# **TIA-portalen** V17

平

Få overblik over flere nyheder.

## SIEMENS

# Dagens værter

Michael Nielsen, Technology Specialist Ole Dyval, Technology Specialist

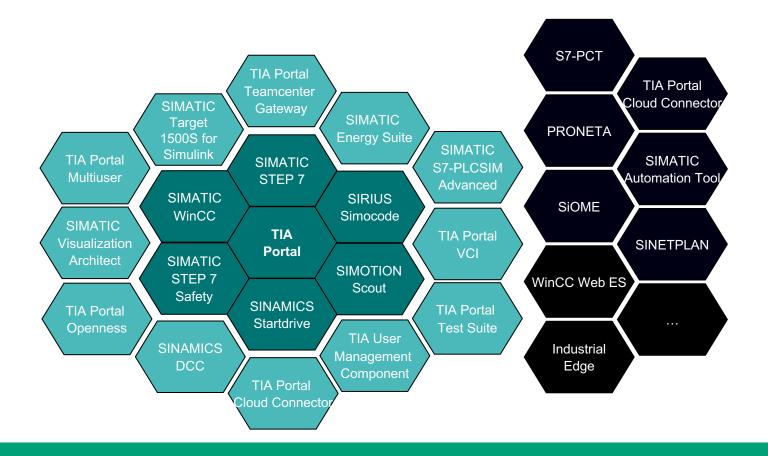
## SIEMENS

# Agenda for news in V17

- Which optional packages is released ?
- Teasers about news in the V17
- Extended Library features
- New editors coming up with V17 Cause Effect Matrix
- I Device new features
- Faster safety implementation and new features also with the 1500 R/H/HF family
- New features with OPC UA both for S7-1200 and S7-1500
- Security is and integrated feature for the SIMATIC systems
- Software as Perpetual and Subscription
- Extended Grace period for all TIA-portal engineering tools
- Coming up next time



# Which packages are released for V17?



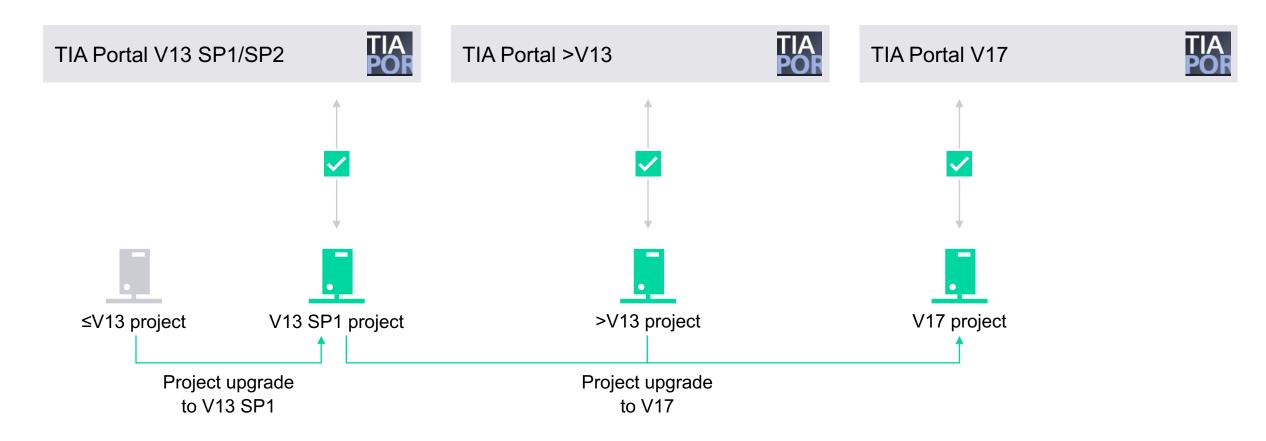
## Other release time

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- Scout release
- Kinematics
- Target for MatLab
- SIMOCODE ES
- Soft Starter ES
- CFC editor

## **Overview of TIA-portal engineeringtools and add-on's**

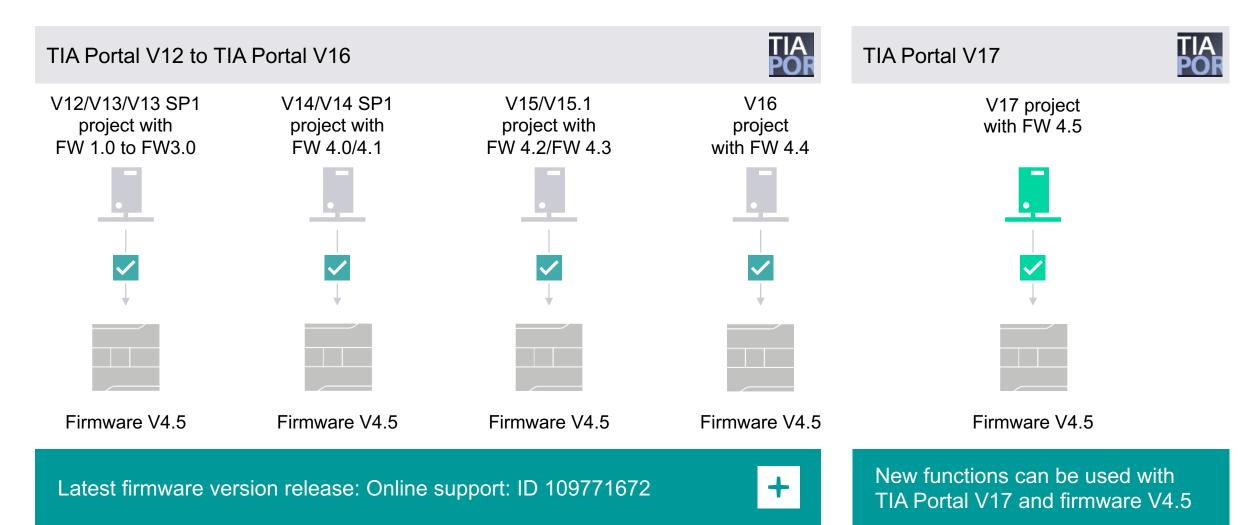
# **System functions - Upgrading projects**



Side-by-side installation of V13 SP1/SP2 up to V17 allows access to all project versions. The V17 license can be used for all available versions from V11.

