Velkommen til Siemens Webinar: TIA Portal V 16

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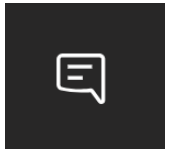
- **Velkommen vi begynner ca : 12.05**

- **Vi tar opptak av presentasjonen (kun selve presentasjonen). Blir delt senere**

- **Full-skjerm:**

- **Vi tar gjerne spørsmål i chatten og vi går gjennom disse til slutt.**



Håkon Nilssen
Salesspecialist TIA Portal

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Softwarepakker og utgaver

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SIMATIC STEP 7

*) S7-300/400/1500

Programmeringsspråk

LAD, FBD, SCL, STL*, S7-GRAPH*

- S7-1500 (F/T/S) — Professional
- S7-400 (F) — Professional
- S7-300 (F/T) — Basic
- S7-1200 (F) — Basic

SIMATIC WinCC

Maskinnivå/Lokal HMI

SCADA applikasjoner

- SCADA Server/klient — Professional
- PC basert énbruker — Advanced
- Comfort paneler — Comfort
- Basic paneler — Basic

SINAMICS Startdrive

Integrasjon av drives i TIA Portal

- Testing av sikkerhetsfunksjoner — Advanced
- G120, G130, G150 S120, S150 — Basic
- V90 — Integr.

SIRIUS Simocode ES

Integrasjon av motor-håndtering i TIA Portal

SIMOTION Scout

Integrasjon av Simotion i TIA Portal

...

Kommunikasjon	PROFIBUS, PROFINET, AS-i, IO-Link, ET 200, IPC, nettverkstopologi
Delte funksjoner	Systemdiagnose, felles tagdatabase og kryssreferanse, uniform utseende på editorer
Opsjoner	Multiuser, Energy Suite, ProDiag

System functions
Project upgrade

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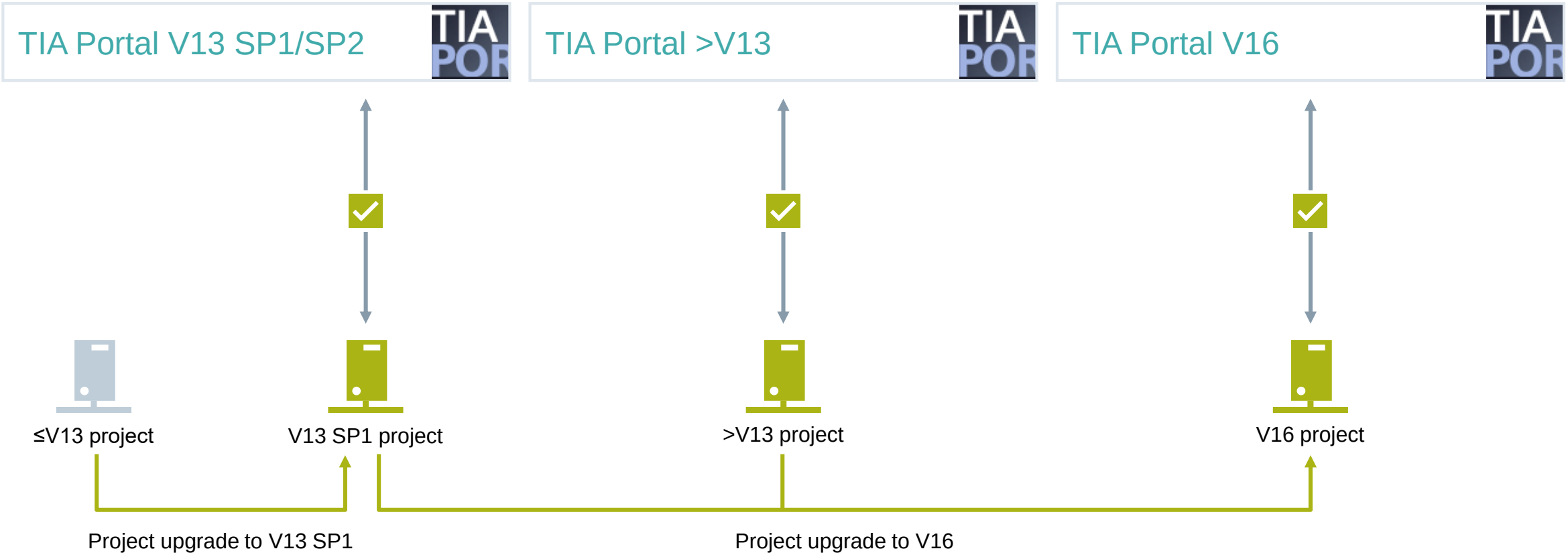

Side-by-side installation of V13 SP1/SP2 up to V16 allows access to all project versions.
The V16 license can be used for all available versions from V11.

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System functions
Spare parts compatibility S7-1500 and ET 200 CPUs – FW 2.8 with older TIA Portal versions

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TIA Portal V12/V13/V14/V15/V15.1

V12 project with FW 1.0/1.1

Firmware V2.8

V13/V13 SP1 project with FW 1.5/1.6/1.7/1.8

Firmware V2.8

V14/V14 SP1 project with FW 2.0/2.1

Firmware V2.8

V15/V15.1 project with FW 2.5/FW 2.6

Firmware V2.8

Full spare part functionality: Online support: ID 109744163

TIA Portal V16

V16 project with FW 2.8

Firmware V2.8

New functions can be used with TIA Portal V16 and firmware V2.8

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PLCSIM Advanced as basis for software in the loop

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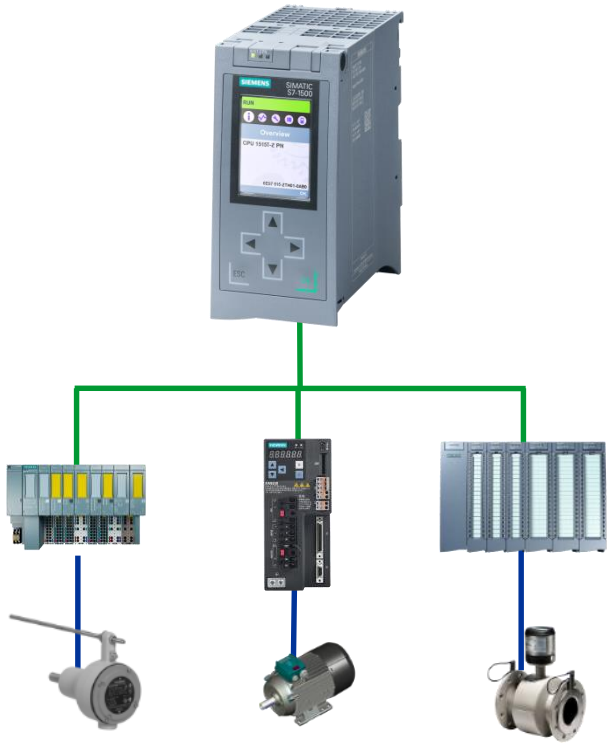
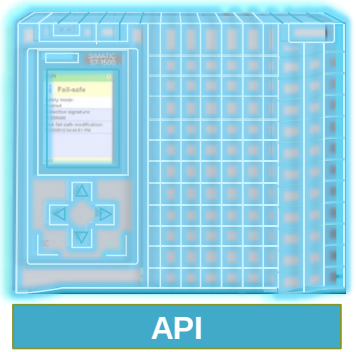
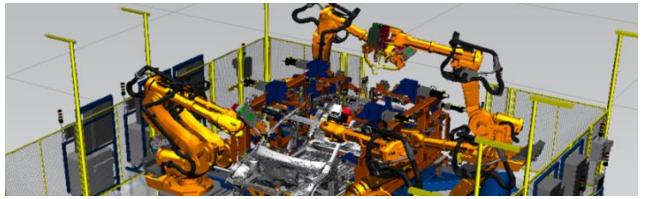
	Real world	Virtual world
Controller	**S7-1500 hardware controller**	PLCSIM Advanced **Virtual S7-1500 controller**
Process		 API Co-simulation 

