TIA Portal V18 – Highlights

November 2022

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TIA Portal
Highlights of TIA Portal V18

WinCC Unified – Innovations
- Improved screen engineering
- Enhanced standardization (Faceplate and Library)
- Extended Openness in ES and in RT
- System diagnostics Matric View and Process Diagnostics
- Runtime ready for new operation concepts
- Improved Plant Intelligence Options

WinCC – Innovations
- WinCC Advanced: no new RT Advanced V18 Version
- WinCC Professional: WebUX, WebNavigator extensions

STEP 7 – Innovations
- Namespaces for Software Units
- Failsafe program in Software Units
- LongTerm Trace

SIMATIC Motion Control - Innovations
- CPU 1511T/TF / 1515T/TF: more memory and performance
- ET 200SP Technology CPU 1514SP T/TF-2 PN
- Functional enhancements Motion Control & Drive Controller
- Advanced Programming with TO references
- Kinematic functions up to 6 interpolating axes

Startdrive – Innovations
- Support of linear motors for CU3x0-2 based drives
- FFT analysis for CU3x0-2 based drives
- Support of station upload for SIMATIC F-PLCs

SIMATIC AX (Automation Xpansion)
- Use standard libraries created with SIMATIC AX inside TIA Portal projects (TIAX use case)

TIA Portal Cloud & Cloud Connector
- Overview of new functions
- Online functionality via TIA Portal Cloud Connector

SIMATIC Hardware
- Hardware Innovation for S7-1500 / ET 200SP CPUs 1510SP to 1516
- New ET 200SP 1514SP(F)-2 PN CPU
- S7-1200 Highlight FW4.6 (Work memory enhancement)
- PROFINET System Redundancy R1 for S7-1500H and ET 200SP
- Flexible Network Architectures for S7-1500H
- Long Distance H-Sync for S7-1500H
- Improvements for Multiuser Online ("Who is online")
- Improvements for Hardware Offline/Offline Compare

System functions
- TIA Portal Openness: API extensions
- UMAC: username enhancement
- UMAC: support of multiple UMC domains
- Security Logging in TIA Portal
- Library: Compare, new library editor, Multiuser
- Station Upload Enhancements
- TIA Portal Add-Ins
- TIA Portal Version Control Interface
- TIA Portal CAx: AutomationML Exchange

TIA Portal Options
- **STEP 7 Safety**
  Consistent Fast Commissioning Download, Failsafe Software Unit, Openness-extensions
- **SIMATIC Safe Kinematics**
- **Multiuser**
  - Grouping, access management, independent release of Project Server
- **OPC UA**
  S7-1500: server diagnostics, source timestamp, increased quantity structures, reference namespace mapping
- **S7-PLCSIM/ S7-PLCSIM Advanced**
  New User Interface / Multiadapter Mode, API supports String
- **SIMATIC Target for Simulink**
  External Mode for LiveTwin, Download in RUN, Multiuser support
- **Test Suite**
  System Test via OPC UA, New properties for style guide rules
- **SiVArc**
  Support of WinCC Unified, new expressions, usability enhancements
- **Energy Suite**
  Support of WinCC Unified, Base Load Mangement, Support of Software / Open Controller
- **Central User Management (UMC)**
- **Modular Application Creator**
- **ProDiag**
  New controls for WinCC Unified PC based Runtime
  S7-GRAPH Overview Control / PLC-Code View for S7-GRAPH
- **Teamcenter Gateway**
  Openness support for connect, save, search, lock and download workflows

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WinCC Unified V18
Highlights of V18

Standardization

Efficient Engineering

Automated Engineering

Diagnostics

Operational concepts

SIMATIC WinCC Unified V18

Audit & Reporting

RFID Login

Parameter control

Clients

Functional Extension

Energy Management

PM Addons

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New

WinCC Unified V18
Standardization – Hierarchical Faceplates

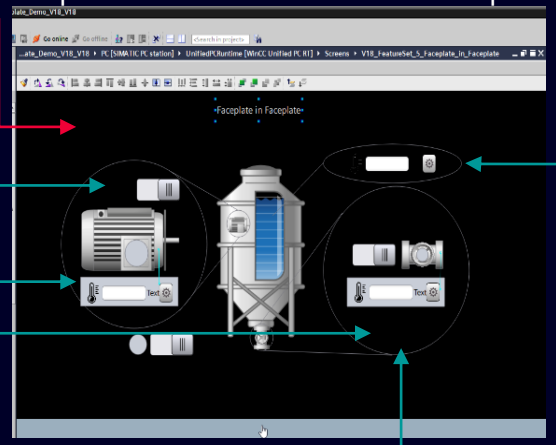
Unified Comfort Panel ✓ PC ✓

PLC UDT Structure “TANK”

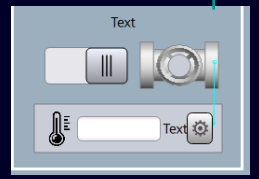
Tank

		Name	Data type
1		State	Bool
2		AKZ	String
3		Motor	"Motor"
4		State	Bool
5		Temp_Sensor	"Temperature_Sens..
6		State	Bool
7		AKZ	String
8		Temperature	Array[0..5] of Int
9		Ventil	"Ventil"
10		State	Bool
11		Temp_Sensor	"Temperature_Sens..
12		Temp_Sensor	"Temperature_Sens..
13		State	Bool
14		AKZ	String
15		Temperature	Array[0..5] of Int

Faceplate “TANK” with embedded Faceplates



Single Faceplates



Hierarchical Faceplates

- Engineering of Faceplate in Faceplates
- Automatically connected Sub UDTs
- Central change handling via library with dependency handling
- Use case successor for „Screen in Screen“

Design nested Unified Faceplates to realize a hierarchical visualization utilizing a Data-Binding to your PLC with just a few clicks.

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New

WinCC Unified V18
Standardization – Events and internal Tags for Faceplates

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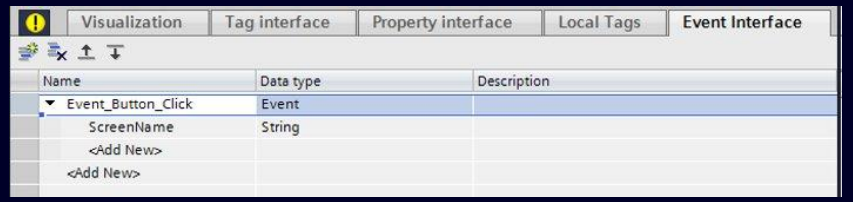

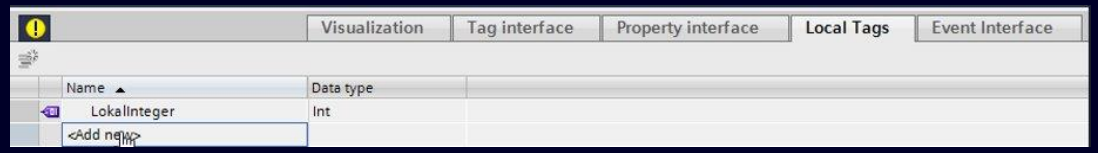

Event driven interaction

- Define Events for Faceplate types
- Use Events in Faceplates for Screen Item Events or in Scripts
- React on Events at Faceplate instances (e.g. change screen)
- Use parameters to transfer information with the events

Faceplate internal tags

- Faceplate instance specific tags
- Save data or calculations for a faceplate instance
- Use internal faceplate tags for dynamizations

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WinCC Unified V18
Standardization – Integrate complex controls

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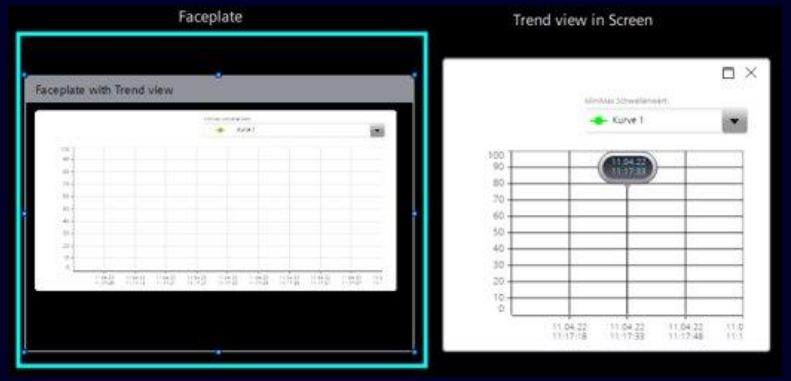

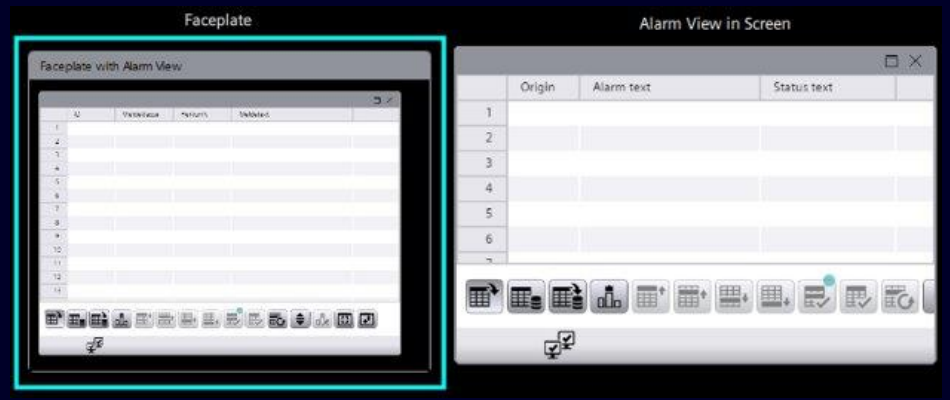

Trend view

- Show specific Online trends in Faceplates
- Show specific historical trends in Faceplates

Alarm view

- Show specific alarms in Faceplates
- Use „configuration string properties to define an „Alarm Filter“ for Faceplate instances

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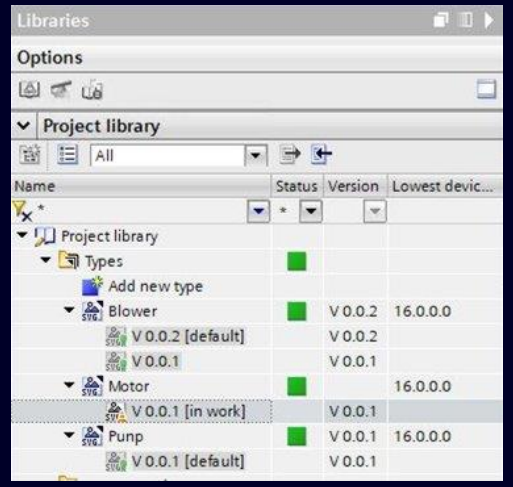
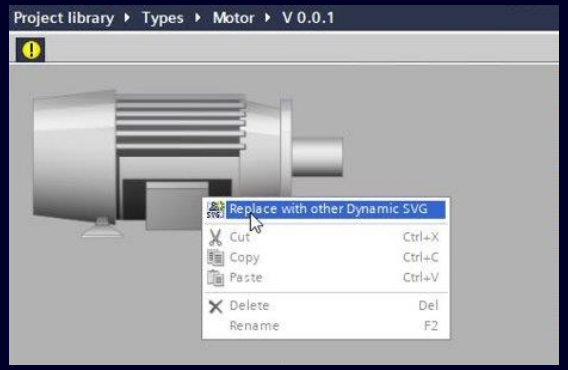
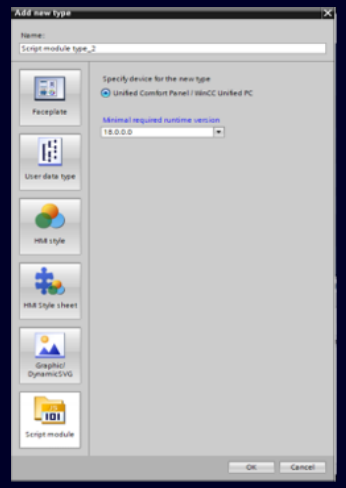
New

WinCC Unified V18
Standardization – New Library types

Unified Comfort Panel ✓ | PC ✓







Central handling of Dynamic SVGs via library

- Central change handling of Dynamic SVG via library
- Use Dynamic SVG types in the Project and Faceplates

Central handling of Script Modules via library

- Central change handling of Script Moduls via library
- Use Script Module types in the Project and Faceplates

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New

WinCC Unified V18
Efficient Engineering – Favorites for properties

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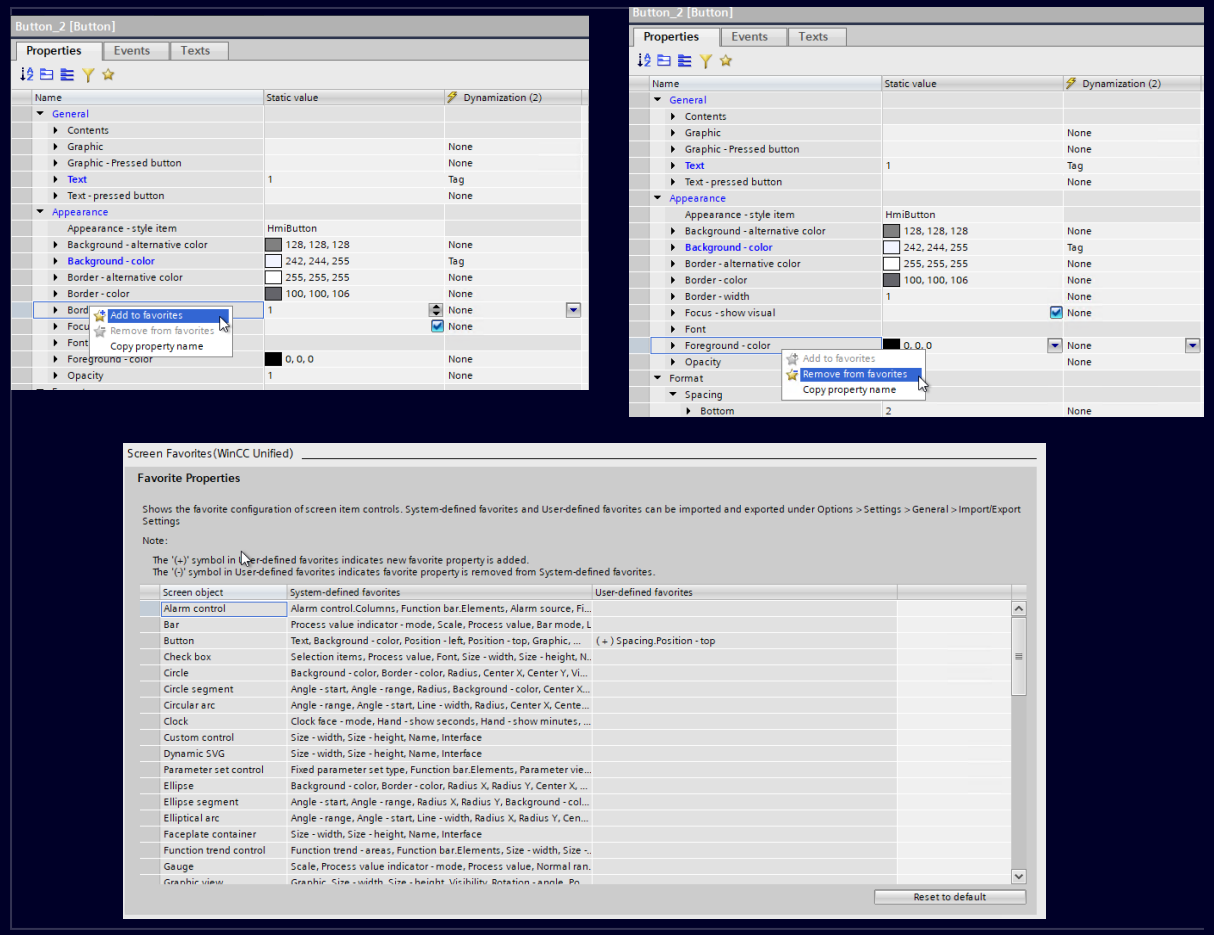

Favorites for screen / screen object properties

- Predefined set of favorites
- Add to / remove from favorites
- Favorite settings editor

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Efficient Engineering – Value converter with expressions

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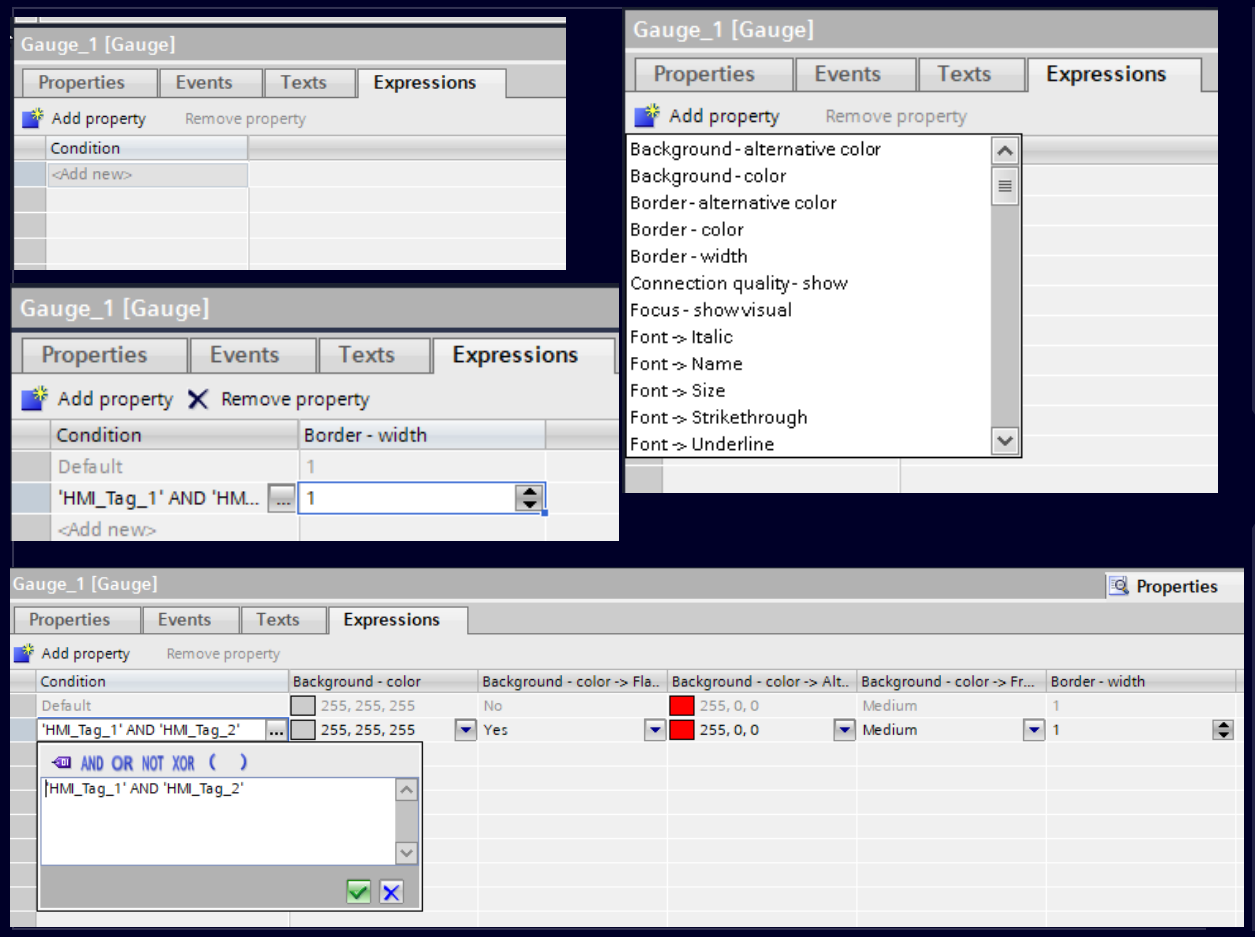

Value converter with expressions

- New Expressions tab
- Add / remove property
- Expression configuration

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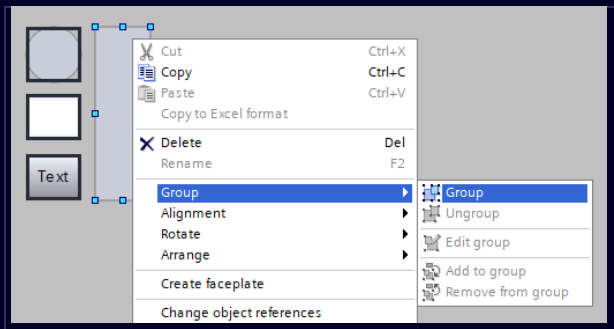
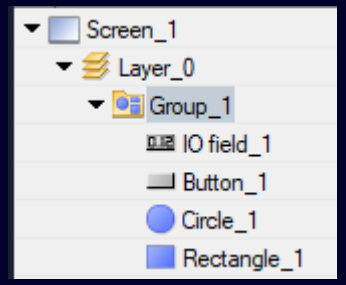
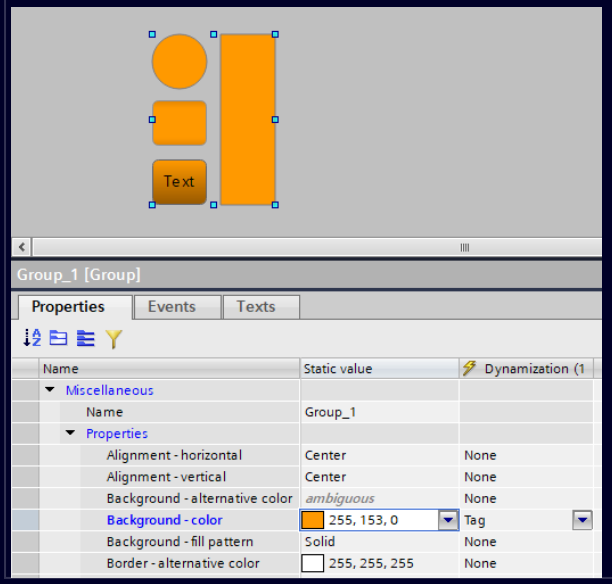
New

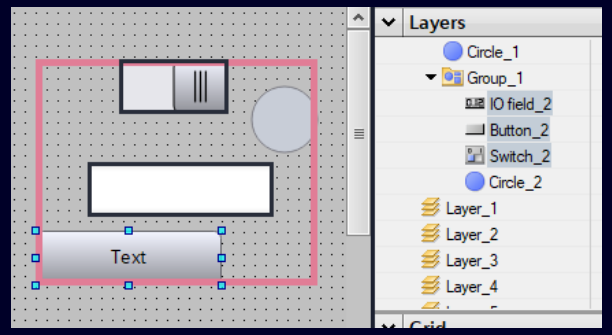
WinCC Unified V18
Efficient Engineering – Group screen objects

Unified Comfort Panel ✓ PC ✓









Group screen items

- Group selected items
- A group object is created
- Group in group
- Change static properties together
- Configure dynamic behavior
- Double click a group item to edit
- Group items inside a faceplate type
- Group faceplate instances with other items

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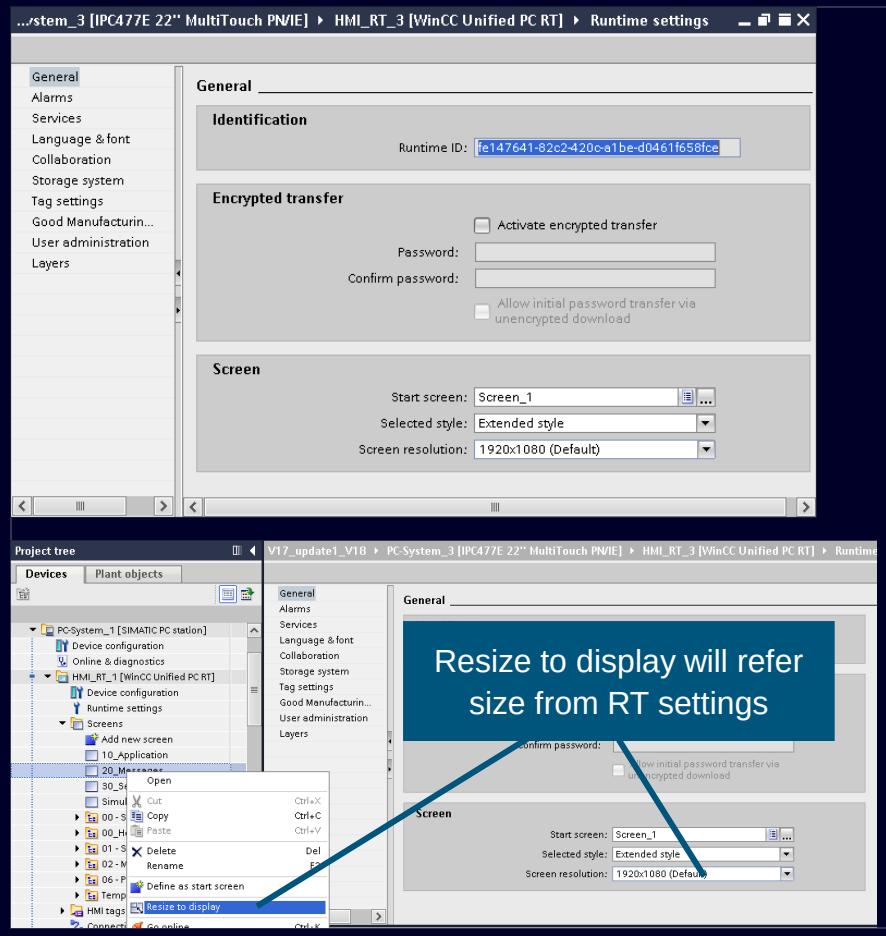
WinCC Unified V18
Efficient Engineering – Screen resolution and resize to display

Unified Comfort Panel ✓ PC ✓



Screen resolution

- Change default screen resolution in runtime settings
- Screen resolution be applicable only for newly created screens

Resize to Display

- Configure screen resolution from runtime settings
- Resize to display will refer size from RT settings

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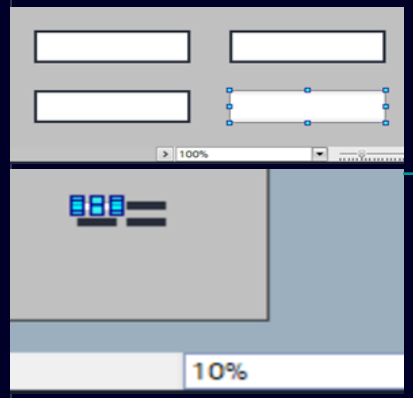
WinCC Unified V18

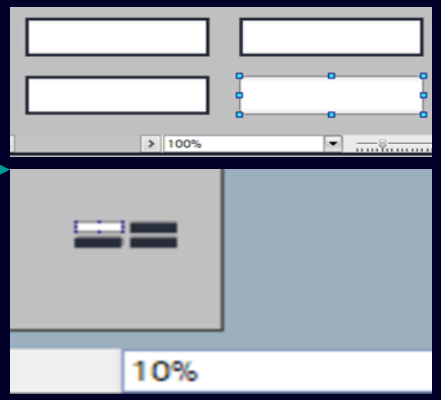
Efficient Engineering – Large screen support and handling of adaptive size

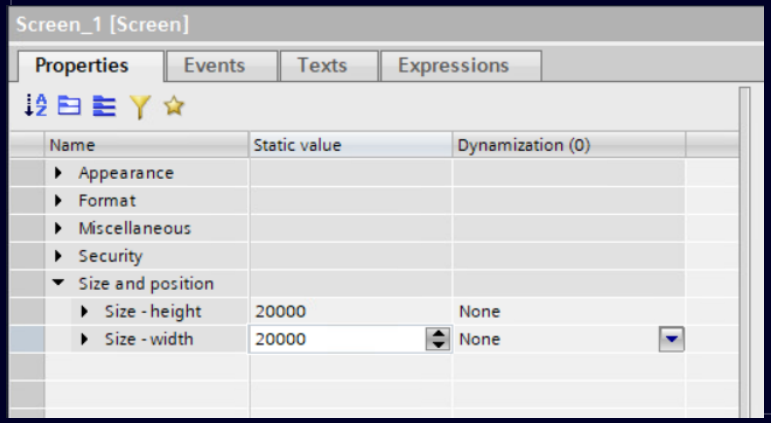
Unified Comfort Panel ✓ PC ✓

< V18



V18





Adaptive size of grab handles

- Size depends on the used zoom factor
  - For improved handling of large screens
  - With small zoom factor

Large screen support

- Size of screen is supported up to
  - 20.000 x 20.000 pixel

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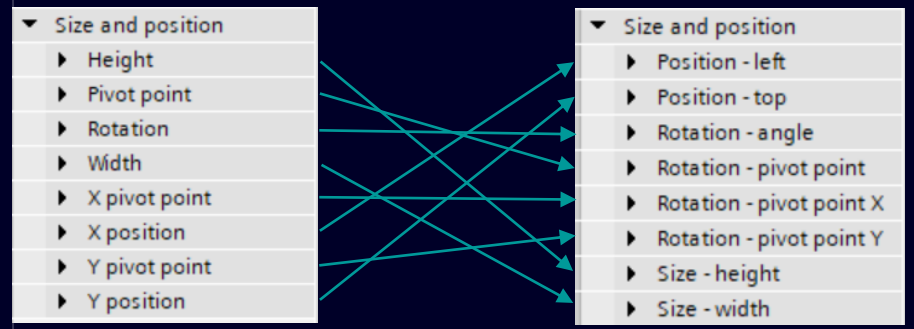
New

WinCC Unified V18

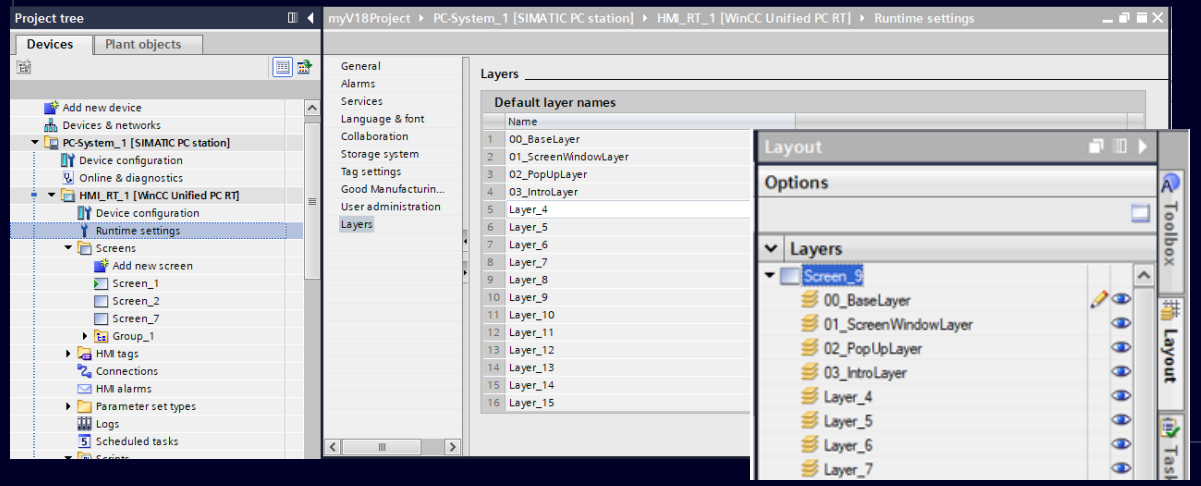
Efficient Engineering – Intuitive order of properties and renaming layers

Unified Comfort Panel ✓ PC ✓

< V18



V18



New order of properties

- Changed translation of properties
- Better grouping of related properties

Rename layers on device level

- Change default layer names in runtime settings
- Each screen will initially use the default layer names

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New

WinCC Unified V18
Efficient Engineering – Formatted texts

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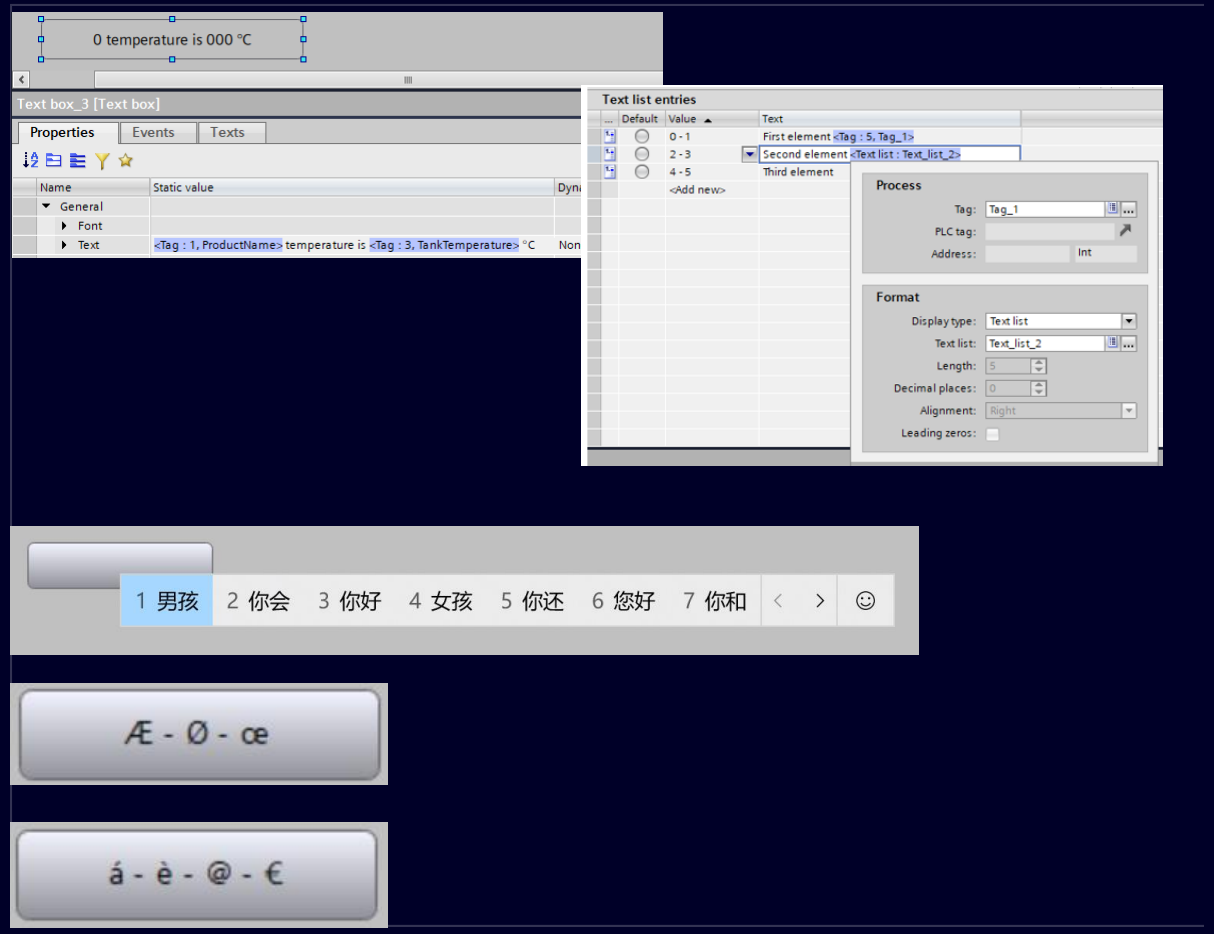

Formatted texts

- Insert parameter fields into text properties via tags
- Insert text lists as field info text properties
  - Screen object text
  - Text list entry

Direct text input

- Support of
  - Chinese
  - Unicode characters (e.g. Alt 0198)
  - Key combinations (e.g. „´ a“)

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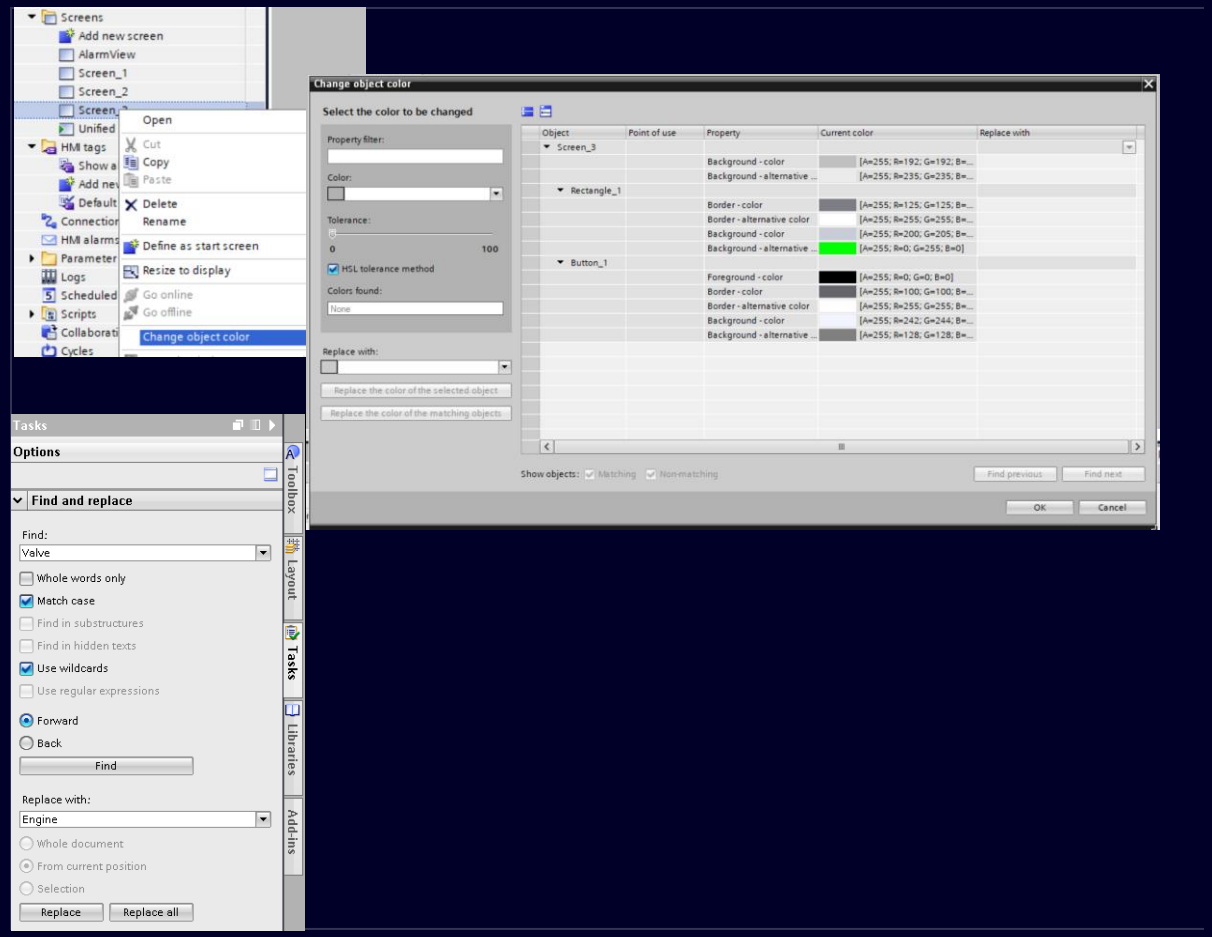
New

WinCC Unified V18
Efficient Engineering – Find and replace

Unified Comfort Panel ✓ PC ✓



Change object color

- Classic „Change object color“ dialogue
- Added filter possibility

Find and replace

- Affects all texts of the current editor (e.g. Screen)
  - No project wide use
- Use wildcards
  - * → for any number of characters
  - ? → to leave out a single character

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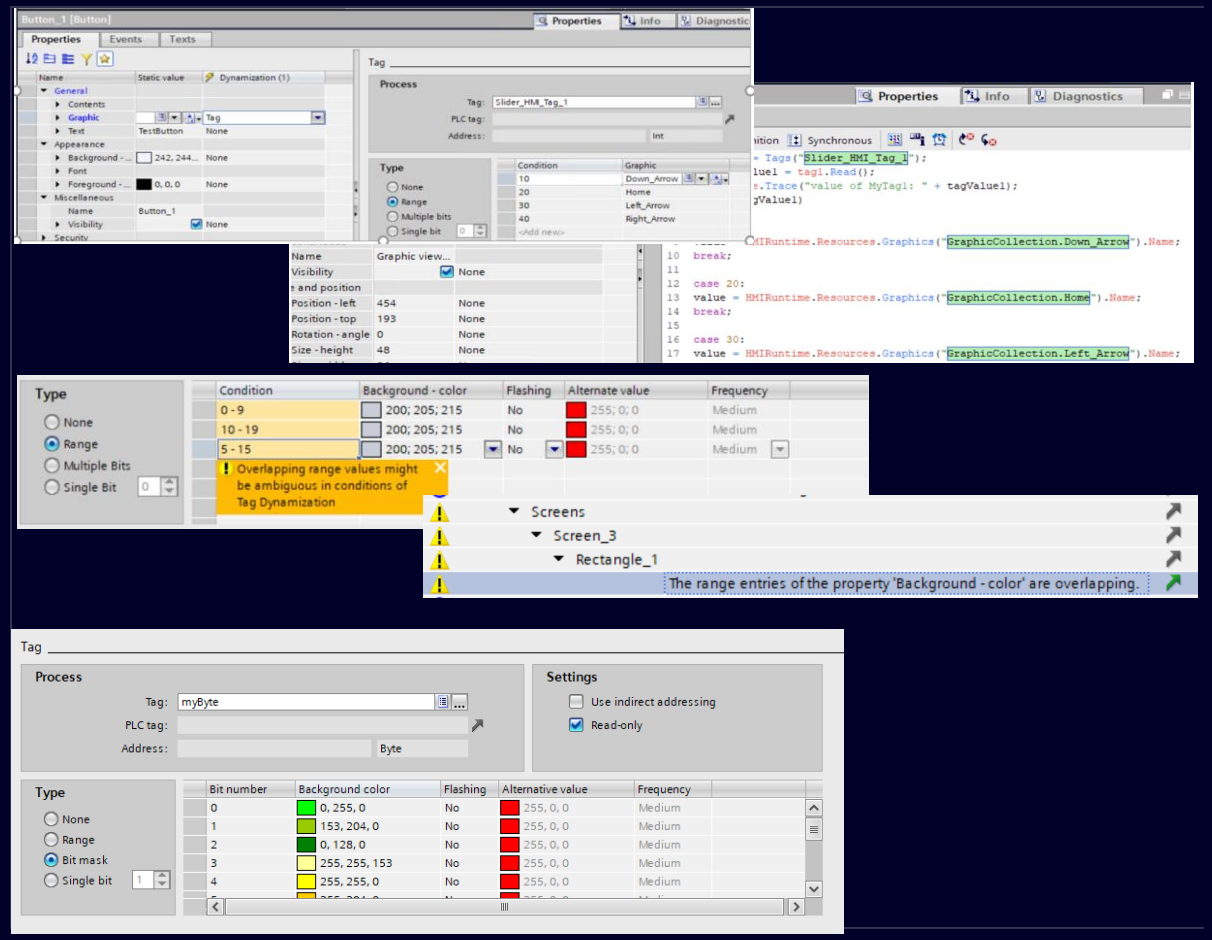
New