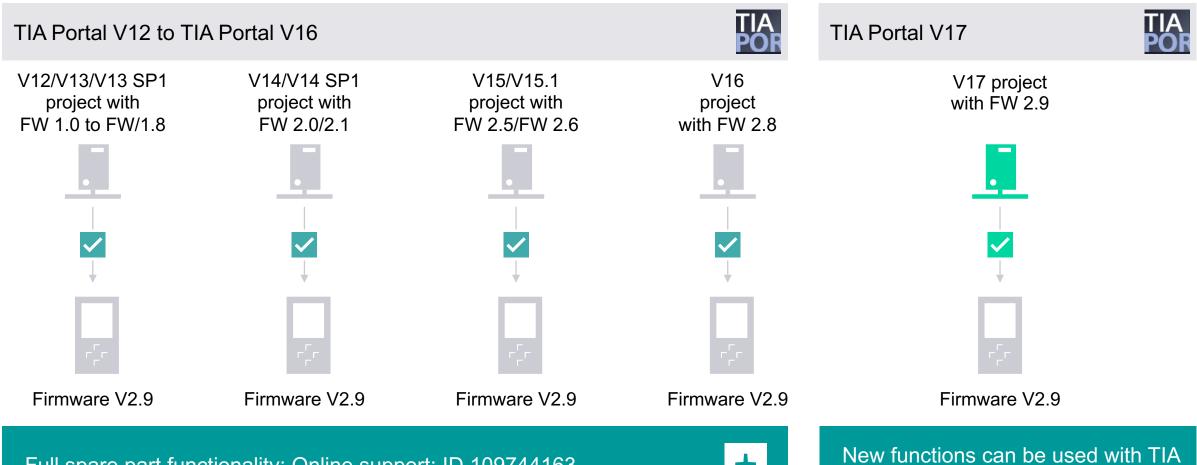
## **SIEMENS**

## **Spare Parts Compatibility** S7-1200 – FW 4.5 with older TIA Portal versions



# **System functions**

Spare parts compatibility S7-1500 and ET 200 CPUs – FW 2.9 with older TIA Portal versions



Full spare part functionality: Online support: ID 109744163



New functions can be used with TIA Portal V17 and firmware V2.9

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#### Downloading data blocks

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#### Cross-reference editor

Improved visualization of overlapping input and output addresses.