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TIA Portal Openness Introduction

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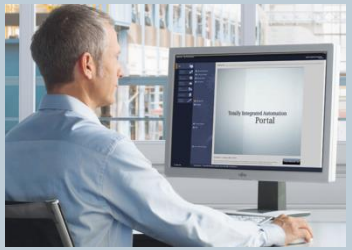
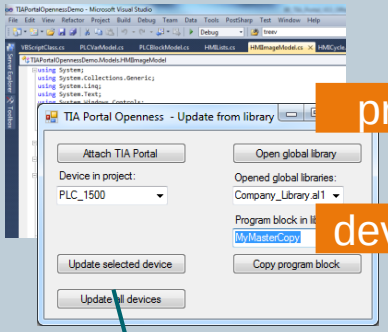
Manual operation of TIA Portal



Automatic execution of actions

Visual Studio



project.Open()

device.Compile()

TIA Portal Openness

Public API

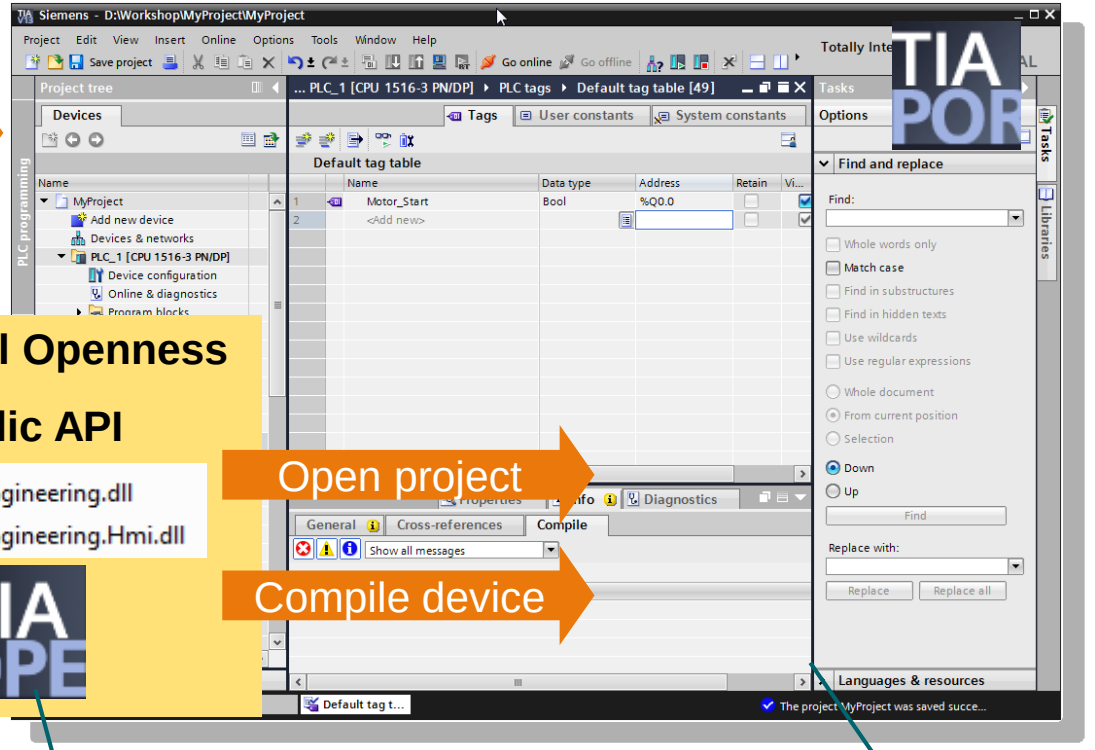
Siemens.Engineering.dll

Siemens.Engineering.Hmi.dll

TIA OPE

Open project

Compile device



Creation of applications with required functionality with Microsoft Visual Studio

TIA Portal Openness uses DLLs to provide access to objects and functions of TIA Portal

TIA Portal is controlled remotely by the application through Openness

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STEP 7 - Innovations
Improve basic workflows for Software Units

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Function

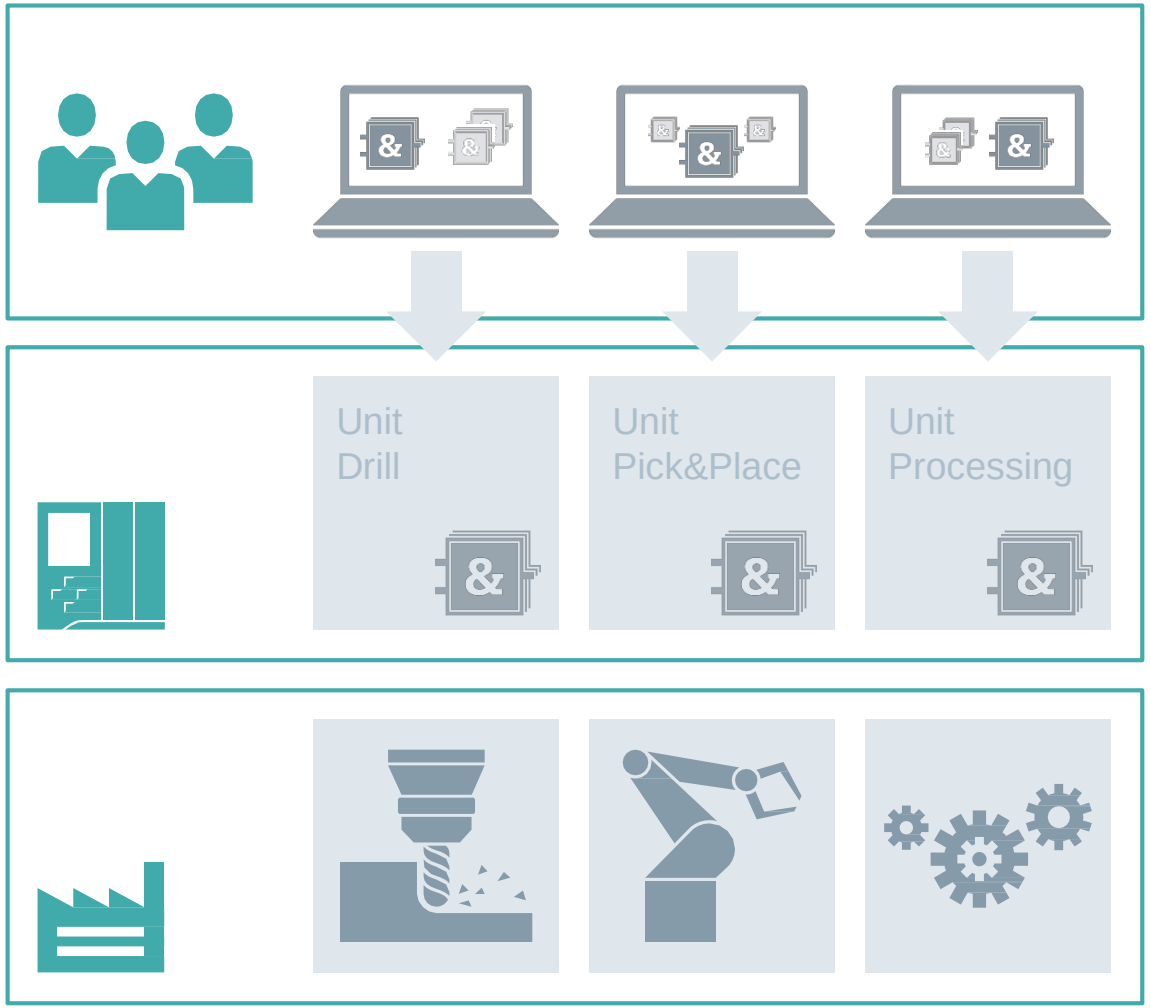
S7-1500 ✓ | S7-1200 ✗ | S7-300/400/WinAC ✗