WinCC Unified V18
Efficient Engineering – Dynamization of screen objects

Unified Comfort Panel ✓ PC ✓



Dynamization of graphic of screen objects

- Graphic properties of screen objects can be dynamized
  - Tag
  - Script

Range overlapping

- Warning for range overlapping
  - Editor warning
  - Compiler warning

Bit mask dynamization

- Use bit mask to assign a property value to each bit of a tag for dynamization

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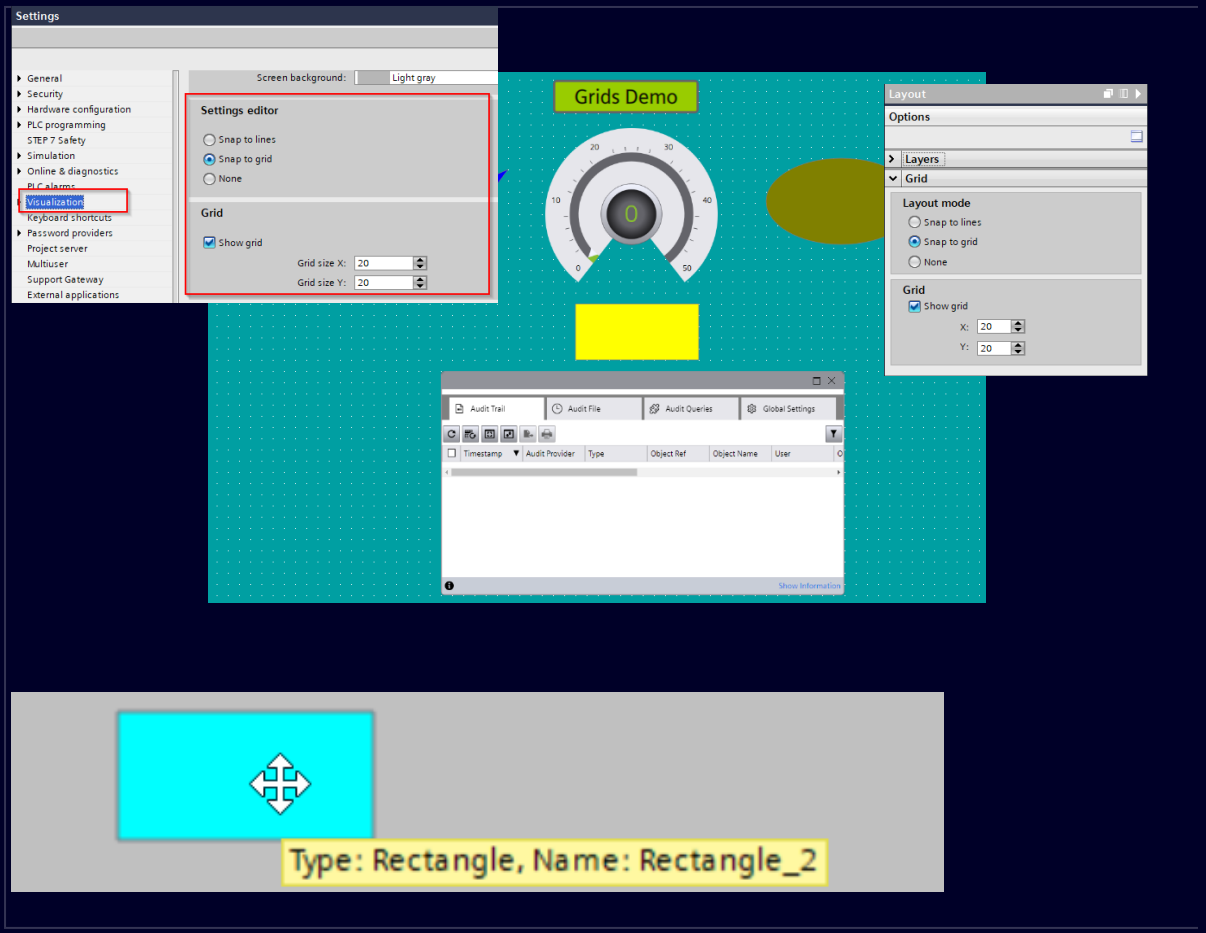
New

WinCC Unified V18
Efficient Engineering – Grid in screen editor

Unified Comfort Panel ✓ PC ✓



Grid in screen editor

- Snap to grid functionality
- Show / hide grid
- Settings available in
  - Options / Settings / Visualization
  - Layout tab (for easy access)

Tooltip

- Show type and name of screen object

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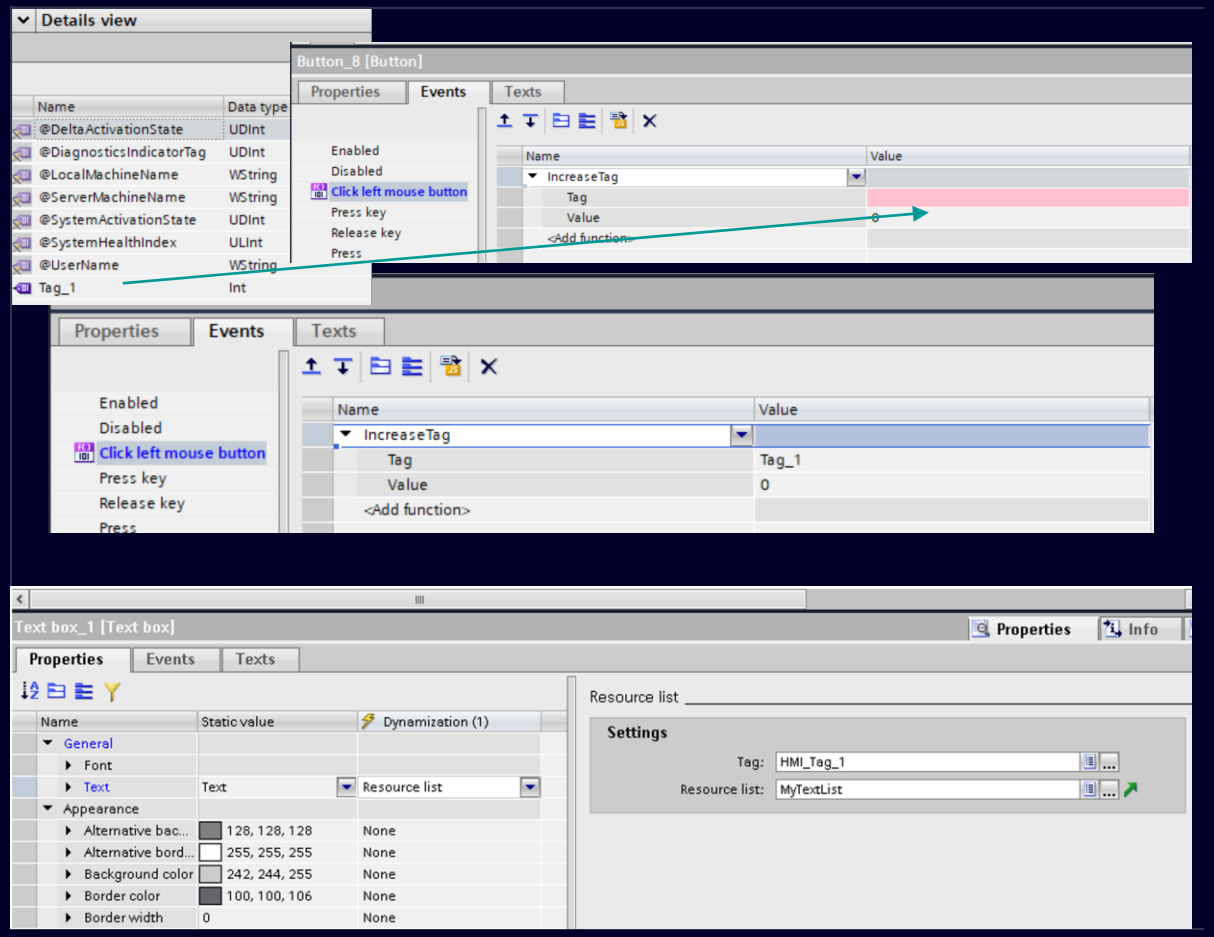
WinCC Unified V18
Efficient Engineering – handling of function and resource lists

Unified Comfort Panel ✓ PC ✓



Drag and Drop of objects into function list

- Drag & drop objects from PNV detail view
- Tags, screens, text/graphic lists

Jump to resource list

- Jump directly to the referenced resource list
- Textlist / Graphiclist

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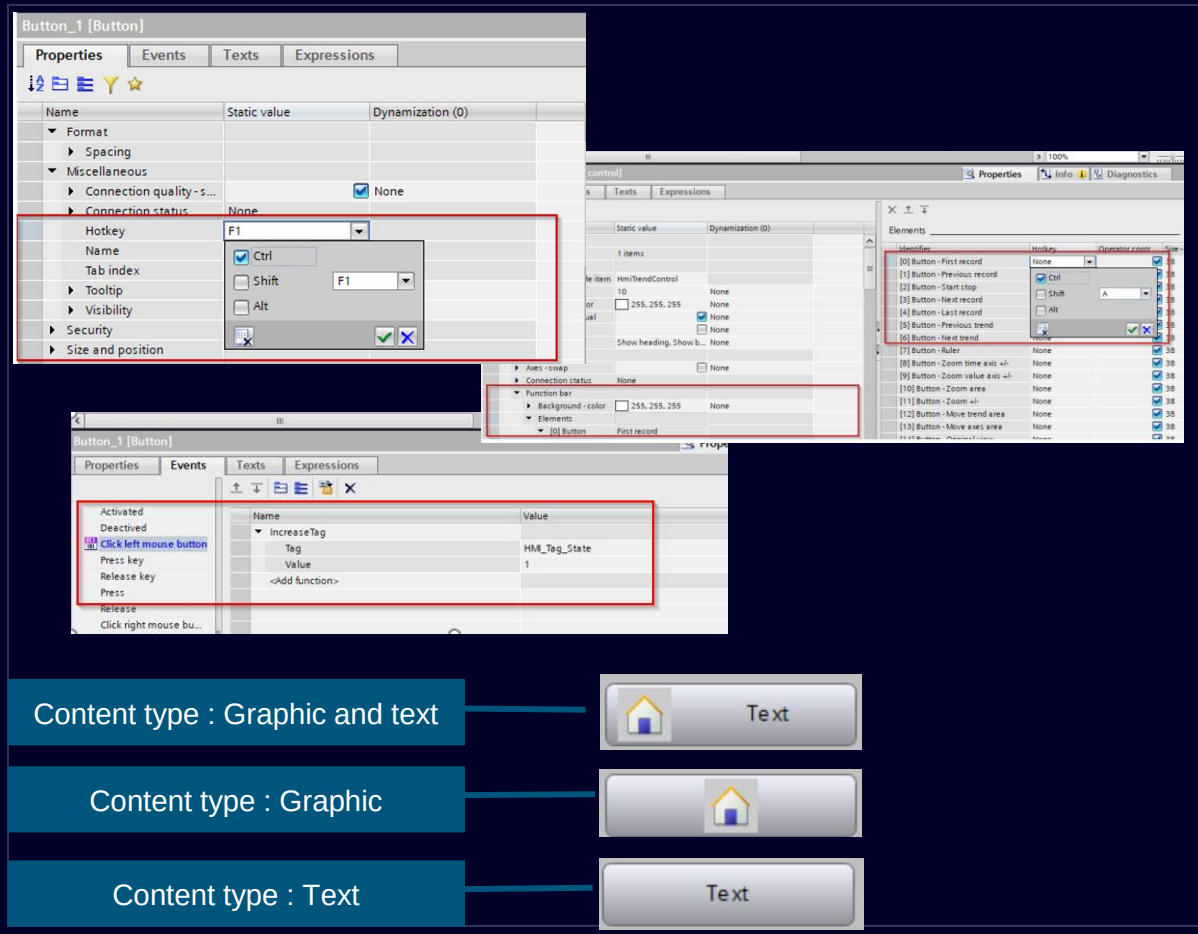
New

WinCC Unified V18
Efficient Engineering – Hotkeys on buttons

Unified Comfort Panel | PC ✓



Shortcut keyboard keys for fast access at Runtime

- Available for
  - Unified PC
  - VoT

Show default text of graphic

- User will see already in ES what he engineered for RT

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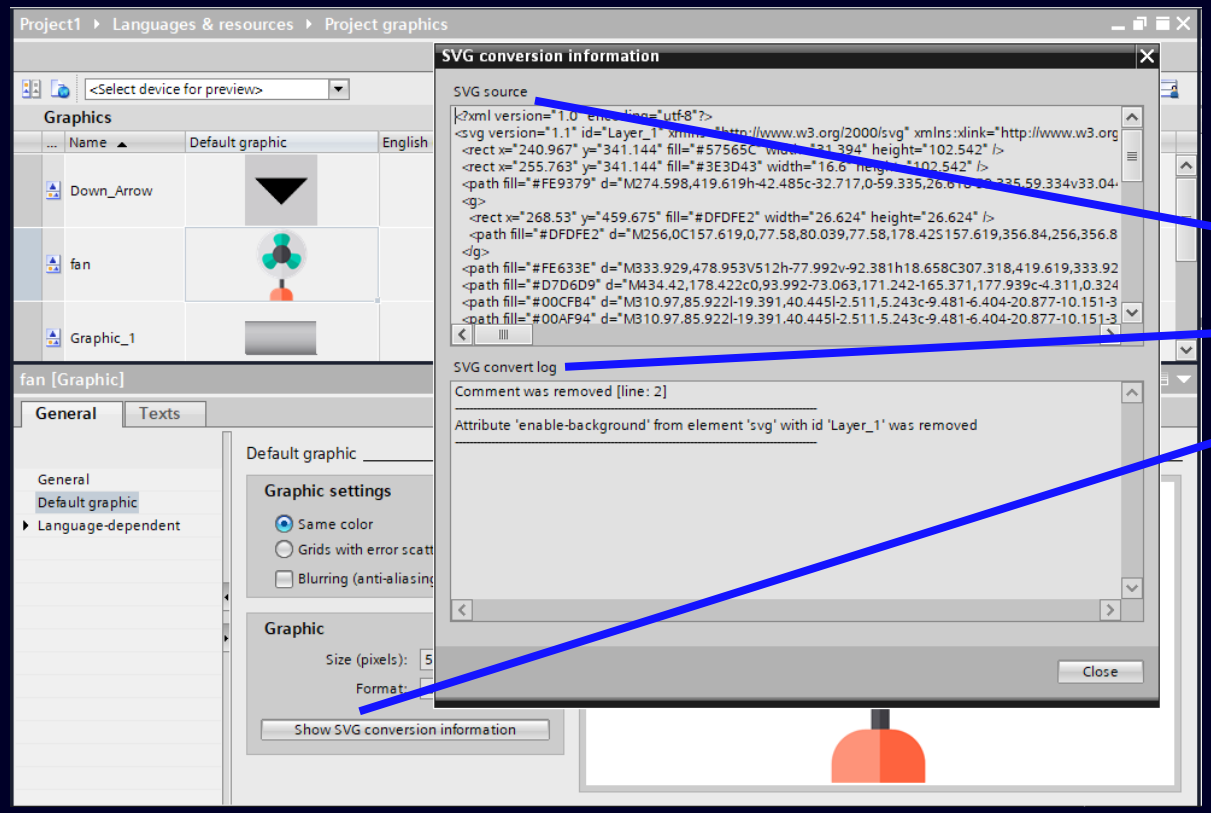
New

WinCC Unified V18
Efficient Engineering – Show SVG content and conversion log

Unified Comfort Panel ✓ PC ✓



Show SVG content and conversion information

- SVG content after import into TIA portal
- Conversion log messages (e.g. Element removed)
- Press information button to display information box

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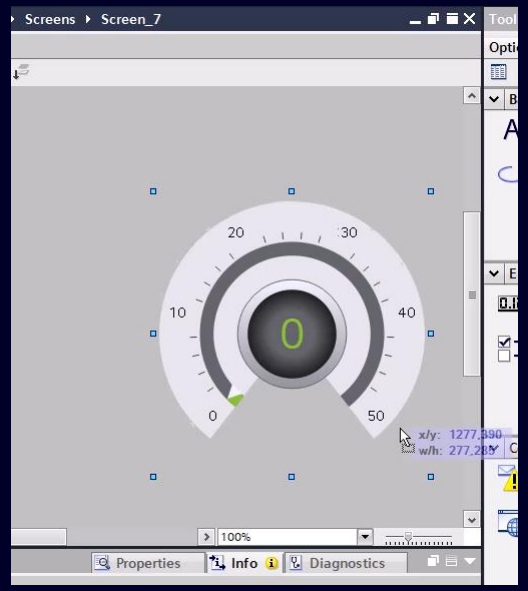
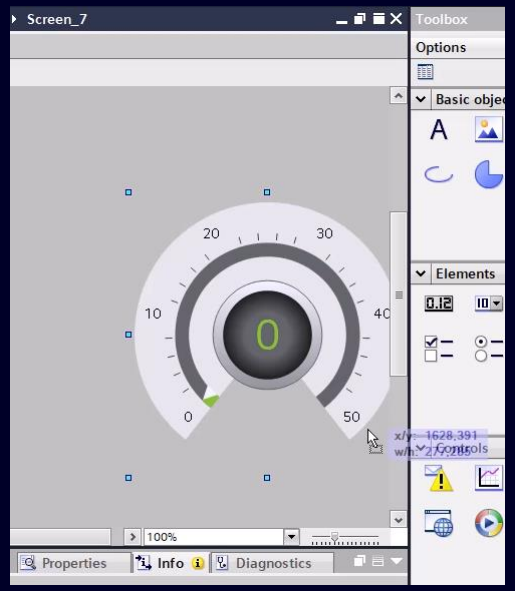
New

WinCC Unified V18
Efficient Engineering – Screen editor autoscrolling

Unified Comfort Panel ✓ PC ✓





Autoscrolling

- Horizontal and Vertical auto scrolling in screen editor via mouse and keyboard arrow keys

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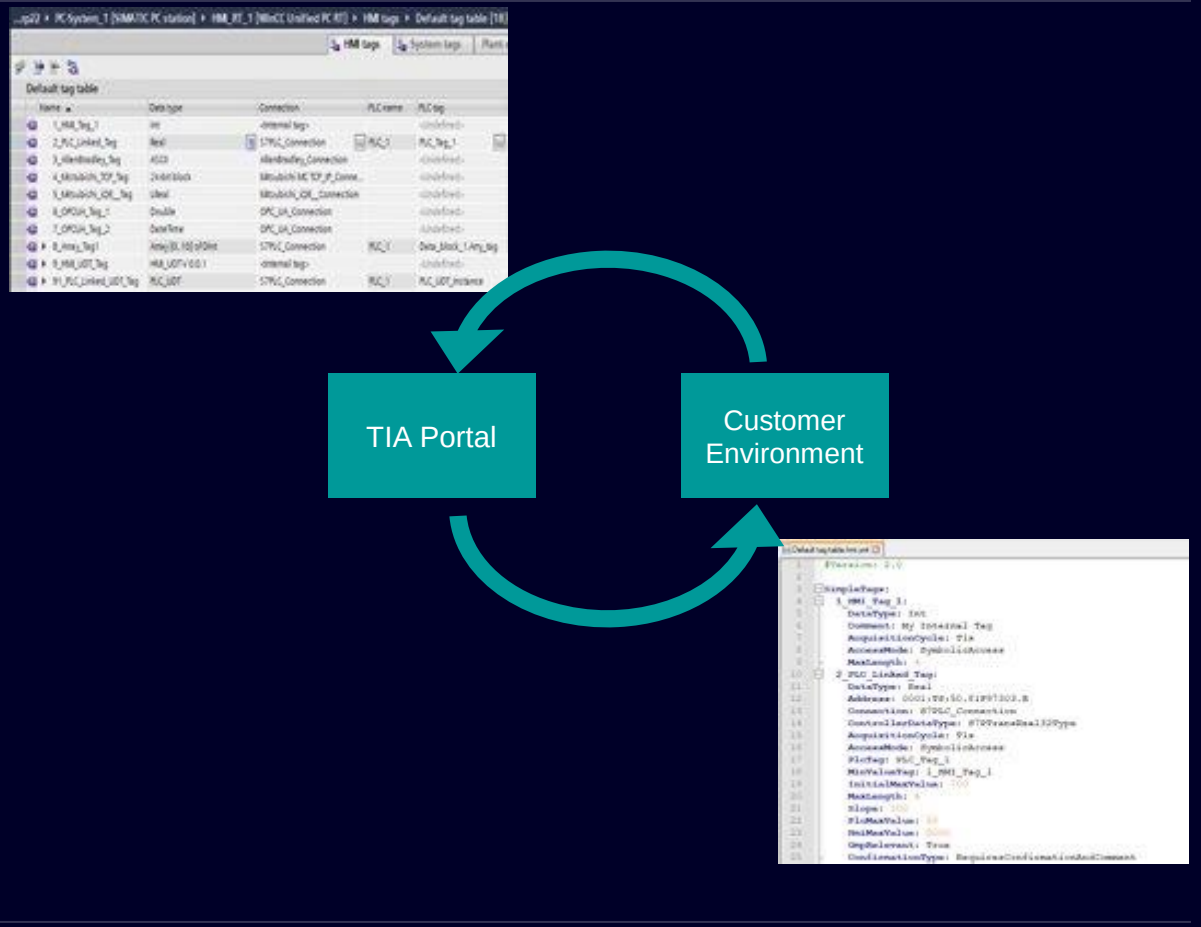
New

WinCC Unified V18
Automated Engineering - Mass Data Import / Export

Unified Comfort Panel ✓ | PC ✓



Convert configuration data using Simple text file

- Use / Adapt / extend in your preferred environment.
- Simple file structure with Property Name : Property Value format.
- Use Import & Export methods from Openness API.

Support for all screen items using API

- Create all screen items & dynamize their properties using API.
- This includes Custom web controls & Dynamic SVGs as well.

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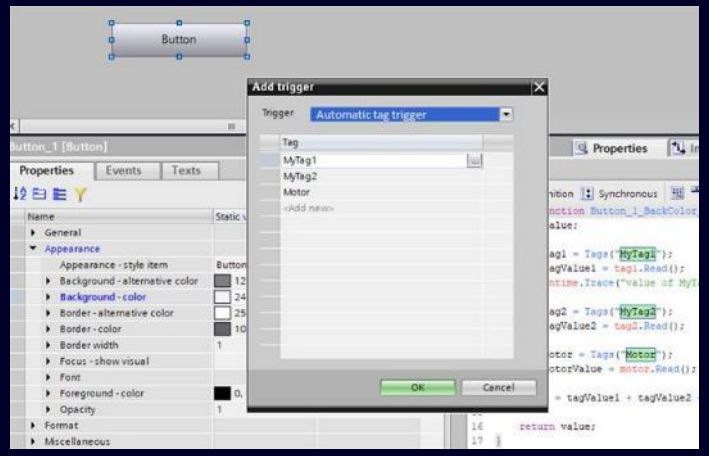
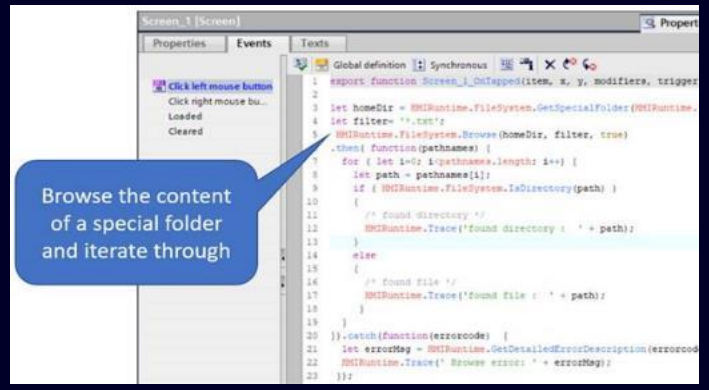
New

WinCC Unified V18 – Functional Extension
Automatic tag trigger / Improved file handling

Unified Comfort Panel ✓ PC ✓





Automatic tag trigger

- Speed up the engineering of script triggers
  - Automatic tag trigger configuration for local scripts

Improved file handling via Java Scripts

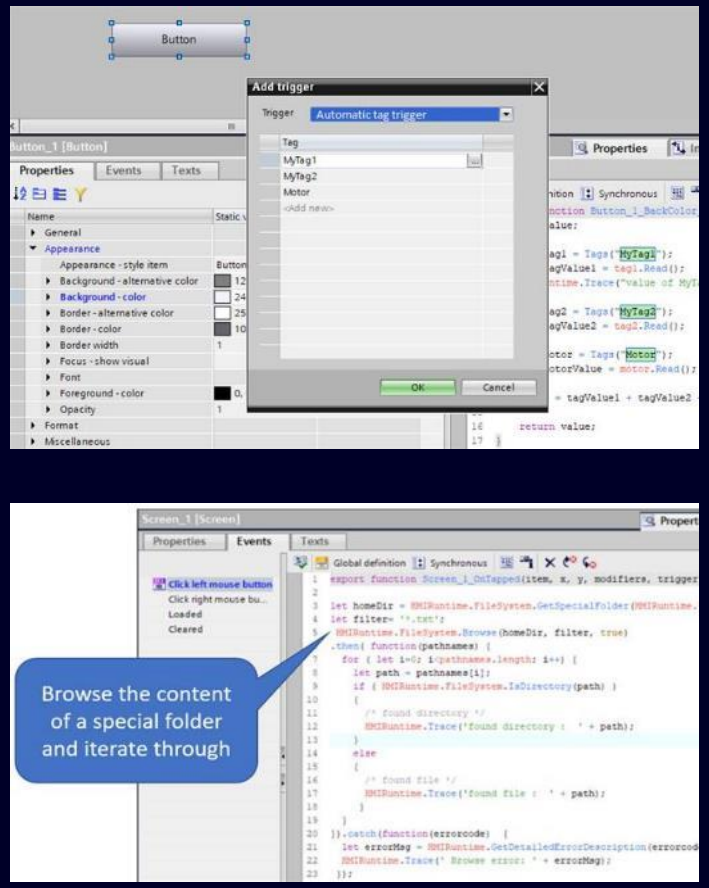
- Functions for generic folder handling with Java Scripts
- List / browse the content of a special folder and iterate through

SIEMENS

New

WinCC Unified V18 – Functional Extension
Automatic tag trigger / Improved file handling

Unified Comfort Panel ✓ PC ✓



Further features

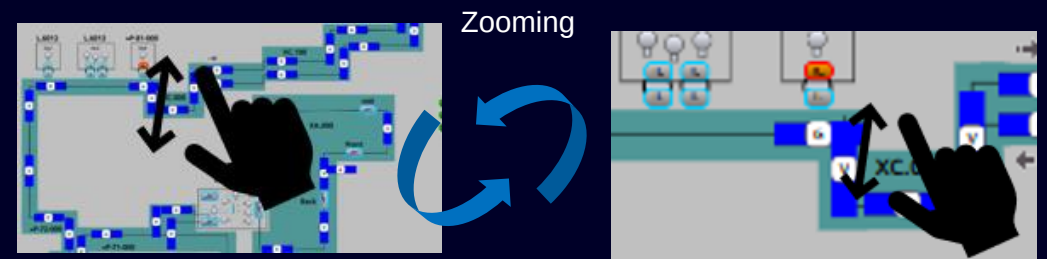
- Global search support for scripts
- Local search for global scripts
- Reference handling for global script functions and aliases
- Copy paste of the import statement together with the screen items
- Hide/show of global definition area
- Visual representation of non operable screen items

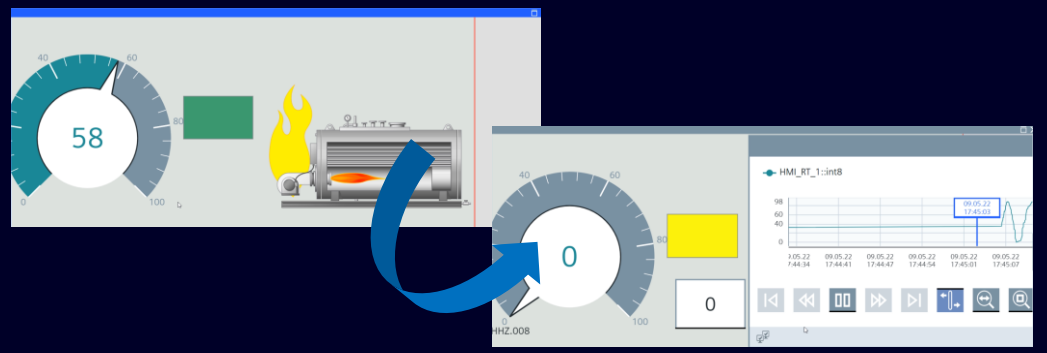
SIEMENS

New

WinCC Unified V18
User Interface – new usage concepts

Unified Comfort Panel ✓ PC ✓





Gestures enable new usage concepts to improve user experience

Improved user experience using gestures

- **Zoom in / out at selected screens, in trend control,..**
  Effects screen windows (each screen windows separately)
- **Panning**
  move zoomed area within entire screen (finger / mouse wheel)

Decluttering enables new usage concepts to improve user experience

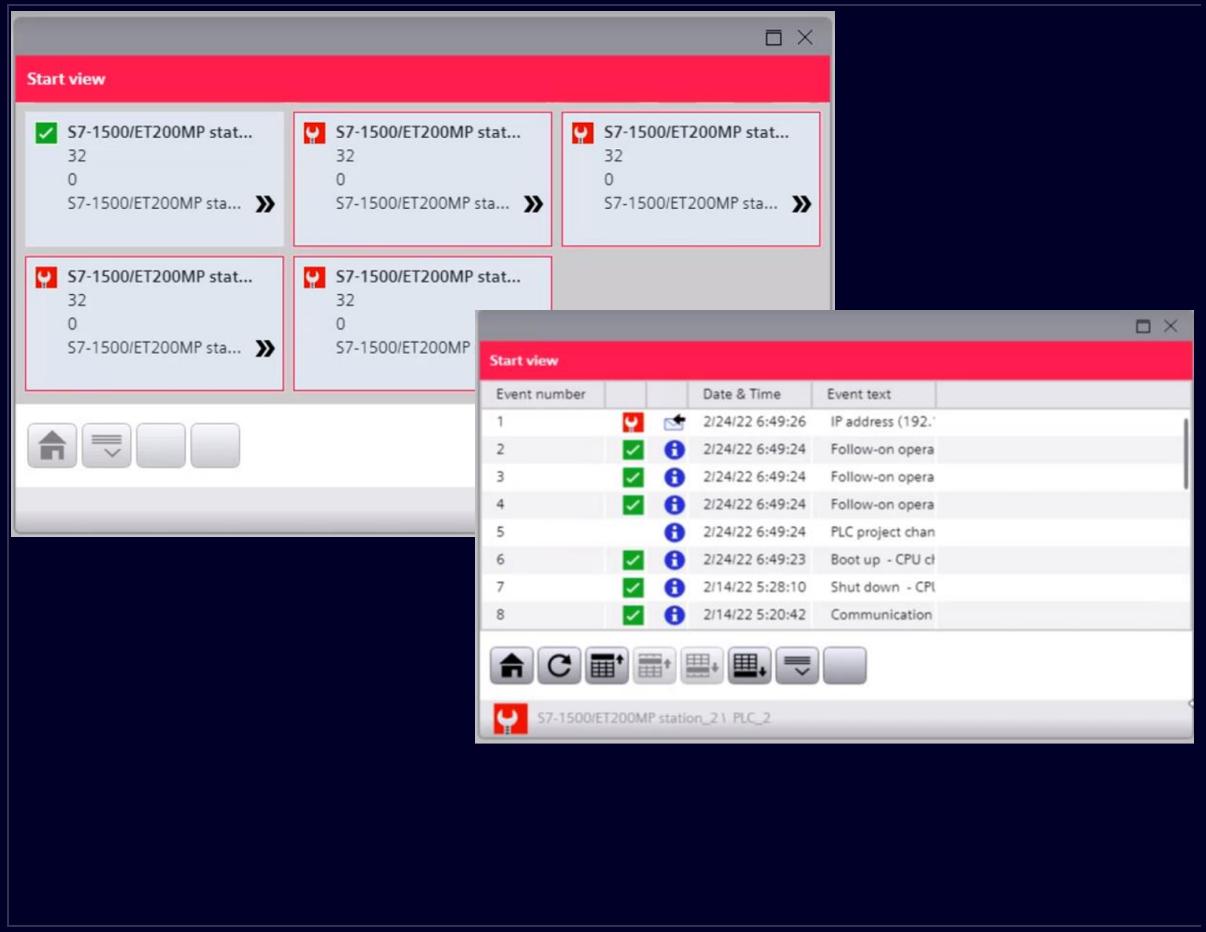
- **Show / Hide screen layers**,
  e.g. depending on process value or on zoom level all content / elements of that layer will be affected
- **Decluttering**:
  show more screen details depending on zoom factor

SIEMENS

New

WinCC Unified V18
Diagnostics – System Diagnostics

Unified Comfort Panel ✓ PC ✓



System Diagnostics
Smart and easy monitoring of the shopfloor level

- Generic and automatic configured control
- Detailed information of
  - field bus
  - I/O stations
  - I/O channels
  - plc diagnostic buffer

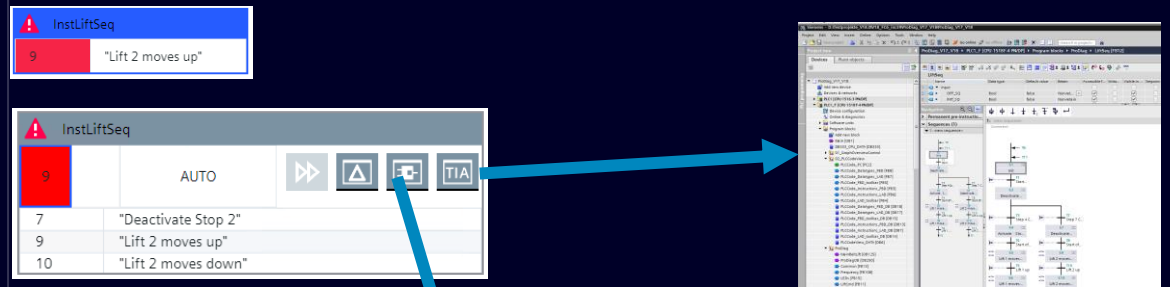
SIEMENS

New

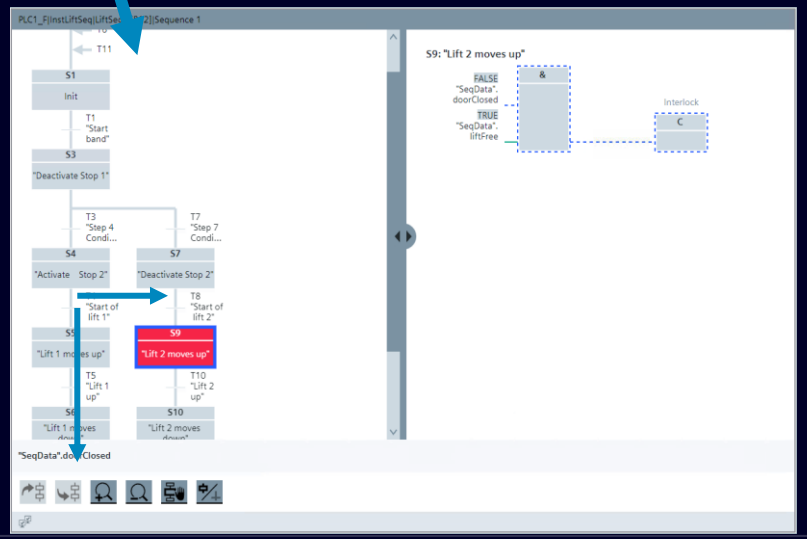
WinCC Unified V18
Diagnostics – Process Diagnostics

Unified Comfort Panel ✗ (1) | PC ✓

GRAPH Overview Control



PLC Code Viewer



Process Diagnostics

Comprehensive fault monitoring of production process

- Predefined generic views
  - S7-GRAPH Overview controls: overview over the current steps
  - PLC Code View for S7-GRAPH: Detail view on LAD/FBD
- Scripting
  - Jump into from GRAPH Overview Control to the PLC Code Viewer or into TIA Portal
  - System functions to operate PLC Code Viewer
- Style support for Overview controls

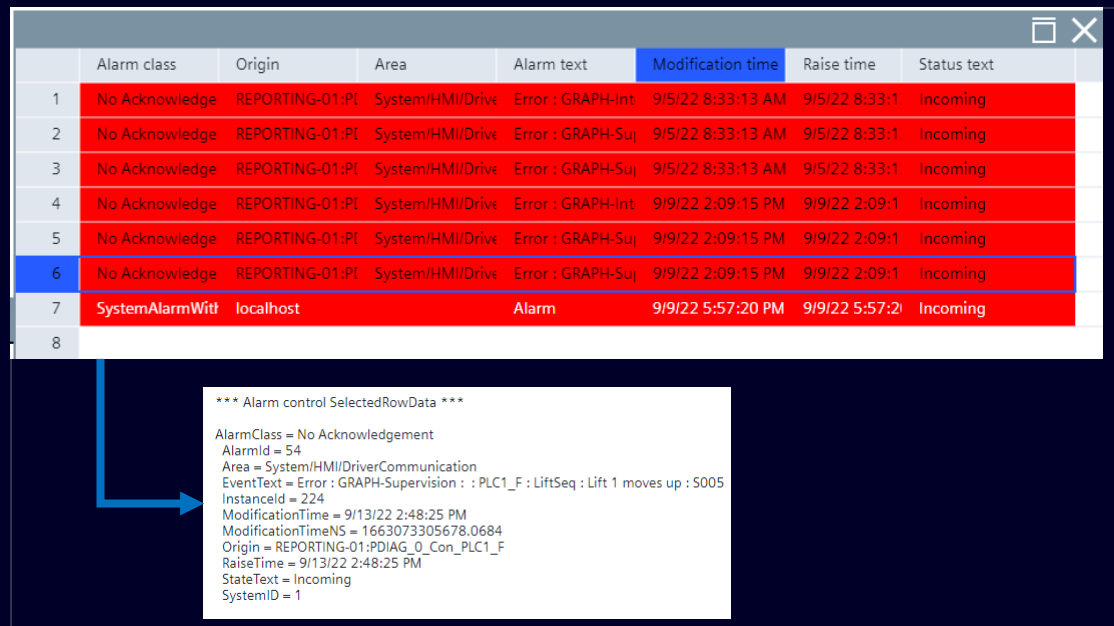
(1) planned within V18 context as V18 Update candidate

SIEMENS

New

WinCC Unified V18
Alarm control – Get information for selected message

Unified Comfort Panel | PC ✓



Alarm control

Get detailed information of selected message via scripting

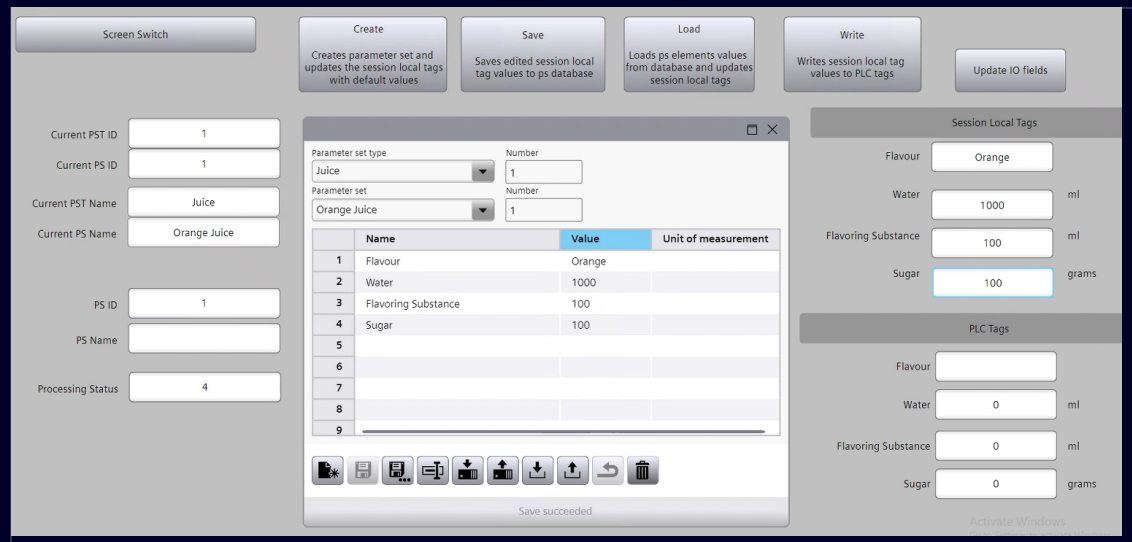
- Display complete information of a selected alarm
  - Display the full or selected information of the message in a text field in the screen or in a popup
  - Analyze the message information and display additional message
- Retrieve the message information via script function or via event trigger (on a change of selection) in the control

SIEMENS

New

WinCC Unified V18
Parameter Control

Unified Comfort Panel ✓ PC ✓



Customized recipe screen upon user workflow

Create recipe screen with basic screen objects (sliders, IO fields, buttons,..)