#### Improved line break at variable

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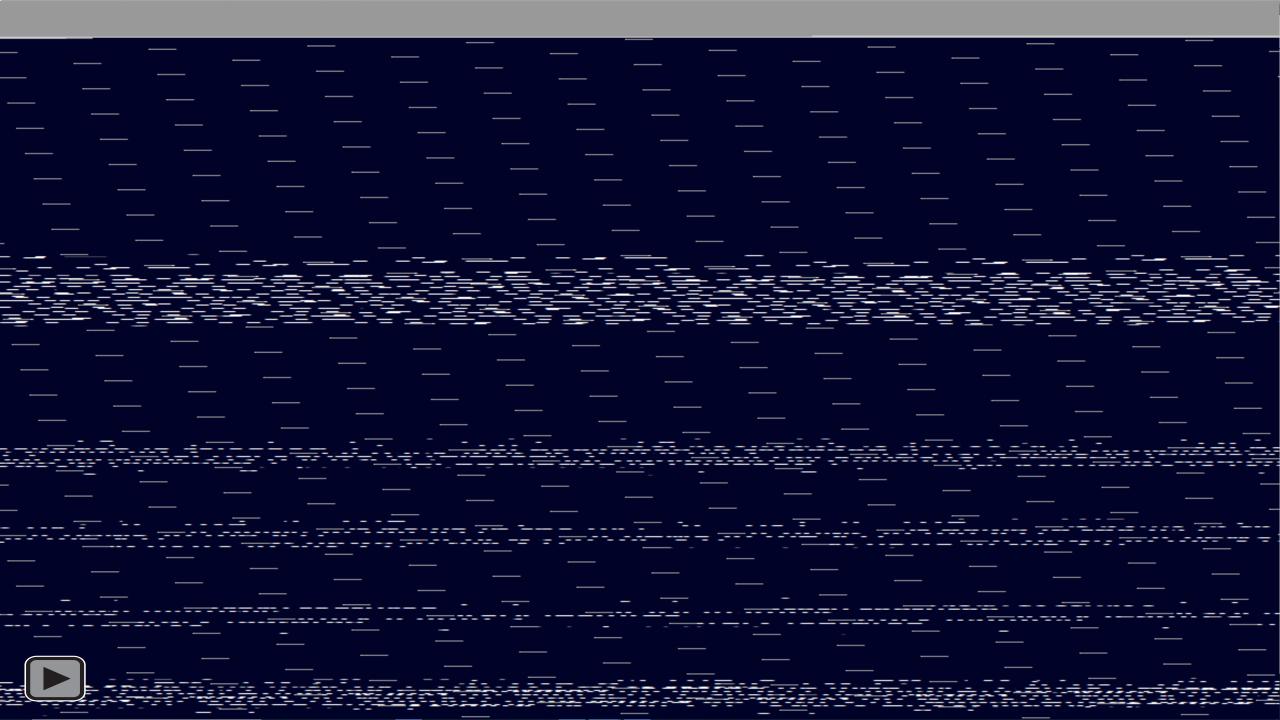
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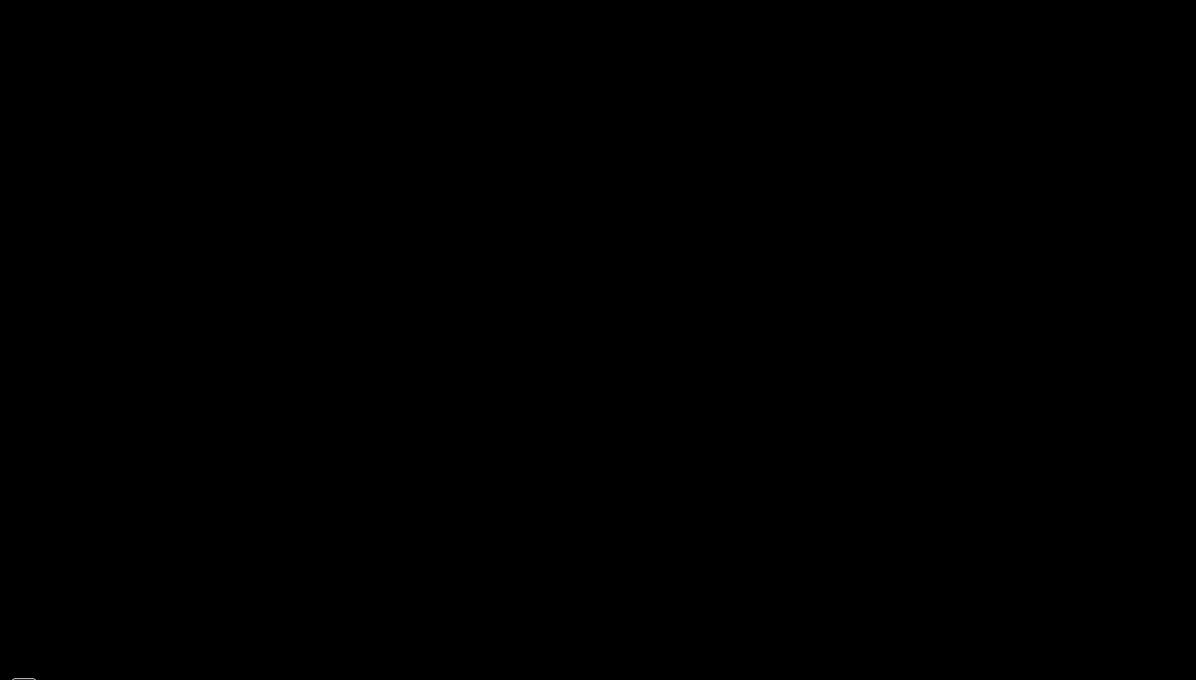
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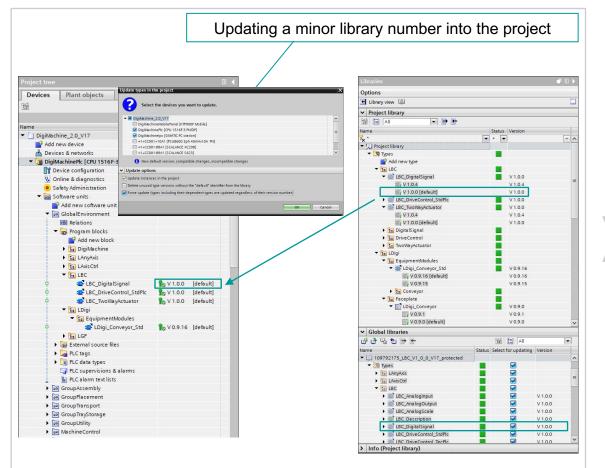
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# **TIA Portal – System functions**

#### **Extended library functions – use types**



#### **Default version**

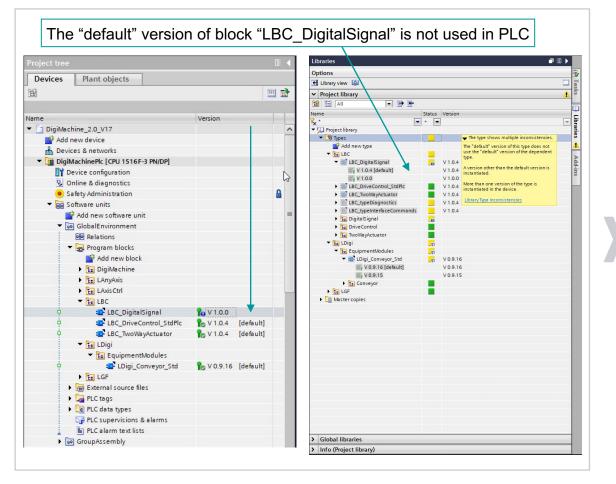
- The highest version number is no longer leading
- The user can define any version as default version
- The default version is used when executing library functions
- By setting the default version and following update also older versions can be used in the project

#### Library update

- With the option "Force update" the user can perform a library update independent from the version number
- Older or new versions can be deleted, so that only one version of a type is still contained in the project
- The user can define which types / versions should be updated from the Global Library
- This allows to ..
  - undo changes in the project
  - set library objects in the project to a defined version
  - use older versions from a global library
  - use preconfigured global libraries for the project update

# **TIA Portal – system functions**

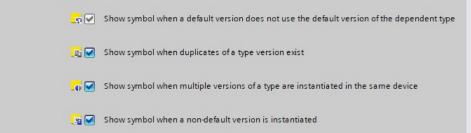
Extended library functions – status of library type