- Free splitting of the program into software units
- Separate loading of the software units into the PLC
- Defined interfaces between the software units
- Purely optimized programming and data storage
- **Full Openness support for Software Units**
- **Import/Export of SCL source files to Software Units**
- **Access PLC tags of another Unit from within a Unit**

New in V16

Benefits

- Complete project generation based on Openness and SCL source files with external tools
- Common usage of PLC tags and constants from different units



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TIA Portal – System manual

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Industry Online Support International | Language | Contact | Help | Support Request

Home > Product Support

Entry type: **Manual** Entry ID: **109773506**, Entry date: **11/20/2019**

★★★★½ (2)
Rate

SIMATIC STEP 7 Basic/Professional V16 and SIMATIC WinCC V16

Entry | Associated product(s)

Edition: 11/2019

System Manual

Show and configure
Download (123280 KB)

- https://support.industry.siemens.com/cs/document/109773506/simatic-step-7-basic-professional-v16-and-simatic-wincc-v16?dti=0&lc=en-WW

Using software units (S7-1500) 6

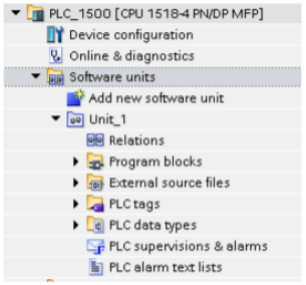
6.1 Basics on software units (S7-1500)

6.1.1 Introduction to software units (S7-1500)

Programming with software units

With the help of software units, you can subdivide your user program into individual program units, which you can edit and download independent of each other. For this purpose a new "Software Units" folder is provided in the project tree in which you can create and program your software units.

The following figure shows the "Software units" folder in the project tree:



Each software unit contains the following main elements:

- Relations: By means of the relational table, you can set up access from your software unit to the following objects:

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STEP 7 - Innovations
Detailed block compare for project ⇔ library

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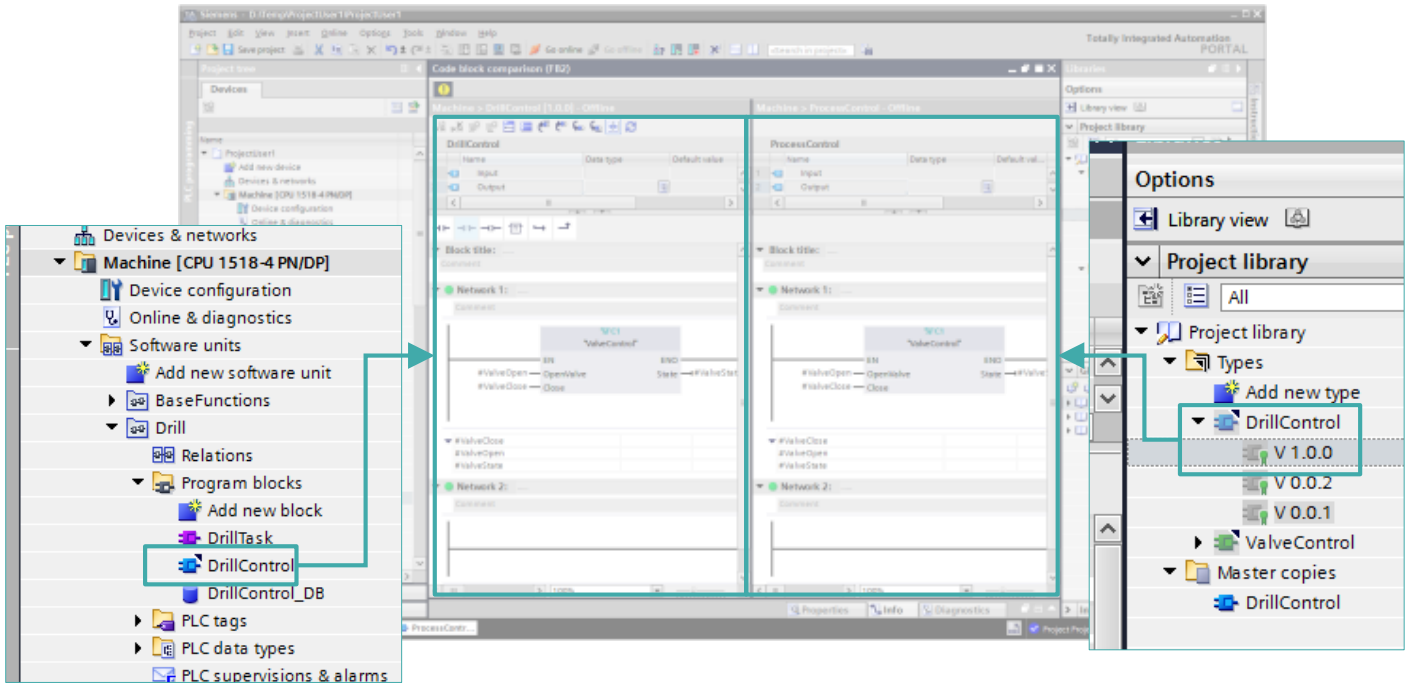
Function

- Detailed block compare for blocks from a project and
  - Mastercopies (project or global library)
  - Single versions of Types (from project or global library)
  - Via Quick Compare or High-Level Compare Editor
- Detailed block compare between library blocks (e.g. V1.0 vs V2.0)



Benefit

- Easier handling of blocks in libraries
- Better usability for tracking changes between type versions

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Comparing PLC programs 20

20.1 Basic information on comparing PLC programs

20.1.1 Introduction to comparing PLC programs

Function

You can compare the following objects of a PLC program in order to detect any differences:

- Code blocks with other code blocks
- Data blocks with other data blocks
- PLC tags of a PLC tag table with the PLC tags of another PLC tag table
- PLC data types with other PLC data types

Comparison of tags takes place over tag names.

Types and levels of comparison

Two different basic types of comparison can be used:

- Compare offline/online
  The objects in the project are compared with the objects of the corresponding online device. An online connection to the device is necessary for this comparison.
- Offline/offline comparison
  With offline/offline comparison, you can compare the objects of two devices in the project that is currently open. A device from a reference project or from a library can also be dragged onto the right drop area. You can only compare devices within a TIA Portal instance.

Note that you cannot carry out an unlimited number of comparisons at the same time, but only one comparison per comparison type (offline/online or offline/offline).

