT	able_2				Compare offline with or						
 Source data 						•								
Tags without comments						•		💊 🕡 🖑 ± 🖩 🗿 🎸	101	1 11 1				
Constants without comm	ents					•		"PLC tags" offline con						
Comments (multi-langua	ge)					•		Reference program	Status	Action	O COI	mpare to	Details	
Language configuration						•		 PLC tags 	0	II No action	PLC tas			
 Target data 						•		Tag_116	ŏ	a no secon	Tag_1		The comment	s are different
Compilation and runtime	data							- Tag_157	Ö		Tag_1		The comment	s are different







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System Functions – TIA Portal Openness – SCL in XML

New

XML export/import of SCL blocks

- Interface for calling the SCL block export
- XML representation in file
- Interface for calling the XML import

Customer benefits

- Completion: All blocks can be processed by machine via XML
- LAD/FUP blocks with SCL networks can now also be exported/imported
- Now possible: XML comparison of SCL blocks in versioning systems

#myString := 'Hello world';	
Ļ	
<access scope="LiteralConst</td><th>ant"></access>	
<constant></constant>	
<constantvalue>Hello world<</constantvalue>	/ConstantValue>
<constanttypeinformative="ti< td=""><th>ue">STRING</th></constanttypeinformative="ti<>	ue">STRING



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System Functions – TIA Portal Openness – PLC download

Download PLC

- Interface for calling the PLC download
- Download to standard PLC
- Handling of passwords

Customer benefits

- · Automatic download to machines is possible
- Development of simple tool interfaces for PLC download for persons without knowledge of TIA Portal
- Automated input of protection level and binding passwords

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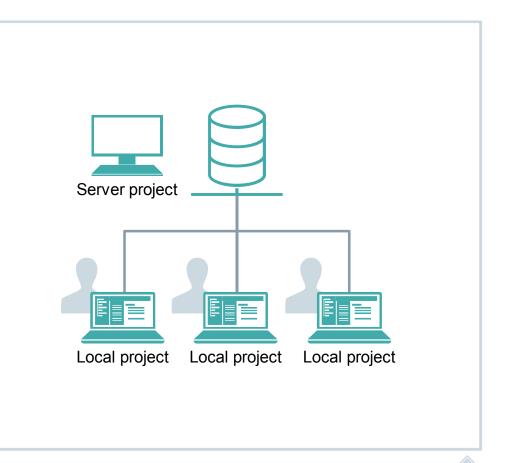
TIA Portal Options – Multiuser Engineering – Overview of new functions



- Automatic marking of multiuser objects
- Offline working possible with multiuser engineering
- · Enhanced check-in and comment functions
- Project server with extended revision history and recovery functions

Customer benefits

- Multiuser engineering also possible without active server connection
- Improved usability for quick overview of changed objects and conflict recognition
- Traceability of project progression on the multiuser server (What was changed by whom?)
- Project milestones can be commented and saved
- Project history can be exported for evaluation



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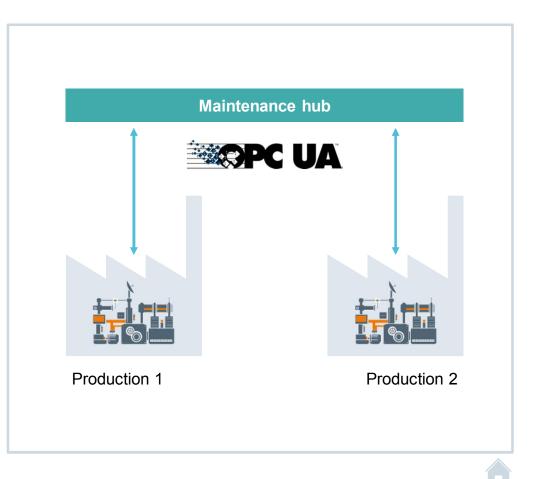
TIA Portal Options – OPC UA – Overview of new functions

Function

- OPC UA Server
 - Method call
- Support for companion specifications

Customer benefits

- Simple and safe exchange of data between client and server
- Apart from the up-to-date data and symbolic names, additional attributes can also be exchanged
- Remote Procedure Calls (RPC → call for a remote procedure) are enabled efficiently based on methods
 - Eliminates the need for manually created handshaking
 - Ensures data consistency
- Companion specifications allow plug&play with standardized interfaces



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User Management and Access Control UMAC and Option UMC – Cooperation

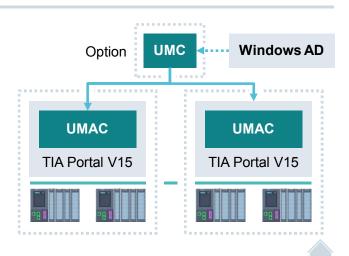
UMAC: User Management and Access Control