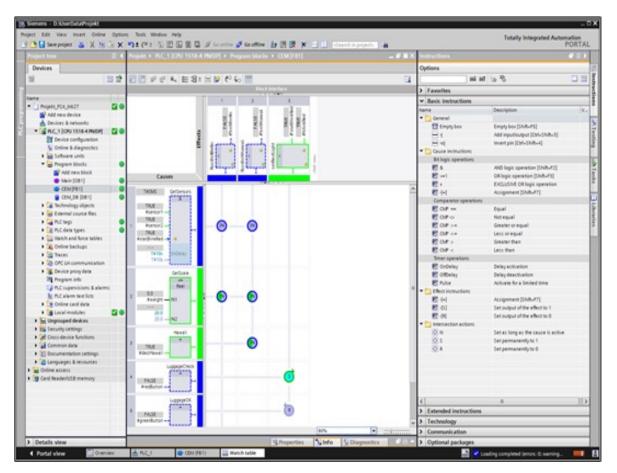
#### **Overview of library types**

- To display the state and usage of library types within a project, each library type has a status icon.
- This allows the user a quick overview of types ...
  - which do not use the default version of another type
  - for which the same version numbers are available
  - of which another version than the default version is instantiated
  - of which several versions are instantiated in one device
- The status icon of a library type is propagated through the folder levels
- The status information to be displayed can be configured in the settings of the TIA Portal

Show inconsistencies in libraries



# **Cause Effect Matrix CEM editor**



## **Build in editor in the TIA-portal**

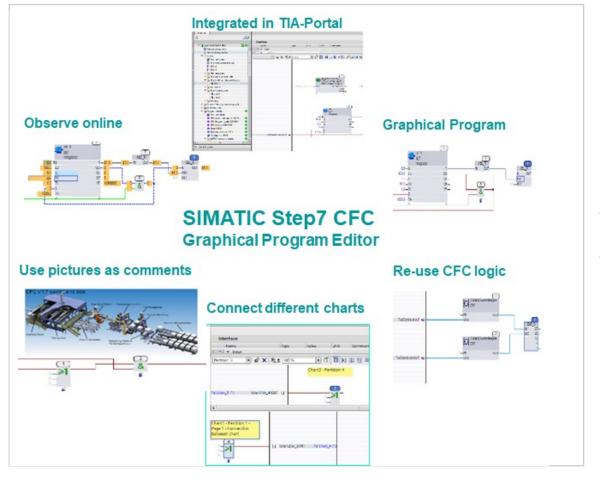
- Can be used together with S7-1200 and S7-1500
- Cause in combination with Effect will give the answer
- On- and off-line editor



Project Edit View Insert Online Options Tools Window Help

ect Edit View Insert Online Options Tools Window Help 🞦 🖫 Save project 📕 💥 🧃 🗃 🗙 🍽 t 🔁 🖳 🖳 🔛 🕼 🌌 🥵 Go online 🖉 Go offline 🄐 🌆 📭 🕺 🚽 🕕 🤇	Totally Integrated A	Automation PORTAL
Project tree	Tasks	<b>■</b> ■ ►
Devices	Options	i
		SKS
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Add new device	Find:	L.
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Device configuration	Whole words only	es
	Match case	_
Big Software units	Find in substructures	
🔻 😓 Program blocks	Find in hidden texts	
Add rew block	Use wildcards	
- Main [ÔB1]	Use regular expressions	
Technology objects	Ose regular expressions	
General source files	Down	
<ul> <li>PLC tags</li> <li>PLC data types</li> </ul>	O Up	
Watch and force tables	Find	
Call watch and lotte tables	11114	
Traces	Replace with:	
OPC UA communication		
▶ Till Device proxy data	Whole document	
📴 Program info		
🖙 PLC supervisions & alarms	O From current position	
🖺 PLC alarm text lists	Selection	
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		Ψ.
Details view		
Module		
Name		
Device configuration		
Online & diagnostics		
Software units     Program blocks		
Fredmann blocks     Fredmann blocks     Fechnology objects		
	Project CEM opened.	

## **STEP 7 – innovations** SIMATIC STEP 7 CFC V17



#### **SIMATIC STEP 7 CFC**

Graphical programming for SIMATIC S7-1500

Generation of automation programs by drawing a technology chart → Solve automation tasks already in the configuration phase

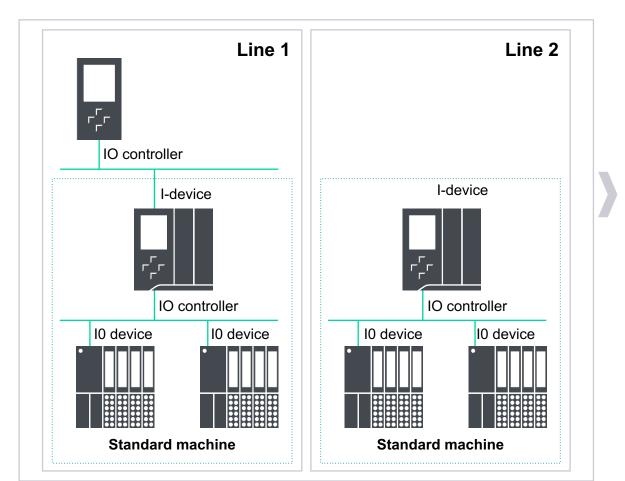
Parameterize technology functions by linking function blocks (AND, OR, PID Controllers) → Functions are created much faster than with conventional programming

Use of "Chart in Chart" technology for a hierarchical structure → Significantly less possible error sources

Convert technical requirements into complete, executable automation programs by pressing a button → The configuring data are converted automatically.