STEP 7 – Innovations
Project Trace

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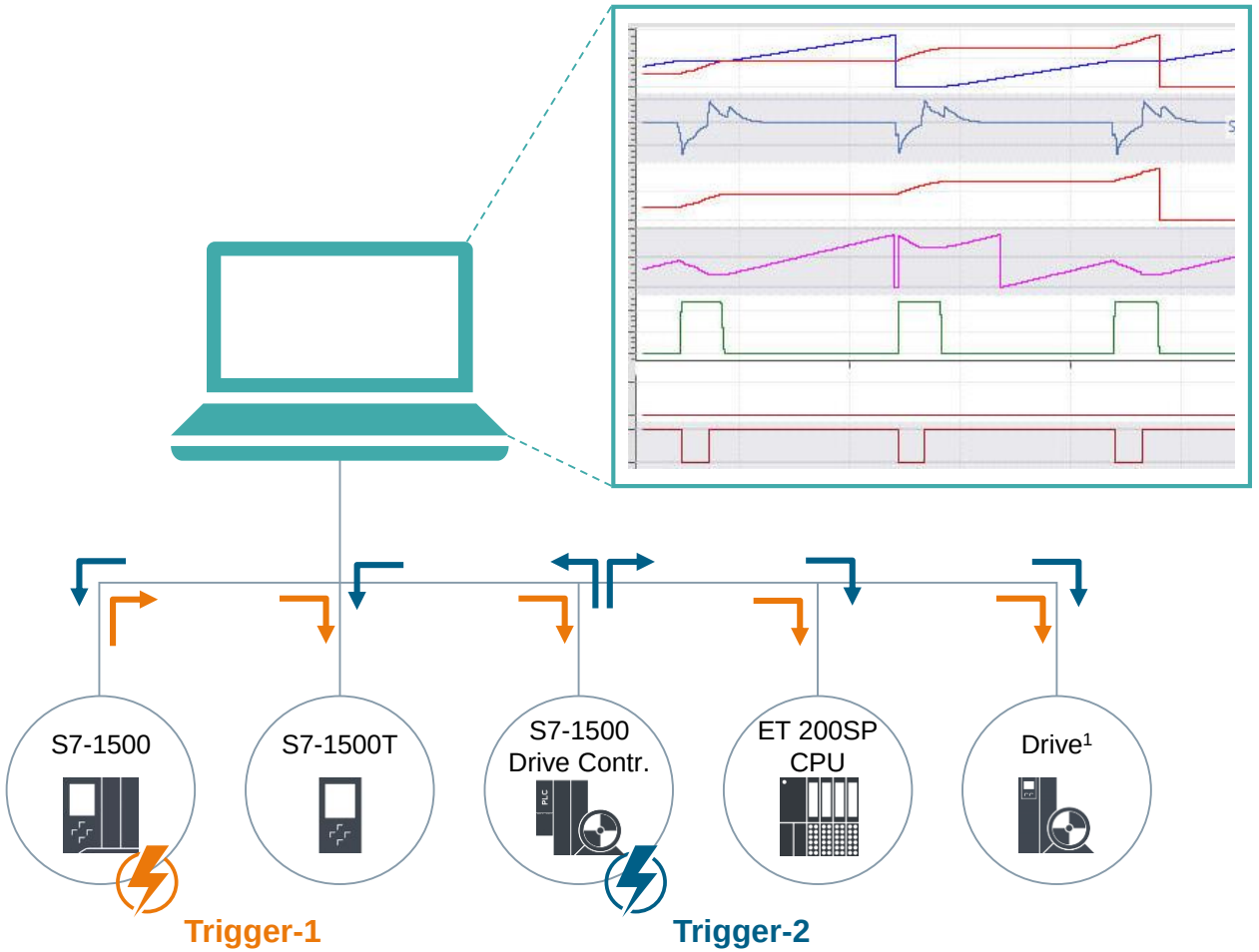
Function

- Coordination of traces in several devices
  - Supports multiple CPUs
  - Supports a wide range of device types
- Display in a common diagram
- Alternative trigger sources possible

Customer benefits

- Cross-device troubleshooting
  - Extensive trigger options
  - Simple combination of related traces



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1 Planned for > TIA Portal V16

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TIA Portal – Project trace

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Requirements

The following requirements must be fulfilled for recording with project trace:

- PROFINET RT or IRT communication
- All devices are located in a PROFINET subnet (no routing)
- To transfer the project trace to the devices, an online connection from the TIA portal to all devices.
- The "Record immediately" trigger mode may be configured for a maximum of one device.
- A trigger must be configured for at least one device.

6.1.5.2 Time synchronization

The accuracy of the time synchronization depends on how the trace sample event is determined. Isochronous communication provides the highest accuracy, because the IRT cycle is used. In all other cases, the clock time of the controller is used.

A project trace can contain devices with RT and IRT communication.

For a synchronous display of the signals, the X axis must be set in "Time (relative)" mode. In this representation, the measurements are arranged in time so that their trigger events are at 0 ms.

To facilitate the evaluation with absolute time, synchronize the clock times of the devices.

Information on the trace sample event can be found in the device-specific descriptions, e.g. for S7-1200/1500 CPU (Page 116) under "Recording levels".

Trigger time for RT communication

Devices which receive the trigger from another device, have a time-delayed trigger event. For RT communication, the time of a trigger event is derived from the transfer time and the recording time. The trigger event is first detected at the end of the recording OB and uses this time as the trigger time. The time delay between the original trigger time and the evaluation in the OB cannot be determined for RT communication. This means the signal trends of devices which receive the trigger from another device appear moved forward. After saving the measurements, you can manually correct these signals with a time offset.

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TIA Portal – Project trace

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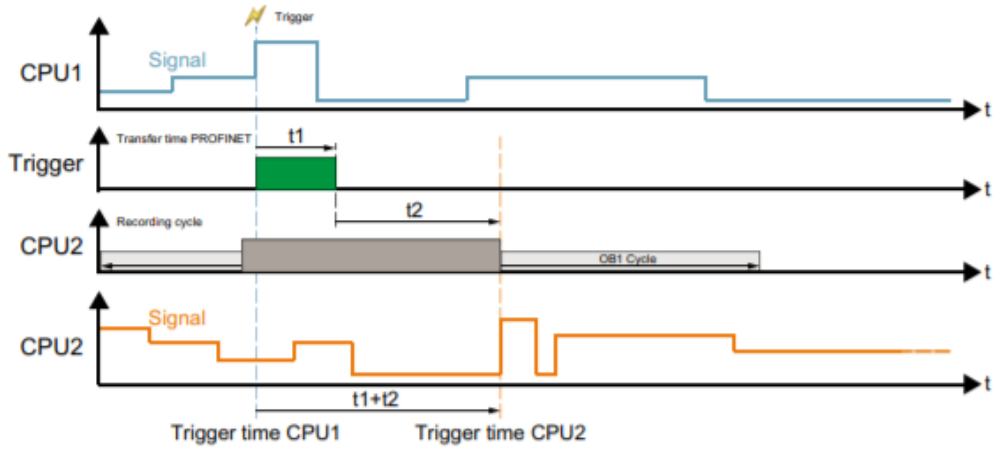
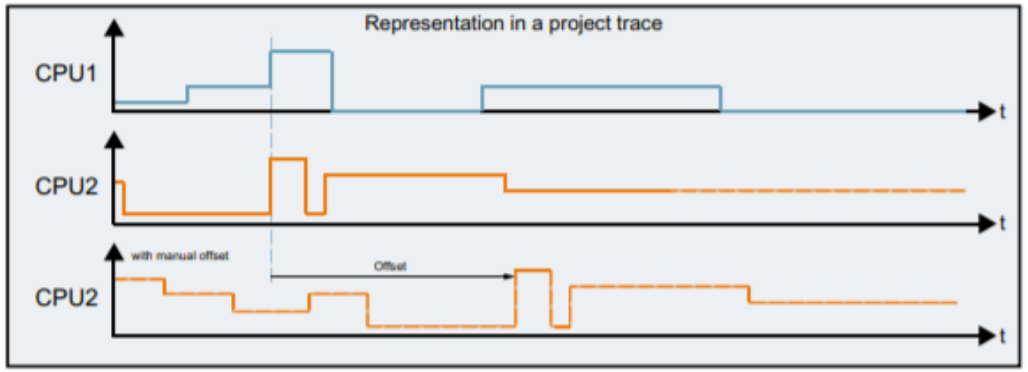
Example of a recording with project trace

The figure below shows a recording with project trace and the correction of the representation with an offset.