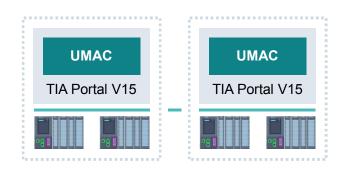
- Built-in functionality in TIA Portal
- Allows personalized access to TIA Portal projects
- · Define project users, roles and assign them

UMC: User Management Component

- Extends UMAC by optional use
- Manages users/groups outside TIA Portal projects
- Import of needed UMC users/groups into TIA Portal projects
- Assigning project roles to them
- Authenticates UMC users' logins afterwards













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	ProjectWithUMAC Security settings Users and roles	_ # = ×	
ices	1	🕴 User 🎆 User groups 🔛 Roles	Options
	9. io	3	
	User groups		 Find and replace
rojectWithUMAC	Name Description		
Add new device	<add group="" new="" user=""></add>		Find:
Devices & networks			
PLC_1 [CPU 1516-3 PN/DP]			Whole words only
PLC_2 [CPU 1515-2 PN]			
d Ungrouped devices			Match case
Security settings			Find in substructures
🙀 Settings			Find in hidden texts
W Users and roles			Use wildcards
Global security settings	Add new user groups from UMC	2	
Common data			Use regular expressions
Documentation settings	Name		Down
Languages & resources	testgroup		Oup
Online access	Users Assigned roles Assigned rights		
ard Reader/USB memory	Total		Find
	Assigned roles		Replace with:
	Assigned to Name		repiece mai.
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tails view			Replace Replace all
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	General	5	
	No 'properties' available.		
	No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable prope	erties.	

Hardware detection OPC UA UMAC-UMC Multi-user

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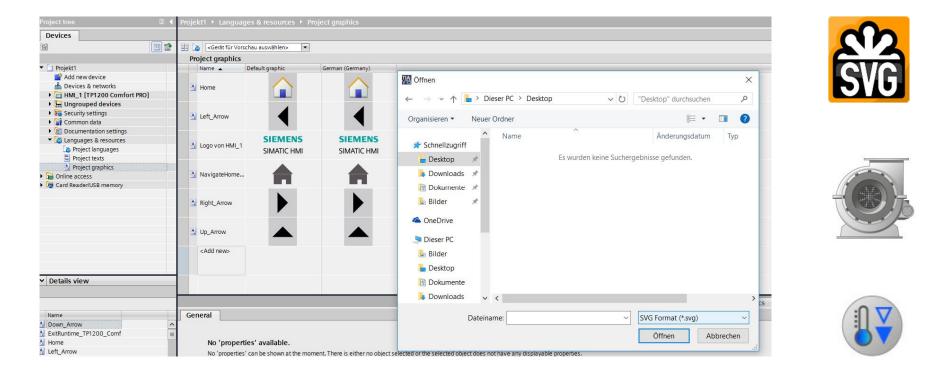


WinCC Innovations – Functional improvements (graphic elements)



Support for static SVG (Scalable Vector Graphic)

Scalability without losing the image quality



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WinCC Innovations – Communication connections with WinCC RT Professional



- Runtime Professional supports up to 128 connections
- Max. 128 S7-1500/S7-1200 can communicate with a RT Professional
- Max. 64 S7-300/400 can communicate with a RT Professional
- Sample configurations
 - 128x S7-1500s
 - 70x S7-1500s and 58x S7-1200s
 - 64x S7-300s and 64xS7-1500s
 - 100x S7-1500s and 28x OPC UA Clients





... up to 128 PLCs









WinCC Innovations – Communication connections with WinCC RT Professional



Functional enhancement of OPC UA Client

- Security improvements through support for authorization parameters (user and password)
- Support for array data types

IIA
UA

DPC server		💇 🖻	• 🔄 🔁			
UA server discovery URL: Security policy:	None	 Def	ault tag table	•		
Message security mode:	None		Name 🔺	Data type	Connection	Address
User name:			▼ Tag_1	Array [04] of Int32	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Int32
Password: Write array entries without IndexRange:	3		[0]	Int32	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Int32
Select OPC server:	★ 第 OPC server		[1]	Int32	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Int32
	Local server Alexandree environment.		[2]	Int32	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Int32
	<add computer="" new=""></add>	-00	[3]	Int32	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Int32
			[4]	Int32	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Int32
			Tag_2	Array [02] of Float	Connection_1	ns=http://www.unifiedautomation.com/DemoServer/;s=Demo.Static.Arrays.Float
			<add new=""></add>			