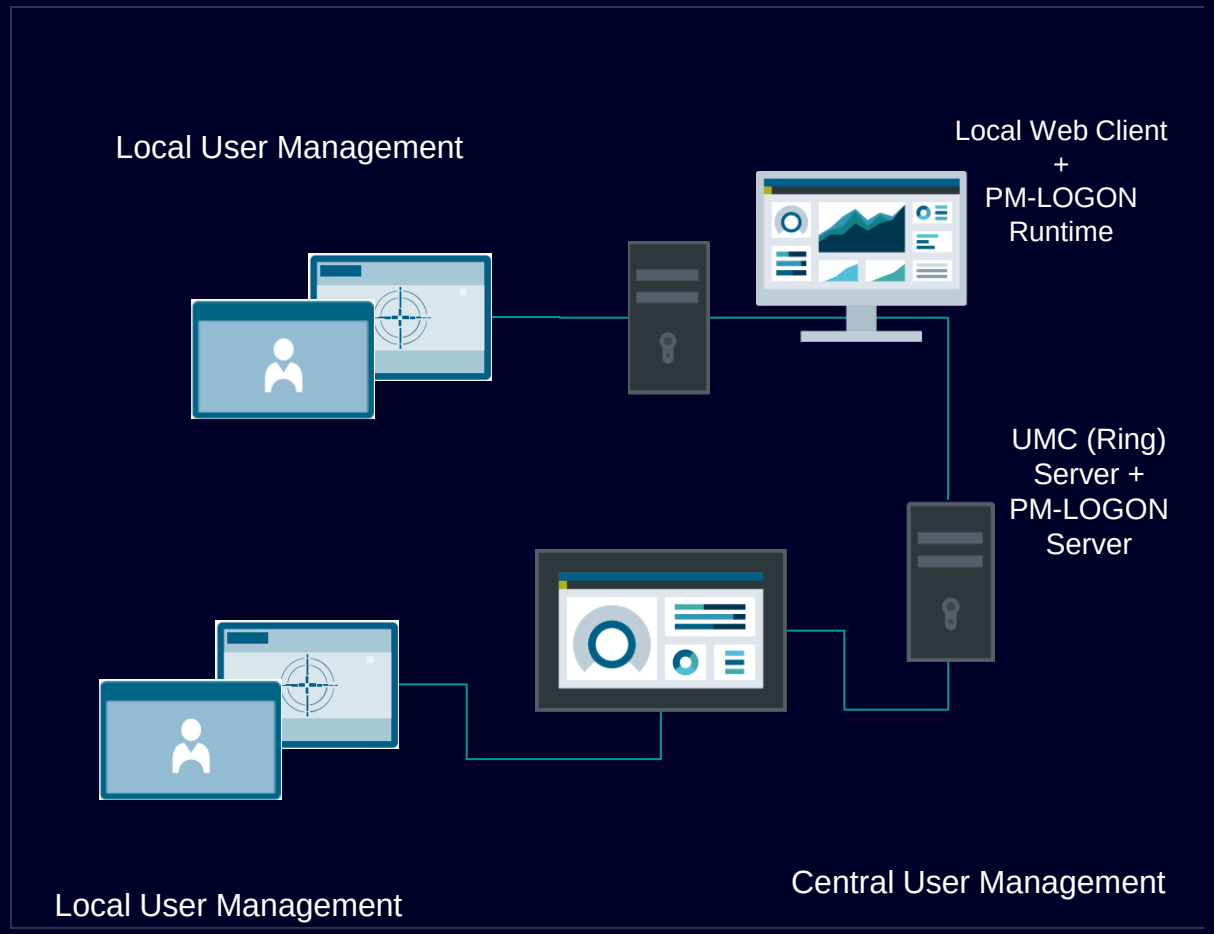
- Get Parameter Sets and Parameter Set Types via scripting
- Scripting support of Parameter Control functionality (CreateParameterSet, SaveParameterSet, LoadParameterSet, DeleteParameterSet, RenameParameterSet, ReadParameterSet, WriteParameterSet)
- Parameter set synchronization synchronize parameter set between Parameter control

SIEMENS

New

WinCC Unified V18
User Management – local RFID Authentication for HMI Unified

Unified Comfort Panel ✓ PC ✓



local RFID Authentication for HMI Unified PC Runtime

- **Connect RFID Reader** to HMI Unified PC: All PM-LOGON supported RFID Readers
- **Assign cards** with PM-LOGON Configurator
- **Authenticate**: State full & state less according to configuration, push card to reader, Login w/wo additional PIN

Local RFID Authentication for HMI Unified Comfort Panel

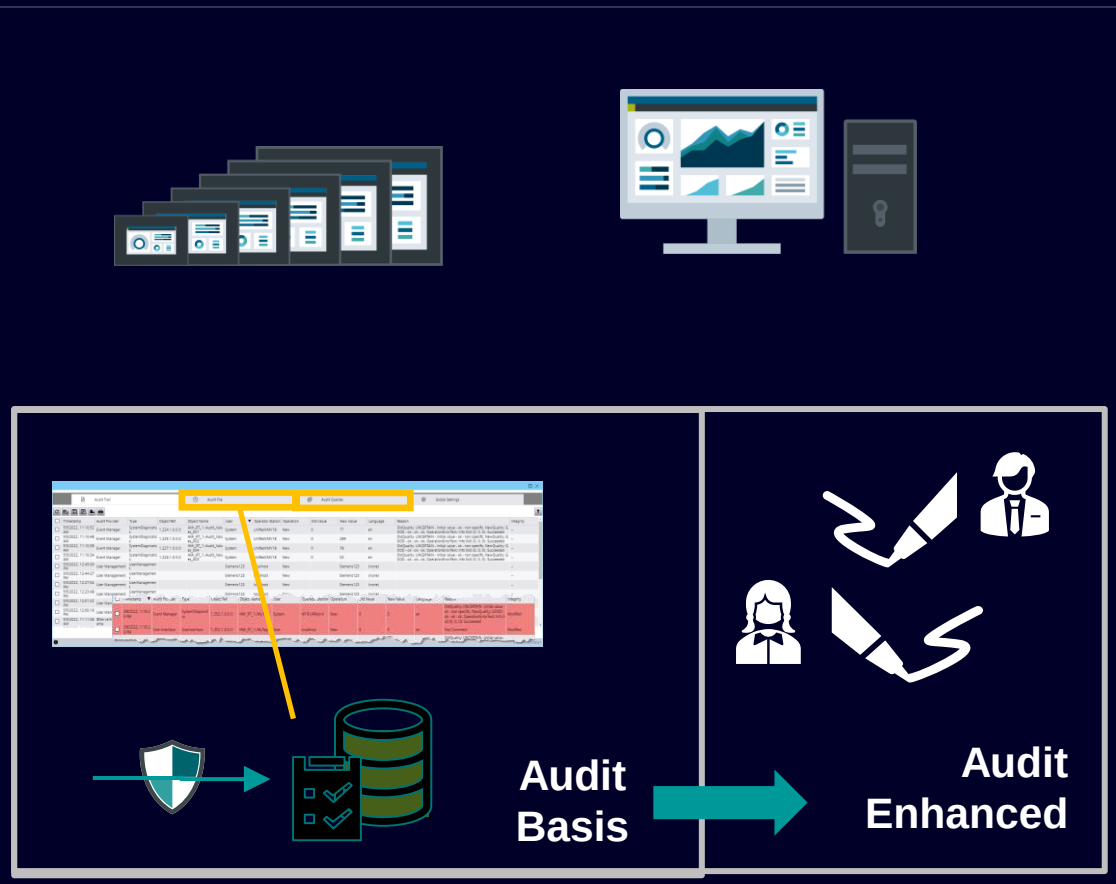
- **Connect RFID Readers to HMI Unified Comfort Panel:** Siemens RF1040R, RF1060R, RF1070R
- **Global (PM-LOGON license required):**
  - Install and configure PM-LOGON Server & Assign cards with PM-LOGON Configurator
  - State full & state less according to configuration and reader type, Login w/wo additional PIN

SIEMENS

New

WinCC Unified V18
Audit & Reporting

Unified Comfort Panel ✓ | PC ✓



Trace process operations and GMP compliance

WinCC Unified Audit Basis (GMP compliance)

Audit Trail records for Tags, Audit Trail logs &
Detection of manipulation,
Audit Confirmation and Audit Trail report

- Restore Database segments, **User** management operation (Login/Logout)
- View and Analyze Audit trail (query, filter,..)
- Electronic Signature(1)

WinCC Unified Audit Enhanced

- Double Electronic Signature(1)

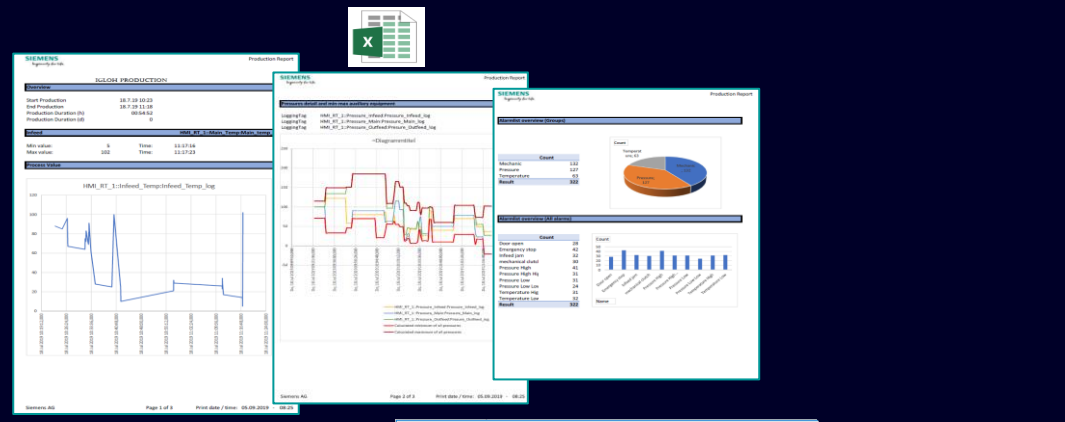
(1) **Electroni**c Signature is planned within V18 context as V18 Update candidate

SIEMENS

New

WinCC Unified V18
Reporting

Unified Comfort Panel ✓ | PC ✓



Continuous Improvements

Report Configuration

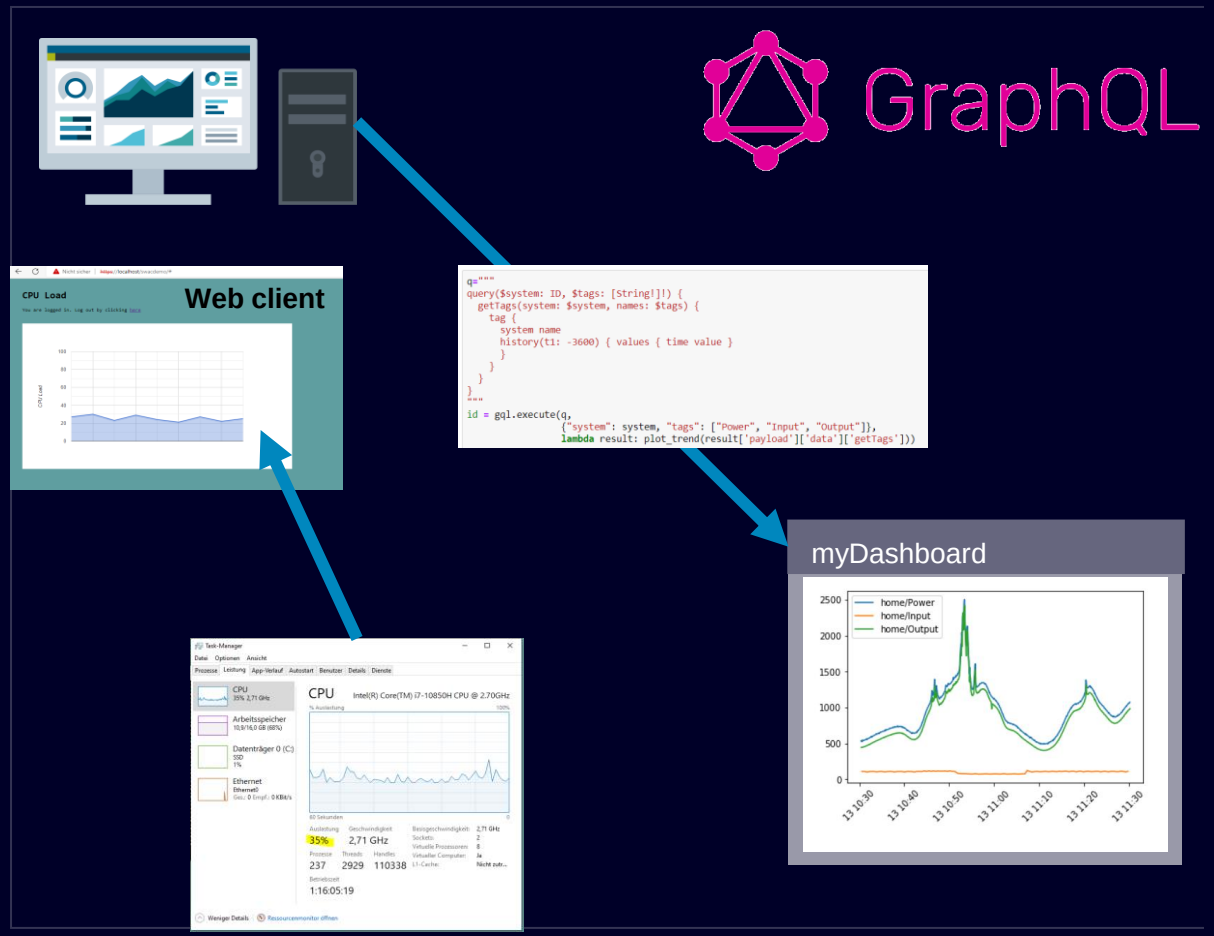
- Activate Reporting
- Database storage path for reports & configuration
- Show graphic in report via symbolic IO in Text & Graphic List
- Define report **name** using a Tag
- Screen Collaboration for Report Control

SIEMENS

New

WinCC Unified V18
Extensibility via Openess – GraphQL

Unified Comfort Panel ✗ | PC ✓



Use a new interface technology to interact via an interface with WinCC Unified

Access to the WinCC Unified PC Runtime process data via GraphQL – the new standarized query language for an API

- Use data from Unified in a 3rd party application (e.g., custom dashboard)
- Use data from outside in the Unified UI

V18 functional set:

- Tag access (read, write, subscribe)
- Alarm access (read, subscribe)
- Authentication & Authorization via UMC

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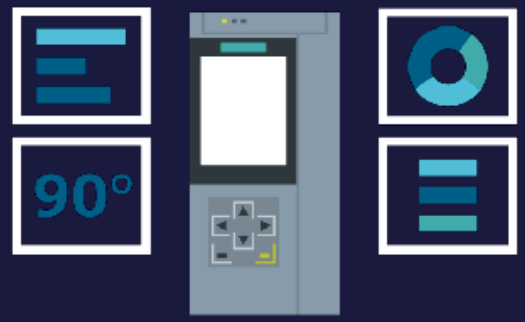
WinCC Unified V18
View of Things



SIMATIC WinCC Unified V18 View of Things

Efficient engineering

VoT Application can be reused, this means copied and pasted

- from one device in the project to another capable device
- as mastercopy in the library and back to the project to a capable device

Use on more devices

VoT application is now also available for

- SIMATIC Software Controller
- via SINUMERIK Toolbox V18 for SINUMERIK ONE and SINUMERIK Motion Control

Offline download to memory card possible

Efficient Engineering for View of Things by improvement of the Unified Engineering

- Transparent screens
- Shortcut keyboard keys for fast access at Runtime
- Dynamization of Graphics for ScreenObjects
- Automatic tag trigger for local scripts
- Configurable default screen size
- Change object color

Layer handling

- Rename layers on device level
- Configure layer visibility
- Scripting:
  - handling Layers
  - GetClientInfo

- Proportional resize of multiple screen objects by mouse
- Grid
- Autoscroll in screen editor
- Multiline support in project text editor
- Direct text input for Buttons and Labels
- Favourites in property grid

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Expand the WinCC Unified functionality to fulfil your industry specific demands with our ready to use Plant Intelligence Options

Plant Intelligence Options

Calendar
Manage working times, now offering improved usability and easier creation of calendar-based reports

Performance Insight
Get production insights based on individual KPI calculation, now enables modification and recalculation of KPIs

Sequence
Planning and adaptation of sequences to control and monitor recipe-controlled processes

Line Coordination
Orchestration of recipe and batch-controlled processes based on WinCC Unified

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New

WinCC Unified V18
Highlights PI options – Performance Insight & Calendar

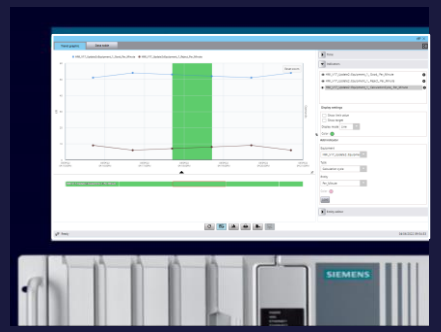
Unified Comfort Panel ✗ | PC ✓

Styles
Use pre-defined styles (Bright / Dark)

Long term evaluation / recalculation
Of KPIs after context change e.g.: shift start

Root cause / Downtime analysis
evaluation to reason groups and reasons

Default calendar
TIA Portal editor for default calendar properties



SIMATIC WinCC Unified V18
PI Options: Performance Insight & Calendar

Dashboard control
for KPI and operand view

Planning of week
Copy and paste already planned weeks

Runtime Persistency
of PFI control configurations

Info panel
Quick view on user messages and events

Screen Collaboration
PFI and Calendar controls

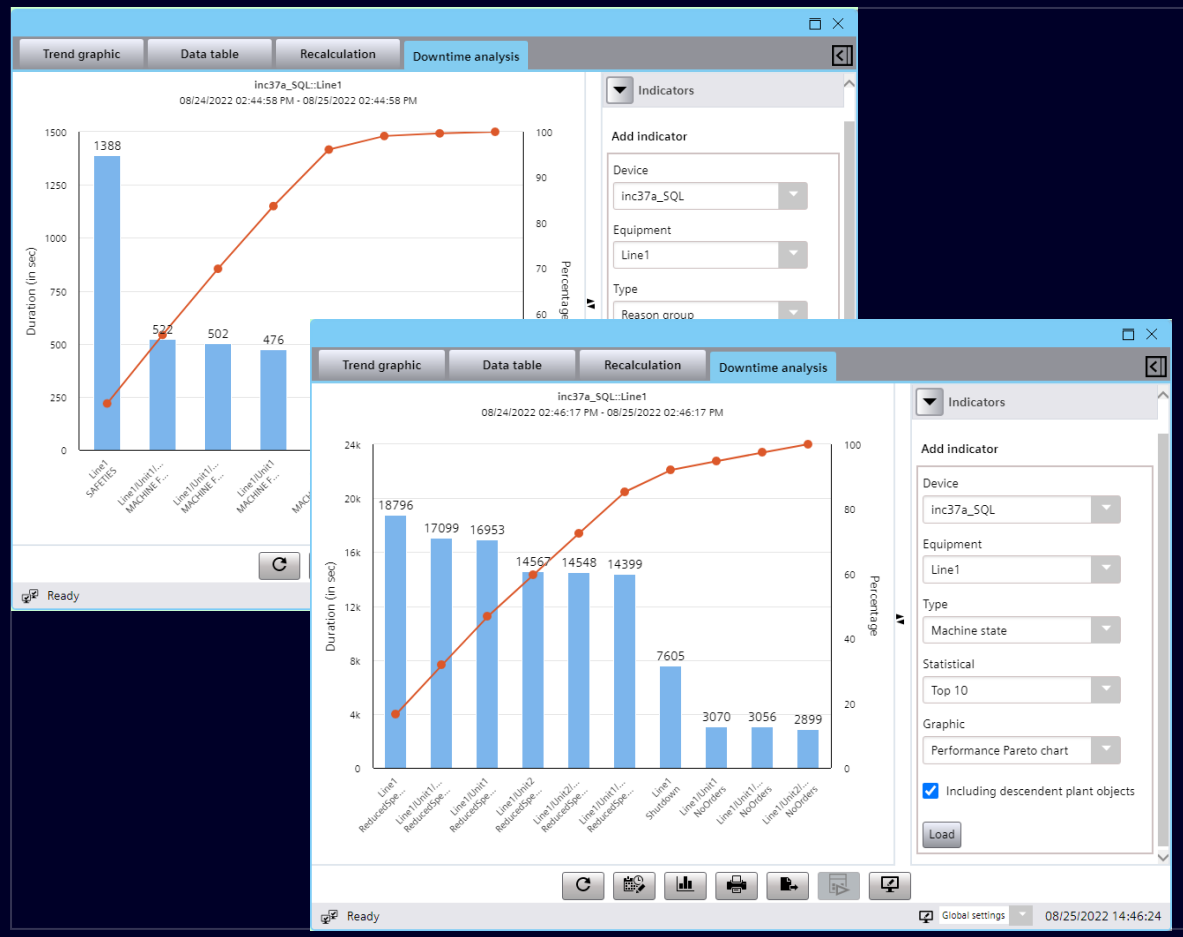
Flexible configuration
of PFI objects (KPIs & operands)

SIEMENS

New

WinCC Unified Performance Insight V18
Highlight - Root cause / Downtime analysis

Unified Comfort Panel ✗ | PC ✓



Identify Top 10 reasons for a machine downtime and display the reasons

Report Configuration

- Activate Reporting
- Database storage path for reports & configuration
- Show graphic in report via symbolic IO in Text & Graphic List
- Define report **name** using a Tag
- Screen Collaboration for Report Control

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WinCC Unified – Plant Intelligence Options
When to use Sequence and Line Coordination

When you want to…

…extend your WinCC Unified visualization

…flexible automate recipe-controlled production processes (e.g. for dosing, blending, mixing etc. in F&B industry or also in other industries)

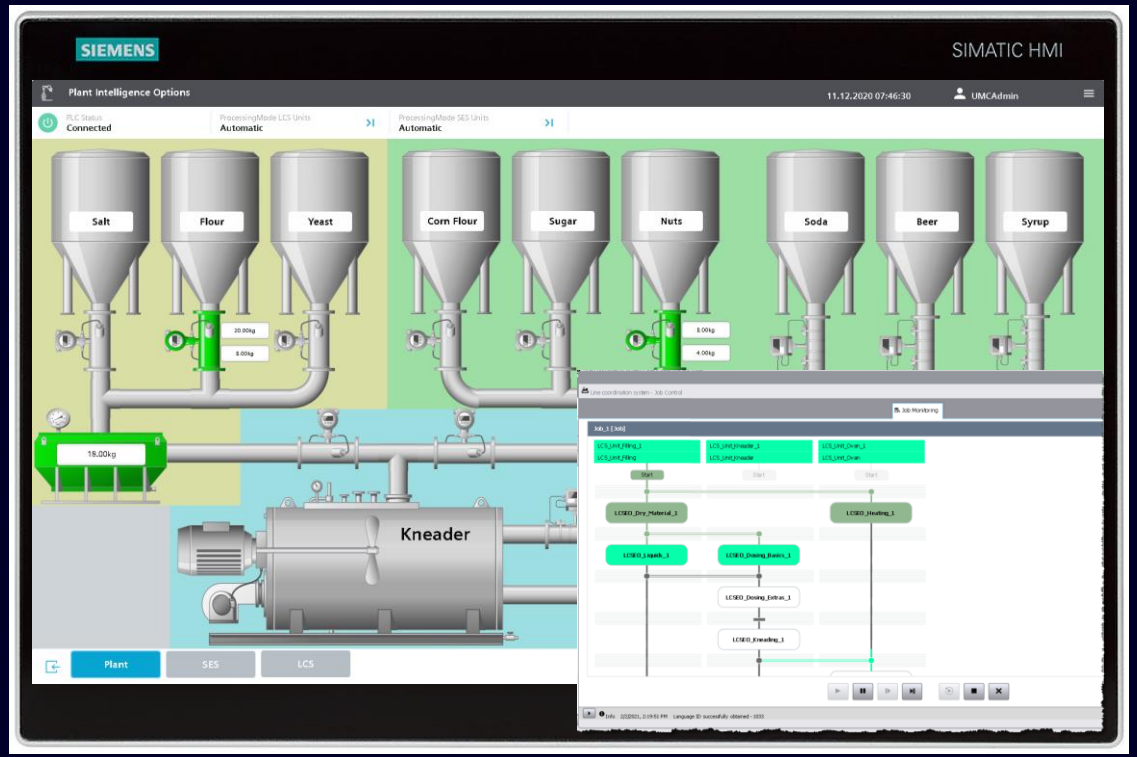
…standardize production processes according to ISA-88

…ensure consistent product quality

…plan and manage jobs at a central location

…monitor & control planned and running production processes

…log and report production data



…then **Sequence & Line Coordination** based on WinCC Unified and S7-1500 is the right option.

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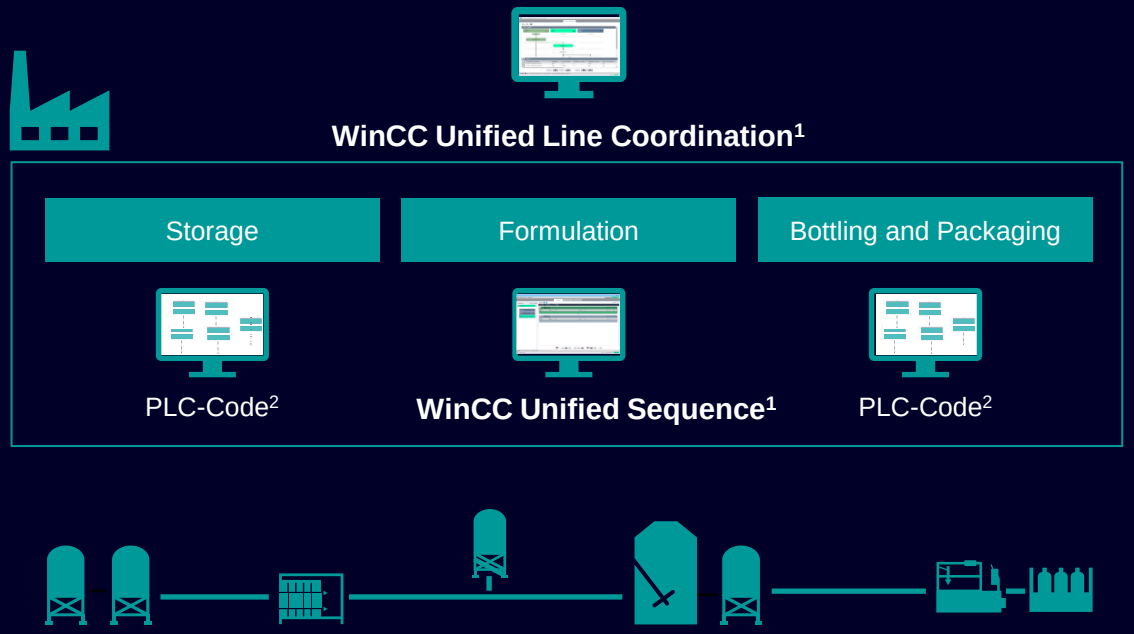
WinCC Unified – Plant Intelligence Options Sequence and Line Coordination



1 Sales special release

2 Individual PLC code for control and connection of the units to WinCC Unified Line Coordination

Line Coordination (LCS)

Option for recipe-controlled productions processes based on units and operations (SES or own function modules)

- **Coordination and monitoring** of complex processes in the production line
- **Overall definition** of complete procedures and recipes at line level

Sequence (SES)

Option for sequence control of step-based operations for separate units or machines

- **Fast changeability** of procedures in the production process based on the technological hierarchy
- **Clear overview** of the manufacturing steps and current status

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Handling of parameters as material
with material ID and quantity

Integration into Audit
for operation execution

Info box
Quick view of contextualized system messages and events

Efficient authoring and download workflow
e.g. by simplifying lifecycle state handling

SIMATIC WinCC Unified V18
Options Sequence & Line Coordination

SES only

Conditional assignment
as additional step condition based on feedback of another parameter

Unit specific information within process visualization
New controls “Unit status control” & “Unit control”

Automatically triggered reports
after job is finished

SES only

Runtime persistency
store control configuration permanently

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TIA Portal
Highlights of TIA Portal V18

WinCC Unified – Innovations
- Improved screen engineering
- Enhanced standardization (Faceplate and Library)
- Extended Openness in ES and in RT
- System diagnostics Matric View and Process Diagnostics
- Runtime ready for new operation concepts
- Improved Plant Intelligence Options

WinCC – Innovations
- WinCC Advanced: no new RT Advanced V18 Version
- WinCC Professional: WebUX, WebNavigator extensions

STEP 7 – Innovations
- Namespaces for Software Units
- Failsafe program in Software Units
- LongTerm Trace

SIMATIC Motion Control - Innovations
- CPU 1511T/TF / 1515T/TF: more memory and performance
- ET 200SP Technology CPU 1514SP T/TF-2 PN
- Functional enhancements Motion Control & Drive Controller
- Advanced Programming with TO references
- Kinematic functions up to 6 interpolating axes

Startdrive – Innovations
- Support of linear motors for CU3x0-2 based drives
- FFT analysis for CU3x0-2 based drives
- Support of station upload for SIMATIC F-PLCs

SIMATIC AX (Automation Xpansion)
- Use standard libraries created with SIMATIC AX inside TIA Portal projects (TIAX use case)

TIA Portal Cloud & Cloud Connector
- Overview of new functions
- Online functionality via TIA Portal Cloud Connector

SIMATIC Hardware
- Hardware Innovation for S7-1500 / ET 200SP CPUs 1510SP to 1516
- New ET 200SP 1514SP(F)-2 PN CPU
- S7-1200 Highlight FW4.6 (Work memory enhancement)
- PROFINET System Redundancy R1 for S7-1500H and ET 200SP
- Flexible Network Architectures for S7-1500H
- Long Distance H-Sync for S7-1500H
- Improvements for Multiuser Online ("Who is online")
- Improvements for Hardware Offline/Offline Compare

System functions
- TIA Portal Openness: API extensions
- UMAC: username enhancement
- UMAC: support of multiple UMC domains
- Security Logging in TIA Portal
- Library: Compare, new library editor, Multiuser
- Station Upload Enhancements
- TIA Portal Add-Ins
- TIA Portal Version Control Interface
- TIA Portal CAx: AutomationML Exchange

TIA Portal Options
- **STEP 7 Safety**
  Consistent Fast Commissioning Download, Failsafe Software Unit, Openness-extensions
- **SIMATIC Safe Kinematics**
- **Multiuser**
  - Grouping, access management, independent release of Project Server
- **OPC UA**
  S7-1500: server diagnostics, source timestamp, increased quantity structures, reference namespace mapping
- **S7-PLCSIM/ S7-PLCSIM Advanced**
  New User Interface / Multiadapter Mode, API supports String
- **SIMATIC Target for Simulink**
  External Mode for LiveTwin, Download in RUN, Multiuser support
- **Test Suite**
  System Test via OPC UA, New properties for style guide rules
- **SiVArc**
  Support of WinCC Unified, new expressions, usability enhancements
- **Energy Suite**
  Support of WinCC Unified, Base Load Mangement, Support of Software / Open Controller
- **Central User Management (UMC)**
- **Modular Application Creator**
- **ProDiag**
  New controls for WinCC Unified PC based Runtime
  S7-GRAPH Overview Control / PLC-Code View for S7-GRAPH
- **Teamcenter Gateway**
  Openness support for connect, save, search, lock and download workflows

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WinCC Innovations V18
Highlights WinCC RT Advance

No new dedicated RT Advanced version

Ensured Compatibilty of WinCC Advanced
- Stable V17 version of RT Advanced
- No new licenses necessary for WinCC RT Advanced V17 necessary

Engineerable within TIA Portal V18
- WinCC RT Advanced can be engineered with TIA V18

Support of Operating Systems with V17 Update 4
- Windows 11 Professional
- Windows 11 Enterprise
- Windows Server 2022

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WinCC Innovations V18
Highlights WinCC RT Professional

WebUX

- Session local tags
- Script support
- Automatic reconnect
- View password during login
- Close Gaps
  (Message box, alarm filter)

WebNavigator

- Further Support of WebNavigator functionality
- Use WebNavigator App (WinCC RT Viewer)
- Download HUB to download WebNavigator App & Diagnosis

Channel Diagnose

- Refactoring
- Use as standalone tool
- Configurable Control for Channel and system diagnosis

Certificate manager

- Aligned look and feel

Browser Control

- New updated Web Browser Control

Process Historian & Information Server

- Support of PH & IS 2020 SP2 Upd.1

Start Tool

- Splash Screen for restricted system startup

OS Support

- Support of Windows 11
- MS SQL Server 2019

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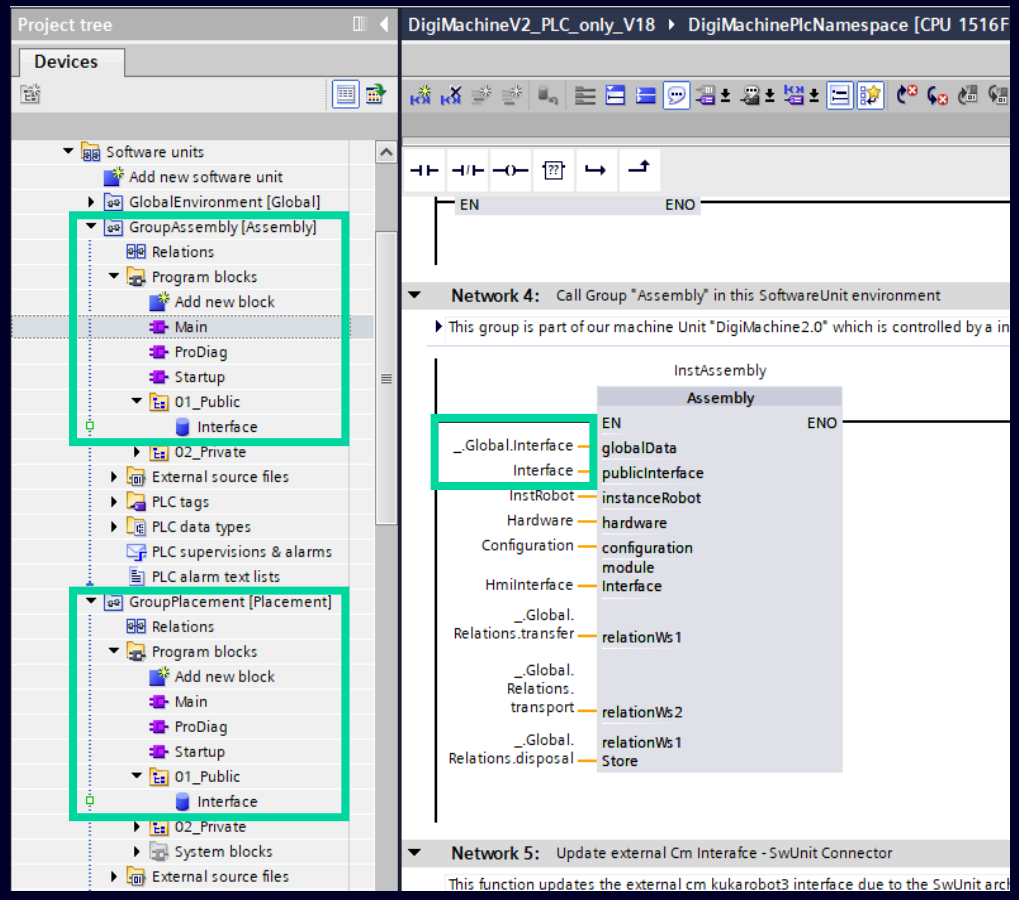
STEP 7 – Innovations
Namespaces for Software Units



Concept

- Software Unit provides a “Namespace preset”
- Every Block/UDT has an own “Namespace” property
- In Clients (WinCC, OPC UA) always the full name (incl. namespace: Namepace.BlockName) is displayed
- No namespace for global tags/variables in V18

Benefits

- Block names can be used several times in the PLC program

Improved IEC 61131-3 conformity

- No special characters except “_”
- No quotation marks in the code for block names
- “_.” : Extension of the referencing concept

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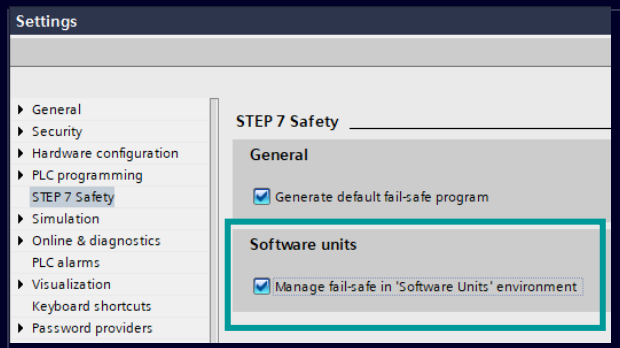
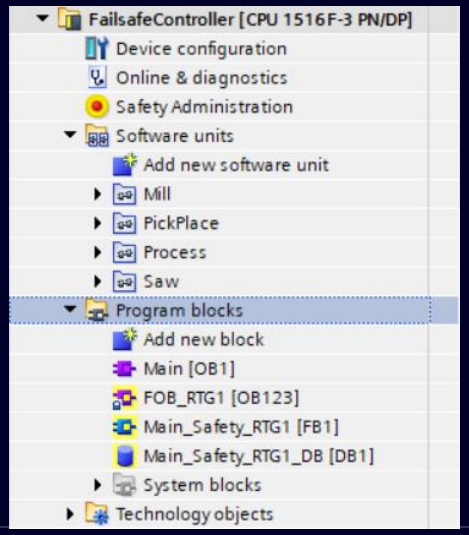
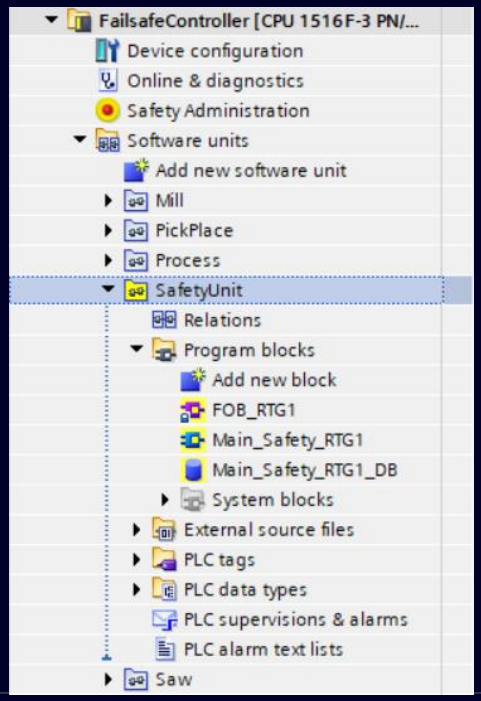
STEP 7 – Innovations
Failsafe program in Software Units







Boundary conditions

- Global Setting to activate feature
- Empty F-Unit is created with a **new** CPU
  - Entire failsafe program in one F-Unit
  - Existing failsafe program are copied to the new CPU
  - No delete/copy/create of F-Unit
  - No master copy of F-Unit
- Safety Administration as usual

Advantages

- Use of Units features:
  - Unit-granular download
  - Publishing data & data exchange between units
  - Namespaces also for F-Unit

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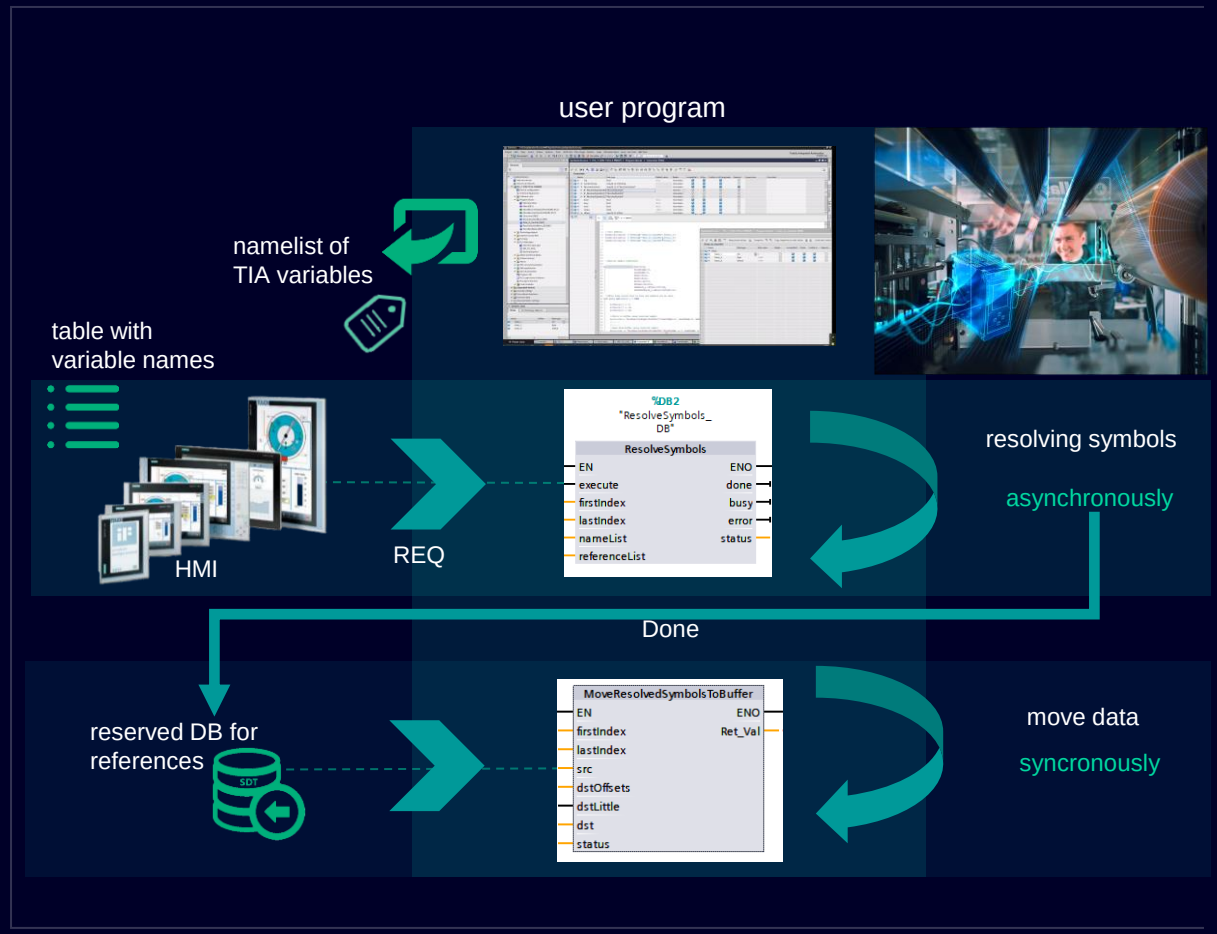
STEP 7 – Innovations
Symbolic Access @ Runtime



SymbolicAccess@Rutime

Tag names (string variables) can be resolved into the corresponding memory addresses at runtime and thus used for reading / writing data

Benefits

- Reading / writing of certain tags by providing their symbol name from an external device (e.g. HMI) as a string
- Migration of ANY-Pointer use cases to symbolic programming
- Possibility to trace any data from a S7-1500 PLC on a 3rd party device

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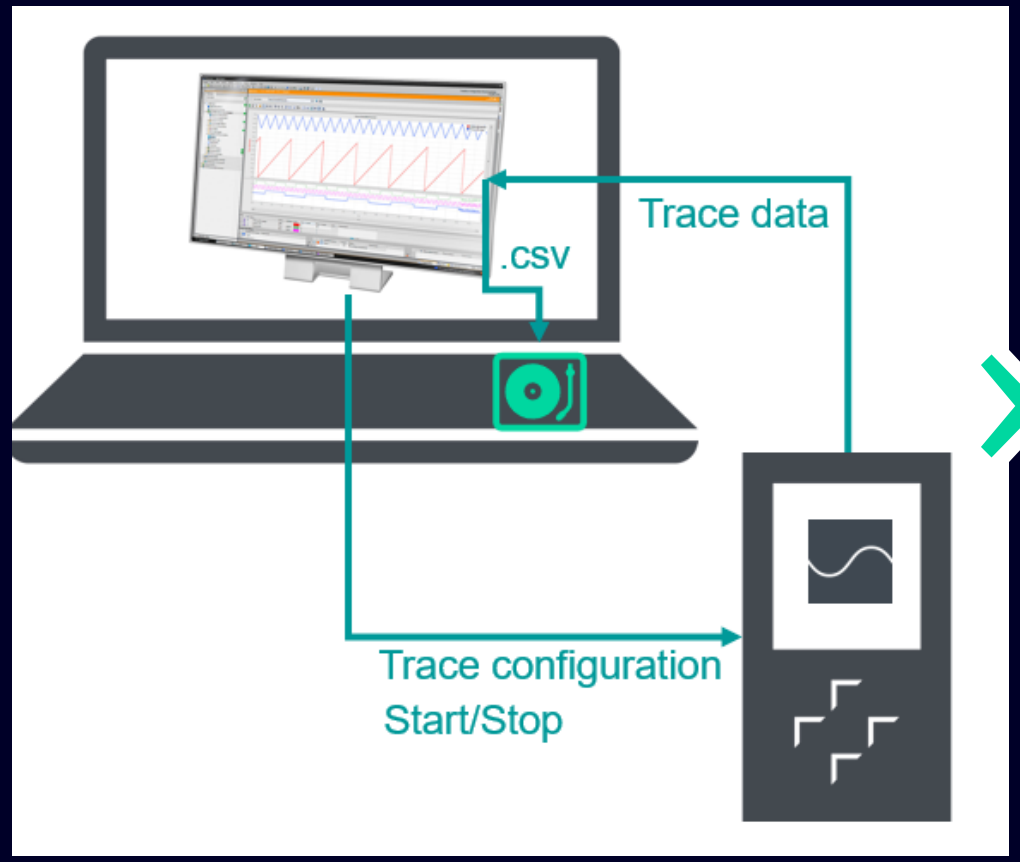
STEP 7 – Innovations
Long-term Trace



Long-term Trace for better analyzing sporadic errors or optimize machinery parameterization

- Recording of up to 64[1] different signals[2] in “csv”-files for a long time (days, weeks, months ….)
- Limitation only thru available hard disk memory on PC
- Motion-Cycle-synchronous (e.g. MC-Servo) recording ensures qualified analyzes of the signals
- Configuration/Start/Stop of the Long-term Trace job via Trace-Editor
- The recorded values can be shown and analyzed in the Trace-Editor
- The recorded “csv”-files can be exported and analyzed via third party tools also

1 with FW V3.0
2 Supported: Bool, Byte, INT, DINT, LINT, USINT, UINT, UDINT, ULINT, WORD, DWORD, LWord, REAL, LREAL, Date, Time, LTime, Time Of Day, Long Time Of Day, Long Date Time
Not supported: whole Arrays/Structs/UDTs, Date_And_Time, Date_And_LTime, Char, WChar, String, S5Count, S5Time...