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New functions in S7-PLCSIM V16
Cycle control

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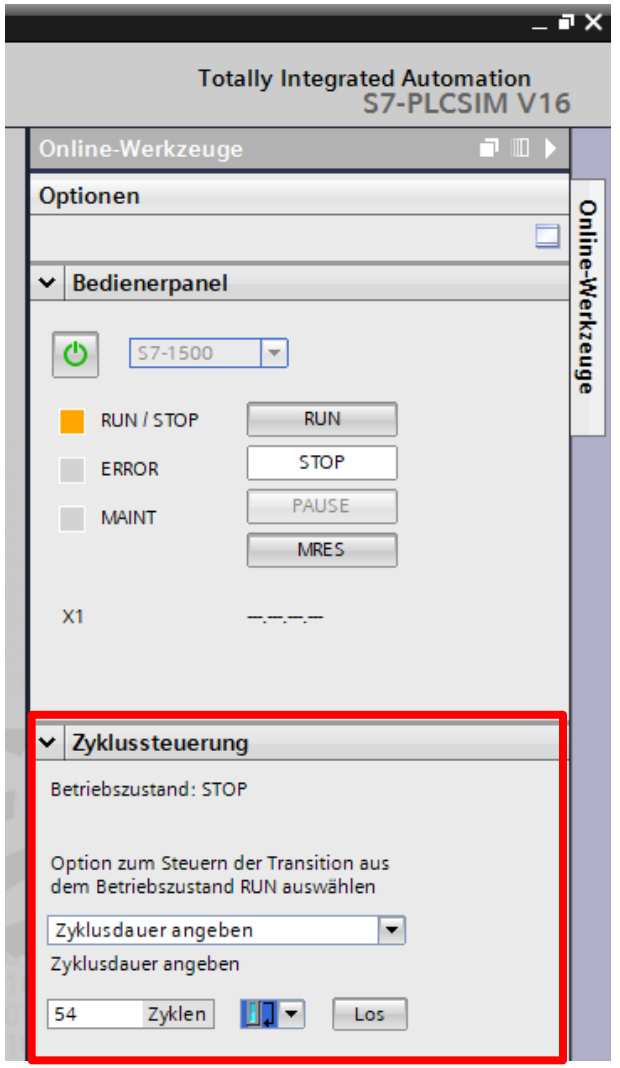
Function

In order to improve the applicability of PLCSIM while testing the PLC programs, the functionality has been extended to include Cycle control.



In the options below the operator panels the following modes can be set via the new section "Scan Control".

Pause allows the cycle to stop

- For analyzing process values at a selectable time

Specify simulation duration (image)

- Observing the program behavior in slow motion. At least one cycle is always running through.
- The following can be set: number of cycles or running time in ms./ sec./ min.

Pause after execution of the startup OB

- To analyze and verify the OB startup behavior, the program is stopped after its execution.

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New functions in S7-PLCSIM V16
Event Simulation

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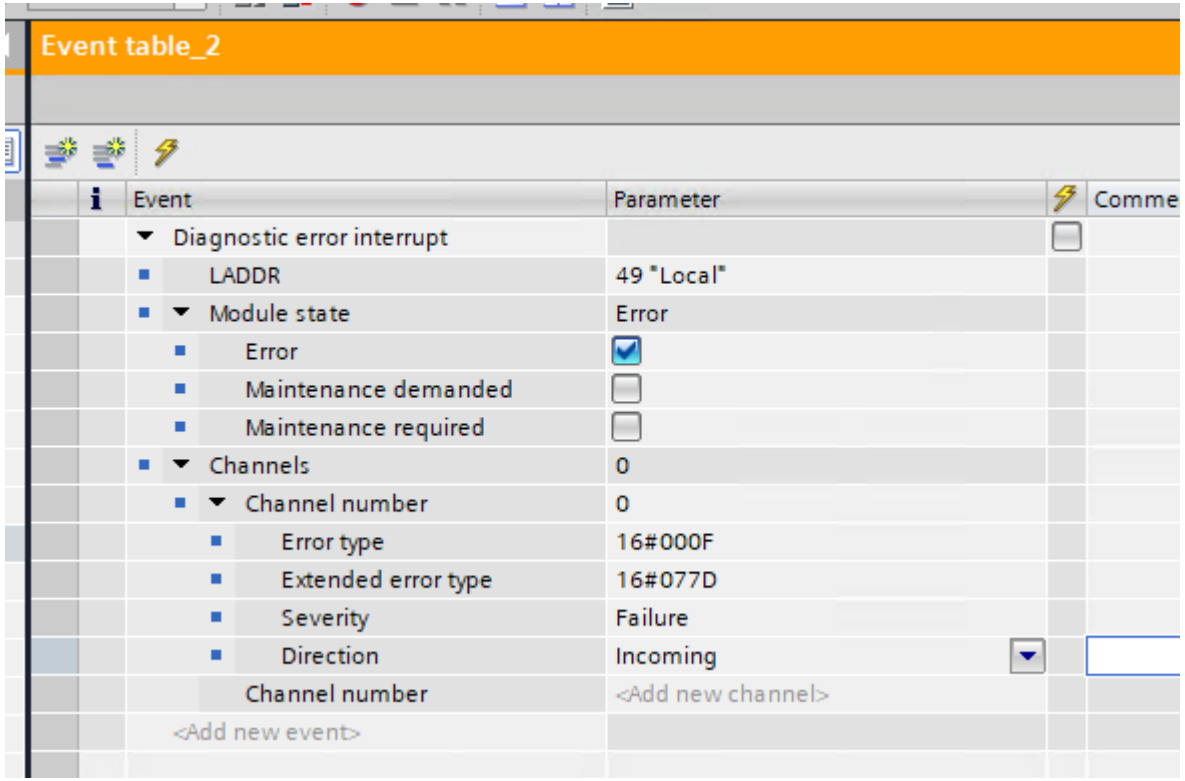
Function

In S7-PLCSIM an event table is now available. With its help events of the following OBs can be simulated.

- Hardware alarm (OB 4x)
- Diagnostic error alarm (OB 82)
- Pulling or plugging the module (OB 83)
- Rack or station failure (OB 86)

You can create new event tables or access existing ones via the project tree in the project view.