Use the TIA Portal mechanisms for the transfer to the programmable controller → More efficient engineering

# **Deactivating/activating the I-device in the user program**

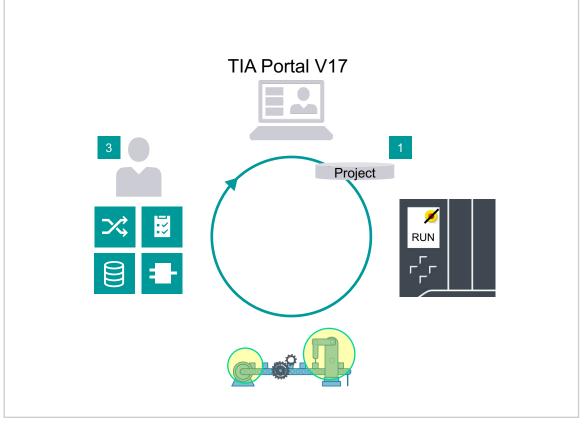


- The I-device configuration of a CPU can be deactivated or re-activated by using the instruction "D\_ACT\_DP"
- If the IO controller is not available, the I-device CPU does not longer indicate an error via its ERROR LEDs (if the I-device function is deactivated by the user program)
- Pre condition: TIA Portal V17, CPU FW V2.9, CM 1542-1 FW V3.0

#### **Customer benefits**

- All standard machines have a uniform user program, regardless of whether there is an IO controller at the deployment site
- No annoying/confusing ERROR LED display

# SIMATIC STEP 7 Safety V17 Fast Commissioning



#### **Fast Commissioning workflow**

- 1. Download prepared project to controller.
- 2. Deactivate Safety mode and activate Fast Commissioning mode
- 3. Perform adjustments in safety program during operation
- 4. Finalize project by full compile
- 5. Final download of the safety program
- 6. Activation of Safety mode and re-initialization by STOP – START transition of CPU

#### **Benefits**

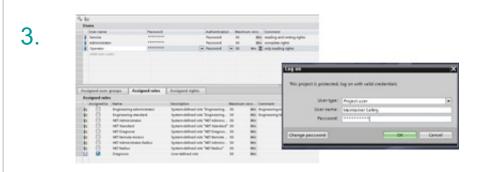
- Increased efficiency when commissioning the safety program
- Shorter compile times during commissioning
- Adjustments of safety program during deactivated safety mode
- More control due to time limitation of deactivated Safety mode

# SIMATIC STEP 7 Safety V17



Description	Used and compiled	Function in safety program	Offline signature
🔻 📴 Program blocks			
50B_RTG1 [0B123]	Yes	F-OB	0xA7482493
🔹 Main_Safety_RTG1 [FB1]	Yes	F-FB	0xF308B915
📒 FFB_used_DB [DB3]	Yes	I-DB for F-FB	0x27E959F6
🧧 Main_Safety_RTG1_DB [DB1]	Yes	I-DB for F-FB	0x27E959F6
En tmp			Not available.
🔻 🔚 unused			0x7B3E1951
FFC_unused [FC1]	Yes	F-FC	0xD379BA50
📒 FDB_unused [DB2]	Yes	F-DB	0x27E959F6
🔻 🔚 used			0x9896C7CD
🖀 FFC_used_5 [FC7]	No	F-FC	Not available.

2.



#### **1. Nested F-compliant PLC data types**

Optimum structuring of data in the safety program can now be achieved by creating

F-compliant data types up to a nesting depth of 8.

All data types allowed in the safety program can be used as F-PLC data.

#### 2. Group signature

Changes in structure of safety program can be localized more quickly. Acceptance procedures can do more efficiently by comparing the group signature of the changed and the already accepted safety program.

#### 3. UMAC

It's possible to realize access protection for the F-program based on user-specific/role-specific UMAC rights.

#### Acknowledgment of failsafe warn cycle time

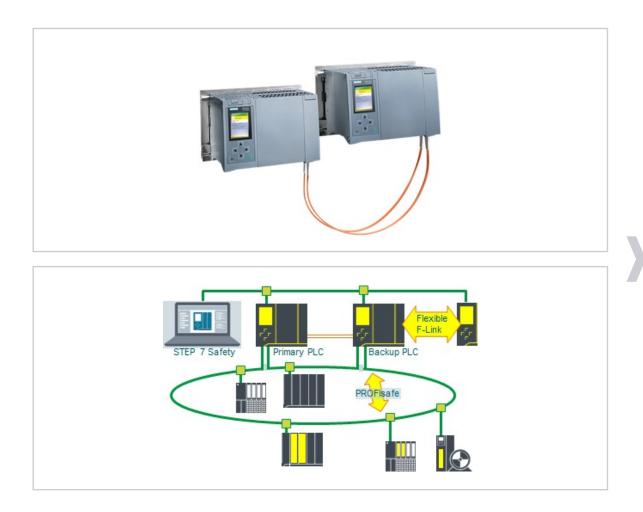
With block ACK\_FCT\_WARN it's possible to acknowledge the message for exceeding failsafe warn cycle time.

#### Think green – paperless safety printout

The requirement concerning handling the safety printout has been modified in the manual and now allows paperless storage and archiving – which means a paper printout is no longer necessary.

# **Advanced Controller**

### **Redundant controller with Safety: CPU 1518HF-4 PN**



#### New PLC: CPU 1518HF-4 PN

- Engineering in STEP 7 Professional (TIA Portal) V17 and STEP 7 Safety
- Safety programming similar to non-redundant fail-safe PLC
- Support of PROFIsafe communication
- Supports flexible F-Link for fail-safe controller/controller communication
- 3<sup>rd</sup> Ethernet interface (X3) for redundant "north-bound" connection

#### **Benefits**

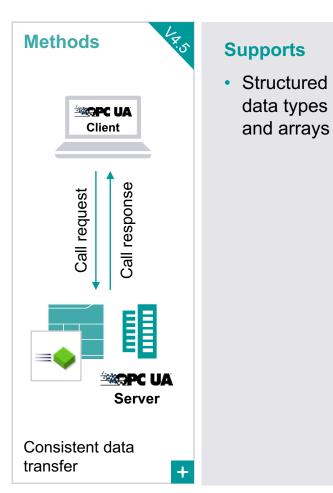
- No additional failsafe PLC required
- High level of availability for applications in combination with Safety