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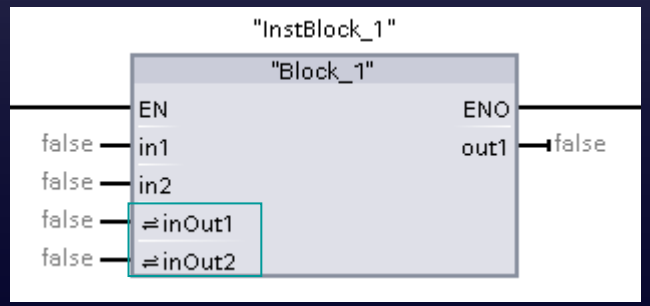
STEP 7 – Innovations
General Improvements

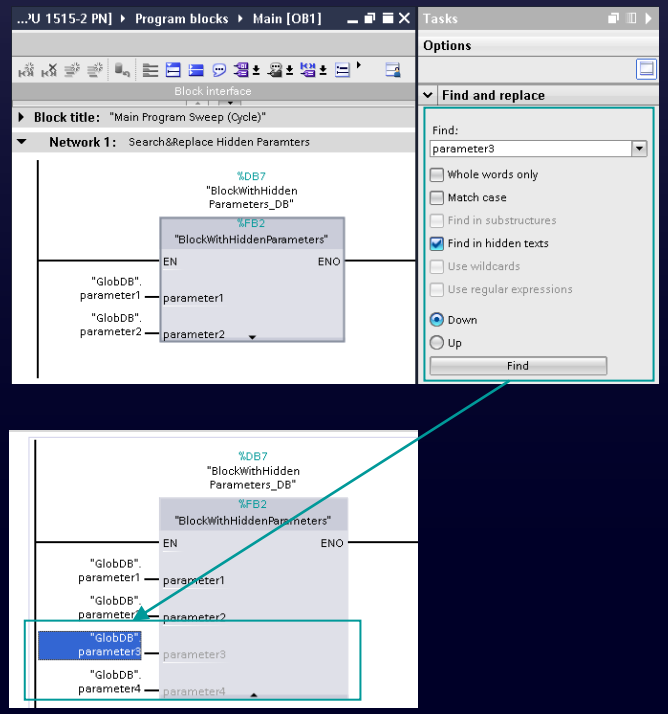
Special marking of InOut parameters in LAD/FBD/Graph

InOut parameters have a special marking in block calls to better differentiate them from In parameters



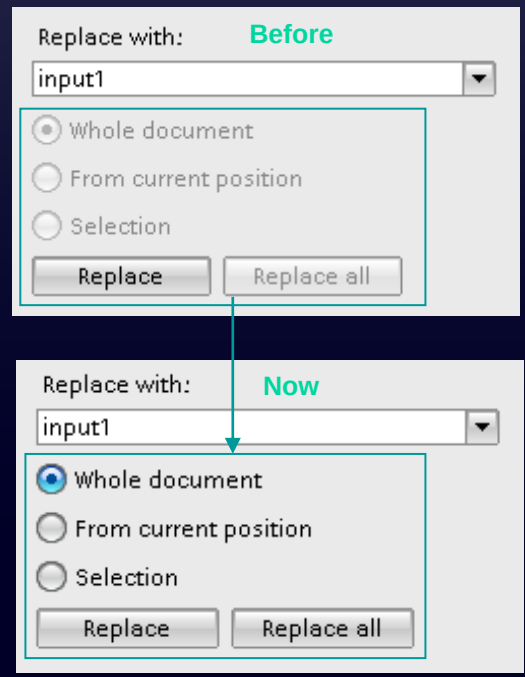
Search&Replace of hidden block parameters

Find&Replace in LAD/FBD blocks finds now actual parameters on block calls with hidden parameters.



Search&Replace in TagTable – Replace All

"Replace all" with all its options is now supported in the PLC tag table



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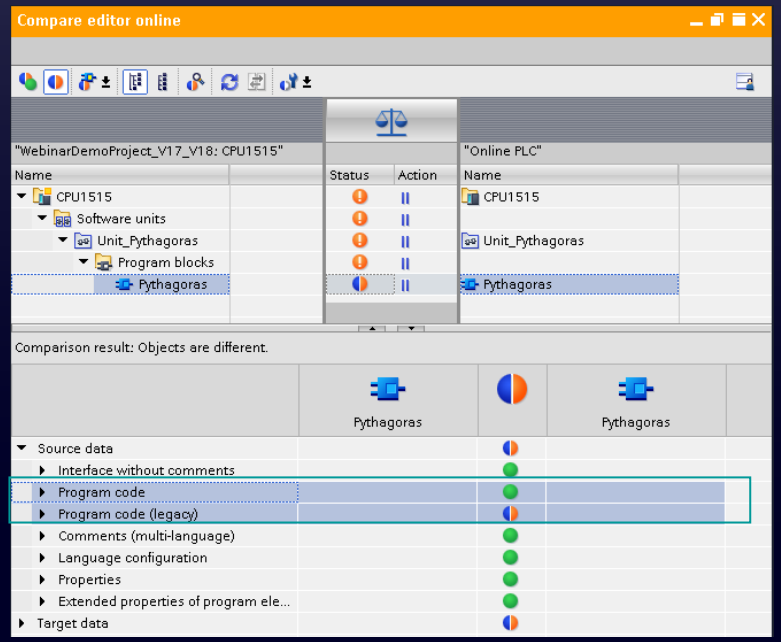
STEP 7 – Innovations
General Improvements

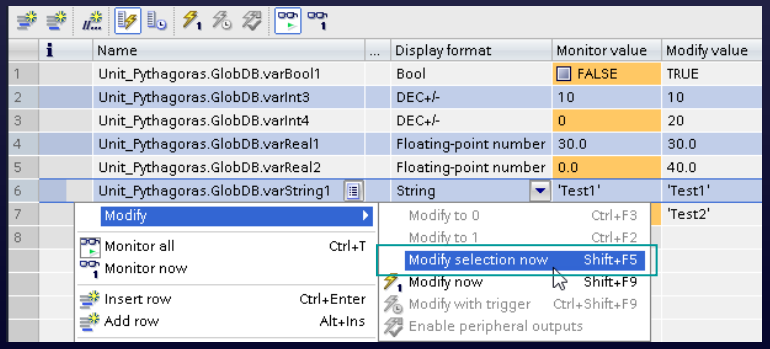
New checksum “Program code” in compare editor

The new checksum only takes the source code into account. Spaces, line breaks, tabs and comments of all types are not included. They are now part of the checksum “Program code (legacy)”



Watch table – New shortcut to modify values of multiple variables

A new context menu in the watch table makes it easier to change the value of several selected variables.



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TIA Portal
Highlights of Motion Control

WinCC Unified – Innovations
- Improved screen engineering
- Enhanced standardization (Faceplate and Library)
- Extended Openness in ES and in RT
- System diagnostics Matric View and Process Diagnostics
- Runtime ready for new operation concepts
- Improved Plant Intelligence Options

WinCC – Innovations
- WinCC Advanced: no newRT Advanced V18 Version
- WinCC Professional: WebUX, WebNavigator extensions

STEP 7 – Innovations
- Namespaces for Software Units
- Failsafe program in Software Units
- LongTerm Trace

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- ET 200SP Technology CPU 1514SP T/TF-2 PN
- Functional enhancements Motion Control & Drive Controller
- Advanced Programming with TO references
- Kinematic functions up to 6 interpolating axes

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- Use standard libraries created with SIMATIC AX inside TIA Portal projects (TIAX use case)

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- Overview of new functions
- Online functionality via TIA Portal Cloud Connector

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- UMAC: username enhancement
- UMAC: support of multiple UMC domains
- Security Logging in TIA Portal
- Library: Compare, new library editor, Multiuser
- Station Upload Enhancements
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- TIA Portal Version Control Interface
- TIA Portal CAx: AutomationML Exchange

TIA Portal Options
- **STEP 7 Safety**
  Consistent Fast Commissioning Download, Failsafe Software Unit, Openness-extensions
- **SIMATIC Safe Kinematics**
- **Multiuser**
  - Grouping, access management, independent release of Project Server
- **OPC UA**
  S7-1500: server diagnostics, source timestamp, increased quantity structures, reference namespace mapping
- **S7-PLCSIM/ S7-PLCSIM Advanced**
  New User Interface / Multiadapter Mode, API supports String
- **SIMATIC Target for Simulink**
  External Mode for LiveTwin, Download in RUN, Multiuser support
- **Test Suite**
  System Test via OPC UA, New properties for style guide rules
- **SiVArc**
  Support of WinCC Unified, new expressions, usability enhancements
- **Energy Suite**
  Support of WinCC Unified, Base Load Mangement, Support of Software / Open Controller
- **Central User Management (UMC)**
- **Modular Application Creator**
- **ProDiag**
  New controls for WinCC Unified PC based Runtime
  S7-GRAPH Overview Control / PLC-Code View for S7-GRAPH
- **Teamcenter Gateway**
  Openness support for connect, save, search, lock and download workflows

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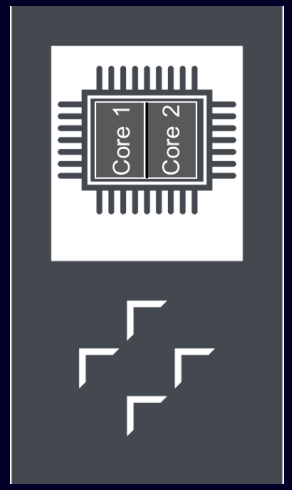
SIMATIC S7-1500 / ET 200SP CPUs
New Hardware-Version for CPU 1511T/TF and 1515T/TF

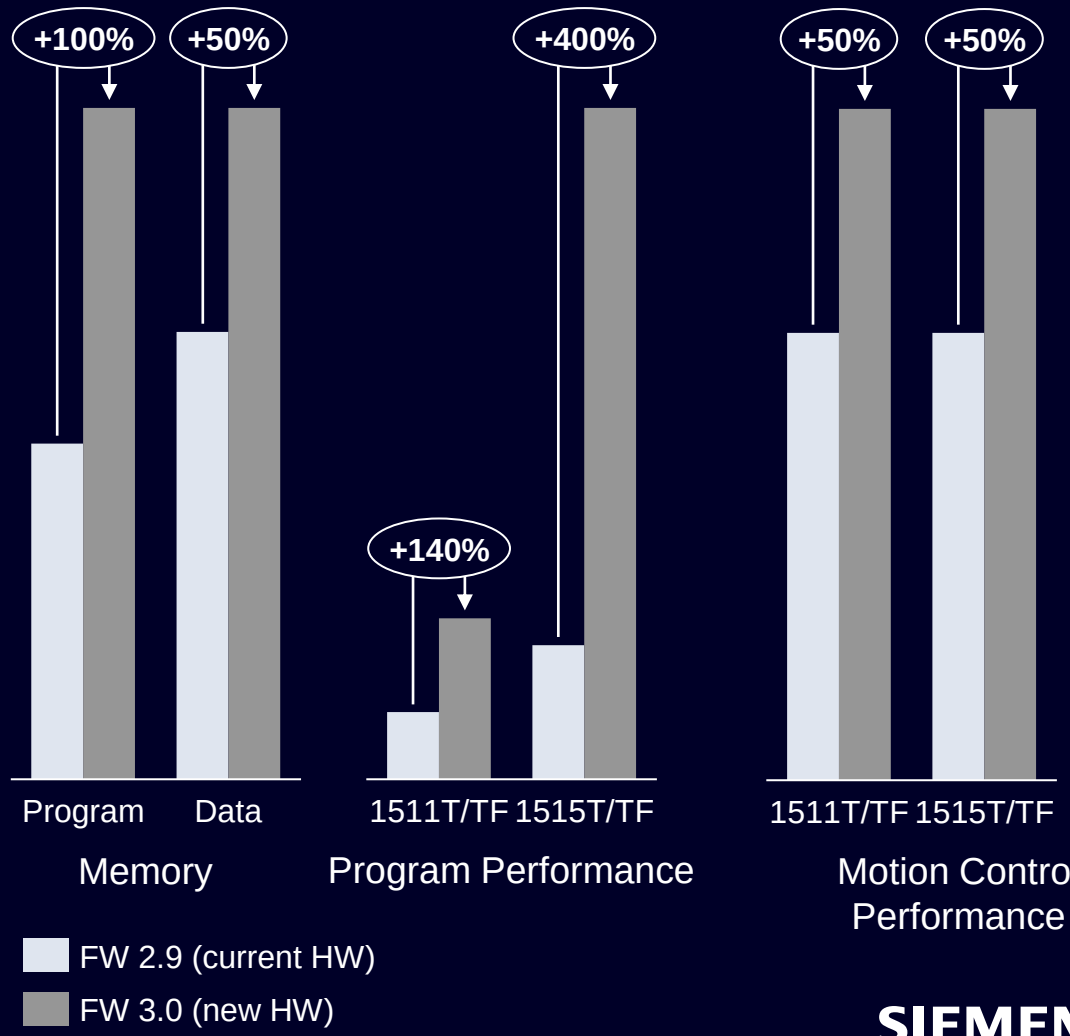
The new hardware offers:

- More memory
- More performance
- Higher communication performance (2nd core)
- CPU 1511T/TF more Motion Control Resources

New CPUs:

- CPU 1511T-1 PN 6ES7511-1TL03-0AB0
- CPU 1515T-2 PN 6ES7515-2TN03-0AB0
- CPU 1511TF-1 PN 6ES7511-1UL03-0AB0
- CPU 1515TF-2 PN 6ES7515-2UN03-0AB0





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Portfolio enhancement with SIMATIC S7-1514SP T/TF

A new technology CPU in the design of a SIMATIC ET200SP Controller

SIMATIC S7-1514 SP T/TF

for midrange Motion Control

- Extendable and economic solution for the midrange Motion Control market
- Powerful SIMATIC ET200SP Controller especially designed for the requirements of the midrange Motion Control applications
- Same performance in comparison to newly CPU 1515T
- Provides access to the extensive range of the ET200 SP IO modules including newly designed PTO2 modules for stepper drives

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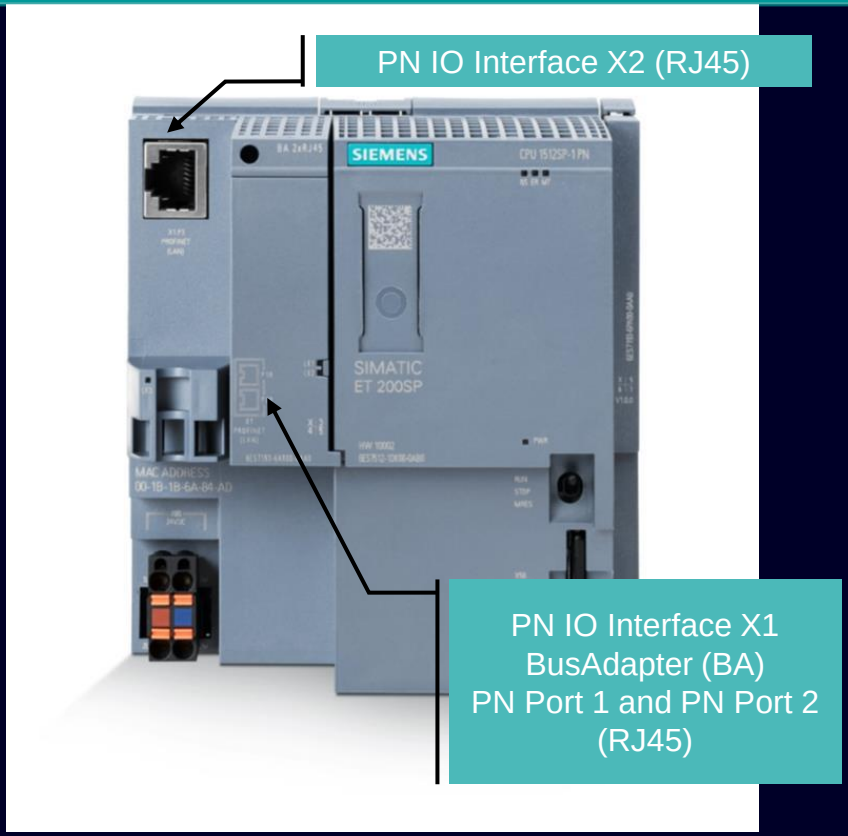
Portfolio enhancement with SIMATIC S7-1514SP T/TF
facts and figures at a glance

Components



	Distributed Controller
CPU Type	CPU 1514SP T/TF-2 PN
Interfaces	1 2 / 1 — 1 PROFINET IO with IRT; 2 PROFINET IO with RT
Bit performance	6 ns
Program memory Data memory	900 kB 3,5 MB
Motion Control Resources [1] Ext. Motion Control Res. [2]	2.400 120
Positioning axes: Maximum	30
Performance estimates [3]	
Positioning axes: Typical	11 in 4 ms [4]

1 Resources for Motion Control technology objects:
2 Resources for Extended Motion Control technology objects:
3 Estimated values are subject to implementation of use case
4 With 4 ms Servo/IPO-cycle time and 35% CPU usage for motion control

Speed axis = 40 | Positioning Axis = 80 | Sychr. Axis = 160 | Output cam = 20 | Output cam track = 160 | Measuring input = 40 | Ext. Encoder = 20
Cams (1.000 points and 50 segments) = 2 | Cams (10.000 points and 50 segments) = 20 | Kinematic objects = 30 | leading axis proxy = 3

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SIMATIC Drive Controller
Enhancements with TIA Portal V18 / FW V3.0 and SINAMICS V5.2 SP3 HFx

New functions / features

- Increase in memory and MC resources (see table) [5]
- X142 technology I/Os, event/period duration measurement
  → Additional measurement method "Multiple periods" for higher measurement accuracy for short periods.
- FW update SINAMICS Integrated via Webserver
- Kinematic functions for up to 6 interpolating axes (Option for CPU 1507D TF)
- Further new functions: additional SINAMICS Technology Extensions, …

Increase in memory and MC resources		
CPU Type	CPU 1504D TF	CPU 1507D TF
Interface 1 PROFINET IO with IRT 2 PROFINET IO with RT 3 PROFINET base com (1 Gbit) PROFIBUS		
Program memory Data memory	2 → 4 MB 4 → 6 MB	6 → 15 MB 20 → 40 MB
Motion Control Resources [1] Ext. Motion Control Res. [2]	2.400 → 3.200 120 → 160	No change No change
Positioning axes: Maximum	30 → 40	160
Performance estimates [3]		
Positioning axes: Typical	12 in 4 ms [4]	55 in 4 ms [4]

1 Resources for Motion Control technology objects: Speed axis = 40 | Positioning Axis = 80 | Sychr. Axis = 160 | Output cam = 20 | Output cam track = 160 | Measuring input = 40 | Ext. Encoder = 20
2 Resources for Extended Motion Control technology objects: Cams (1.000 points and 50 segments) = 2 | Cams (10.000 points and 50 segments) = 20 | Kinematic objects = 30 | Leading axis proxy = 3
3 Estimated values are subject to implementation of use case
4 With 4 ms Servo/IPO-cycle time and 35% CPU usage for motion control
5 Increase of memory and MC resources also for existing CPUs by FW upgrade

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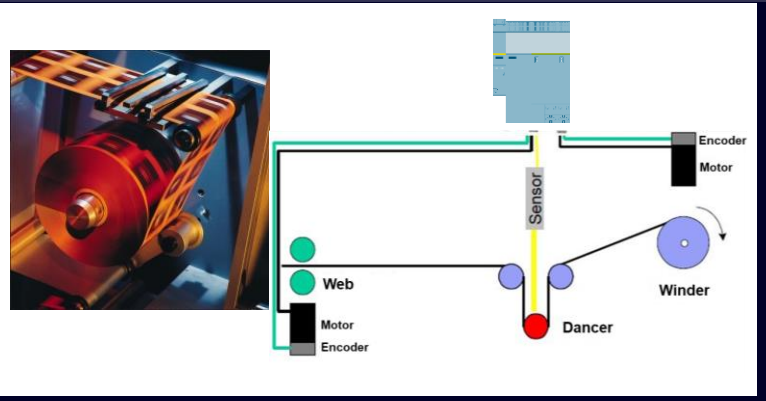
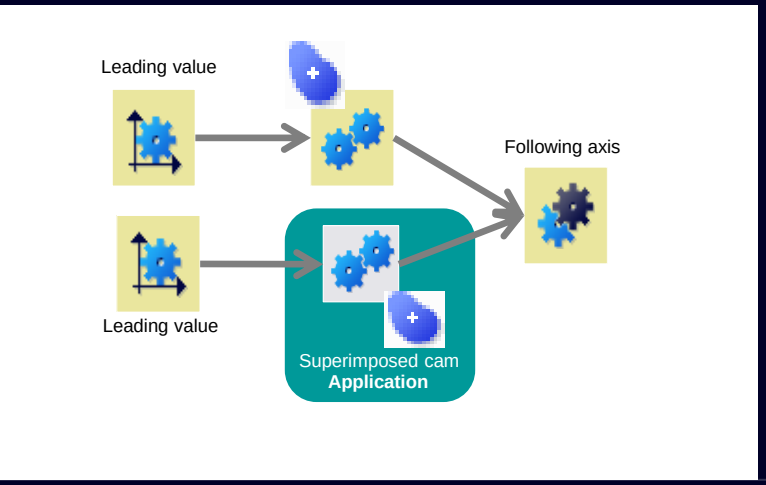
Motion Control – Innovations
Motion Control Enhancements I





Velocity gearing

- New PLCopen function block MC_GearInVelocity
- Following axis is synchronous only to the velocity of a leading axis
- Continuous change of gear ratio in synchronous mode possible (e.g. continuous diameter adjustment for winder)
- Reduced engineering efforts e.g. for converting & winder applications

Extensions for superimposed movements

New PLCopen function block MC_MotionInSuperimposed

- Cyclic setting of a superimposed movement to a basic movement by the application
- Can be used e.g. for superimposed synchronization by the application
- For the basic movement, positioning or synchronous functions can be used
- Reduced engineering efforts when applying special adjustment values to movements (e.g. welding applications)

New PLCopen function block MC_HaltSuperimposed.

- Stop of a superimposed movements (MC_MoveSuperimposed or MC_MotionInSuperimposed) , independently from the basic movement
- Reduced engineering efforts for stopping superimposed movements

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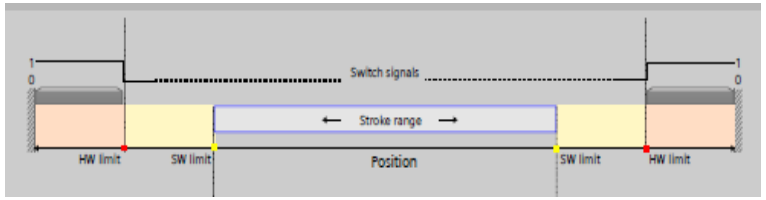
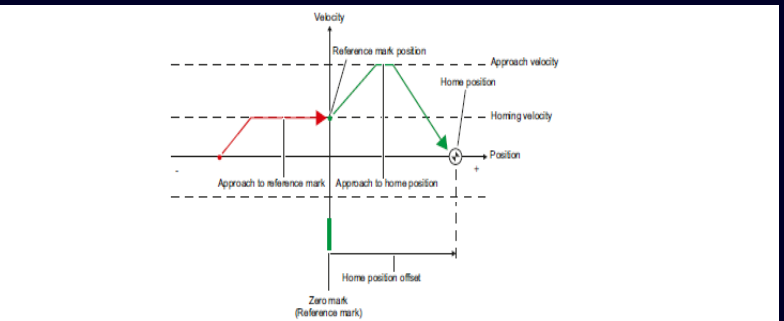
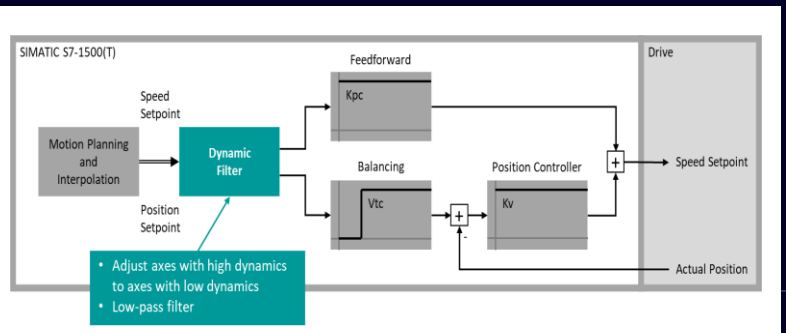
Motion Control – Innovations
Motion Control Enhancements II







Improvements HW and SW limit switches

- Easier usage of the limit switches
- Stop on SW limit switch with programmable dynamics
- Axis can keep under control even when the limit switch is overrun
  → Prevent of switch off axis

Improvements Homing

- Active homing with absolute encoder
  → Adjustment possible during runtime w/o ES
- Homing of non-active encoders of an axis
  → Easier homing with multiple encoders on the axis
- Save the absolute encoder adjustment to memory card
  → Easy module exchange

Dynamic filter

- Match control behavior of axes with different dynamic performance
  → The dynamic behavior of coupled axes (synchronous or kinematics axes) can be adapted to each other

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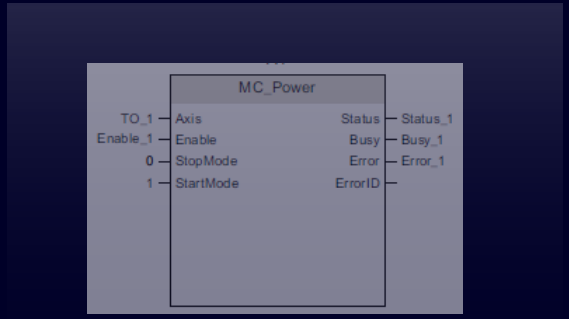
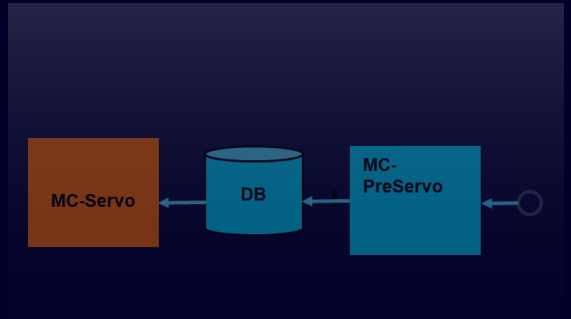
Motion Control – Innovations
Motion Control Enhancements III



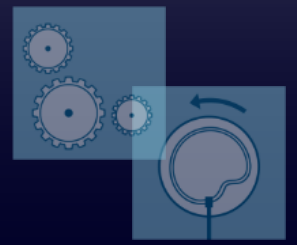
Disable Axis

- **Extension MC_Power**
- Locking the axes via stop reaction coasting ("StopMode" = 3)



Drive connection via DB

- **Adjustable delay times of the position controller when connecting an axis via DB**
- Communication times T_i, T_o, T_{DC} configurable for the calculation of the following error



Camming

- **New mode for cam synchronization MC_CamIn**
- Synchronization in advance of the following axis via the leading value distance starting from the current leading value position
- **Improved system performance with cam interpolation**
- For modular S7-1500T(F) CPUs and SIMATIC Drive Controllers from firmware version V3.0 onwards

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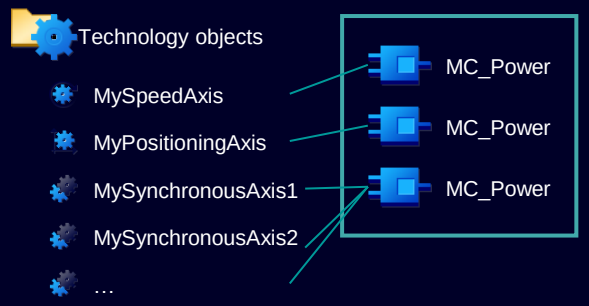
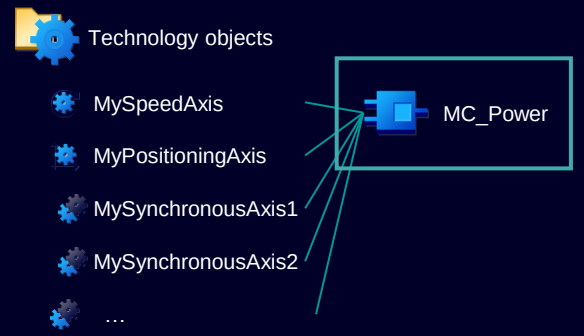
Motion Control – Innovations
References to Motion Control Technology Objects

Until now each axis type needs its own MC_... call




```
// Call of MC instruction
CASE #statAxisType OF
  #SPEED_AXIS:
       "LAnyAxis_UnpubPowerSpeedAxis"(axis := #statAxis,
                                      instMC := #instMC);
  #POSITIONING_AXIS:
    "LAnyAxis_UnpubPowerPosAxis"(axis := #statAxis,
                                 instMC := #instMC);
  #SYNCHRONOUS_AXIS:
    "LAnyAxis_UnpubPowerSyncAxis"(axis := #statAxis,
                                  instMC := #instMC);
END_CASE;
```

Only one call for (all) axis types




```
//Assignment attempt with DB_Any
#tempMyRef ?= #myDbAny;
IF #tempMyRef <> NULL THEN
    #instMcPower(Axis := #tempMyRef^);
```

TO-References

- Support of temporary references (REF_TO) to Motion Control TO-Objects
- Allows transfer of DB_Any references into TO references during runtime
- Direct access to values of technology objects

```
FOR #tempI := 0 TO "TOCountMax" DO
    #RefTo_TO_SpeedAxis ?= "DB_Axis".axis[#tempI];
    IF #RefTo_TO_SpeedAxis <> NULL THEN
        #MC_RESET_Instance(Axis := #RefTo_TO_SpeedAxis^,
                           Execute := TRUE);
```

```
#tempVelocity := #RefTo_TO_SpeedAxis^.Velocity + 1;
#RefTo_TO_SpeedAxis^.DynamicLimits.MaxDeceleration := 33;
```

Benefits

- Generic programs for technology objects
- Reduction of complexity through flexible assignment of technology-objects in the program
- Simplification of technology objects programming in arrays with DB_ANY data type (processing in loop structures)
- Reduction of necessary program code

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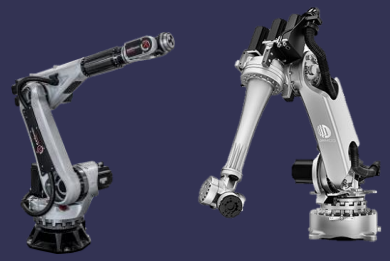
Motion Control – Innovations
Handling solution: Kinematic functions up to 6 interpolating axes

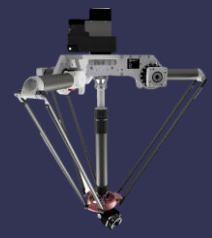
TIA Portal V18 to address kinematic functions for 5 or 6 interpolating axes **(5D/6D)** in S7-1500T

Market trends and customer expectations

Production increasingly requires “oriented” handling of products



6D Articulated arm
with central hand



5D Delta Picker
3D with rotation
and swivel axis

5D Cartesian Portal
3D with rotation
and swivel axis

and User defined kinematics (6D)

Fully integrated in TIA Portal Engineering –
e.g., with Kinematic control panel up to six axes

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TIA Portal
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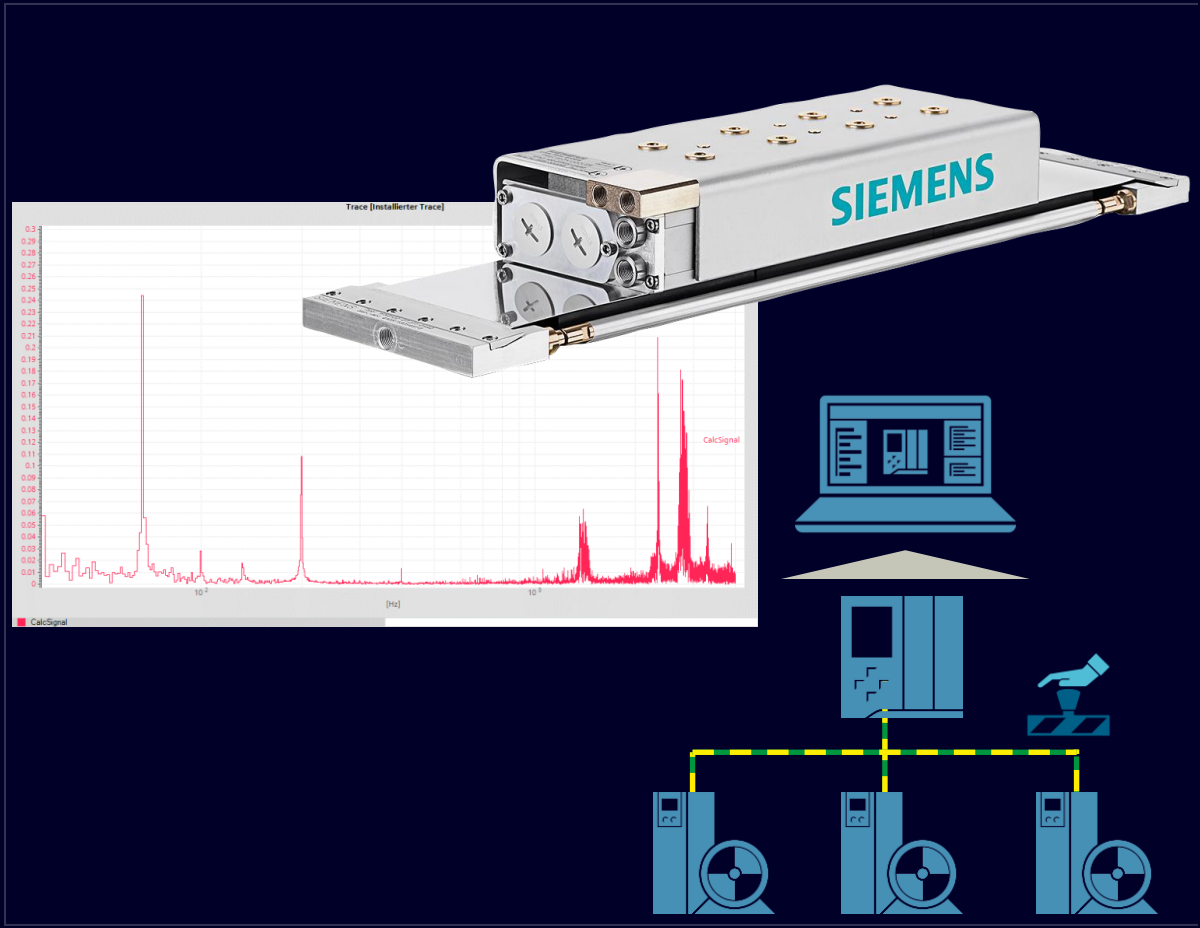
Startdrive & DCC – Innovations
Hardware and functions



Support of linear motors

- Available for CU3x0-2 based drives (S120)
- Siemens motors 1FN1, 1FN3 and 3rd party motors
- Automatic unit switchover, EPOS support, support via Openness

FFT analysis (Fast Fourier Transformation)

- Available for CU3x0-2 based drives (S120)
- Identify mechanics and their behavior in the controlled system
- FFT analysis also for imported measurements

Support of station upload for SIMATIC F-PLCs (S7-1500F)

- Available for SINAMICS G drives, CU3x0-2 based drives and S210 as Startdrive object with PROFIsafe communication
- F-PLC upload into the project with drive proxies created
- Use case: disaster recovery for F-PLCs

EPOS support for SINAMICS V90PN HSP

SINAMICS DCC V18

- Upload of charts created with STARTER
- Openness extensions (chart creation, block handling, I/O publishing)

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TIA Portal
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- Failsafe program in Software Units
- LongTerm Trace

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- Kinematic functions up to 6 interpolating axes

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- **SIMATIC Safe Kinematics**
- **Multiuser**
  - Grouping, access management, independent release of Project Server
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OUR EXISTING TIA PORTAL ECOSYSTEM

grows for maximum flexibility to address IT-like needs

Limited Sales Release together with TIA Portal V18[1]

[1] No free market access of SIMATIC AX. Please contact your local DI FA Sales Representative regarding technical limitations and purchase

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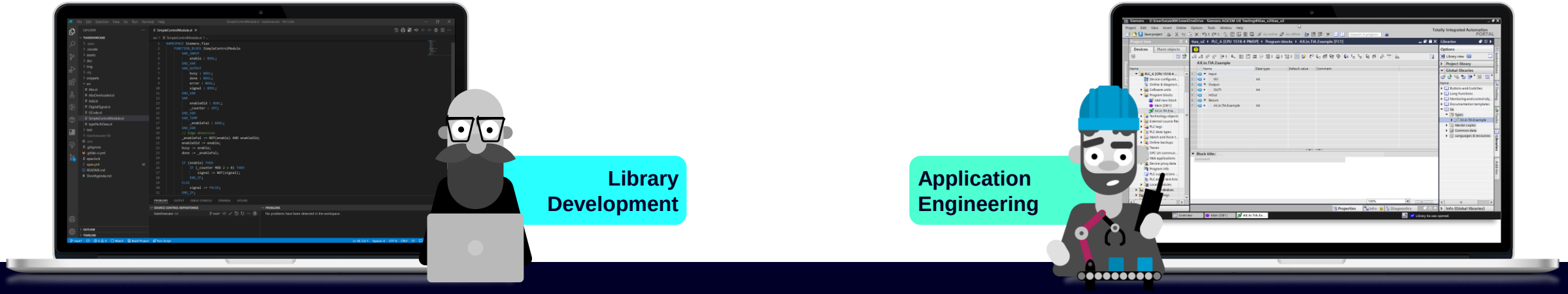
SIMATIC AX

TIAX use case



SIMATIC AX

Program library functionality

Test library

Generate/update Global TIA Portal Library

New version of TIA Portal library

STEP 7 TIA Portal

Create hardware configuration

Open and update library

Create machine application

Download HW config & code to PLC

Monitor & debug variables

Debug library on PLC: Monitoring and tracing of variables (simultaneously with TIA Portal)

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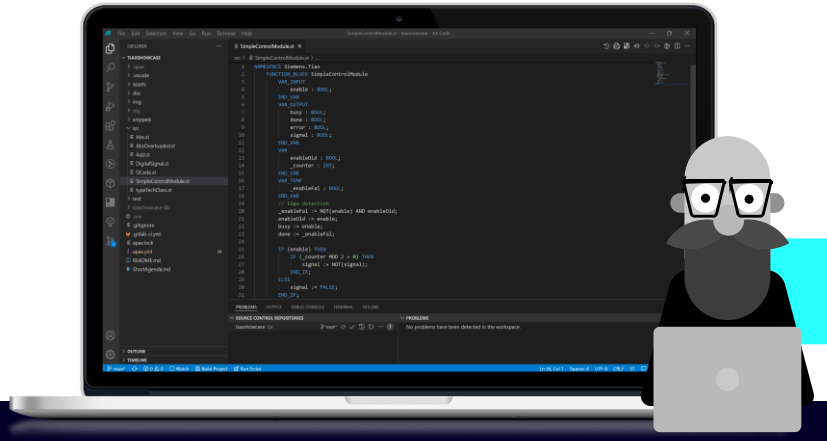
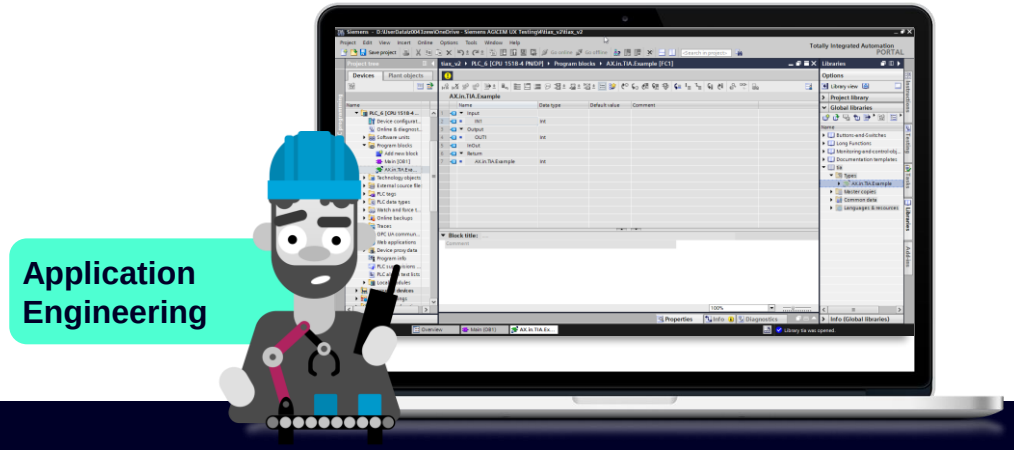
SIMATIC AX

TIAX use case



Library Development



Application Engineering

SIMATIC AX

Use the benefits of OOP, unit testing framework and Git connectivity for code standardization

Create, test and maintain S7-1500 standard libraries with SIMATIC AX

Benefit from the advantages of both engineering systems

STEP 7 TIA Portal

Use the integrated framework for PLC, HMI and drives to create and commission your machine project

Convert SIMATIC AX libraries into global TIA Portal libraries and reuse standard library blocks within TIA Portal projects

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SIMATIC AX

Availability (Europe only)

Available in

- France
- Belgium
- United Kingdom
- Ireland
- Netherlands
- Portugal
- Spain
- Sweden
- Denmark
- Norway
- Finland
- Germany
- Italy
- Austria
- Bulgaria
- Croatia
- Hungary
- Poland
- Czech Republic
- Turkey
- Slovakia
- (Switzerland)[2]

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[2] Planned for 2023

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TIA Portal Cloud

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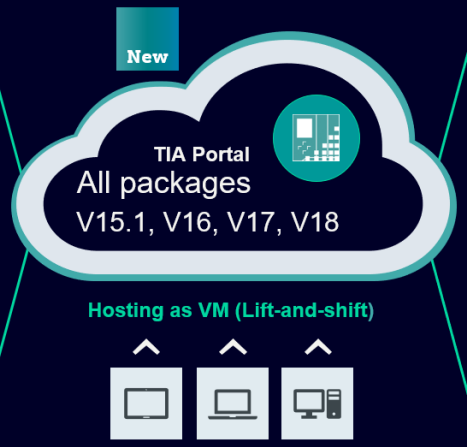
TIA Portal Cloud
Overview of new functions

TIA Portal Cloud V3.0

Package

- STEP 7 Professional
- WinCC BCA / Unified
- STEP 7 Safety
- PLCSIM Advanced
- StartDrive Advanced
- SiVArc
- SINAMICS DCC
- SINETPLAN
- Test Suite
- Energy Suite
- SIMIT Demo



New business model

Subscription monthly
- invoiced monthly
- unlimited access

>> subscribe via Industry Mall: 6ES7804-0CP41-2YA0

Subscription pay per use
- immediate access once required
- charged hourly
- pays only for session

>> subscribe via Industry Mall: 6ES7804-0CP41-3YA0

Trial – 21 days
- 21 days access to TIA Portal Cloud

TIA Portal Cloud is a highly efficient online service that enables you to work in a virtual environment.