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New functions in S7-PLCSIM V16
Automatic creation of simulation tables

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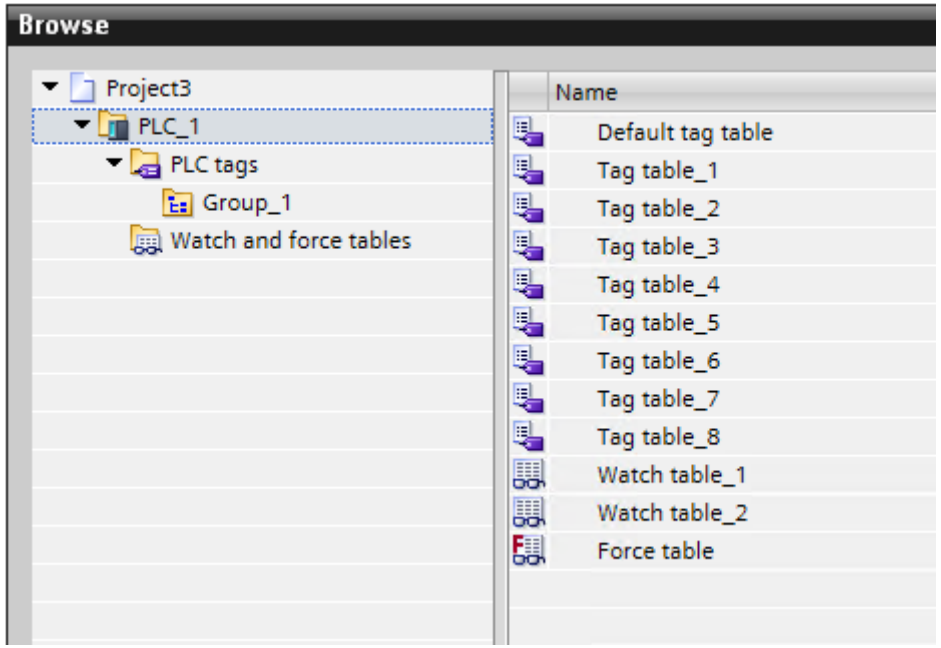
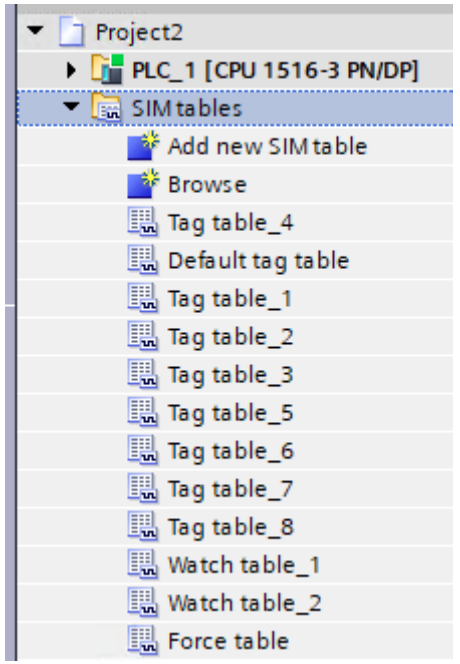
Function

The transfer of filled tag and watch tables from the TIA Portal has been improved.

It is now possible to import labels / observation control tables from the TIA project into the PLCSIM project using TIA Openness.





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System functions
TIA Portal Language Packs

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Extension of the user interface languages

New

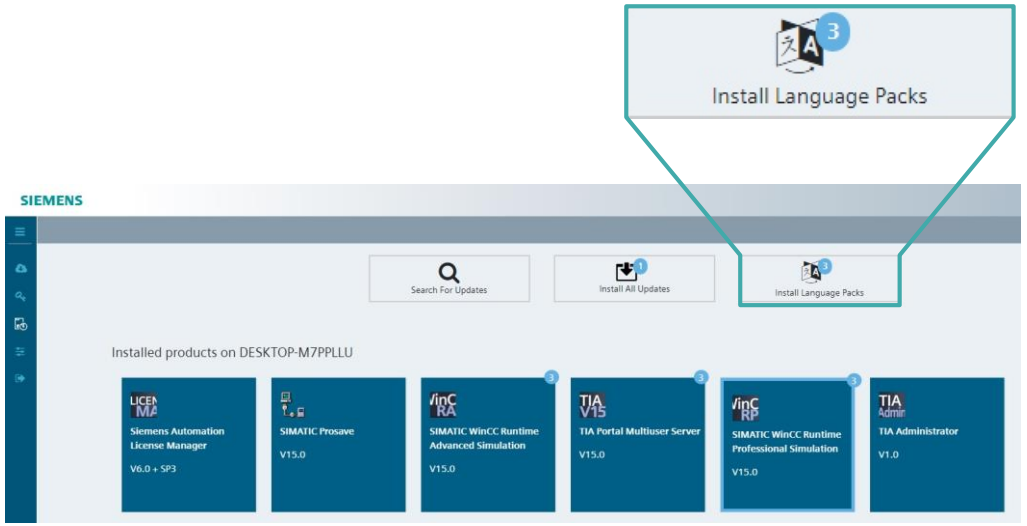
The following
user interface languages are additionally available centrally in
the TIA Portal as of version 16 (STEP 7, WinCC)

- Japanese[1]
- Korean[1]
- Russian[1]

Integrated languages

The languages
DE, EN, ES, FR, IT, CH
are still made available directly for the installation.

Provision of the language packs in the same way as updates or support packages



1 Without online help

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System functions
TIA Portal Support Gateway

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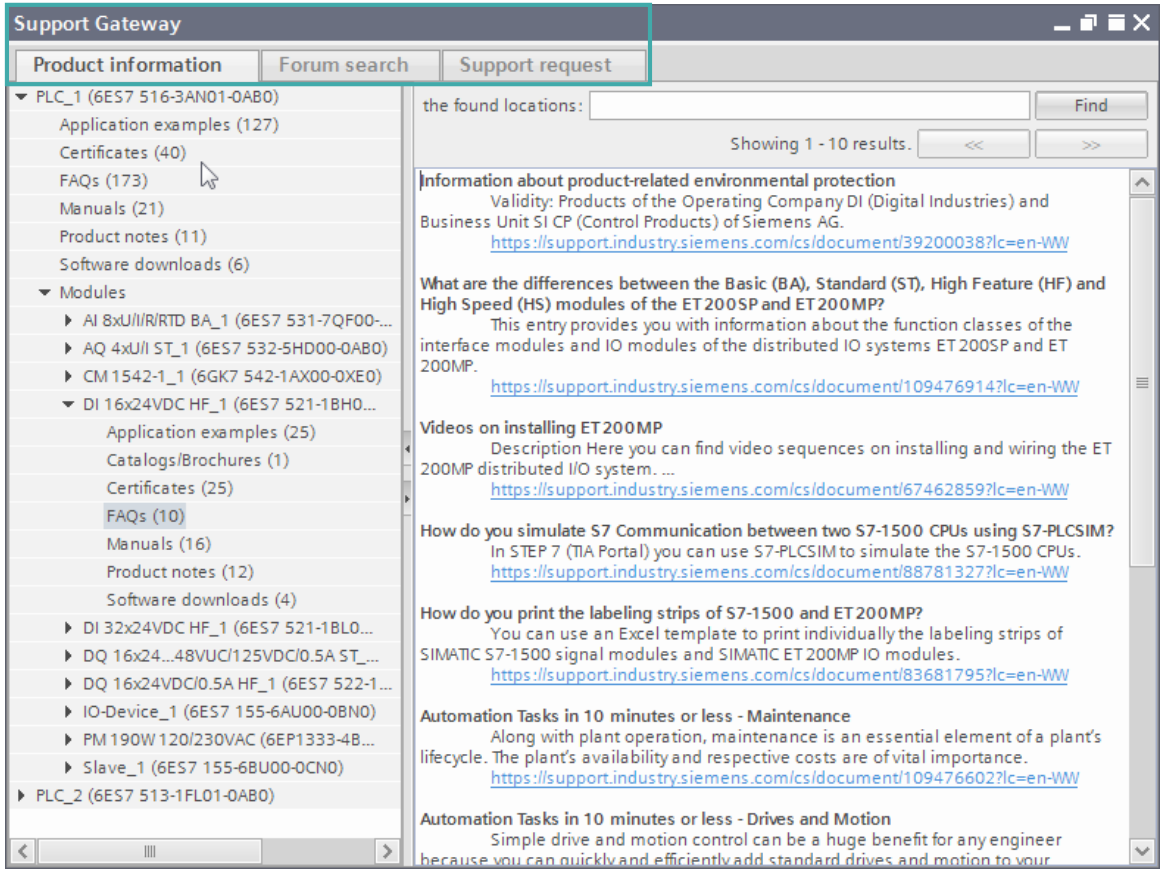
Overview