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# OPC UA S7-1200 V4.5 Extended range of functions



#### **OPC UA server diagnostics in TIA Portal also for S7-1200**

Online access	> > Sessi	ons							
<ul> <li>Diagnostics</li> </ul>									
General	Statistics								
Diagnostic status	-								
Diagnostics buffer Cycle time		Session co	ount: 3						
Memory	_	Monitored items co	ount: 27						
▼ OPC UA									
▼ Server		Total request co	2220				error count: 1		
General									
Sessions		Rejected co	ount: 0				neout count: 0		
PROFINET interface [X1]									
<ul> <li>Functions</li> </ul>	Session/s	ubscription diag	nostics						
	<b>1</b> 0		Name	Endpoint U	RI	Subscriptions	Monitored Items	Timeout	Last co
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	. 🗹 -		Subscription_244755				1	14 of 300	
			Subscription_244755				8	0 of 300	
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			Subscription_244755				1	25 of 300	
								0 of 300	
			Subscription_244755				8		
		3529949163	urn:md2b0e6c:Unifie	Automatio opc.tcp://1	92.168.2.11:4840	2	9	427 of 30000ms	2011-0
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# OPC UA highlights for SIMATIC S7-1500 and ET 200 CPUs

#### **OPC UA server – Alarms & Conditions**

PLC_4 [CPU 1516-3 PN/D	P]	Properties
General IO tags	System constants Texts	
Entry page Overview of interfaces	General	
<ul> <li>Display</li> <li>Multilingual support</li> <li>Time of day</li> </ul>	Accessibility of the server	
Protection & Security		
OPC UA     General	'Alarms And Conditions'	
▼ Server	Enable 'Alarms And Conditions' on the OPC UA serve	er
General Options	Allow message acknowledgment by OPC UA client.	

Events	Alarms Ever	nt History					
× G	Alarms Even	IT HISTORY					
A C	Time	Severity	Server/Object	SourceName	Message	EventType	Active
	14:14:55.884	500	Quickstart Alar	Internal	Events Baised	AuditEventType	
AA	14:14:55.884	500	Quickstart Alar	FastTank	The alarm severity has increased.	NonExclusiveLevelAlarmType	LowActive
AA	14:14:55.884	500	Quickstart Alar	NorthMotor	The alarm severity has increased.	ExclusiveDeviationAlarmType	High
AA		500	Quickstart Alar	SouthMotor	The alarm severity has increased.	TripAlarmType	Active
	14:14:56.898	500	Ouickstart Alar	Internal	Raising Events	SystemEventType	
	14:14:56.898	500	Quickstart Alar		Events Raised	AuditEventType	
	14:14:57.912	500	Quickstart Alar	Internal	Raising Events	SystemEventType	
	14:14:57.912	500	Quickstart Alar	Internal	Events Raised	AuditEventType	
AA	14:14:57.912	900	Quickstart Alar	EastTank	The alarm severity has increased.	ExclusiveDeviationAlarmType	High
AA	14:14:57.912	900	Quickstart Alar	WestTank	The alarm severity has increased.	TripAlarmType	Active
0 0							
🛕 🛕 Details	14:14:57.912	900	Quickstart Alar	SouthMotor	The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
	14:14:57.912	900 Value		SouthMotor	The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name	ldentifier	Valu			The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name I		Valu	e etals/SouthMotor?Si		The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke	Identifier	Valu 1:Me False	e etals/SouthMotor?Si		The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke Activ	ldentifier edState/Id	Valu 1:Me False "en-l	e etals/SouthMotor?Si : US", "Active"		The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name I Activ Activ Activ	ldentifier edState/Id veState veState/EffectiveDi veState/Id	Valu 1:Me False "en-l	e etals/SouthMotor?Si : US", "Active" US", "LowActive"		The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name I Activ Activ Activ Con	Identifier edState/Id veState veState/EffectiveDi veState/Id ditionName	Valu 1:Me False "en- splayName "en-	e etals/SouthMotor?Si US", "Active" US", "LowActive"		The alarm severity has increased.	NonExclusiveLevelAlarmType	LowLowActive
Details Name I Activ Activ Activ Con Con	ldentifier edState/Id veState veState/Id ditionName firmedState/Id	Valu 1:Me False "en- splayName "en- True Silve False	e ttals/SouthMotor?Si US", "Active" US", "LowActive" r	lver		NonExclusiveLevelAlarmType	LowLowActive
Details Name I Activ Activ Con Con Ever	Identifier edState/Id veState veState/Id veState/Id ditionName firmedState/Id ntId	Valu 1:Me False "en- splayName "en- True Silve False Ien=	e ttals/SouthMotor?Si US", "Active" US", "LowActive" r 16, 0xf43d7759d2d0	lver		NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke Actin Actin Con Con Ever ▷ Ever	Identifier edState/Id veState veState/IfectiveDi veState/Id ditionName firmedState/Id tild tilJ	Valu 1:Me False "en-1 splayName "en-1 True Silve False Ien= Ien= Nod	e tals/SouthMotor?Si US", "Active" US", "LowActive" r 16, 0xf43d7759d2d0 eld	lver 14438a08baf449d7		NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke Actin Actin Con Con Even Ver Mes	Identifier edState/Id veState/EffectiveDi veState/Id ditionName firmedState/Id ntId ntType sage	Valu 1:Me False splayName "en- True Silve False len= Nod "," "	e ttals/SouthMotor?Si : : : : : : : : : : : : : : : : : : :	lver 14438a08baf449d7		NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke Actin Actin Con Con Ever Mes Reta	Identifier edState/Id veState VeState/EffectiveDi veState/Id ditionName firmedState/Id ditionName firmedState/Id tild tiType sage in	Valu 1:Me False en- splayName "en- True Silve False len= Nod "", "1 True	e ttals/SouthMotor?Si : : : : : : : : : : : : : : : : : : :	lver 14438a08baf449d7		NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke Actri Actri Con Con Ever Mes Reta Seve	Identifier edState/Id veState/Id veState/Id dftionName firmedState/Id ntld ntType sage iin vessage	Valu 1:Me False splayName "en- True Silve False len= Nod ", " True 500	e etals/SouthMotor?Si US", "Active" US", "LowActive" 16, 0xf43d7759d2d0 eld The alarm severity h	lver 14438a08baf449d7		NonExclusiveLevelAlarmType	LowLowActive
Details Name I Acke Actri Actri Con Con Ever Mes Reta Seve	Identifier edState/Id veState/If veState/EffectiveDi veState/If ditionName firmedState/Id ntId ntId ntId ntId sage in arity cceName	Valu 1:Me False "en- splayName "en- Silve False len= Nod "," True 500 Sout	e ttals/SouthMotor?Si : : : : : : : : : : : : : : : : : : :	lver 14438a08baf449d7		NonExclusiveLevelAlarmType	LowLowActive