Anywhere at any time!

What is new:

TIA Portal Cloud V3.0 (11/2022)
- Integration of TIA Portal V18

TIA Portal Cloud V2.3 (09/2022)
- Product updates and security fixes

TIA Portal Cloud V2.2 (07/2022)
- Performance improvements for download to SIMATIC hardware

TIA Portal Cloud V2.1 (05/2022)
- Online functions with local SIMATIC hardware
- Integration of SIMIT Demo

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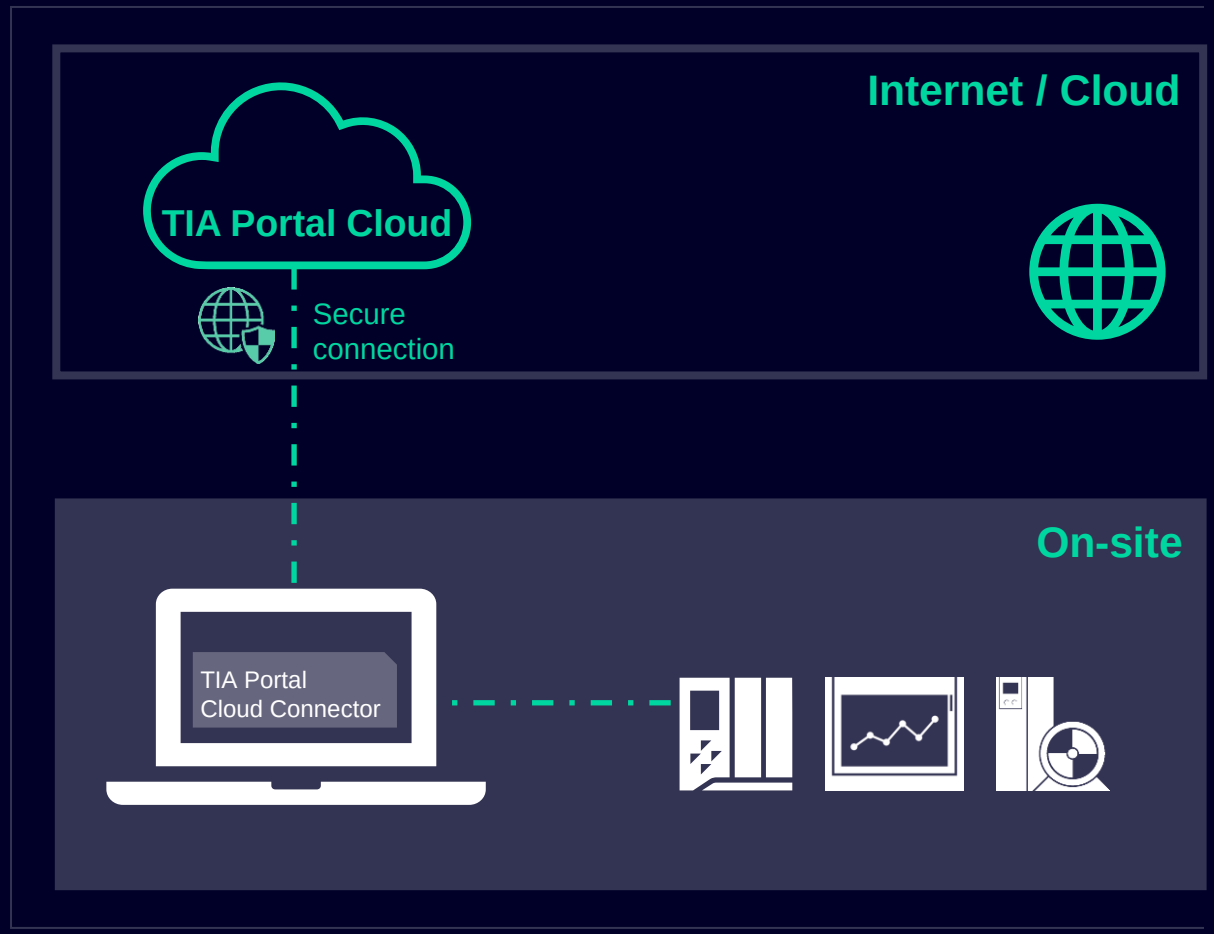
TIA Portal Cloud
Online functionality via TIA Portal Cloud Connector



TIA Portal Cloud Connector

The TIA Portal Cloud Connector is now an integral part of TIA Portal Cloud and enables the use of TIA Portal online functions with local SIMATIC hardware.

Features

- Access to all online functionalities
- Performant download to devices
- Secure connection of devices
- No license needed for Cloud Connector

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TIA Portal Cloud Connector

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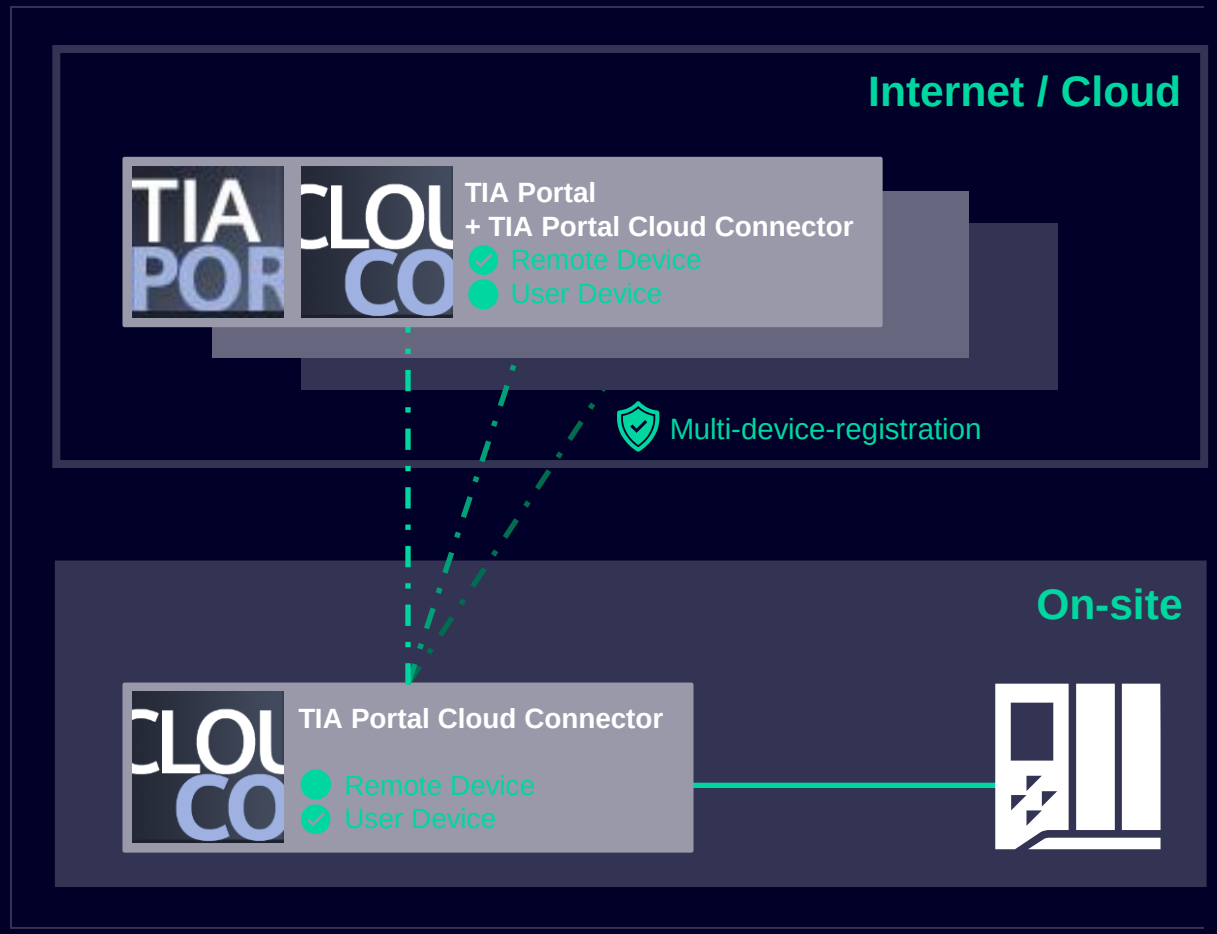
TIA Portal Cloud Connector
Overview of new functions



The TIA Portal Cloud Connector provides access to local PG/PC interfaces and the SIMATIC hardware connected to them from a TIA Portal Engineering System in a cloud environment.

What is new:

TIA Portal Cloud Connector V1.3 (11/2022)

- Multi-device-registration: one cloud connector user device can be registered and used by multiple remote devices at the same time.

TIA Portal Cloud Connector V1.2 SP2 (07/2022)

- Increased performance for download to a PLC.

TIA Portal Cloud Connector V1.2 SP1 (05/2022)

- New protocol "TIA Portal Cloud". This protocol is optimized to access programmable controllers from TIA Portal packages in TIA Portal Cloud (from TIA Portal Cloud V2.1).
- Using TIA Portal Cloud Connector in conjunction with TIA Portal Cloud does not require a license.

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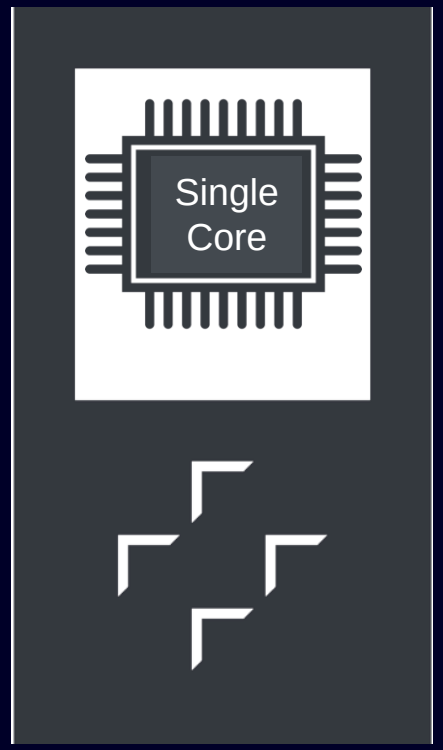
New Hardware for CPUs ≤ 1516 starts with FW V3.0 & TIA Portal V18



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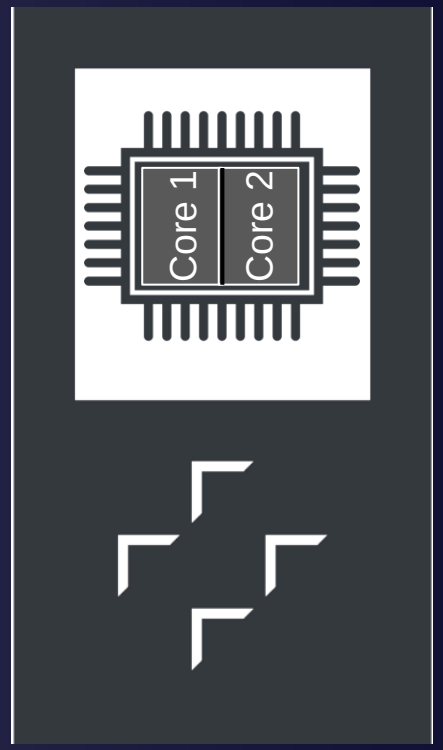
FW ≤ V2.9



6ES751x-xyyx03-0AB0
FW = V3.0

New Hardware with 2 Core Processor

- Core 1
  - User program
  - Diagnoses
- Core 2
  - Communication

New Display implementation

Benefits

→ Deterministic program processing (smaller jitter)
→ Higher communication performance
→ No separate Display FW needed

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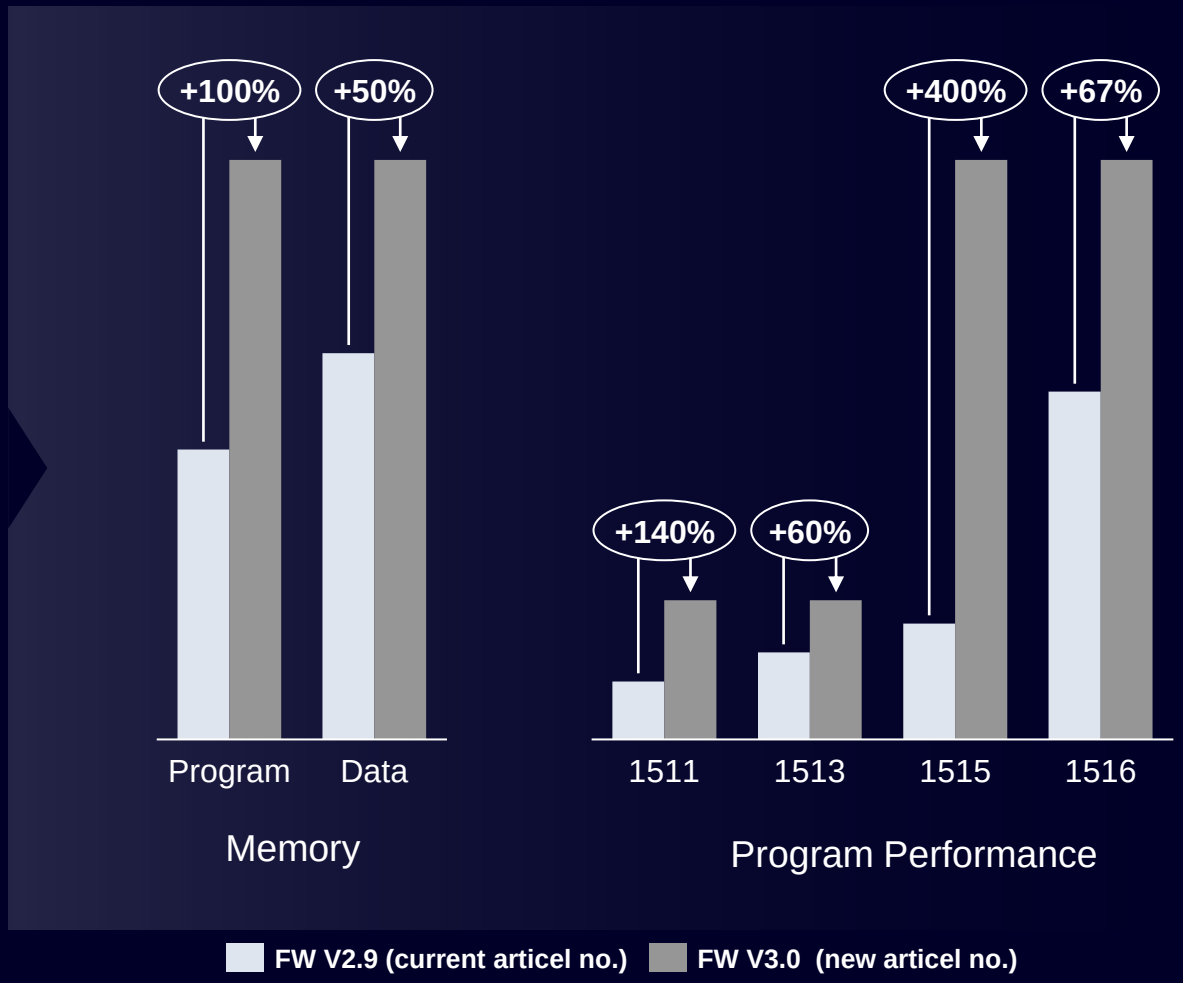
SIMATIC Hardware
New Hardware for CPUs ≤ 1516 starts with FW V3.0 & TIA Portal V18

The new hardware offers

- More memory
- More Performance
- Higher communication performance (2nd core)

2nd / 3rd Step:

- Gbit Ethernet on X2 of the CPU 1515 /1516
- 2nd PN Interface with IRT



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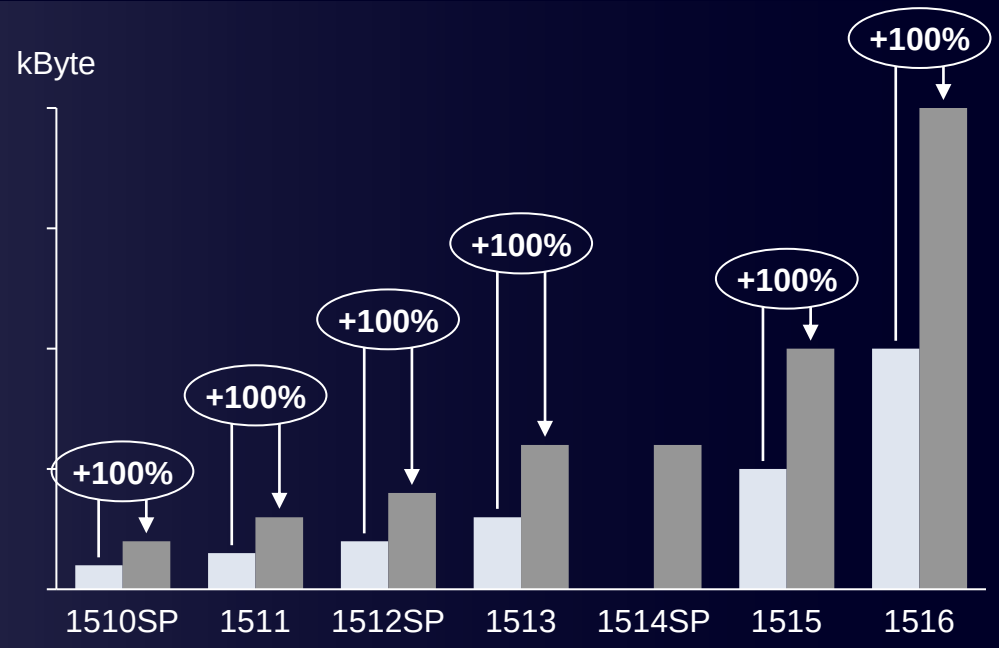
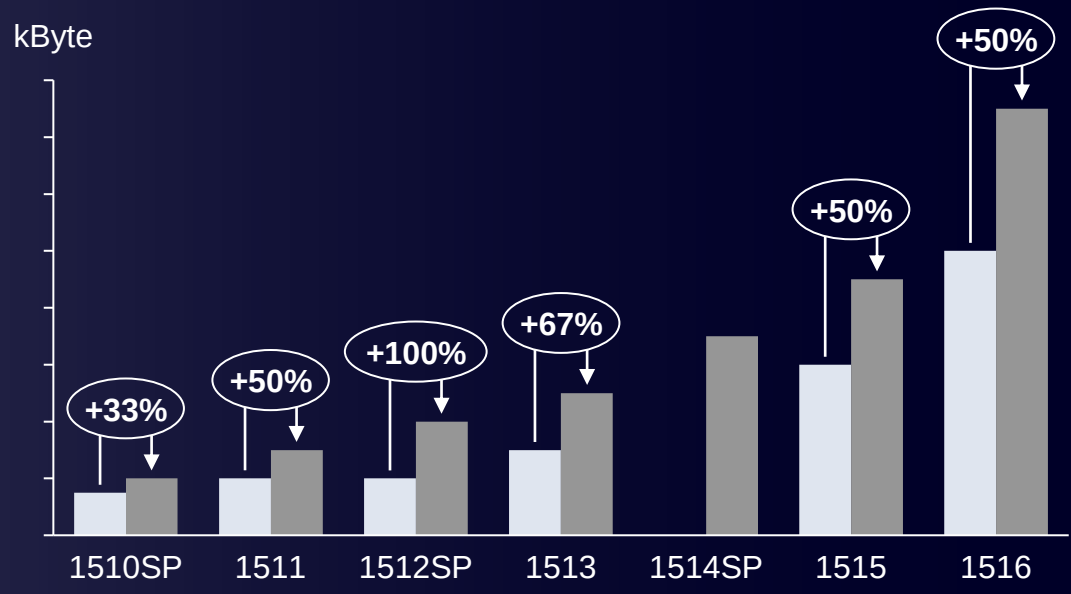
SIMATIC Hardware
New Hardware for CPUs ≤ 1516 starts with FW V3.0 & TIA Portal V18

+100% more program- and data memory



Program memory

➢ **more resources for future customer application extensions**



Data memory

Standard and Fail Safe

FW V2.9 (current article no.) FW V3.0 (new article no.)

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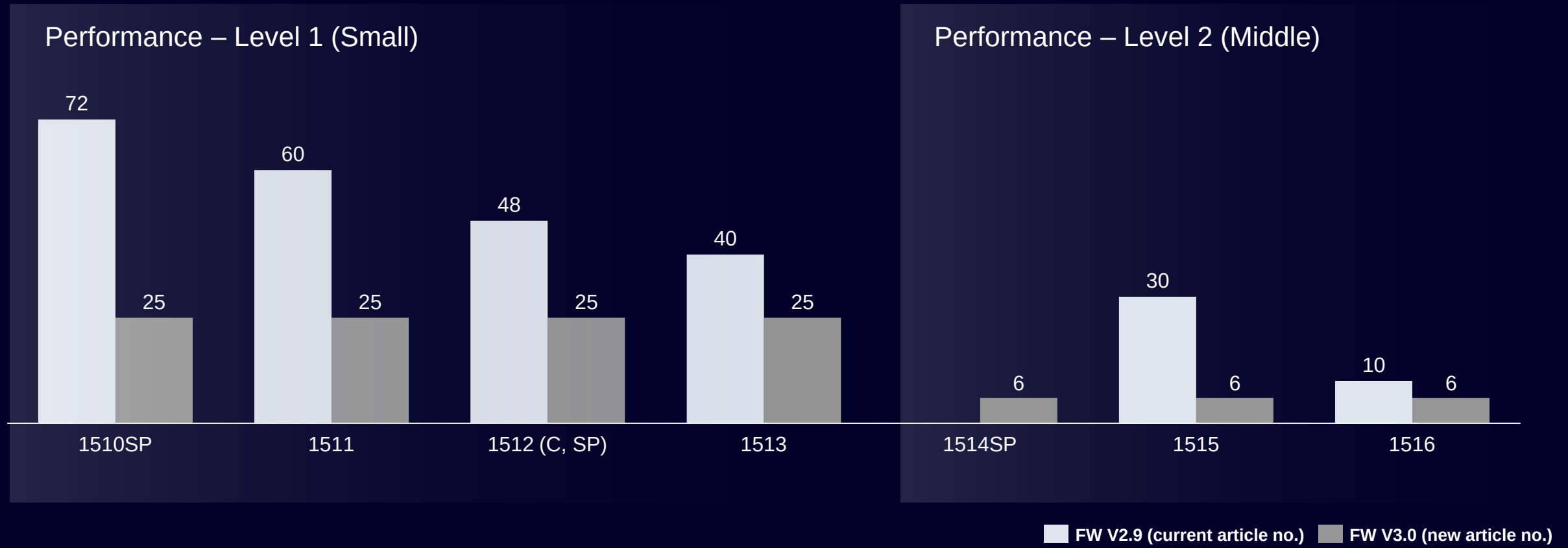
SIMATIC Hardware
New Hardware for CPUs ≤ 1516 starts with FW V3.0 & TIA Portal V18

- **2 performance levels**
- **up to +400% performance increase**

- ➢ **Easier controller selection**
- ➢ **More customer use cases can be realized**



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SIMATIC Hardware
Increase/harmonization of quantity structure

Ambient temperature • CPU 1511-1516 from -25°C - +60°C → -30°C - +60°C	➢ Same temperature range as most of IO modules ➢ Usable in more customer applications ➢ Easier controller selection
Retentive Data • CPU 1510SP-1513 from 128 kB to 256 kB	➢ More memory space to prevent data loss in the event of power failure
Min. OB 3x cycle • CPU 1510SP-1515 from 500µs to 250µs	➢ More frequent processing of program parts
UDP multicast circuits • CPU 1510SP-1513 from 5 to 78 • CPU 1515-1516 from 5 to 118	➢ Significantly more participants can be reached via UDP Multicast

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SIMATIC Hardware
New ET 200SP CPU 1514SP (F/T/TF)-2 PN with FW V3.0 & TIA Portal V18

- Comparable with memory concept, quantity structure and features of a SIMATIC S7-1500 CPU 1515(F) - 2 PN CPU
- Work memory
  - Program: **600/900 kByte**,
  - Data: **3,5 MByte**
- Performance: Bit instruction time**: 6 ns**
- **2 PROFINET IO interfaces**
  - PN IO interface X1
    - PROFINET RT/IRT
    - different BusAdapter with 2 Ports
  - PN IO interface X2
    - PROFINET RT

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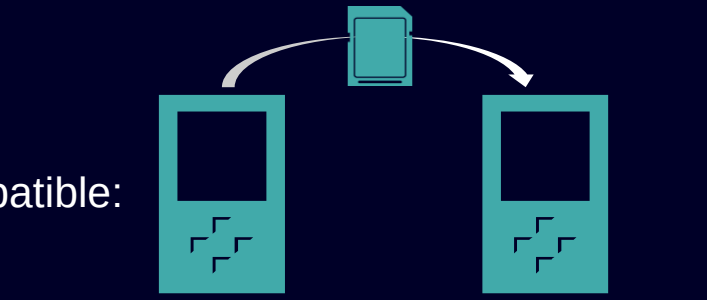
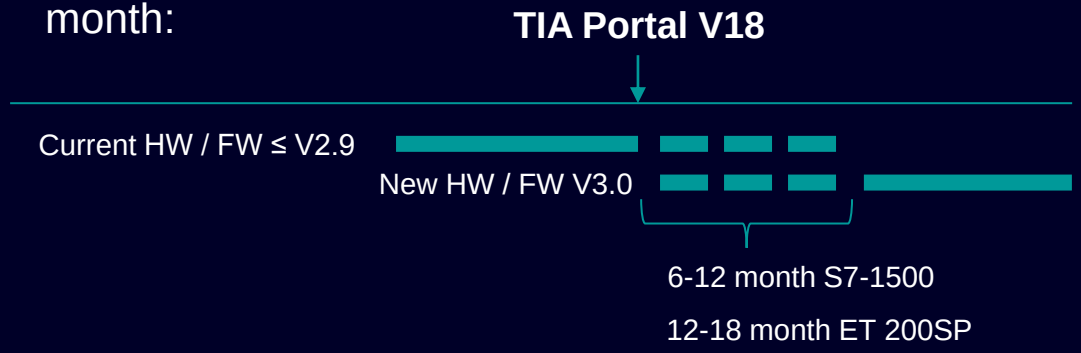
SIMATIC Hardware
Compatibility

1. CPU 1510SP to CPU 1516
   - FW V3.0 only for new article numbers
   - Full spare part compatible:



   - Parallel delivery of the old and new HW for 6-12 month:



2. CPU 1517/1518
   - Same HW as today
   - New functionality with FW V3.0 upgrade also for existing CPUs

3. Compact and ET 200pro CPUs
   - Same HW and FW (V2.9) as today
   - No new functionality with TIA Portal V18!

4. Support of FO/LC BusAdapter for ET 200SP CPUs 1512SP(F) first with 2nd step (TIA Portal V19)

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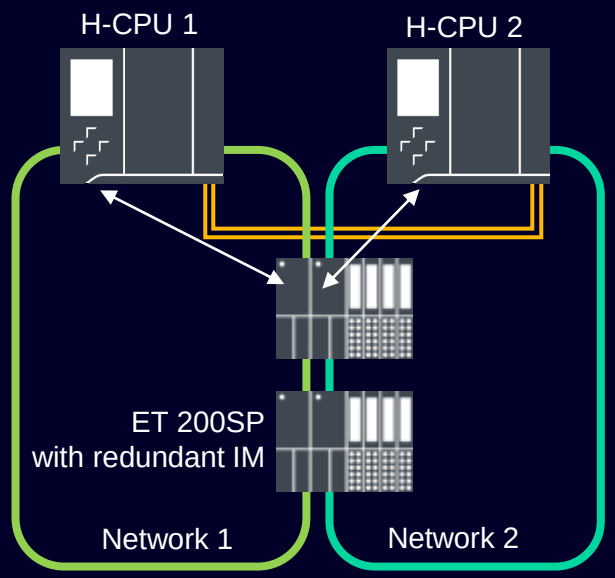
New

SIMATIC Hardware
PROFINET System Redundancy R1 for S7-1500H and ET 200SP



Redundant Interface on ET 200

each with **1** relation to a H-controller

Increased plant availability with R1 redundancy
- Higher robustness in case of outage of components
- Seamless failover when one Interface Module fails

Redundancy now also on I/O Level
- The new redundant IM 155-6PN R1 for ET 200SP can be combined with all existing IO modules of ET 200SP
- Also supported: R1 with ET 200SP HA and ET 200iSP

Redundant Networks
- Process continues even in case of a complete network breakdown
- Redundant and single networks can be combined

R1 can be used with existing S7-1500H PLCs
- No new PLC hardware needed
- TIA Portal V18 and Firmware Update to V3.0 enables R1 redundancy in the PLCs

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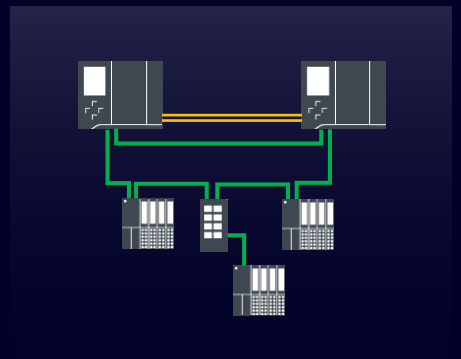
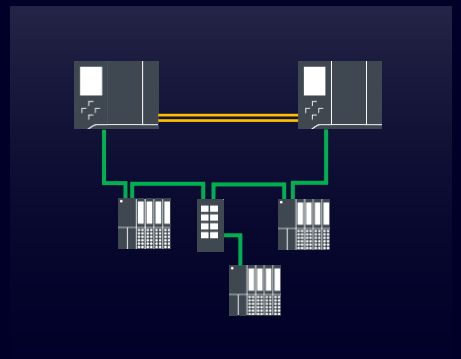
SIMATIC Hardware
Flexible Network Architectures for S7-1500H

Support of additional network architectures allows an easy integration in existing network structures



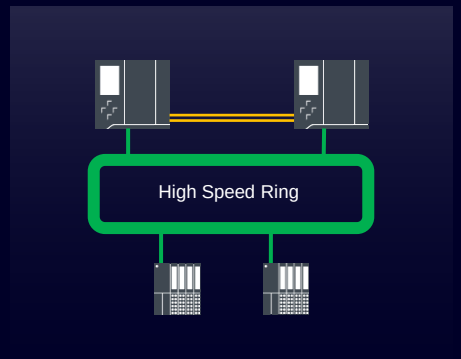
Single MRP Ring

- Media Redundancy with MRP Protocol
- The only supported option for S7-1500H in TIA Portal V15…V17



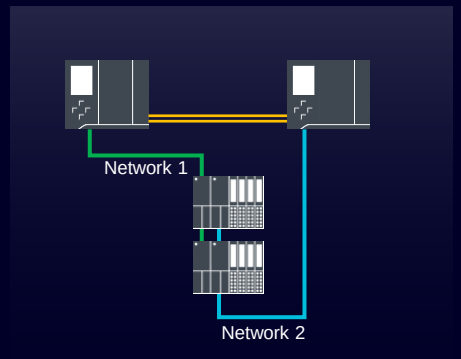
Line Topology

- Direct PN connection between H-controllers is no more needed
- IO Data is synchronized via the “yellow cable”
- Also operation without PN devices is supported



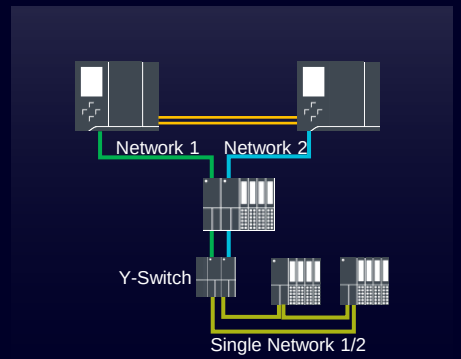
Separated Ring

- Connection to existing network structures is now possible
- High speed communication in the ring can be used



Line Topology with R1

- Dual ring architecture with R1 can also be opened to R1 line structure
- Wiring from both sides increases availability in the line structure



R1 + Y-Switch

- Y-Switch device allows to connect S1 and S2 devices to redundant networks

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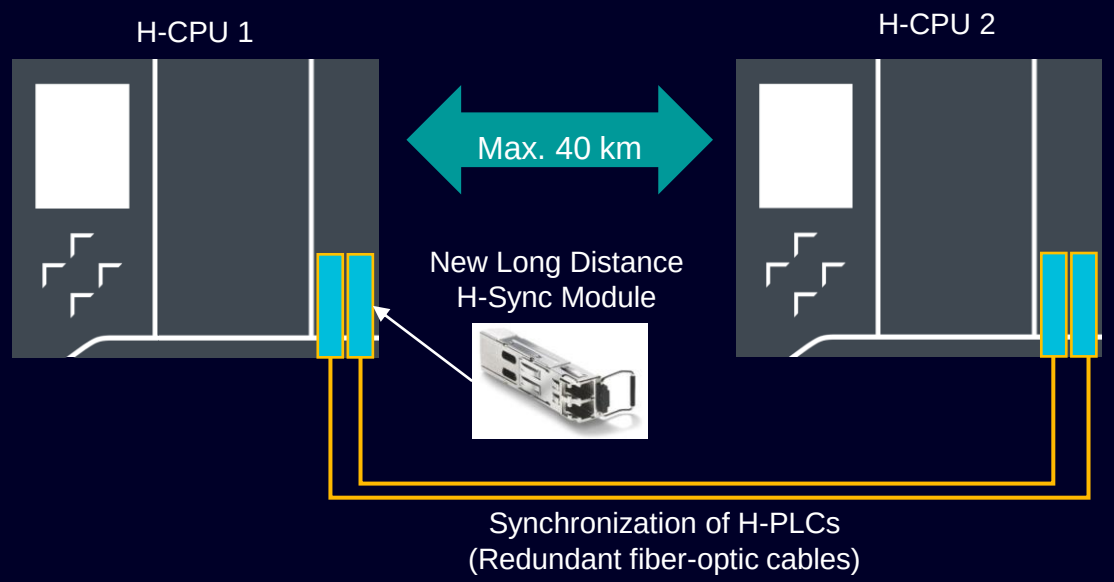
New

SIMATIC Hardware
Long Distance H-Sync for S7-1500H



New Long Distance Sync-Modules for S7-1500H
- In addition to existing 10 m / 10 km Sync Modules
- Needed to connect the fiber-optic cables for H-Synchronization

Distances between H-Controller up to 40 km
- This allows to use the S7-1500H System also in applications with large dimensions
- Mainly: Tunnel Applications

Compatible to existing H-Controller
- Can be used with existing H-Controller CPU 1517H and CPU 1518HF
- Firmware Update

R1 can be used with existing S7-1500H PLCs
- No new PLC hardware needed
- TIA Portal V18 and Firmware Update to V3.0 is needed to use the new H-Sync Module

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SIMATIC Hardware
S7-1200 CPU V4.6

TIA Portal	Firmware Version	1211	1212	1212F	1214	1214F	1215	1215F	1217
V17	V4.5	50	75	100		125		150	
V18	V4.6	75	100	150		200		250	

- The increased work memory allows the user to create projects that can do more
- Up to 2/3 additional through FW update for HW generation V4 (6ES721*x*-1*xx*40-0XB0)

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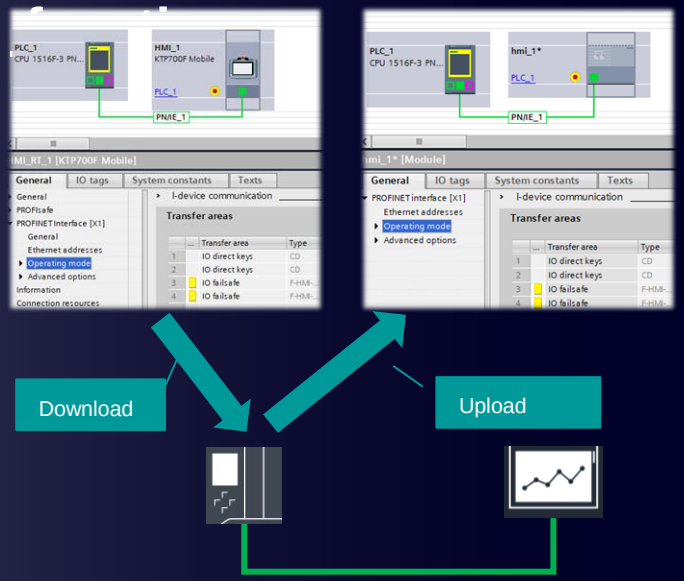
SIMATIC Hardware
Station Upload enhancements

A station upload from a PLC fetches the downloaded data from the PLC and translates it back into project data

F-PLC operates F-Panel as PN-IO Device

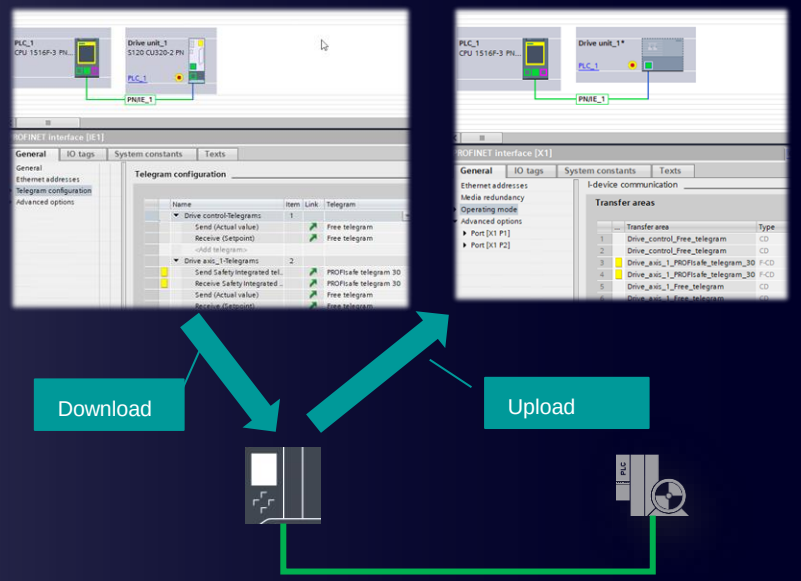


The Upload from a F-PLC (CPU1500) won't be blocked if the F-PLC operates F-Panels as PN-IO Device. After the Upload a panel will be represented as a proxy without panel specific parameter.

Supported with

- TIA Portal V18
- TIA Portal V17 Update 6 (planned)

F-PLC operates SINAMICS as PN-IO Device

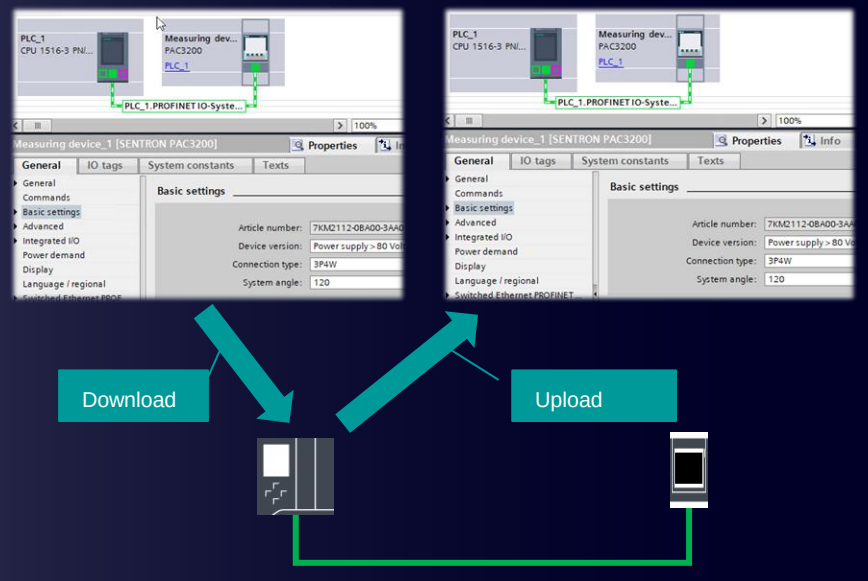


The Upload from a F-PLC (CPU1500) won't be blocked if the F-PLC operates F-SINAMICS drive as PN-IO Device. After the Upload a drive will be represented as a proxy without drive specific parameter.

Supported with

- TIA Portal V18
- TIA Portal V17 Update 6 (planned)

PLC operates Sentron (PAC, COM) as PN-IO Device



The Upload from a PLC (CPU1500) won't be blocked if the PLC operates Sentron power distribution and measurement device (PAC, COM) as PN-IO Device. After the Upload Sentron device will have default parameters .