New

- The TIA Portal Support Gateway is the integrated connection of the Siemens Industry Online Support (SIOS) pages to the TIA Portal
- The Support Gateway includes the following functions:
  - Forum search
  - Product search
  - Generation of support requests

Benefits

- Seamless integration of SIOS added value functions into the TIA Portal
- Know-how management without change of media
- Simple and fast forum search
- Pre-filtered product search based on the components contained in the TIA Portal
- Generation of a support request file with the key computer and TIA Portal data



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System functions
Autostart function for projects and editors

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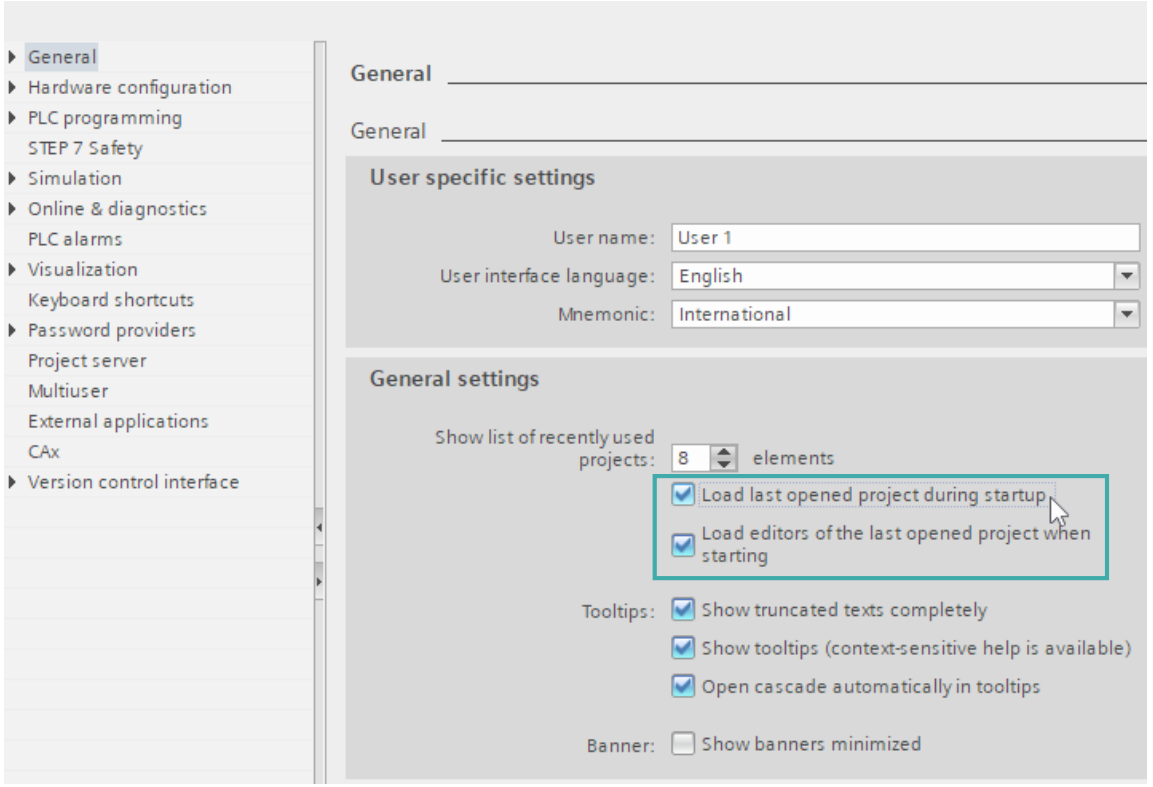
Function

New

- The last used TIA Portal projects are restored on start-up of the TIA Portal
- Optionally, the last used editors and their content can also be restored

Advantage

- The editing of a TIA Portal project can be continued in the same development environment after a restart of the TIA Portal. The last opened TIA Portal project is automatically opened again and the editors that were open when the TIA Portal project was closed are restored with the last edited objects



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System functions
TIA Portal logs and reference projects

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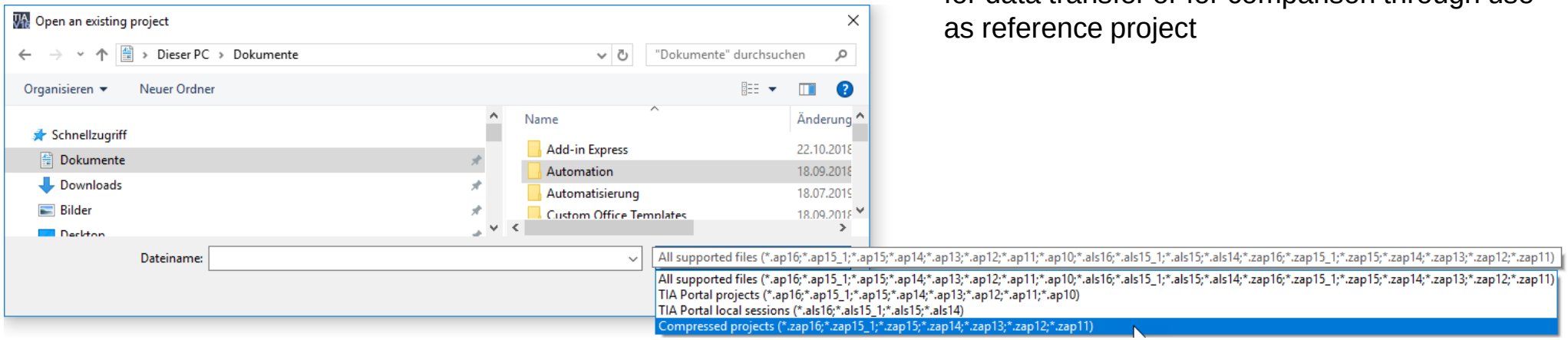
Function

- TIA Portal logs can now be retrieved via the "Open project" dialog. Note: The menu item "Retrieve" has been removed
- Using TIA Portal logs as a reference project
- Locally saved multiuser and exclusive sessions can be used as reference project

Advantage

- All project use functions can be accessed via a dialog (open and retrieve)
- Simple use of TIA Portal project logs as reference project with a mouse click
  - Logs to be displayed are opened temporarily and displayed as a reference project
  - Once the reference project function is complete, the temporary data is deleted.
- Extended functions for Multiuser and Exclusive Sessions for data transfer or for comparison through use as reference project



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Systemfunktionen
VCI – Interface for external version management