#### CPU messages can be transferred to OPC UA clients

Supported SIMATIC alarm types

- Programmed alarms/messages
- ProDiag messages
- System events

Per subscriptions Alarms, Conditions & Events can be subscribed by the client.

Program messages incl. associated values are provided by the OPC UA server.

Alarms requiring acknowledgement can be acknowledged from the OPC UA client (can be deactivated).

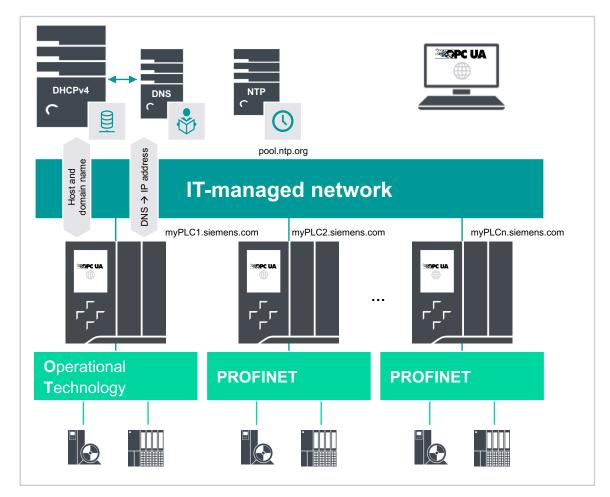
A "message burst" is displayed as "overload" and messages can be refreshed from the client.

#### Number of simultaneous messages:

PLC Type	Small	Middle	Big
System Diagnostics	50	100	200
Program Alarms	100	200	400

# DNS for SIMATIC S7-1500- and ET 200-CPUs

#### Name-based addressing



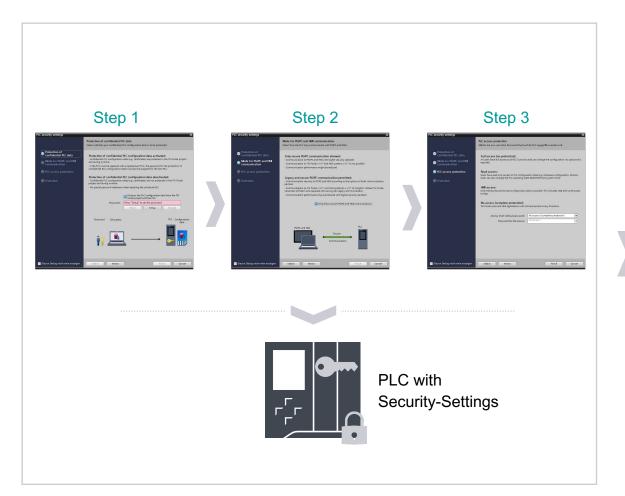
#### **DNS – Domain Name System**

- New: The DNS server addresses can be obtained from the CPU via DHCP.
- New: The CPU can obtain host and domain names from a DHCP server for applications realized with OPC UA or (secure) OUC.
- New: The CPU can transfer configured host or domain names to DHCP servers coupled with DNS servers for dynamic alignment (dynamic DNS).
- New: The CPU's NTP client can address NTP servers by name.
- New: New "CommConfig" instruction allows network parameters to be written or read, such as IP suite, DNS server, host and domain name.

#### **Requirement: TIA Portal V17, CPU FW V2.9**

## **System functions**

### **Security Wizard for new PLC Security Mechanisms**



#### **Security Wizard**

- The new Security Mechanisms are activated by default (Security-by-Default) in new PLC Firmware versions.
- When inserting a new CPU (S7-1500 FW v2.9, S7-1200 FW v4.5) a new Security Wizard appears automatically to configure the security mechanisms.
- Following configuration is done via the Security Wizard:
  - Protection of confidential PLC configuration data
  - Mode for secure PG/PC and HMI Communication
  - PLC Access Protection
- The Security Wizard can also be called again later from the Hardware Configuration.

#### **Benefits**

- Quick and easy configuration of the new PLC Security mechanisms in a single process step
- Supporting information to select suitable settings for own use case

## Agenda for news in V17

- Which optional packages is released ?
- Teasers about news in the V17
- Extended Library features
- New editors coming up with V17 Cause Effect Matrix
- I Device new features
- Faster safety implementation and new features also with the 1500 R/H/HF family
- New features with OPC UA both for S7-1200 and S7-1500
- Security is and integrated feature for the SIMATIC systems
- Software as Perpetual and Subscription
- Extended Grace period for all TIA-portal engineering tools
- Coming up next time