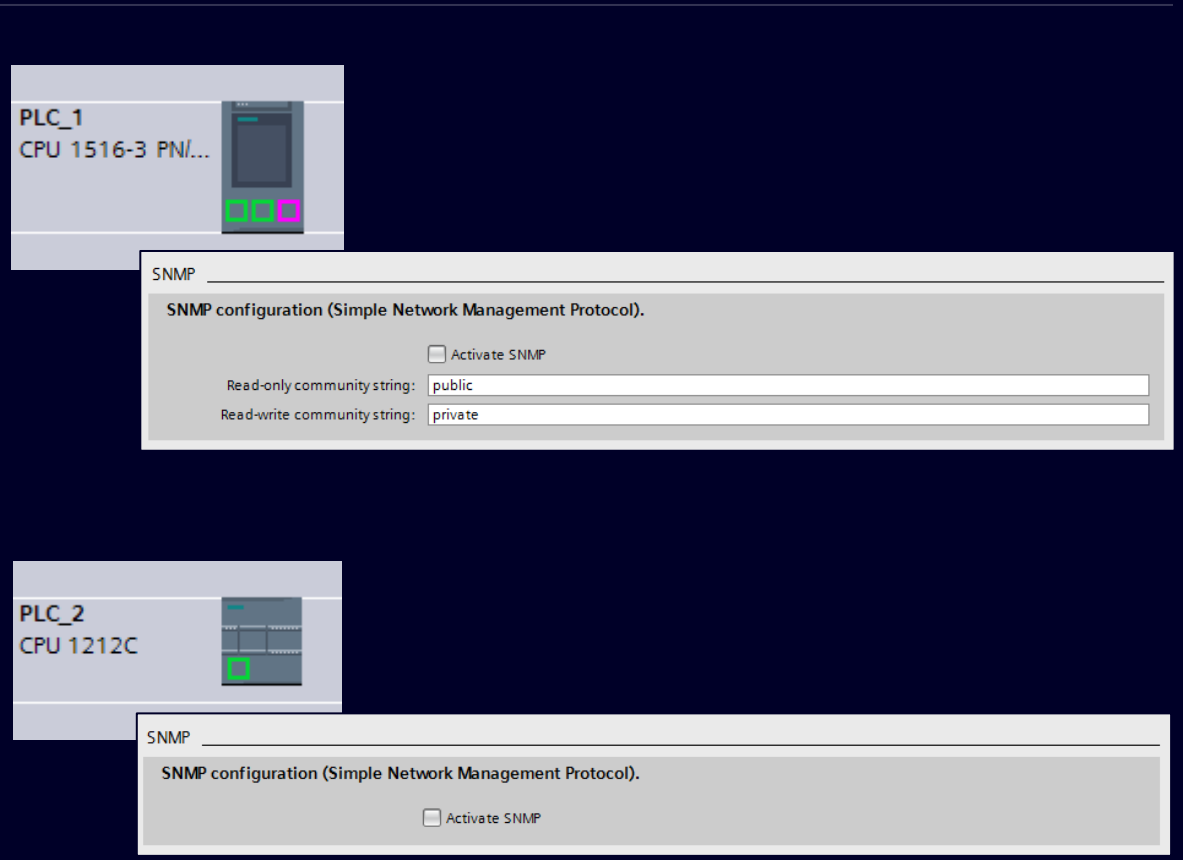
Supported with

- TIA Portal V18
- TIA Portal V17 Update 2

⚠ *A TIA Portal project created by Station Upload is not suitable for engineering (neither making changes nor continuing programming) and only limited for "disaster recovery" .*

SIEMENS

SIMATIC Hardware
SNMP Configuration in TIA Portal and changed default behavior



Easy SNMP configuration for S7-1500, S7-1200 and S7-300 CPUs

- In addition to existing configuration via PLC program
- SNMP service can be enabled / disabled via TIA Portal settings

Changed default behavior for initial configuration

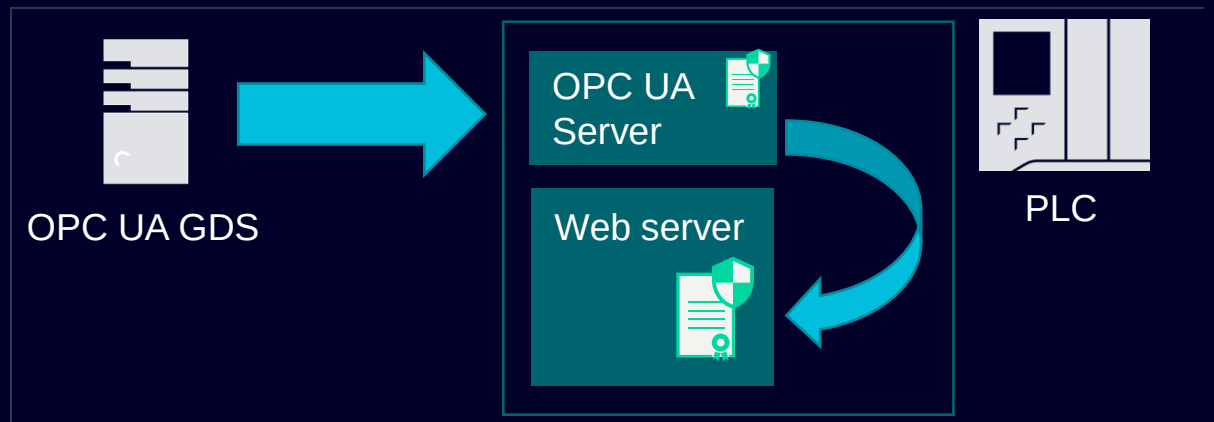
- Default configuration for SNMP is disabled
- Backwards compatibility for old configuration available to support device replacement

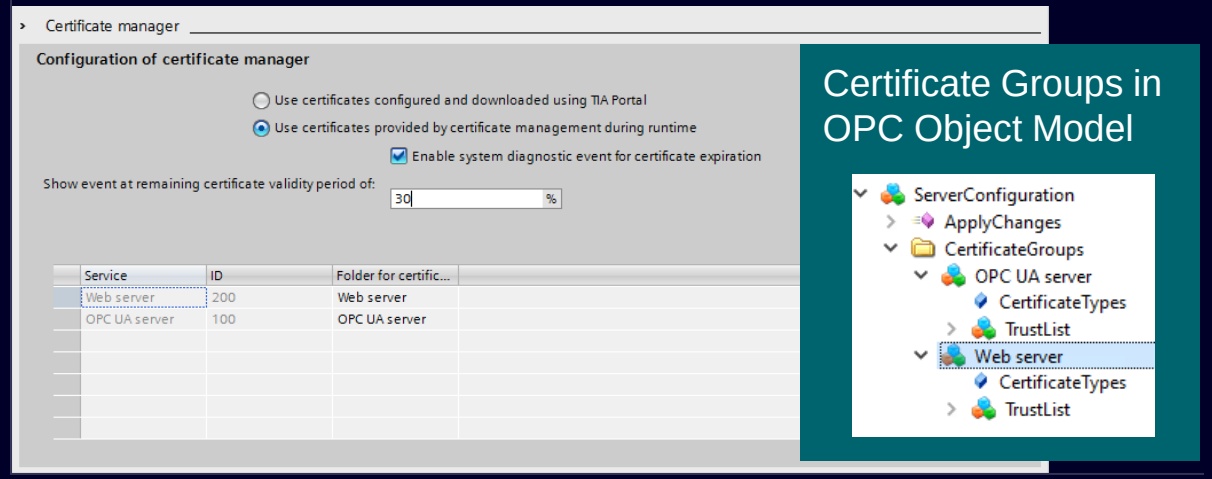
SNMP Community Strings for S7-1500 CPUs

- By default SNMP community strings are set to “public” and “private”
- For S7-1500 CPUs it is possible to change them to individual settings

SIEMENS

SIMATIC Hardware
Certificate Management for S7-1500 CPU Webserver via OPC UA GDS





Certificate Groups in OPC Object Model

Extended certificate management at runtime

- Since V17 the OPC UA server certificate (incl. trust list etc.) can be managed via OPC UA GDS mechanisms
- Now the CPU webserver certificate can be managed via the same OPC UA GDS mechanism at runtime

System diagnostic events for certificate expiration

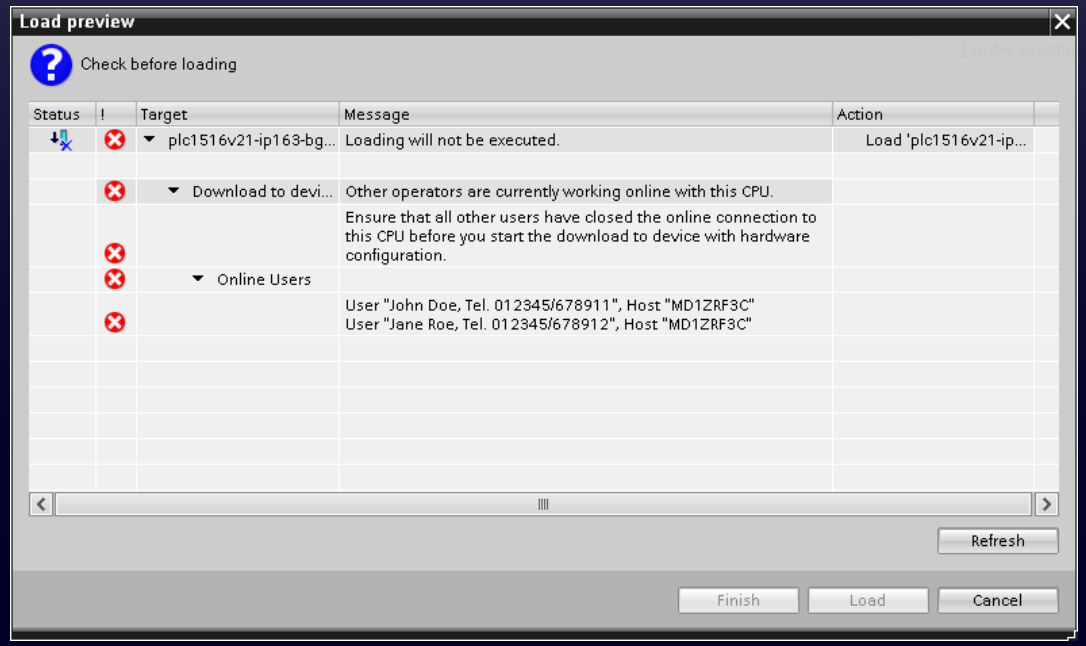
- For certificates managed via OPC UA GDS new system diagnostic events are available:
- A diagnostic event is generated when a certificate expires
- Another event is generated when a certificate will expire in the future, according to a configurable remaining time

SIEMENS

SIMATIC Hardware
General Improvements

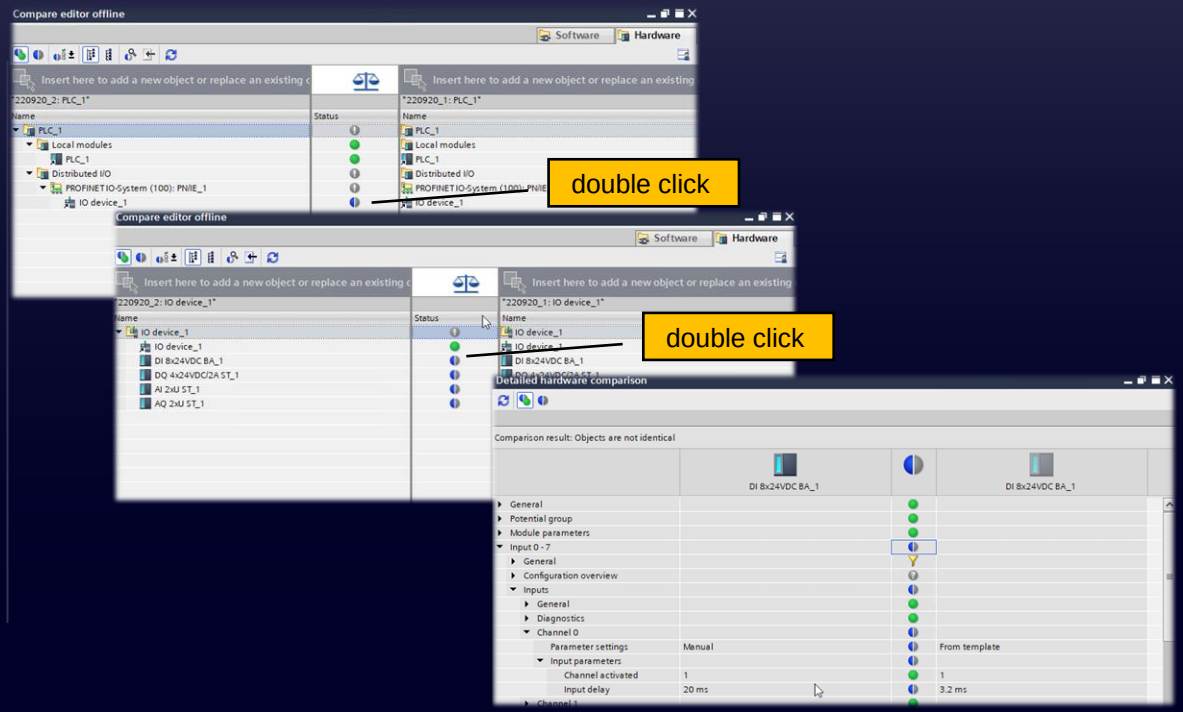
Improvements for Multiuser Online

All other online users of a PLC are shown in the download dialog in case a download requires exclusive access to the PLC.



Improvements for Hardware Offline/Offline Compare

The user can select two PLCs for comparison and navigate from them down to the IO modules.



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TIA Portal
Highlights of TIA Portal V18

WinCC Unified – Innovations
- Improved screen engineering
- Enhanced standardization (Faceplate and Library)
- Extended Openness in ES and in RT
- System diagnostics Matric View and Process Diagnostics
- Runtime ready for new operation concepts
- Improved Plant Intelligence Options

WinCC – Innovations
- WinCC Advanced: no newRT Advanced V18 Version
- WinCC Professional: WebUX, WebNavigator extensions

STEP 7 – Innovations
- Namespaces for Software Units
- Failsafe program in Software Units
- LongTerm Trace

SIMATIC Motion Control - Innovations
- CPU 1511T/TF / 1515T/TF: more memory and performance
- ET 200SP Technology CPU 1514SP T/TF-2 PN
- Functional enhancements Motion Control & Drive Controller
- Advanced Programming with TO references
- Kinematic functions up to 6 interpolating axes

Startdrive – Innovations
- Support of linear motors for CU3x0-2 based drives
- FFT analysis for CU3x0-2 based drives
- Support of station upload for SIMATIC F-PLCs

SIMATIC AX (Automation Xpansion)
- Use standard libraries created with SIMATIC AX inside TIA Portal projects (TIAX use case)

TIA Portal Cloud & Cloud Connector
- Overview of new functions
- Online functionality via TIA Portal Cloud Connector

SIMATIC Hardware
- Hardware Innovation for S7-1500 / ET 200SP CPUs 1510SP to 1516
- New ET 200SP 1514SP(F)-2 PN CPU
- S7-1200 Highlight FW4.6 (Work memory enhancement)
- PROFINET System Redundancy R1 for S7-1500H and ET 200SP
- Flexible Network Architectures for S7-1500H
- Long Distance H-Sync for S7-1500H
- Improvements for Multiuser Online ("Who is online")
- Improvements for Hardware Offline/Offline Compare

System functions
- TIA Portal Openness: API extensions
- UMAC: username enhancement
- UMAC: support of multiple UMC domains
- Security Logging in TIA Portal
- Library: Compare, new library editor, Multiuser
- Station Upload Enhancements
- TIA Portal Add-Ins
- TIA Portal Version Control Interface
- TIA Portal CAx: AutomationML Exchange

TIA Portal Options
- **STEP 7 Safety**
  Consistent Fast Commissioning Download, Failsafe Software Unit, Openness-extensions
- **SIMATIC Safe Kinematics**
- **Multiuser**
  - Grouping, access management, independent release of Project Server
- **OPC UA**
  S7-1500: server diagnostics, source timestamp, increased quantity structures, reference namespace mapping
- **S7-PLCSIM/ S7-PLCSIM Advanced**
  New User Interface / Multiadapter Mode, API supports String
- **SIMATIC Target for Simulink**
  External Mode for LiveTwin, Download in RUN, Multiuser support
- **Test Suite**
  System Test via OPC UA, New properties for style guide rules
- **SiVArc**
  Support of WinCC Unified, new expressions, usability enhancements
- **Energy Suite**
  Support of WinCC Unified, Base Load Mangement, Support of Software / Open Controller
- **Central User Management (UMC)**
- **Modular Application Creator**
- **ProDiag**
  New controls for WinCC Unified PC based Runtime
  S7-GRAPH Overview Control / PLC-Code View for S7-GRAPH
- **Teamcenter Gateway**
  Openness support for connect, save, search, lock and download workflows

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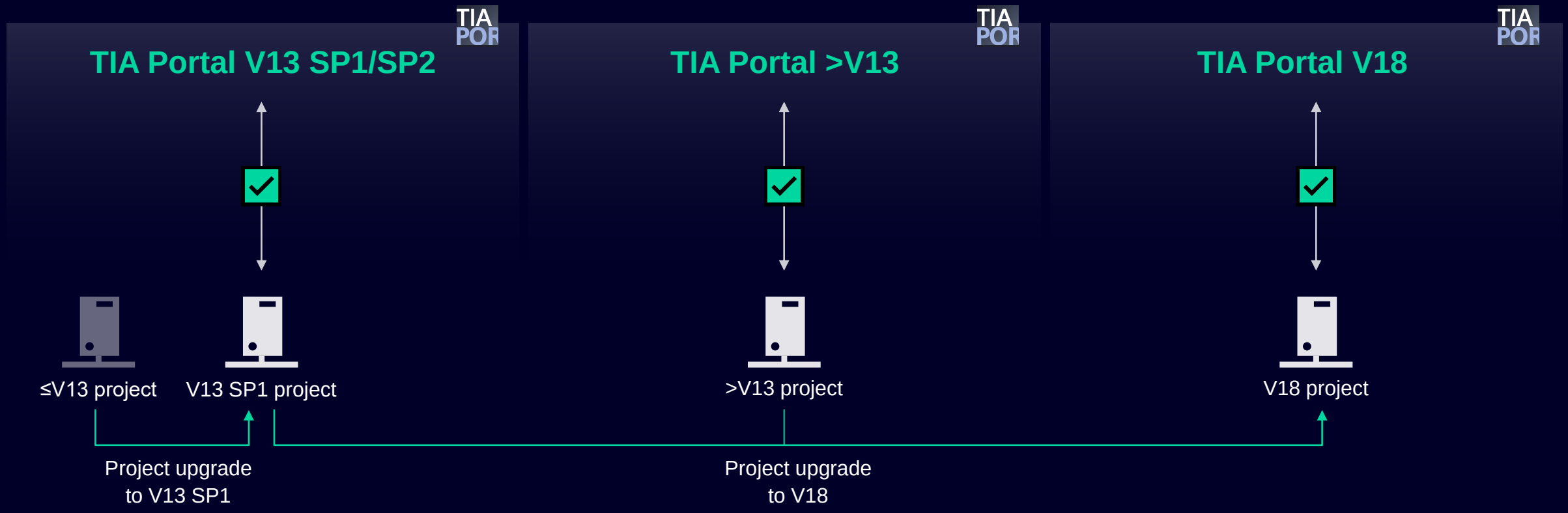
System functions
Upgrading projects



Side-by-side installation of **V13 SP1/SP2** up to **V18** allows access to all project versions.
The **V18** license can be used for all available versions from **V11.**

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TIA Portal Openness

SIEMENS

TIA Portal Openness is our API for automating your engineering workflows

SIOS: 109792902

Highlighted API extensions in V18:

- Long-term support and compatibility
- Extended access to hardware configuration
- Automated Safety engineering
- STEP 7 extensions
- Station Upload extensions
- Test Suite Advanced extensions
- New API features in further option packages

For a list of all new features, refer to the TIA Portal Openness system manual, chapter “What’s new”.

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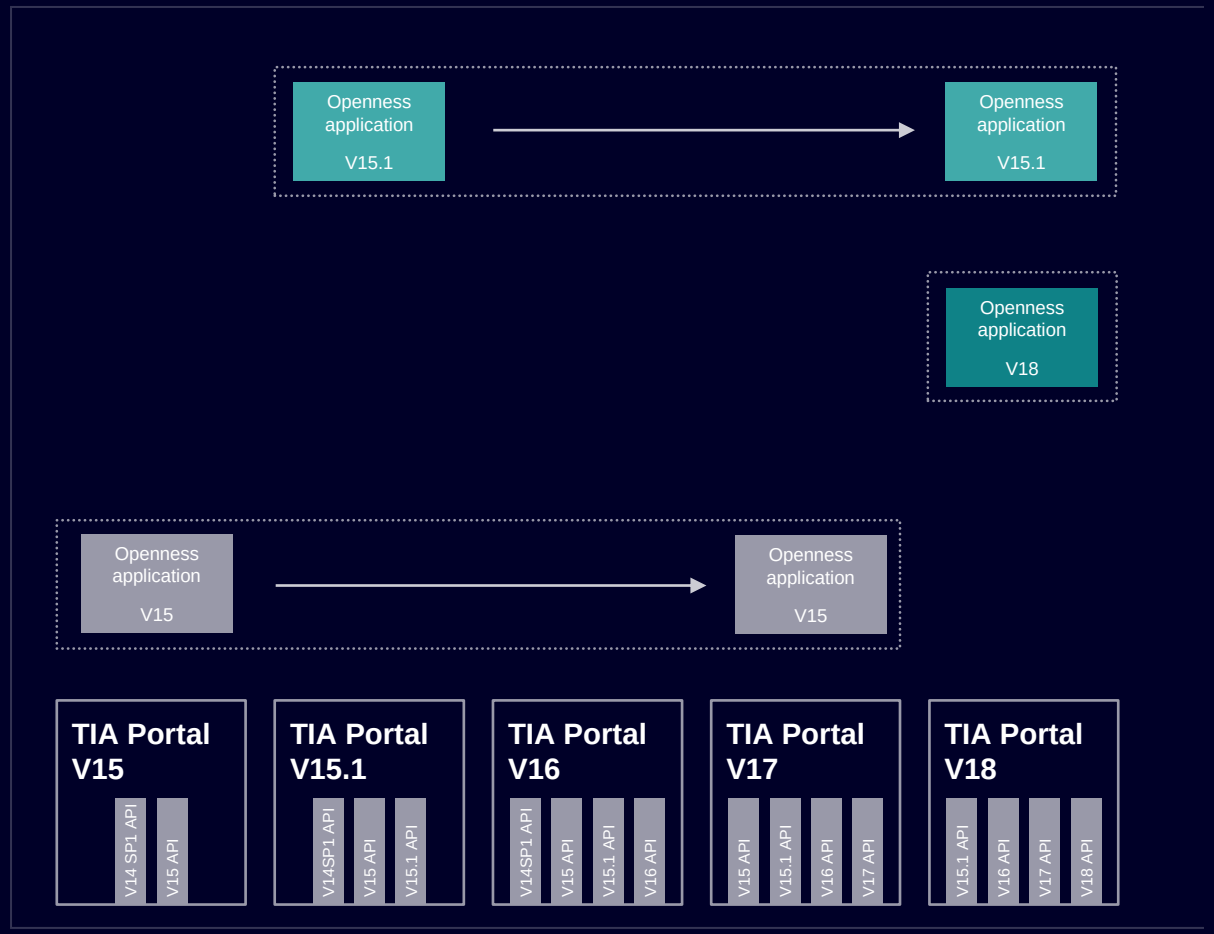
System functions
TIA Portal Openness: Long-term support and compatibility



Long-term support (LTS)

Existing Openness applications since V15.1 will continue working.
TIA Portal V18 delivers the LTS APIs for V15.1, V16, and V17.

New API version

TIA Portal V18 delivers the new API version V18 to use the latest Openness features.

Discontinuation of oldest API version

TIA Portal V18 no longer delivers the oldest API version V15.

An update of applications using this version is necessary.

.NET SDK version

TIA Portal and TIA Portal Openness remain on .NET Framework 4.8 as a mature framework to build long-running enterprise-grade applications.

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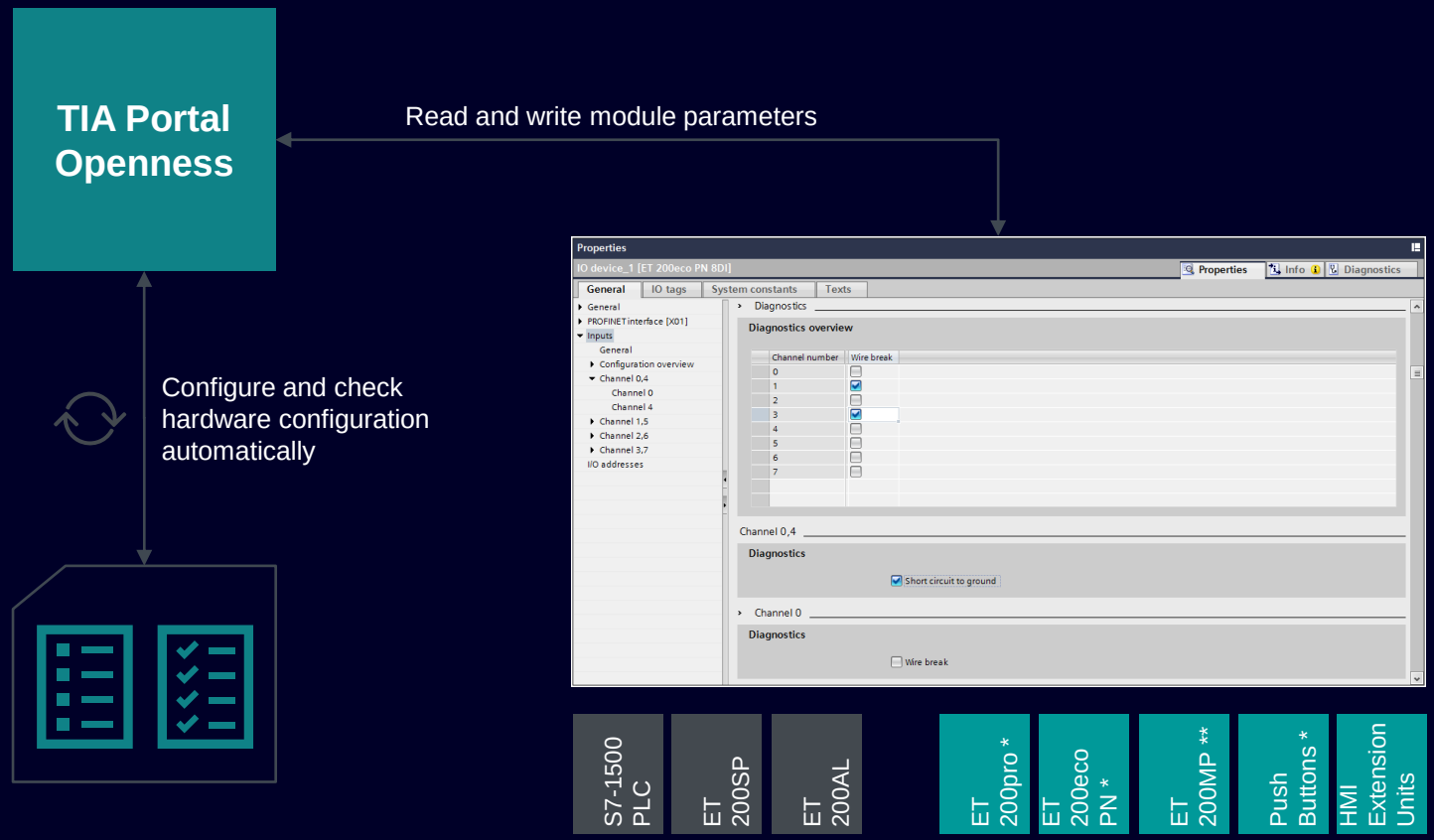
System functions
TIA Portal Openness: Extended access to hardware configuration



Additional parameters support

Read and write hardware parameters for additional module families (* except Safety modules, ** except Safety and communication modules) for automated hardware configuration or checks:

- ET200pro *
- ET200eco PN *
- ET200MP **
- Push Buttons *
- HMI Extension Units

Parameters support for S7-1500 PLC, ET 200SP, and ET 200AL is already provided with previous TIA Portal versions.

Easier parameter configuration

- Set hardware parameters as “String” without previous type conversion of values
- Bulk change hardware parameters via “SetAttributes” automatically in the right ordering having dependent attributes including programmable error handling

*The list of modules and parameters is part of the system manual (**appendix**).*

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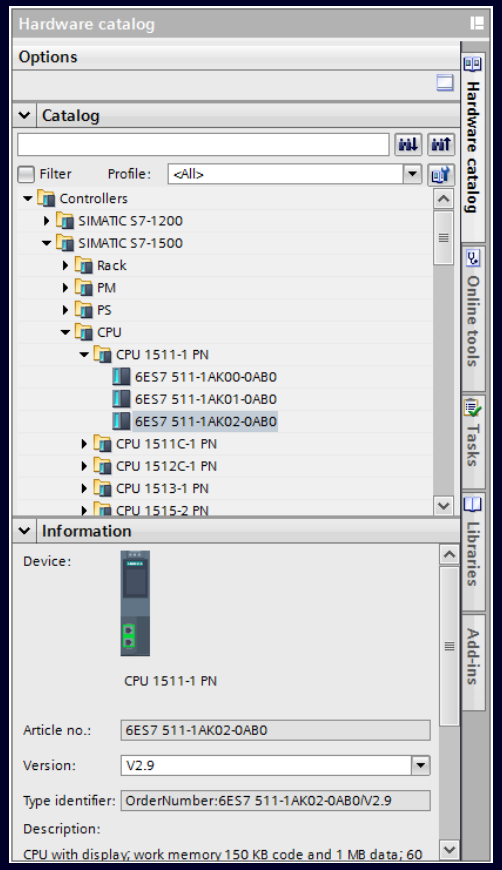
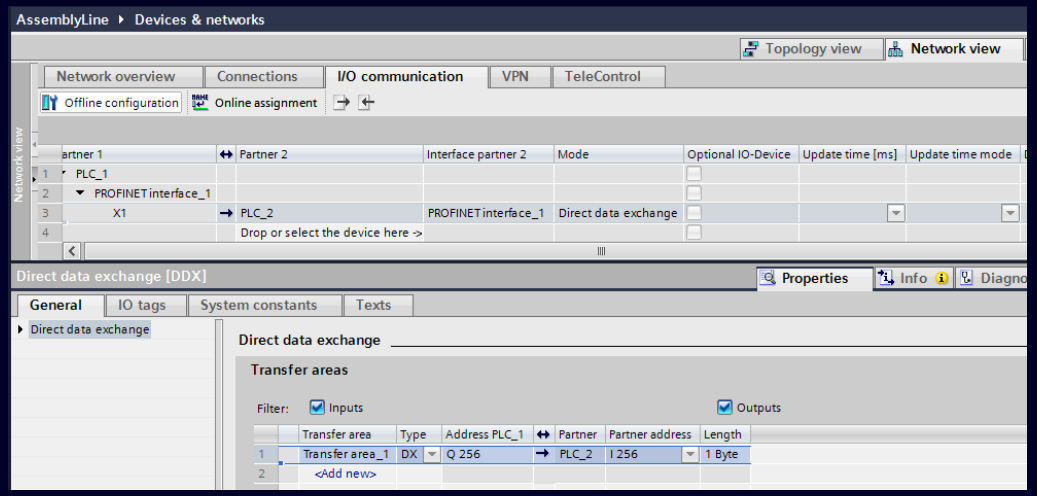
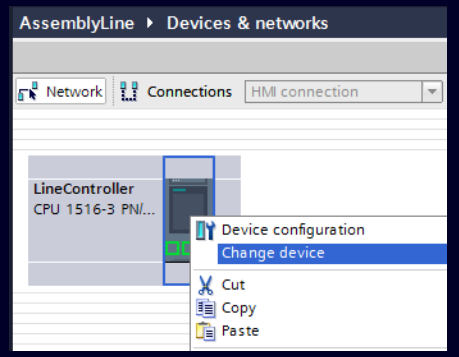
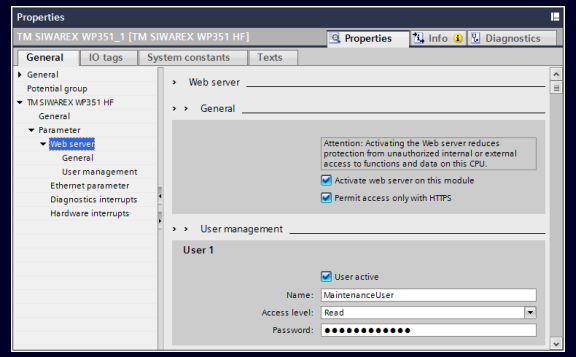
System functions
TIA Portal Openness: Extended access to hardware configuration









Hardware catalog data

Read access to the TIA Portal hardware catalog to look up type identifiers for automated hardware generation

Change device

Exchange a device or change the firmware version

I/O communication

Read transfer areas for PLC-PLC direct data exchange

SIWAREX webserver

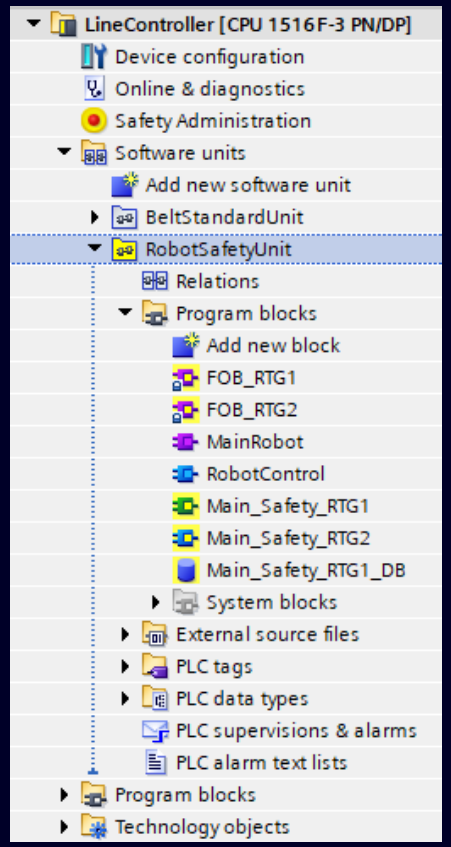
Manage the Webserver users and permissions for ET 200SP SIWAREX modules

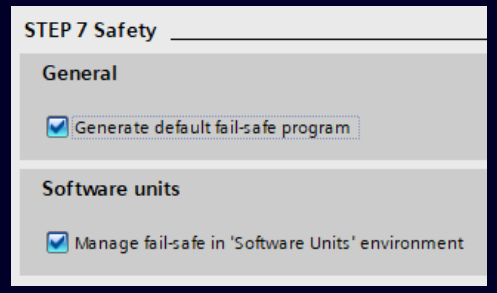
Certificate management

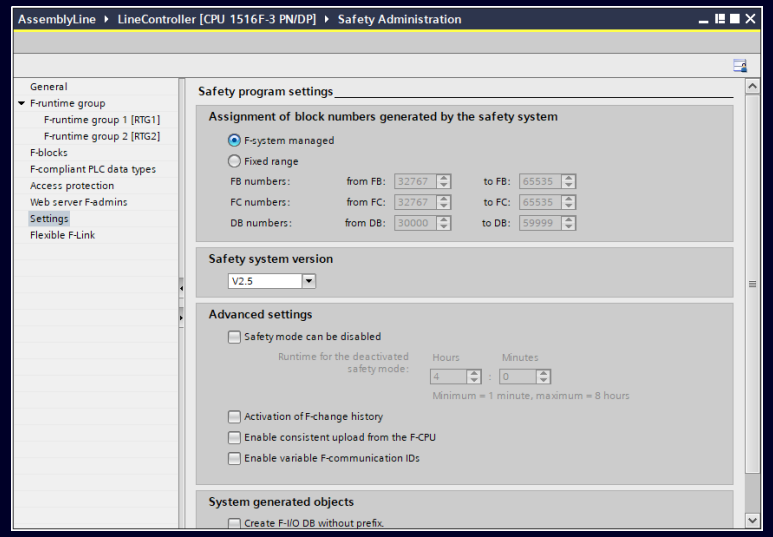
Access to automated certificate management configuration for S7-1500 CPU

SIEMENS

System functions
TIA Portal Openness: Automated Safety engineering







F-runtime groups
Create, configure and delete F-runtime groups.

Safety settings
Manage the TIA Portal Safety settings.

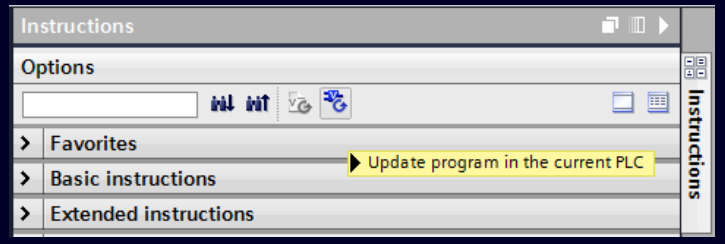
Safety Software Unit
Manage the new Safety Software Unit: Add program blocks, PLC data types, etc.

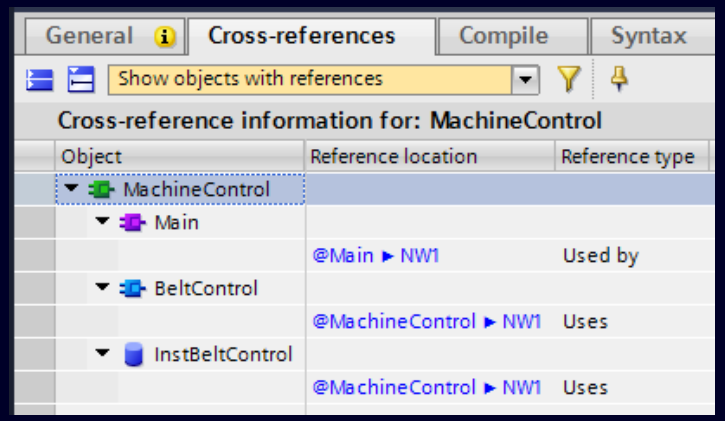
…and more
- Generate the global F-I/O status block
- Read the Safety property of PLC tags

…for F-PLC code generation
Support for creating Safety hardware configuration, accessing Safety administration settings, creating F-program blocks, and compiling F-PLCs is already provided with previous TIA Portal versions.

SIEMENS

System functions
TIA Portal Openness: STEP 7 extensions






```
<?xml version="1.0" encoding="UTF-8"?>
<Document>
  <Engineering version="V18"/>
 - <DocumentInfo>
    <Created>2022-07-08T15:46:12.6032936Z</Created>
    <ExportSetting>None</ExportSetting>
   + <InstalledProducts>
  </DocumentInfo>
 - <SW.Blocks.OB ID="0">
   - <AttributeList>
     + <Interface>
      <MemoryLayout>Optimized</MemoryLayout>
      <Name>Main</Name>
      <Number>1</Number>
      <ProgrammingLanguage>LAD</ProgrammingLanguage>
      <SecondaryType>ProgramCycle</SecondaryType>
      <SetENOAutomatically>false</SetENOAutomatically>
     </AttributeList>
   - <ObjectList>
     + <MultilingualText ID="1" CompositionName="Comment">
     - <SW.Blocks.CompileUnit ID="3" CompositionName="CompileUnits">
       - <AttributeList>
         - <NetworkSource>
           - <FlgNet xmlns="http://www.siemens.com/automation/Openn
             - <Parts>
               - <Call UId="21">
                   <CallInfo Name="MachineControl" BlockType="FC"/>
                 </Call>
               </Parts>
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           </NetworkSource>
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       + <ObjectList>
       </SW.Blocks.CompileUnit>
     + <MultilingualText ID="8" CompositionName="Title">
     </ObjectList>
  </SW.Blocks.OB>
</Document>
```

PLC program update

Update the PLC program to the latest instruction versions.

Cross-reference information

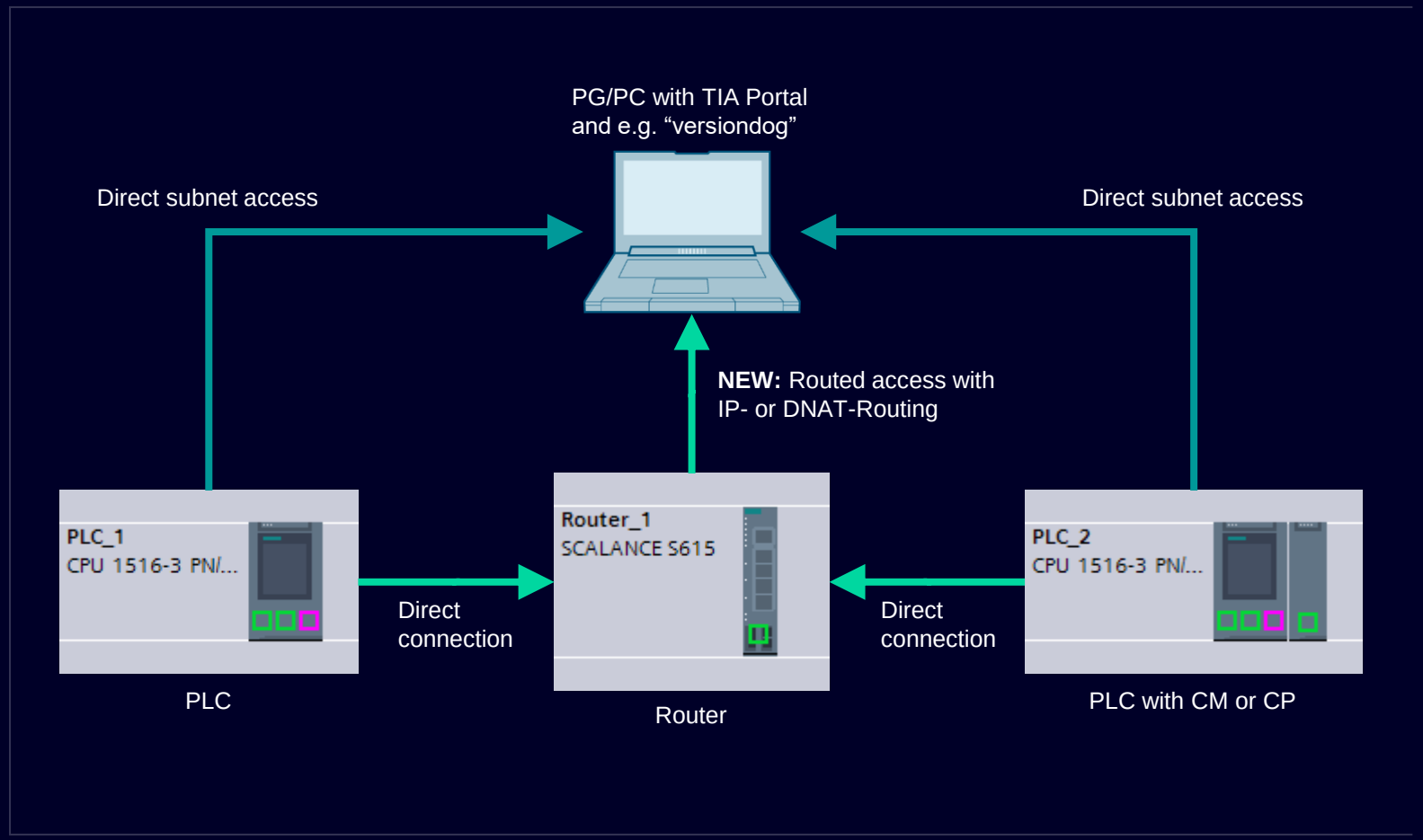
Read out the cross-reference information of objects, e.g. for resolving dependencies and static code-analysis.

SimaticML export scope

Configure the SimaticML export scope regarding “DocumentInfo” for STEP 7 objects, e.g. for external versioning systems.

SIEMENS

System functions
TIA Portal Openness: Station Upload extensions



Station Upload

Only TIA Portal Openness can perform a Station Upload in TIA Portal across network borders.

NEW: Support of Station Upload of S7-1200/1500 CPU via CM/CP in combination with IP routing or DNAT routing.