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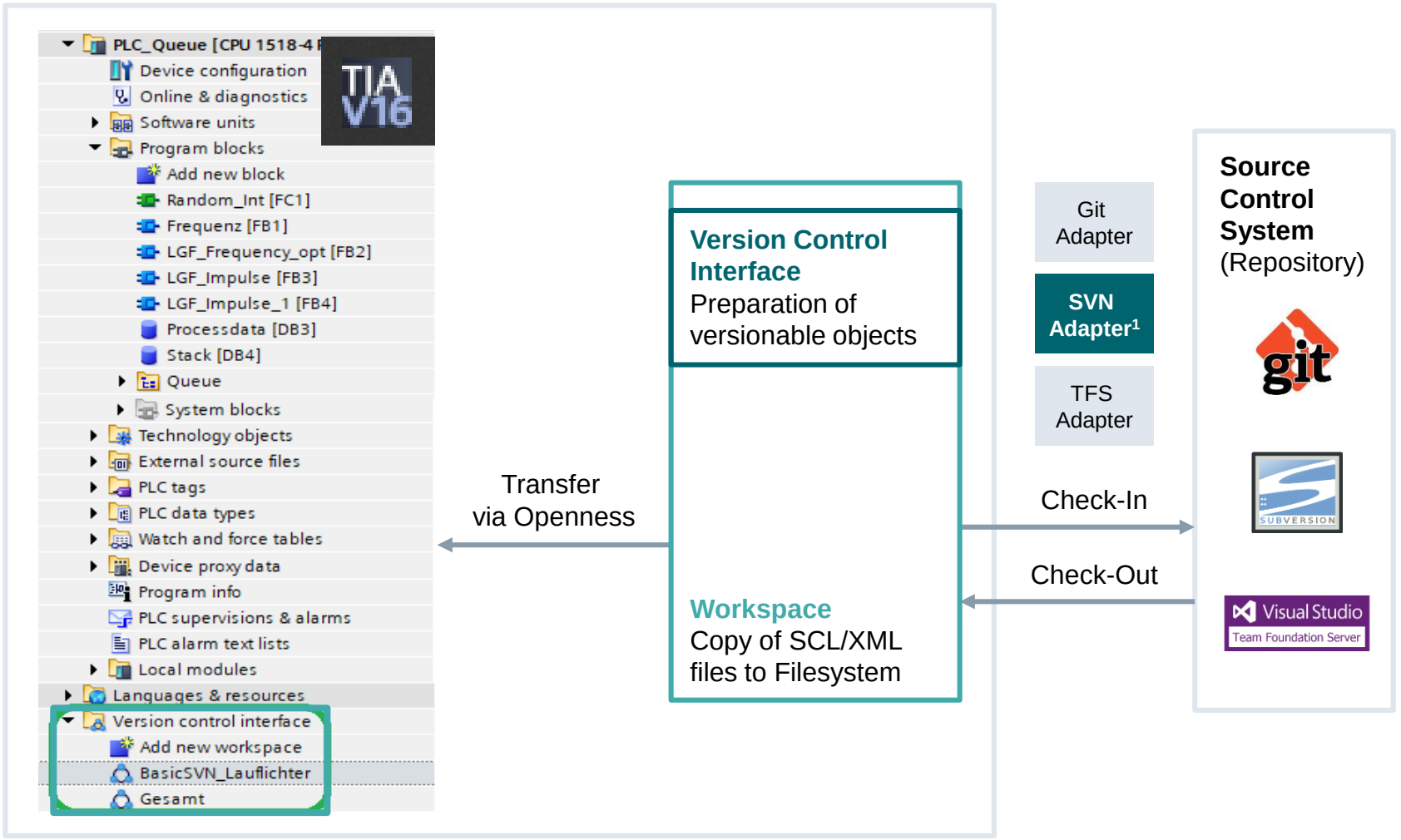
Functionality

Ex-/Import of program objects
- Blocks
- User data types
- Tagtables

Compare
- Objectstatus (equal/unequal)
- Detailed Block compare

Interfaces for
- External compare tool
- Userscripts

Openness Interface
- API with VCI operations
- Without User-Interface



TIA

1 Samplescripts available

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Systemfunktionen
TIA Portal Add-Ins

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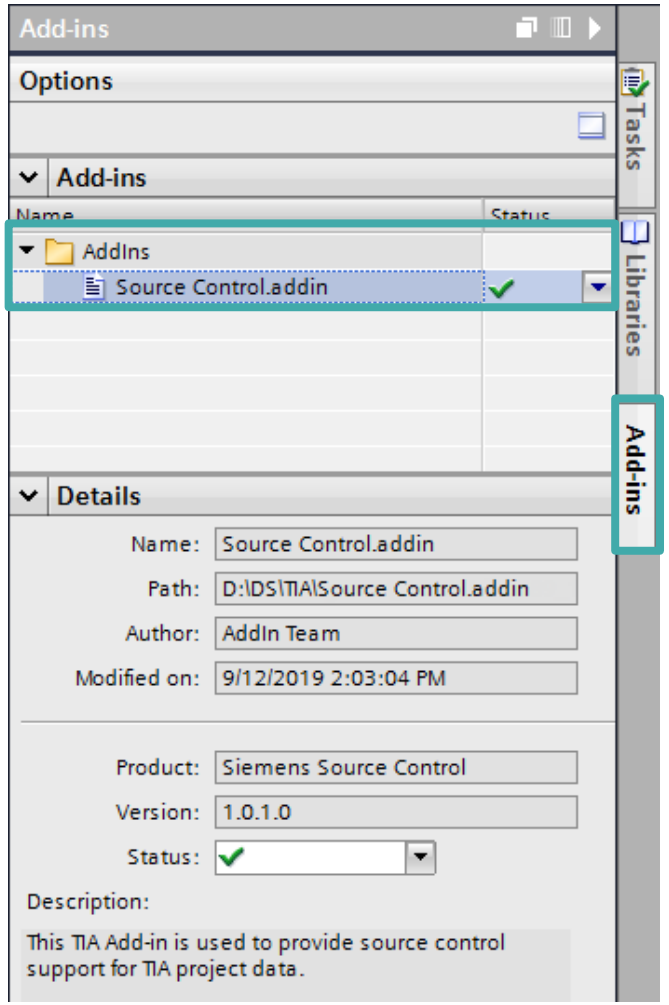
Overview

- Add-Ins offer a convenient way to enrich TIA functionality using the Openness API
- Add-Ins are written as .NET programs
- Add-Ins can be easily shared within a company and even distributed to third-party vendors

Installation

- Add-Ins can be easily installed by copying the .add-in file into the “Add-Ins/” folder in the TIA Portal installation directory
- Add-Ins can be activated or deactivated in the Add-Ins task card (by default Add-Ins are deactivated)
- Additional information about the Add-In like the author, description or the required permissions are also shown in the Add-Ins task card



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TIA Portal –
Neste episode(r)

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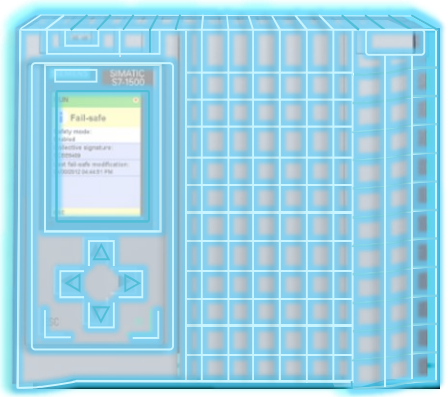
- Nyttige nyheter innen SCL
- Multiuser – prosjektserver (exclusive session)
- OPC UA
- Diagnose
- PLCSIM Advanced
- Simulering med SIMIT og NX MCD
- Prodiag
- Safety

- TIA Test suite
- TIA Stylguide checker
- mm



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Takk for oppmerksomheten

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