## TIA Portal Cloud – Top highlights at a glance

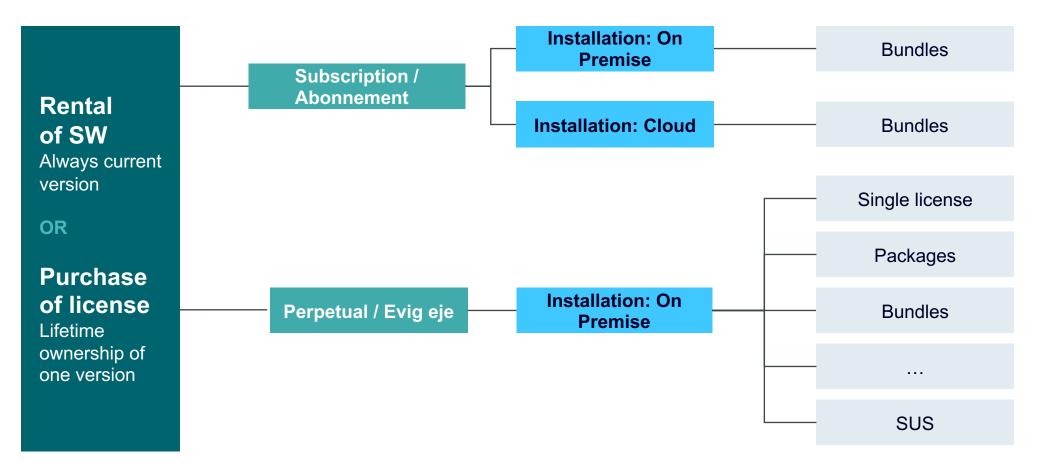
Your gateway to automation in the Digital Enterprise



### SIEMENS

### **TIA Portal V17**

### New payment and licensing models





### **Subscription available for TIA Portal Cloud**

#### Package

STEP 7- WinCC- Safety- Basic

**STEP 7 Professional** 

WinCC Advanced / Unified

**Safety Advanced** 

**PLCSIM Advanced** 

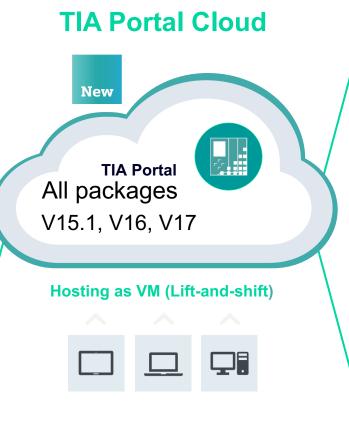
StartDrive Advanced

SINAMICS DCC

**Test Suite** 

SiVArc

**Energy Suite** 



www.siemens.com/tia-portal-cloud

### **New business model**

Subscription unlimited access

#### Subscription

Immediate access once required, 4 different sizes Basic, Engineering, Simulation and Full package

#### Freemium

Time limited offer to access TIA Portal Cloud for Basic Engineering with STEP 7 Basic, STEP 7 Safety Basic and WinCC Basic

SIEMENS

# TIA Portal V17 Licenses and Grace Period Offer

Exclusive SUS offer, valid until 2021/08/31



## **TIA Portal V17 Grace Period Offer**

Exclusive SUS offer for TIA Portal products valid until 2021/08/31

<b>TIA Portal Engineering</b>	<b>TIA Portal Eng. Options</b>
STEP 7 Professional	STEP 7 Safety Advanced
STEP 7 Professional COMBO	STEP 7 Safety Basic
STEP 7 Basic	TIA Portal Multiuser Engineering
WinCC Basic	S7-PLCSIM Advanced
WinCC Comfort	SIMATIC Energy Suite
WinCC Advanced	TIA Portal Teamcenter Gateway
WinCC Professional	SIMATIC Visualization Architect
WinCC Unified	SINAMICS DCC Combo
SINAMICS Startdrive Advanced	

#### **TIA Portal Runtime**

SIMATIC WinCC RT Professional

SIMATIC WinCC Client for RT Prof.

#### Precondition

A valid license for version V16 of the SUS capable TIA Portal base product

### **Delivery** of the SUS download product

... earliest (after verification)



A new **first delivery** of the Certificate of Contract (CoC) via e-mail.

... and within 1 – 3 business days (after TIA Portal V17 delivery release)



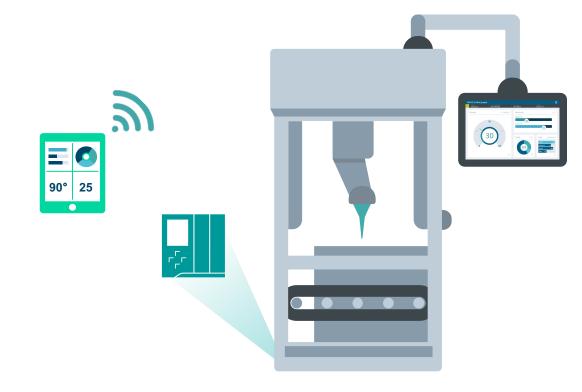
The **SUS delivery** (download link) with TIA Portal V17 upgrade via e-mail

# Kontakt

Michael Nielsen michael.nielsen@siemens.com Ole Dyval ole.dyval@siemens.com



# Basic informations for the field test and the service cases, without programming



#### **HMI Panel**

Standard Visualisation for the controlling of the machine for the end-user. Include every thing that you need for a 24/7 use (ie. Alarms and logging).

### View of Things (VoT)

Gives the possibility to inplement simple visualisation directly on the Controller. Can be service and KPI values shown on a Smart solution via the browser. This is fully programmed via WinCC Unified and works autonomic also for the S7-1500.

### Næste webinar

# WinCC Unified V17 - nyheder

Flere brugere, enkel opbygning af websider og større fleksibilitet

Fredag den 25. juni kl. 11.00 www.siemens.dk/di-webinarer



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NYHEDSBREVE TIL INDUSTRIEN UDKOMMER 8-10 GANGE OM ÅRET

Industry Information News TIPS OG TRICKS PÅ YOUTUBE

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