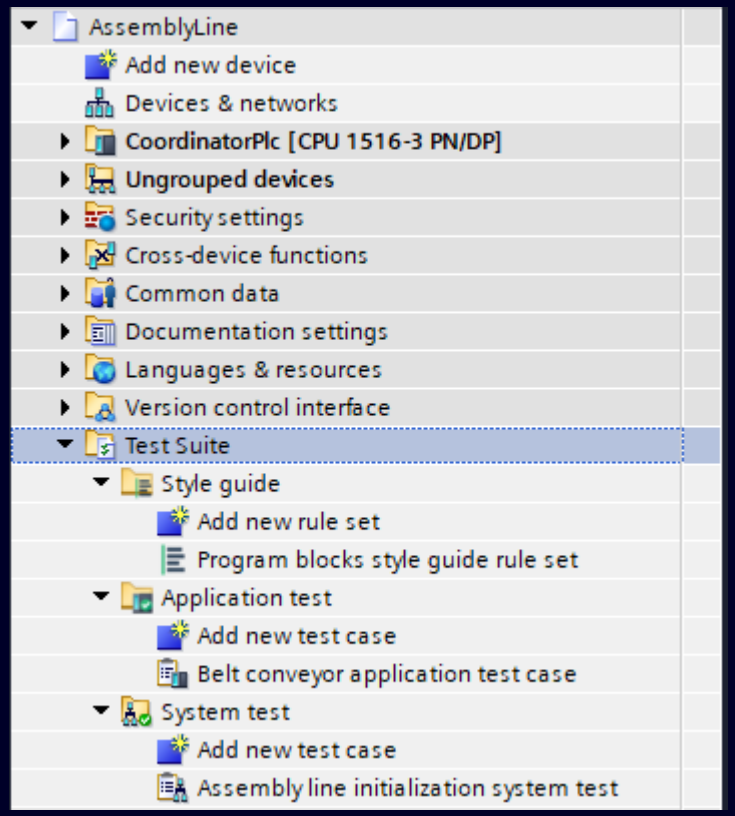
Siemens partner product “versiondog” from AUVESY-MDT has implemented this TIA Portal Openness feature for

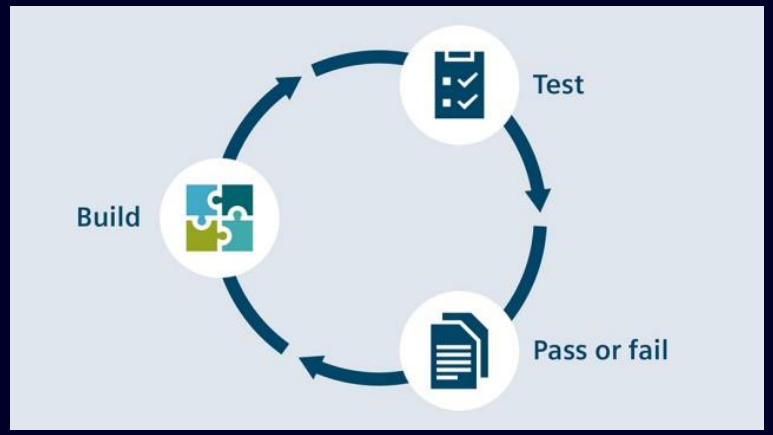
- Automated detection of changes in the plant
- Automated backup including actual values

⚠ *A TIA Portal project created by Station Upload is not suitable for engineering (neither making changes nor continuing programming) and only limited for “disaster recovery”.*

SIEMENS

System functions
TIA Portal Openness: Test Suite Advanced extensions





Test Suite Advanced

Import and execute system tests (with OPC UA).

…for automated project verification

Support for importing and executing programming style checks and application tests is already provided with previous TIA Portal versions.

Ready for Continuous Integration

Rapid program changes require continuous testing. This is one essential part of Continuous Integration to

- accelerate the development process
- lower risk of faults
- increase transparency of processes
- save time through automated processes

Programming style checks, application tests, and system tests can be **automatically executed periodically and reports created** via TIA Portal Openness.

SIEMENS

System functions
TIA Portal Openness: New API features in further option packages

WinCC Unified

TIA Portal Openness support for:
- Import and export of tag tables
- Screen items, including custom web controls and dynamic SVGs
- Creating and editing groups in the project tree for screens and tag tables

in WinCC Unified

Startdrive

TIA Portal Openness support for:
- Create and specify third-party motors (rotary) for CU3x0-2 based drive objects
- SINAMICS Technology Extensions: Installation, activation, deactivation, deletion, reading out version information

in Startdrive

Sinamics DCC

TIA Portal Openness support for:
- Creating charts
- Adding, deleting, and connecting blocks
- Publishing block pins

in Sinamics DCC

Continuous Function Chart (CFC)

TIA Portal Openness support for:
- XML export and import of charts

in CFC

Teamcenter Gateway

TIA Portal Openness support for:
- Dataset lock
- Connect and disconnect
- Search, download, and save projects and libraries

in Teamcenter

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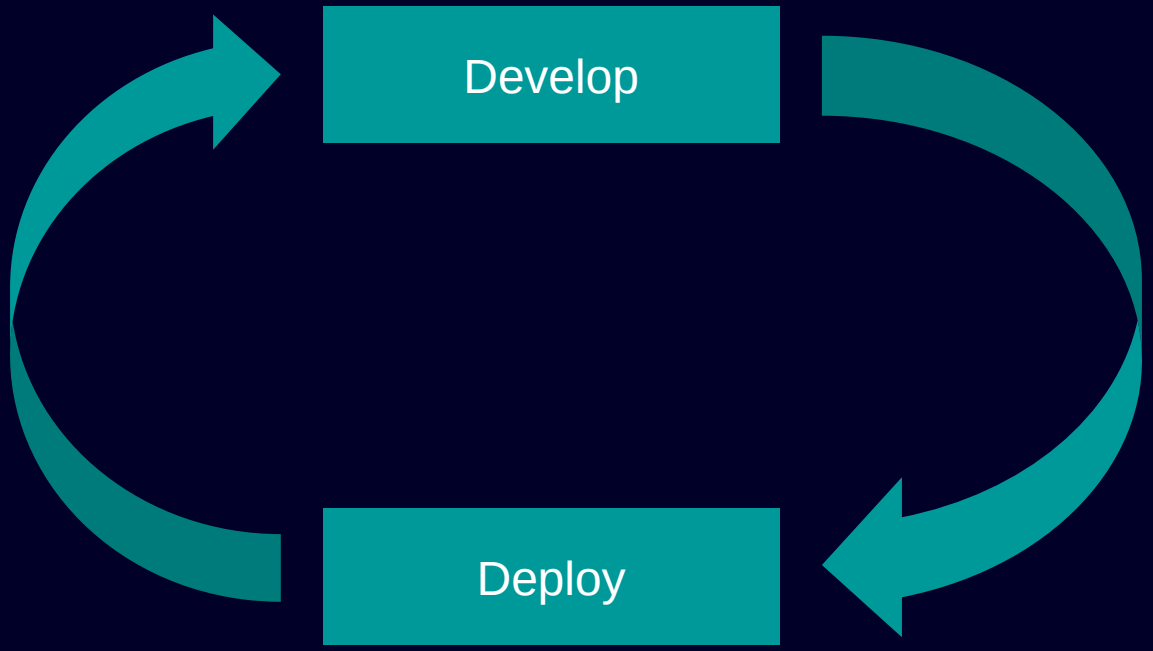
TIA Portal Add-Ins

SIEMENS

TIA Portal Add-Ins
Overview of new functionality



Development of Add-Ins

- Support of Visual Studio as development environment (Visual Studio 2019, Visual Studio 2022, Visual Studio Code)
- Simplified creation of Add-Ins by wizards
- Easy debugging of Add-Ins from Visual Studio
- Improved feedback mechanisms for the Add-In author

Deployment of Add-Ins

- Mass rollout
- Central lifecycle management of Add-Ins
  - Distribution
  - Update
  - Removal

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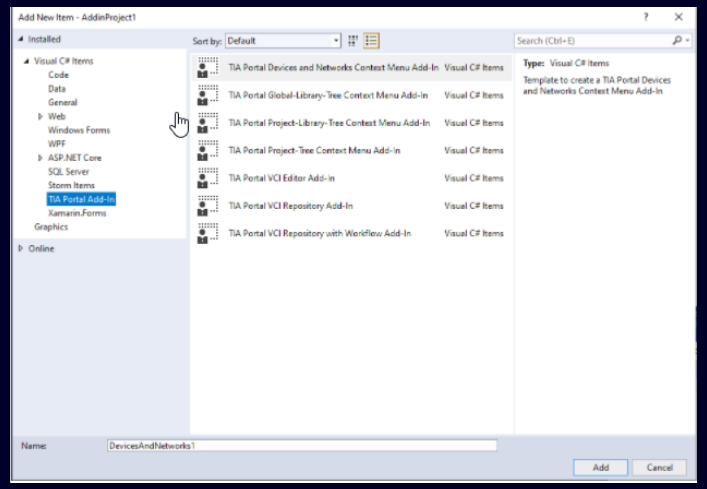
TIA Portal Add-Ins
Development of Add-Ins in Visual Studio

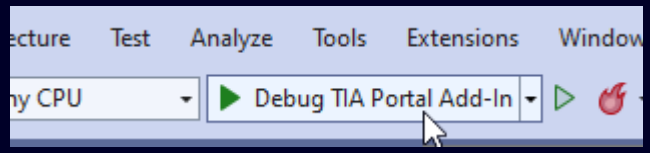
Create your Add-in by selecting the appropriate template



Add your logic to the created Add-In skeleton

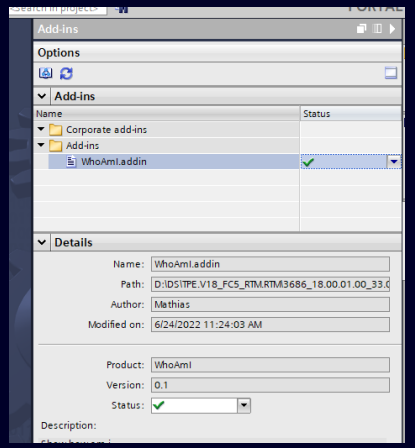
```
/// In this example, only simple ActionItems will be created, which will start the Add-In program code.
/// </remarks>
protected override void BuildContextMenuItems(ContextMenuAddInRoot addInRootSubmenu)
{
    /* Method addInRootSubmenu.Items.AddActionItem
     *  will create a new context menu item with specified text
     *  - its 1st input parameter is the label text of the context menu item;
     *  - its 2nd input parameter is the delegate, which will be executed when the context menu item is clicked;
     *  - its 3rd input parameter is the delegate, which will be executed when the mouse is over the context menu item;
     *  - its generic type parameter (inside the  "<>"-brackets) is the type of AddActionItem,
     *    e.g. AddActionItem<DeviceItem> will create a context menu item that will be displayed on a right-click on a DeviceItem,
     *    whereas AddActionItem<Project> will create a context menu item that will be displayed on a right-click on the project name.
     */
    // TODO: Change the code here
    // Example:
    addInRootSubmenu.Items.AddActionItem<IEngineeringObject>("Action 1", OnDoSomething1, OnCanSomething1);
    addInRootSubmenu.Items.AddActionItem<IEngineeringObject>("Action 2", OnDoSomething2, OnCanSomething2);
}

/// <summary>
/// The method contains the program code of the Add-In.
/// Called when the context menu item 'Action 1' (added in the body of the method BuildContextMenuItems) is chosen.
/// </summary>
/// <param name="menuSelectionProvider">
/// here, the same generic type as was used in addInRootSubmenu.Items.AddActionItem must be used
/// (here it has to be IEngineeringObject)
/// </param>
private void OnDoSomething1(MenuSelectionProvider<IEngineeringObject> menuSelectionProvider)
{
    // TODO: Change the code here
    // Program of AddIn
    MessageBox.Show("Hello from __FileNamePrefix__ContextMenuAddIn", "Action 1");
}
```



In case of errors:

- Start debugging from Visual Studio
- Auto start or attach to running TIA Portal
- Auto activate Add-In under debug without need to deploy Add-In manually
- Code adaptations without restart of TIA Portal



Test and use your Add-In in TIA Portal

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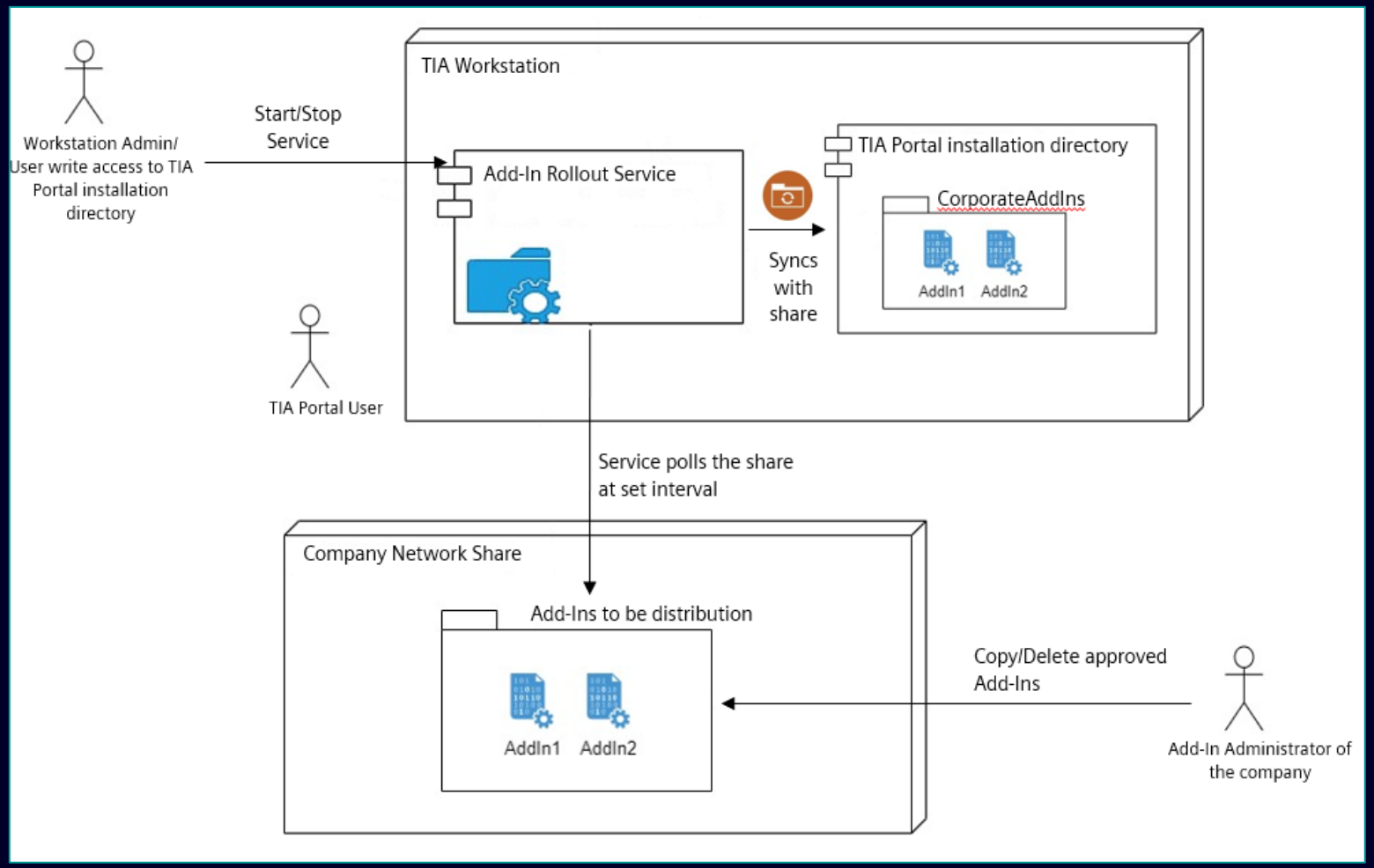
TIA Portal Add-Ins
Deployment of Add-Ins



Distribution of Add-Ins within a company via Add-In Rollout Service

- Centrally rollout/update add-ins across organization, for an easy and uniform usage of Add-Ins across all TIA users
- Centrally remove Add-Ins across organization
- Rollout different Add-Ins to different user groups
- Rollout Add-Ins to TIA users who do not have admin rights

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Version Control Interface (VCI)

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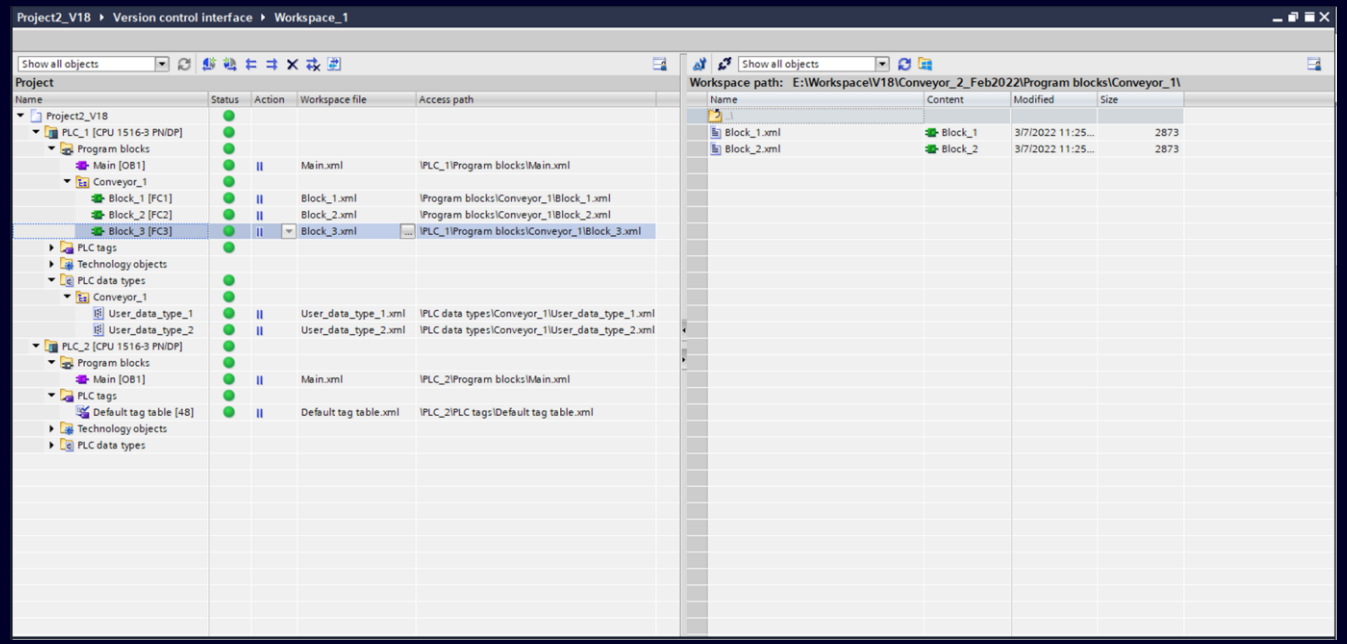
TIA Portal Version Control interface (VCI)
Overview of new functionality



- Automatic derivation of the structure of the workspace from the structure of the project
- Extended Add-in APIs to propagate changes to the repository. Updates of Git and SVN Add-Ins will be available soon
- Listing of new files in workspace with easy propagation to the project
- Support of textual representation for STL blocks
- Support of TOs in VCI
- Removal of meta data like time stamps during Simatic ML export
- Omission of meta data in calculation of VCI‘s compare status
- Independence of object names in workspace from selected TIA Portal‘s UI language

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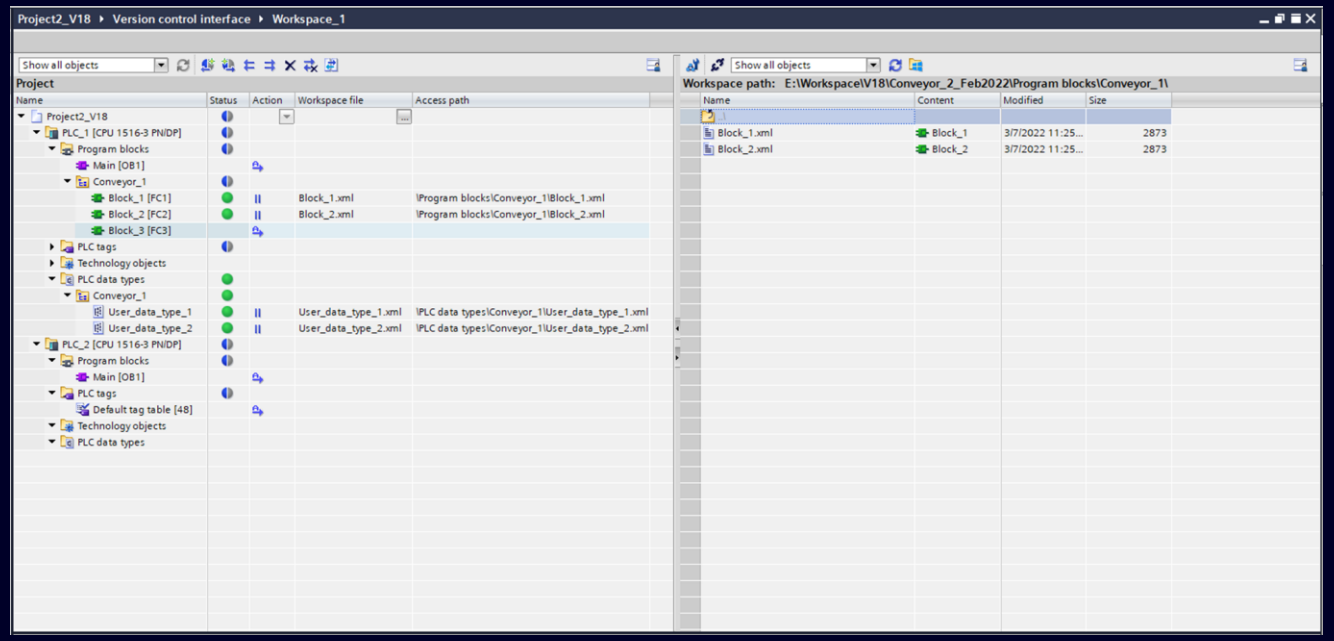
TIA Portal Version Control interface (VCI)
Automatic Derivation of Workspace Structure



- User can choose to automatically derive the structure of the workspace from the project
- To be independent from the hardware the user can exclude the hardware from the derived structure in the workspace
- Creation, renaming and movements of objects in the project can be automatically propagated to the workspace
- User can override the proposal for the workspace structure
- Changes in the project can be transferred in one step to the workspace

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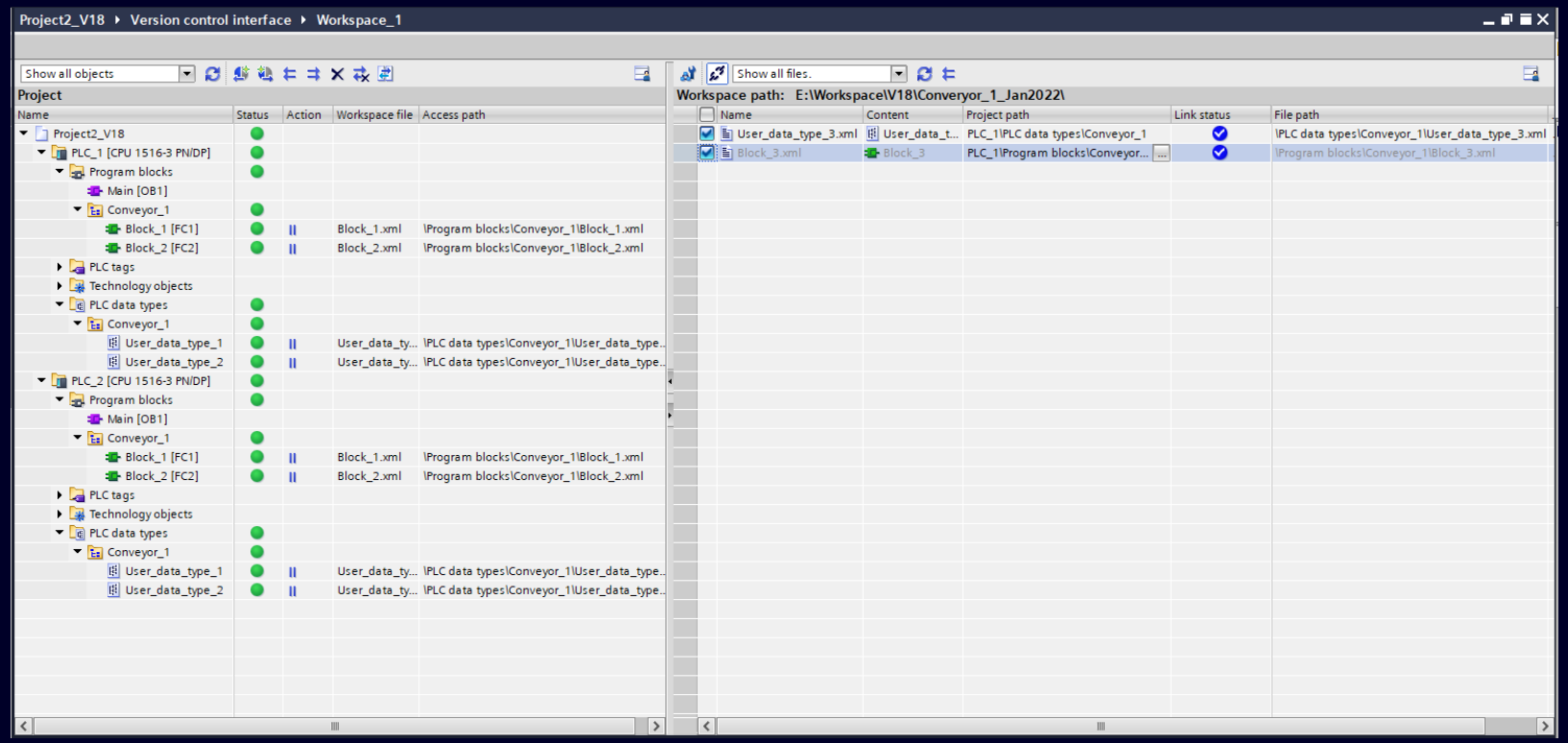
TIA Portal Version Control interface (VCI)
Listing of new Files in Workspace



- New files in the file system of the workspace can be listed
- If possible, a location for import in the project is proposed
- User can modify proposals for import
- All or dedicated files can be selected for import
- Selected files can be imported in one step

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CAx: AutomationML Exchange

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CAx: AutomationML Exchange
Overview of new functionality

WSCAD ELECTRIX

….

- Implementation of Application Recommendation Automation Project Configuration V1.3 (AutomationML)
- Exchange of Openness attributes for modules and channels via AutomationML files
- CAx Publication Tools to publish exchangeable Openness attributes to EPLAN P8 and other systems
- Import and Export of IO-Link devices (in interaction with Port Configuration Tool).

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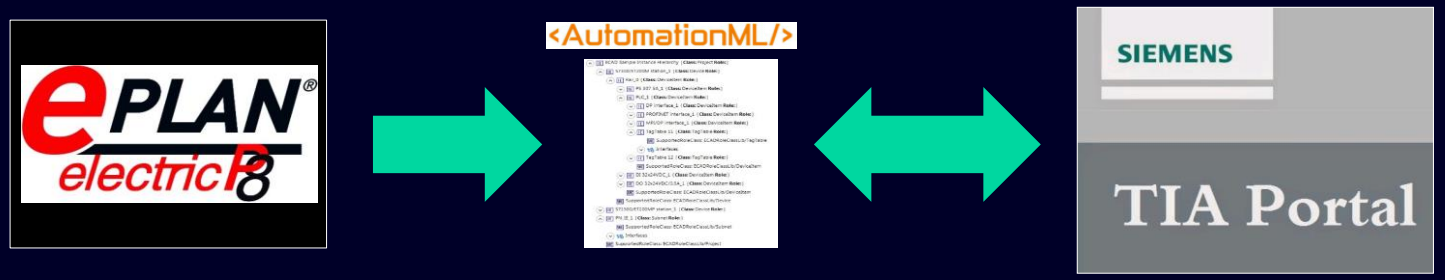
CAx: AutomationML Exchange
Exchange of Openness Attributes via AutomationML



- Available Openness attributes at modules and channels can be exchanged via AutomationML as Custom Attributes
- All simple data types like numbers, strings , enums etc. are supported (Complex data types are not defined in AutomationML)
- Modules described by GSD, GSDML as well as MDD (HSPs) are supported

…

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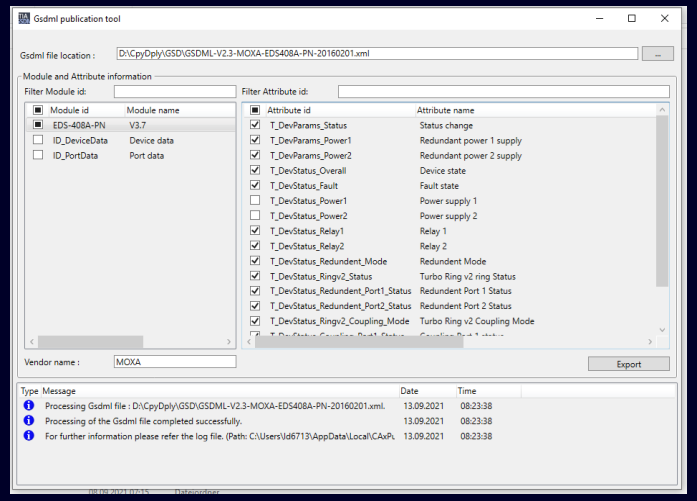
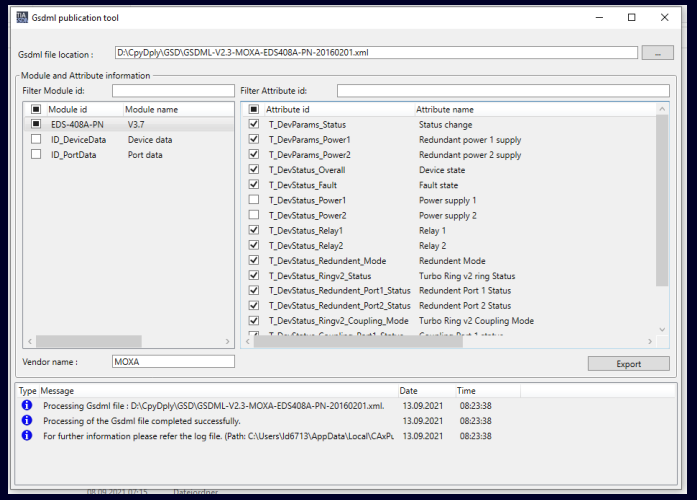
CAx: AutomationML Exchange
CAx Publication Tools

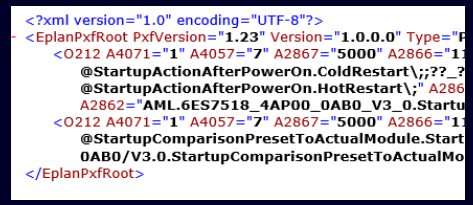


Publication Tool for MDD (HSPs)

Vendor Independent



Publication Tool for GSDML



PcPm (EPLAN P8)

- Export of required meta data which are necessary to exchange Openness Attributes via AutomationML with other tools like EPLAN P8
- Besides meta data additional data for user-friendly usage in partner tools are exported
- Restricted to the Opennes attributes which can be exchanged via AutomationML
- Currently modules described by GSDML or MDD (HSPs) are supported
- **Availability of two formats**
  - PcPm (EPLAN P8)
  - Vendor Independent format

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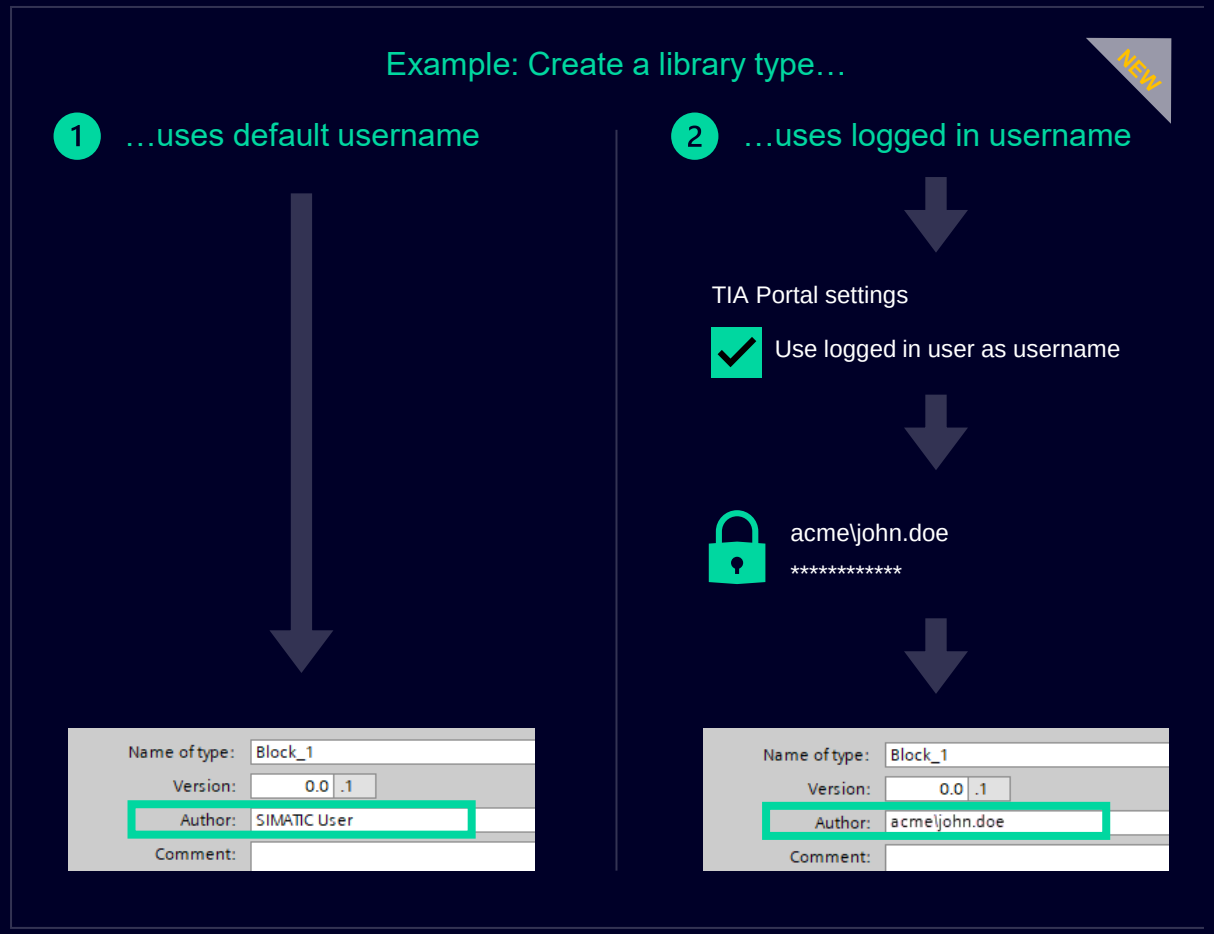
UMAC

SIEMENS

System functions
User Management & Access Control (UMAC)



TIA Portal username

Use case
- Track changes with the TIA portal “User name“.

Feature
- You can decide in the TIA Portal settings, which username you want to use:
  1. The conventional free text username entry
  2. New: the name of the authenticated user of protected projects.

Benefit
- More transparency about the changes in the project.
- You don’t need to adapt the username manually.
- Beneficial if multiple users working on the same engineering station.

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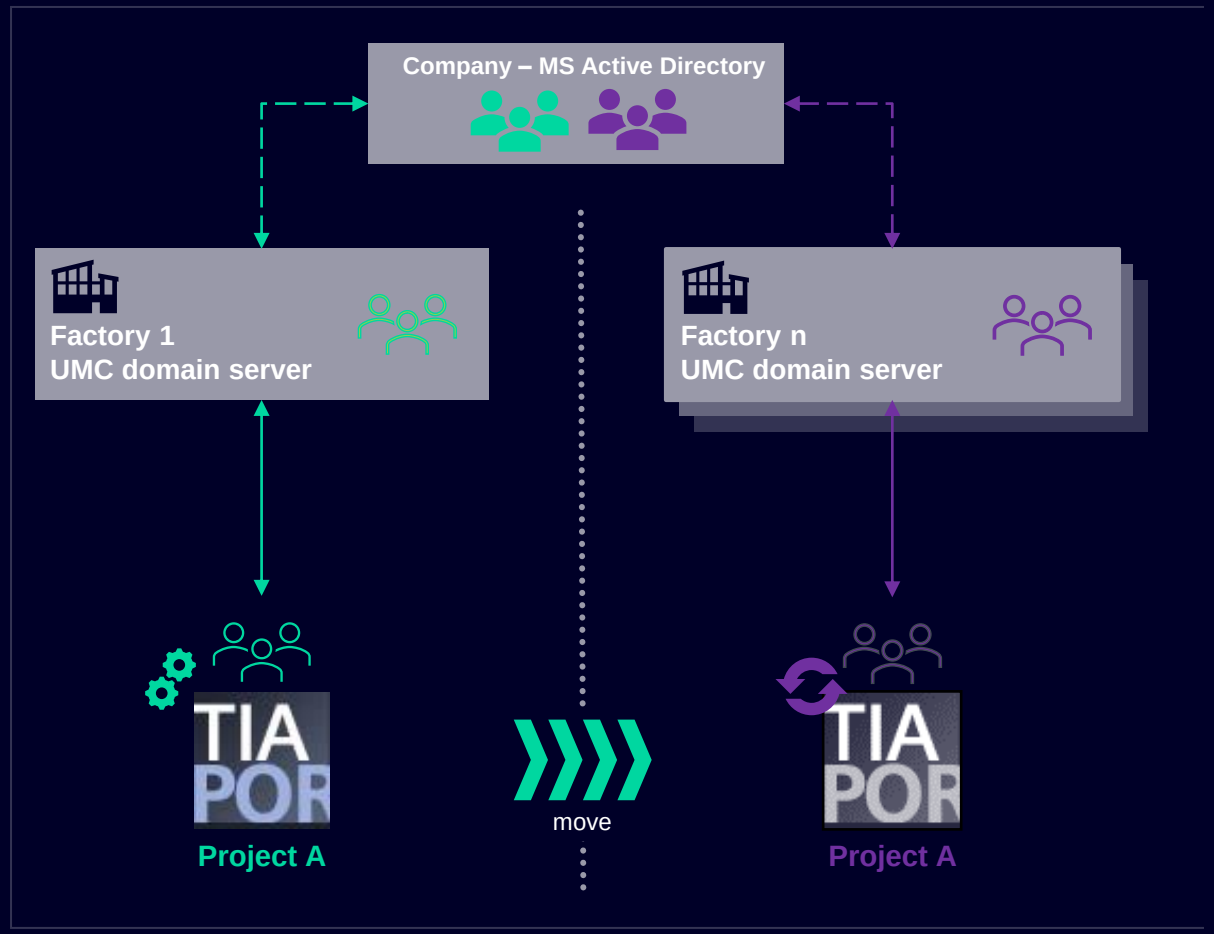
System functions
User Management & Access Control (UMAC)



Use TIA Portal project in different UMC domains

Use case

- Use a TIA Portal project of a dedicated UMC domain in another UMC domain.

Feature

- The UMC synchronize function is enhanced to merge global users and groups in the TIA Portal project to the new UMC domain.
- The configuration and role assignment of the users and groups remains unchanged.
- Users and groups that are not available in the new UMC domain will be disabled in the TIA Portal project.

Benefit

- Changing the UMC domain server does not need to adapt every projects UMAC configuration manually. This synchronize-feature reduces the integration and commissioning effort for each machine dramatically.

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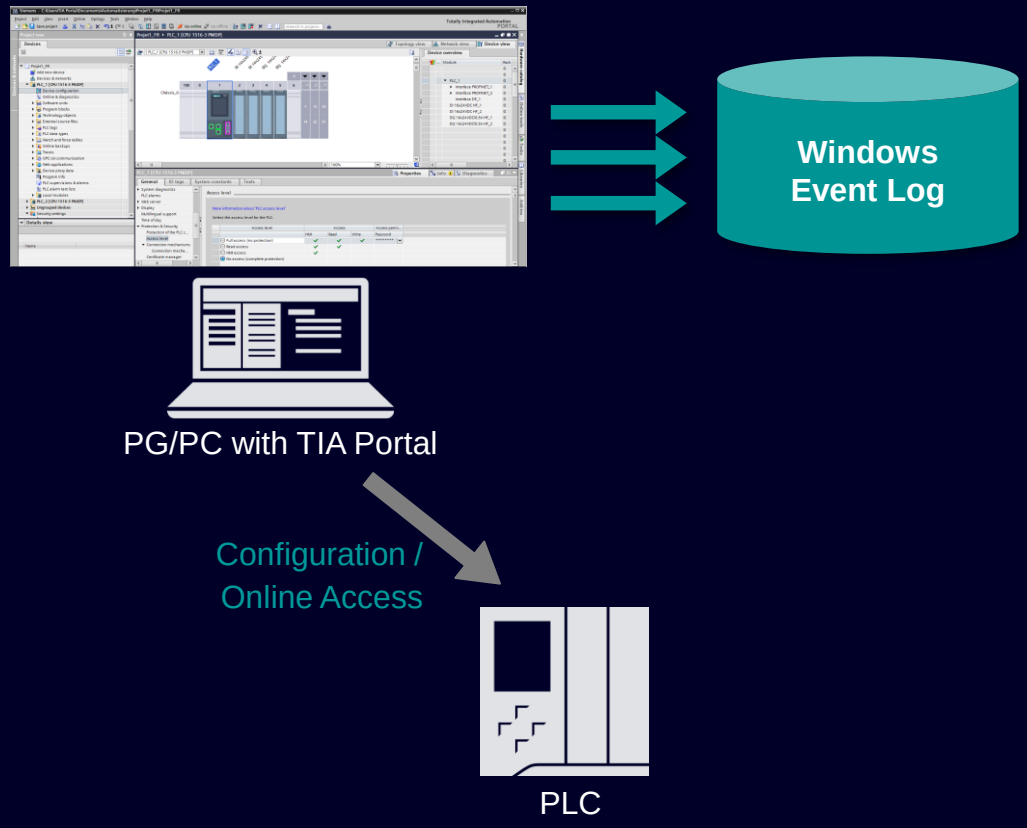
System functions
Security Logging for Critical Operations in TIA Portal

- UMAC changes
- Critical PLC configuration changes



Security Logging in TIA Portal allows tracing and monitoring of critical changes / operations on local ES or a connected centralized SIEM System (via Windows Event Log)

User management

- User login / logoff
- Change of user configuration

PLC configuration changes in project

- Modification of passwords / protection level

PLC online changes

- PLC login (successful / unsuccessful)
- Download / Upload of PLC configuration
- Change operating state, FW-Update, etc.