TIA Portal Options – STEP 7 Safety – Overview of new functions

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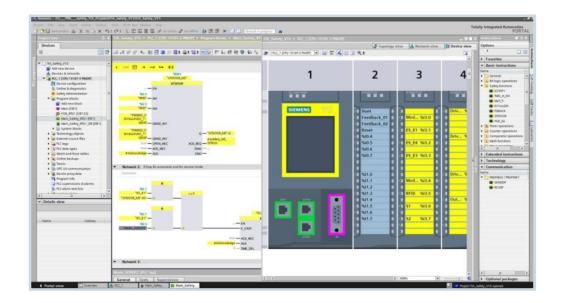
Function

- Failsafe arrays (read access) for data types INT and DINT
- Separate F-signature for hardware and software
- Overflow handling
- Usability improvements and more new functions
 - Read back of fail-safe F-FB Out parameters
 - Writing of F-FB input parameters as for STEP 7 Standard
 - Start values of instance DBs can be changed
 - Synchronous failsafe OB
 - DINT \rightarrow INT converter (S7-1200, S7-1500)
 - ABS: Create absolute value (S7-1200, S7-1500)

Customer benefits

Increased efficiency for programming failsafe S7 controllers

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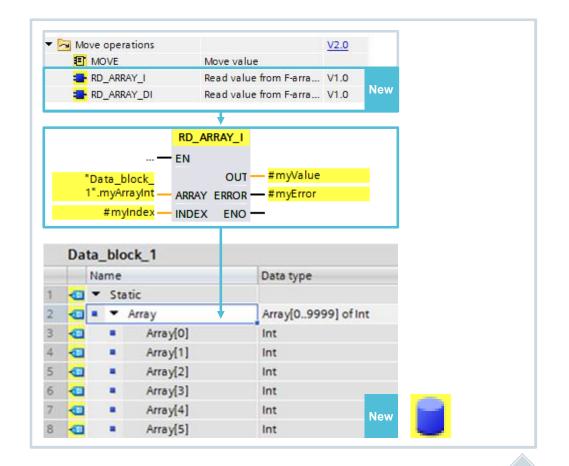
TIA Portal Options – STEP 7 Safety – Read access to failsafe arrays of data type INT/DINT



S7-1500 🗸

Function

- F data blocks support failsafe arrays of data type INT/DINT
- Read access to failsafe system blocks RD_ARRAY_I and RD_ARRAY_DI
- Up to 10,001 (0 ... 10,000) elements per array are supported



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TIA Portal V15

TIA Portal Options – STEP 7 Safety – Separate F-signature for hardware and software



S7-1200 🗸 S7-1500 🗸

Function

- Differentiability between hardware and software-related changes
- **Documentation** in safety print-out

General 🥥		General							
F-runtime group F-runtime group 1 [RTG1]		Safety mode status							
F-blocks						Disable	e safety mode		
F-compliant PLC data types Access protection		Current mode:	Safety mor	activated.					
Settings		Safety program status							
		in the second	 The offline safety program is consistent, but no password has been assigne The online safety program is consistent, but no password has been assigne 						
		Online program: F-signatures	The online	sate	ty program is consist	ent, but no password	has been assign		
		Description	Sta	tus	Offline signature	Online signature	Version comp		
	100	Collective F-signature			16D64833	16D64833	•		
	•	Software F-signature			EEC06111				
	10	Hardware F-signature			2815E722 Nev	N			



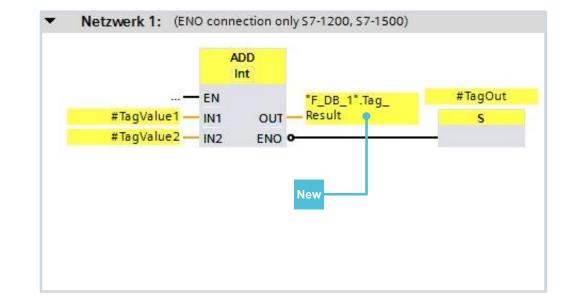
TIA Portal Options – STEP 7 Safety – Overflow Handling



S7-1200 🖌 S7-1500 🗸

Function

- As with standard operations, failsafe uses the ENO output (enable output) to signal overflows (according to IEC61131)
- The following statements are supported for the data types INT/DINT: ADD, SUB, MUL, DIV, NEG, ABS, Converter DINT → INT
- Overflow processing is activated by interconnecting the ENO output





TIA Portal Options – STEP 7 Safety – Usability improvements and new functions





Usability improvements and other new safety functions

- Read back of Out parameters with F-FBs enables a simplified program structure and enhanced clarity
- Writing of F-FB input parameters as for STEP 7 Standard/Distributed Safety
- Start values of instance DBs can be changed
- Synchronous F-OB for connection of synchronous PROFIsafe-Devices (S7-1500)
- **DINT** → **INT converter** (S7-1200, S7-1500)
- New "ABS" statement Absolute value for INT and DINT (S7-1200, S7-1500)