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Library

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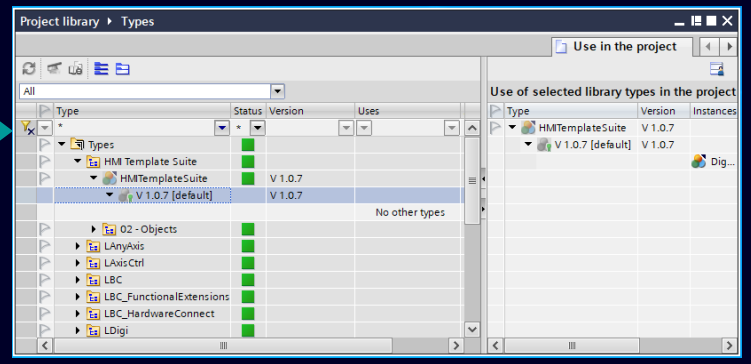
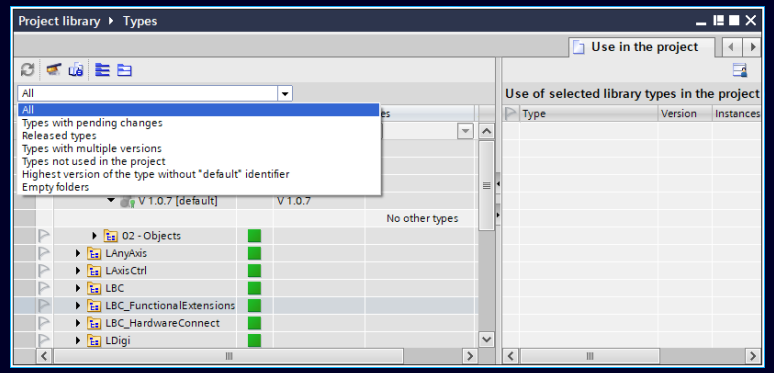
System functions
Library – Usability Improvements

Library Management as Editor

Filter Row for Library Types



Improved Refresh



Library – Usability Improvments

Use case

Improve Usability of the library task card and library management editor

Feature

- Library Management Editor supports now standard editor features. e.g. can be moved to a secondary monitor.
- Improved refresh inside of the library management, no need of manual refresh for most of the filter entries.
- Additional filter row in library management to allow e.g. text base filter for library types

Benefit

Working with library and project objects without switching the working area supported and additional usability enhancements

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System functions
Library – Compare of Libraries

Compare of global libraries and project libraries

Use case

- Compare of library types and master copies between global libraries and project library

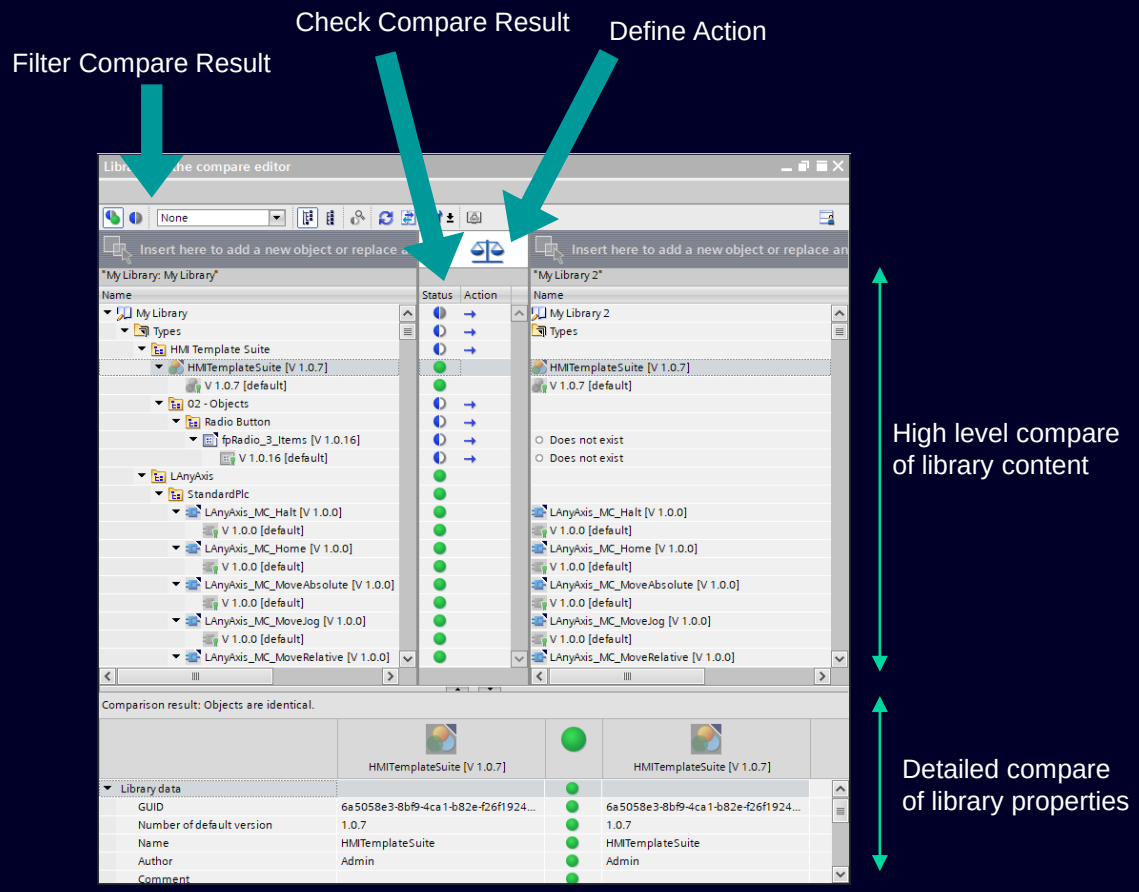
Feature

New Library Compare editor to compare library types and master copies is now available with the following key features

- Different compare criteria can be configured to, e.g. compare Library Types based on Version GUID or compare of master copies by name.
- Filter compare results is supported
- Update libraries differences between libraries can be configured and be executed in single and mass operations

Benefit

- Easy way to compare libraries, find the differences and update changes between libraries



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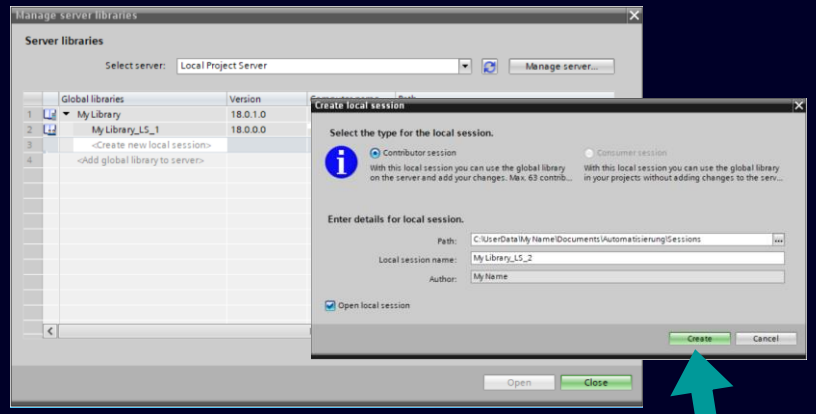
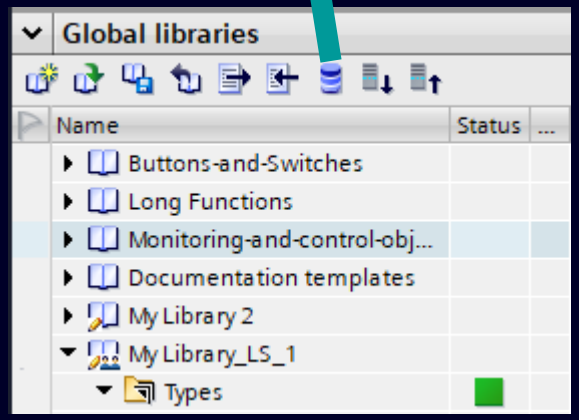
System functions
Library – Team Engineering using Project-Server



Create library session

Work with global library local session in the library view.



Develop libraries in teams with Project-Server

Use case
- Team development of global libraries with Project-Server

Feature
- Use local session to develop new revisions of master copy or library types of your global library
- All Multiuser features are supported the same way for projects and libraries

Benefit
- Use the same project server to develop projects and libraries
- Unified workflow to create / manage and check-in changes for projects and libraries together with project server
- Benefit from Multiuser collaboration feature e.g., marking of modified objects, history, change log,..

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TIA Portal
Highlights of TIA Portal V18

WinCC Unified – Innovations
- Improved screen engineering
- Enhanced standardization (Faceplate and Library)
- Extended Openness in ES and in RT
- System diagnostics Matric View and Process Diagnostics
- Runtime ready for new operation concepts
- Improved Plant Intelligence Options

WinCC – Innovations
- WinCC Advanced: no newRT Advanced V18 Version
- WinCC Professional: WebUX, WebNavigator extensions

STEP 7 – Innovations
- Namespaces for Software Units
- Failsafe program in Software Units
- LongTerm Trace

SIMATIC Motion Control - Innovations
- CPU 1511T/TF / 1515T/TF: more memory and performance
- ET 200SP Technology CPU 1514SP T/TF-2 PN
- Functional enhancements Motion Control & Drive Controller
- Advanced Programming with TO references
- Kinematic functions up to 6 interpolating axes

Startdrive – Innovations
- Support of linear motors for CU3x0-2 based drives
- FFT analysis for CU3x0-2 based drives
- Support of station upload for SIMATIC F-PLCs

SIMATIC AX (Automation Xpansion)
- Use standard libraries created with SIMATIC AX inside TIA Portal projects (TIAX use case)

TIA Portal Cloud & Cloud Connector
- Overview of new functions
- Online functionality via TIA Portal Cloud Connector

SIMATIC Hardware
- Hardware Innovation for S7-1500 / ET 200SP CPUs 1510SP to 1516
- New ET 200SP 1514SP(F)-2 PN CPU
- S7-1200 Highlight FW4.6 (Work memory enhancement)
- PROFINET System Redundancy R1 for S7-1500H and ET 200SP
- Flexible Network Architectures for S7-1500H
- Long Distance H-Sync for S7-1500H
- Improvements for Multiuser Online ("Who is online")
- Improvements for Hardware Offline/Offline Compare

System functions
- TIA Portal Openness: API extensions
- UMAC: username enhancement
- UMAC: support of multiple UMC domains
- Security Logging in TIA Portal
- Library: Compare, new library editor, Multiuser
- Station Upload Enhancements
- TIA Portal Add-Ins
- TIA Portal Version Control Interface
- TIA Portal CAx: AutomationML Exchange

TIA Portal Options
- **STEP 7 Safety**
  Consistent Fast Commissioning Download, Failsafe Software Unit, Openness-extensions
- **SIMATIC Safe Kinematics**
- **Multiuser Engineering**
  - Grouping, access management, independent release of Project Server
- **OPC UA**
  S7-1500: server diagnostics, source timestamp, increased quantity structures, reference namespace mapping
- **S7-PLCSIM/ S7-PLCSIM Advanced**
  New User Interface / Multiadapter Mode, API supports String
- **SIMATIC Target for Simulink**
  External Mode for LiveTwin, Download in RUN, Multiuser support
- **Test Suite**
  System Test via OPC UA, New properties for style guide rules
- **SiVArc**
  Support of WinCC Unified, new expressions, usability enhancements
- **Energy Suite**
  Support of WinCC Unified, Base Load Mangement, Support of Software / Open Controller
- **Central User Management (UMC)**
- **Modular Application Creator**
- **ProDiag**
  New controls for WinCC Unified PC based Runtime
  S7-GRAPH Overview Control / PLC-Code View for S7-GRAPH
- **Teamcenter Gateway**
  Openness support for connect, save, search, lock and download workflows

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STEP 7 Safety

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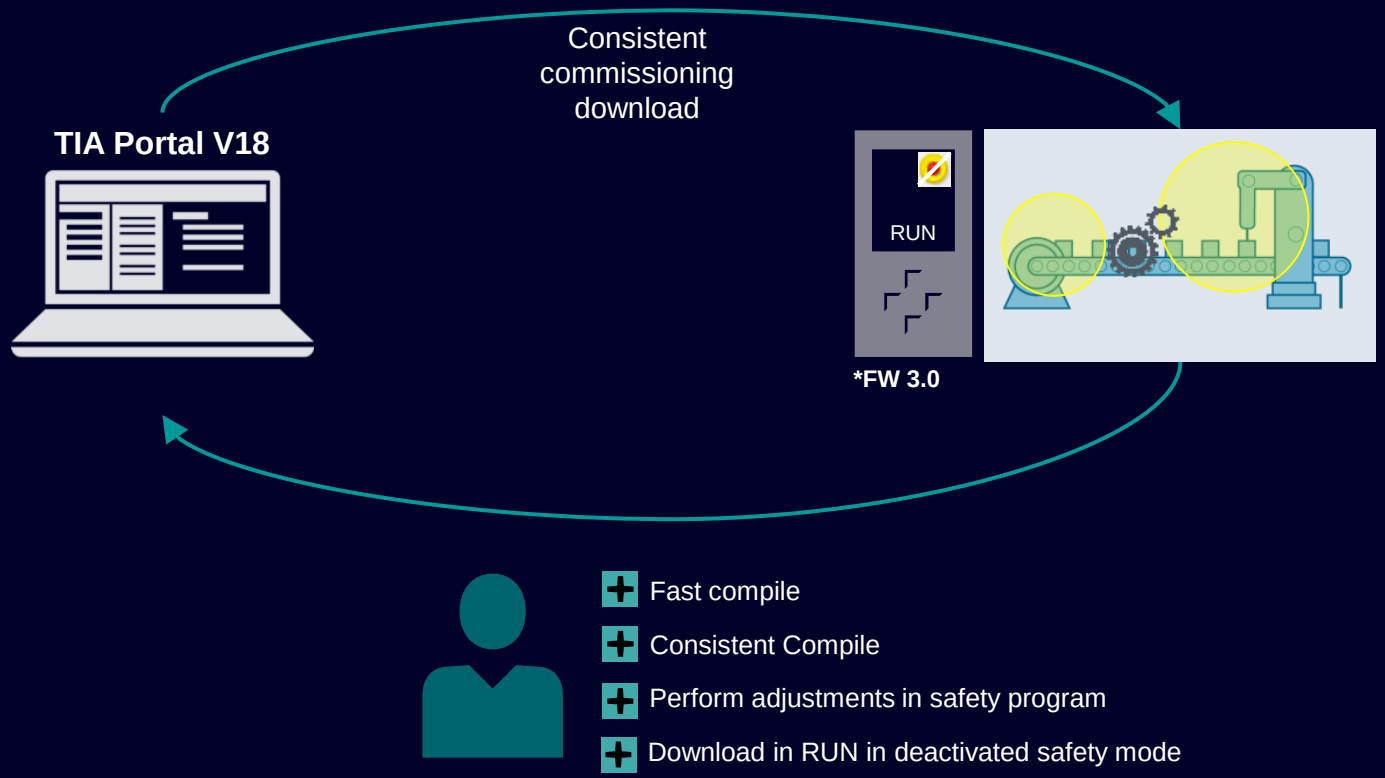
SIMATIC STEP 7 Safety
Consistent Commissioning Download (FW 3.0)



Fast Commissioning Mode

In additional to the fast commissioning download a consistent commissioning download is now available.*

It provides more flexibility during commissioning (e.g. add timer blocks) to optimize the safety program in deactivated safety mode in RUN.

To enable safety mode, F-PLC finally must be switched from STOP to RUN mode and safety program is active.

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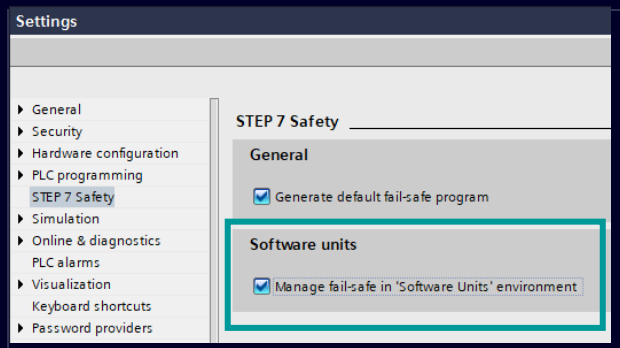
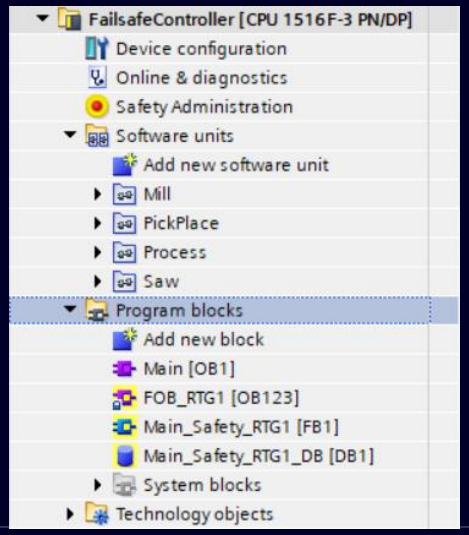
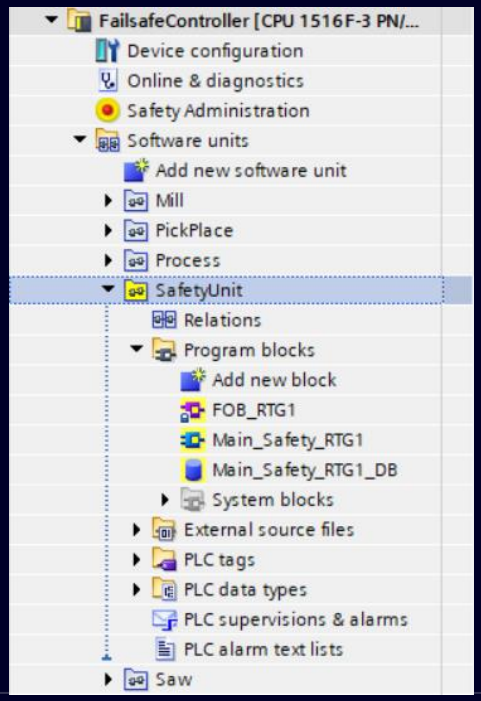
STEP 7 – Innovations
Failsafe program in Software Units







Boundary conditions

- Global Setting to activate feature
- Empty F-Unit is created with a **new** CPU
  - Entire failsafe program in one F-Unit
  - Existing failsafe program are copied to the new CPU
  - No delete/copy/create of F-Unit
  - No master copy of F-Unit
- Safety Administration as usual

Advantages

- Use of Units features:
  - Unit-granular download
  - Publishing data & data exchange between units
  - Namespaces also for F-Unit

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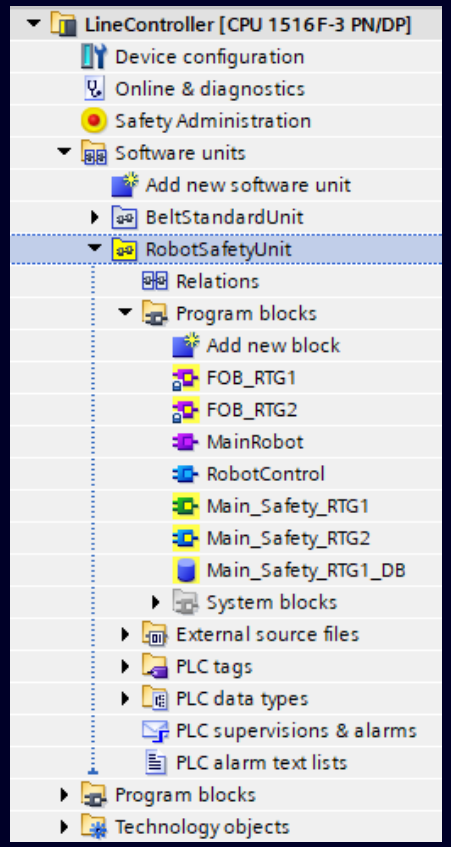
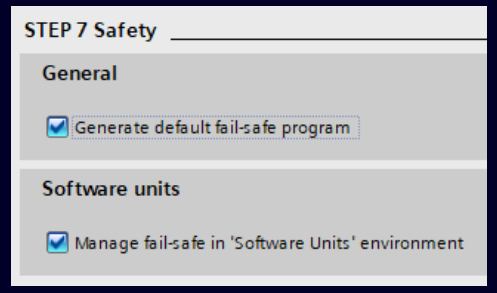
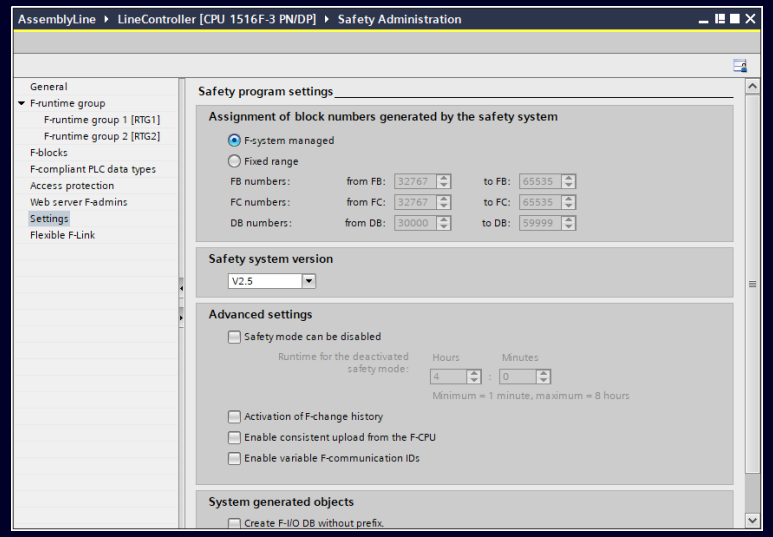
System functions
TIA Portal Openness: Automated Safety engineering







F-runtime groups

Create, configure and delete F-runtime groups.

Safety settings

Manage the TIA Portal Safety settings.

Safety Software Unit

Manage the new Safety Software Unit: Add program blocks, PLC data types, etc.

…and more

- Generate the global F-I/O status block
- Read the Safety property of PLC tags

…for F-PLC code generation

Support for creating Safety hardware configuration, accessing Safety administration settings, creating F-program blocks, and compiling F-PLCs is already provided with previous TIA Portal versions.

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SIMATIC Safe Kinematics

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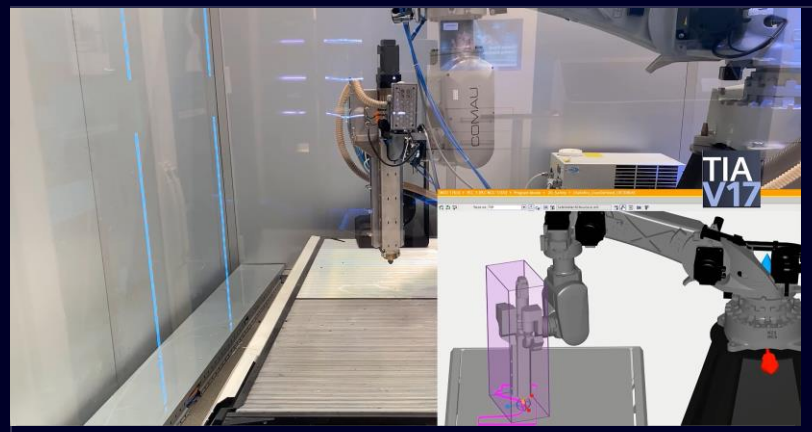
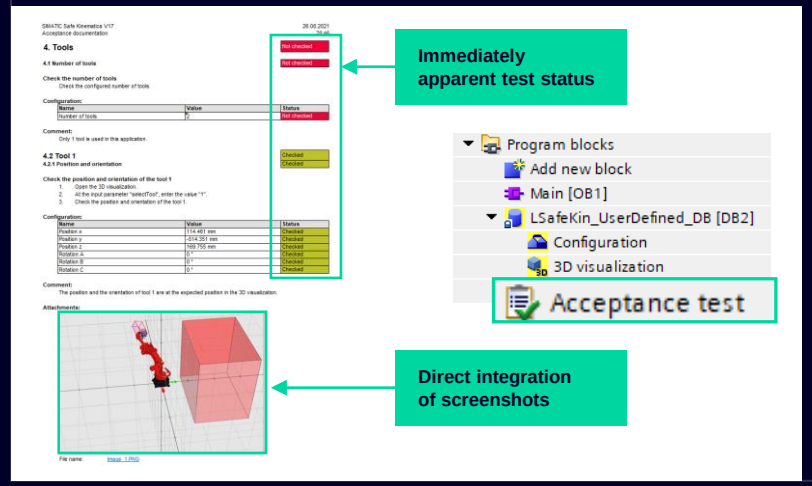
TIA Portal Options
SIMATIC Safe Kinematics





3D visualization

- Simple commissioning through graphical representation of the parameterized Safe Kinematics functions
- Import of CAD data of kinematics, of tools and the environment objects
- Online & Offline simulation of the kinematic movements and the monitoring functions through included digital twin of the fail-safe kinematic module – without additional software
- Simple after-sales diagnostics by importing trace recordings. This allows the real motion of the kinematics to be integrated into the simulated Safe Kinematics environment of the service staff for diagnosis – without additional software

Acceptance test

- Time savings for CE certification of the machine through predefined test cases to check and accept the Safe Kinematics functions
- Intelligent test cases: If a Safe Kinematics parameter is changed during acceptance, only directly dependent tests are reset - no complete acceptance test needs to be performed
- Automatic generation of a test report incl. screenshots of the 3D visualization – at the push of one button

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Multiuser Engineering

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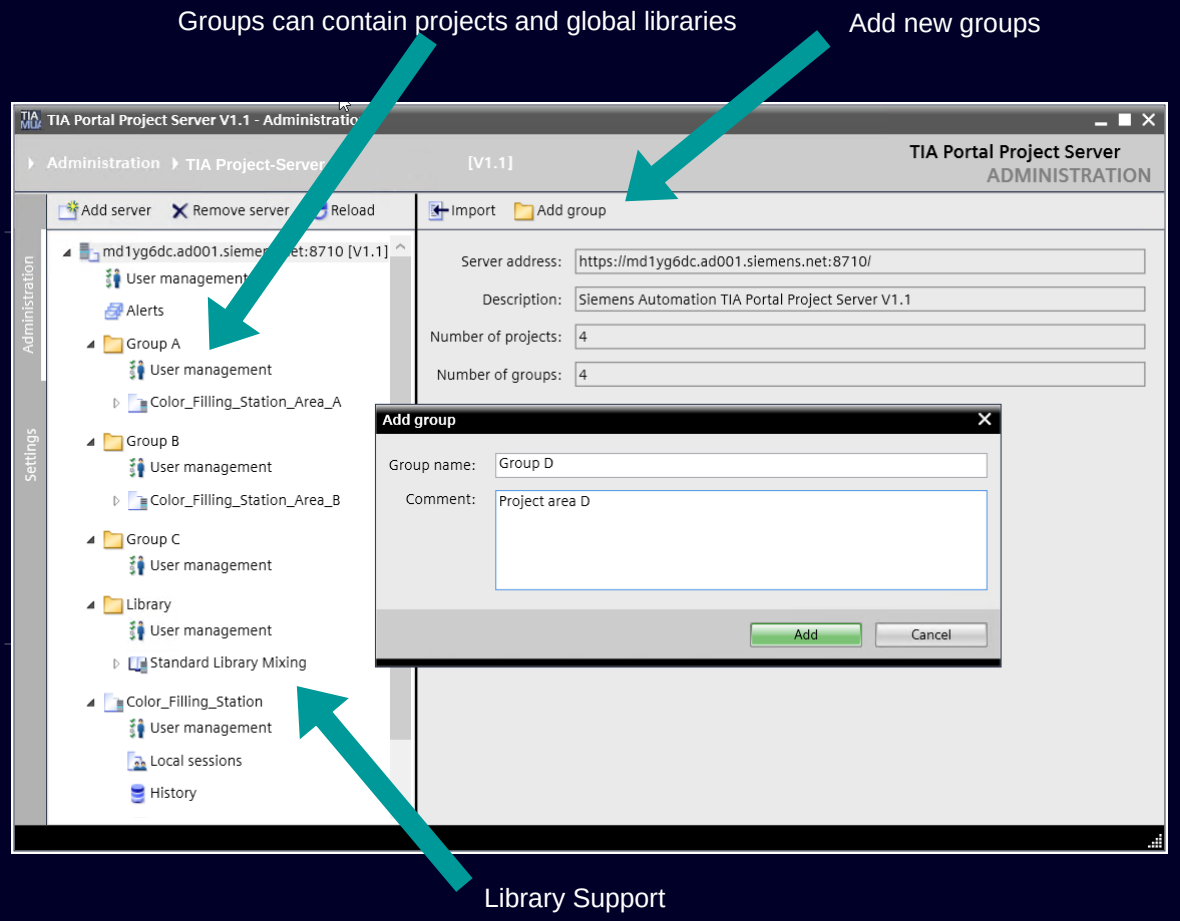
TIA Portal Multiuser Engineering V18
Groups & Libraries



Support of Global Libraries

- Libraries can be stored on the Project-Server
- The same Multiuser and Project-Server functions are available for the libraries on the Project-Server as for projects
  For example: Change log and the change history
- Libraries on the Project-Server are fully integrated in the TIA Portal and can be used together with a TIA Portal project, a multiuser session or exclusive session
- A multiuser license is required to create and use a Global Library session

Better structuring and overview via groups

- Projects and libraries can be structured in groups with TIA Portal V18 and the Project-Server V1.1
- Groups can contain projects and libraries
- TIA Portal Versions < V18 only have access to projects at root level

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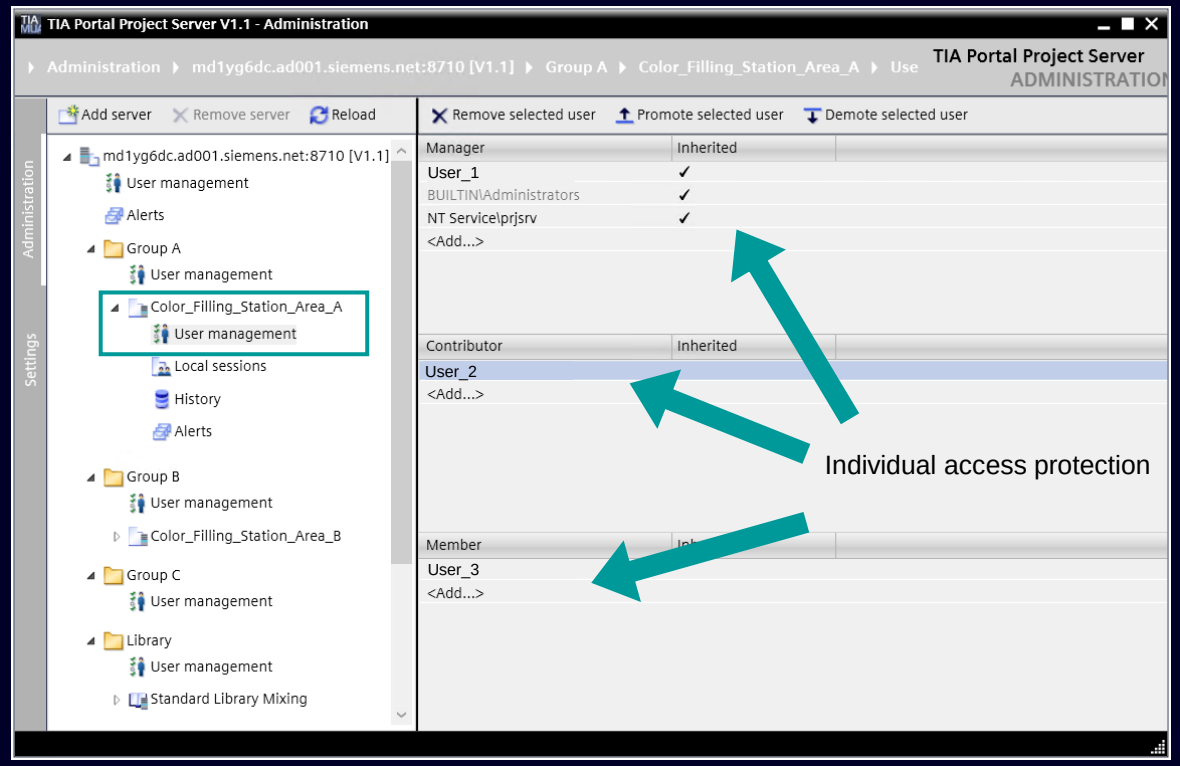
TIA Portal Multiuser Engineering V18
Access protection, flexibility and performance



Access protection
- Projects, libraries & groups and can be assigned to individual users or groups for access protection
- Usable from V14 together with the Project-Server V1.0 and newer
- TIA Portal Version <V18 only support access protection in root level

Flexibility
- The fixed assignment of a multiuser session to the creating computer has been removed
- This enables more flexible use of multiuser sessions, e.g. when using virtual machines or when sharing a multiuser session

Performance
- Performance improvements …
  - in user administration and repository upgrade
  - during the multiuser refresh in the case that no local changes are available
  - first execution after project open when using async commissioning
  - in cooperation with global search (Indexing, non use)

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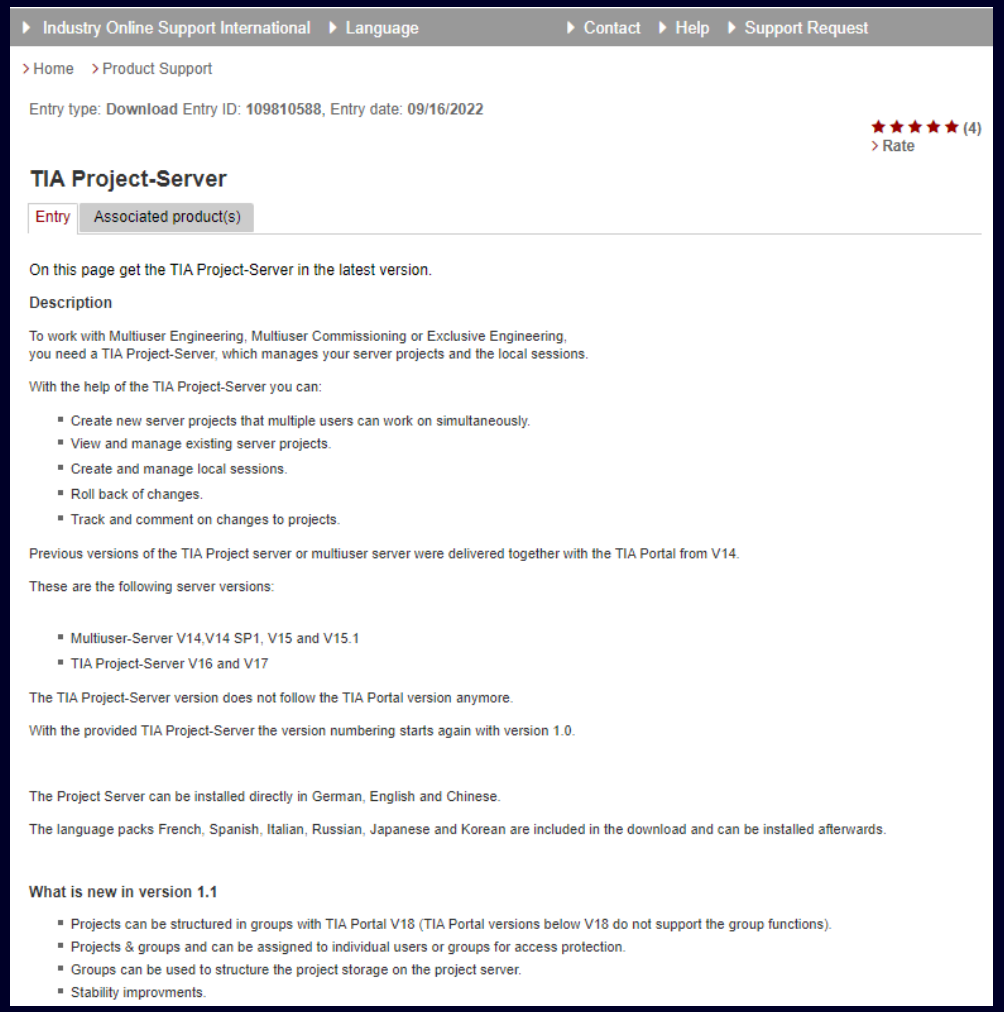
TIA Portal Multiuser Engineering V18
TIA Project-Server – Independent release cycles



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TIA Project-Server

Entry | Associated product(s)

On this page get the TIA Project-Server in the latest version.

Description

To work with Multiuser Engineering, Multiuser Commissioning or Exclusive Engineering, you need a TIA Project-Server, which manages your server projects and the local sessions.

With the help of the TIA Project-Server you can:

- Create new server projects that multiple users can work on simultaneously.
- View and manage existing server projects.
- Create and manage local sessions.
- Roll back of changes.
- Track and comment on changes to projects.

Previous versions of the TIA Project server or multiuser server were delivered together with the TIA Portal from V14.

These are the following server versions:

- Multiuser-Server V14,V14 SP1, V15 and V15.1
- TIA Project-Server V16 and V17

The TIA Project-Server version does not follow the TIA Portal version anymore.

With the provided TIA Project-Server the version numbering starts again with version 1.0.

The Project Server can be installed directly in German, English and Chinese.

The language packs French, Spanish, Italian, Russian, Japanese and Korean are included in the download and can be installed afterwards.

What is new in version 1.1

- Projects can be structured in groups with TIA Portal V18 (TIA Portal versions below V18 do not support the group functions).
- Projects & groups and can be assigned to individual users or groups for access protection.
- Groups can be used to structure the project storage on the project server.
- Stability improvments.

TIA Project-Server

In order to be able to provide new functions more quickly, the TIA Project-Server will be updated independently of TIA Portal versions in future

- Delivery via SIOS Download
- Download Entry ID: 109810588
- Compatible with TIA Portal from V14
- No license costs for operation, license concept unchanged (for Multiuser engineering is a license required)
- New function upgrades planned every 6-9 months

Version 1.0
- Project granular access protection as of TIA Portal V14
- published in May 2022

Version 1.1
- Access protection at group level for projects & libraries
- Support of Global Libraries
- published in August 2022

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OPC UA

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OPC UA – V18
The standardized interface with semantic

OPC UA diagnostics	Improvement of OPC UA diagnostics within the user program
Source timestamp	Edit timestamp / attributes in user program (writing source timestamps of nodes)
Increased quantity structures	Increasing the numbers of nodes for user-defined server interfaces
Ref NS mapping 2nd step	Extensions & enhancements for easy handling and more individual potentials

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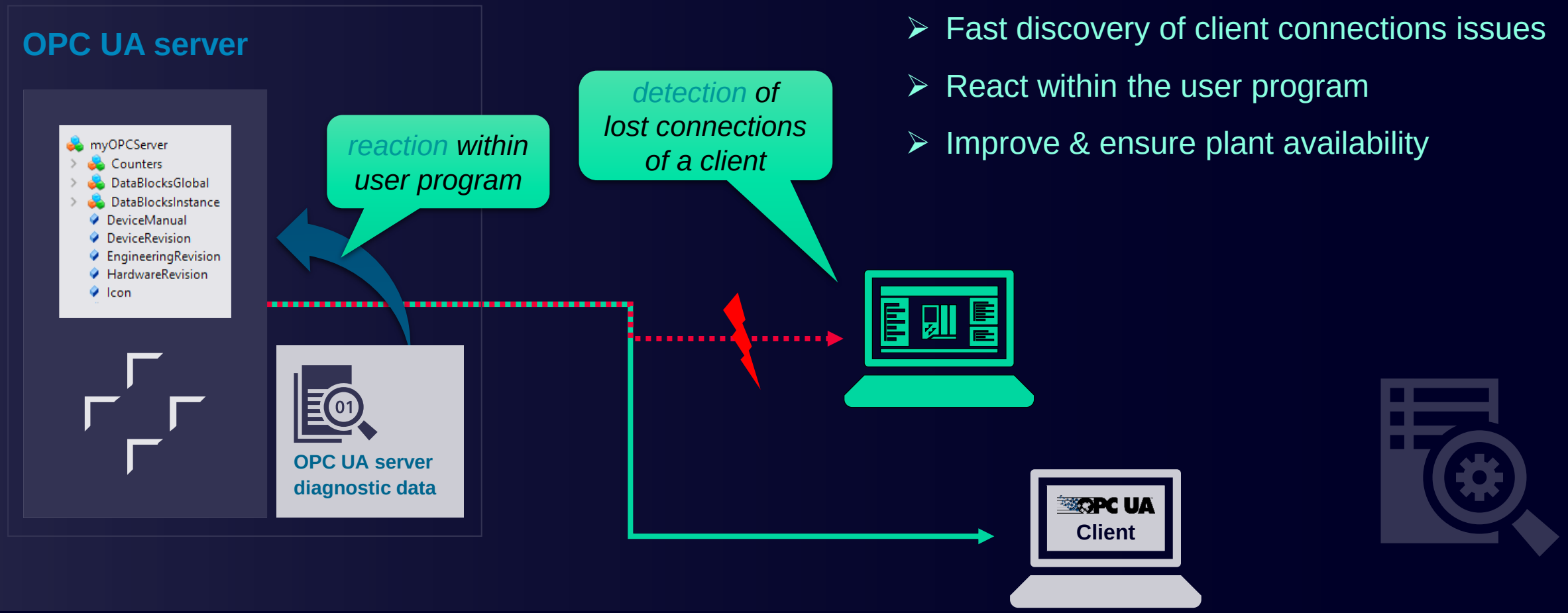
OPC UA – Diagnostics within the user program

Higher availability with status & diagnostic data of own address space



- Fast discovery of client connections issues
- React within the user program
- Improve & ensure plant availability

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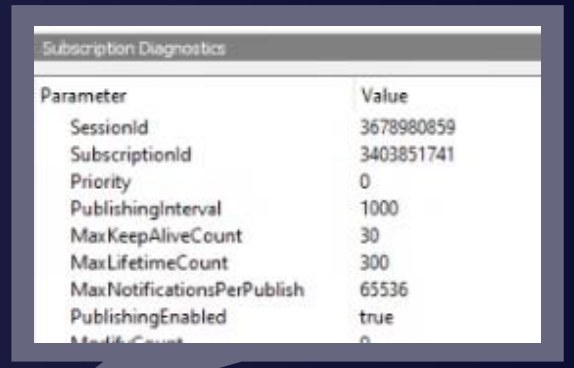
OPC UA – Diagnostics within the user program
Read own address space

Session diagnostics: e.g. session information, connection time, last contact time, publish requests, number of monitored items, …

Subscription diagnostic: e.g. publishing interval, number of monitored items, …

OPC UA Clients

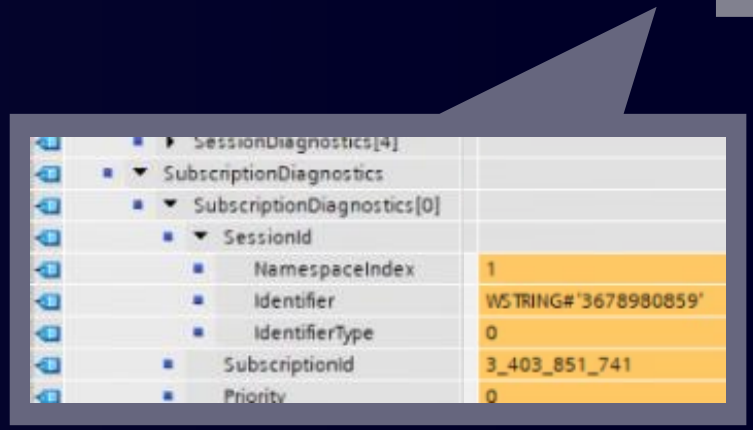
- Can read out Session and Subscription diagnostics in the address space of the server



Status and diagnostic information of own OPC UA Server available **within the user program**

OPC UA Server on S7-1500

- Read out session & subscription diagnostics with Function block
- React in user program



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OPC UA – Edit timestamp / attributes in user program

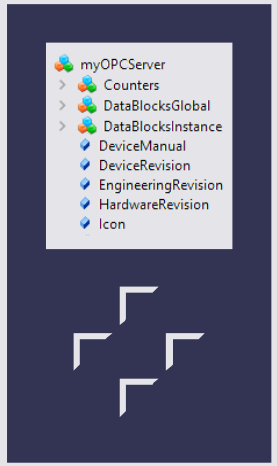
Writing source timestamps of nodes

Use case

- Process values provided e.g. by a generator, turbine controller, …
- Several industries need **value** and **time of signal change**

Values via PN or OUC with time stamp of the source

OPC UA server

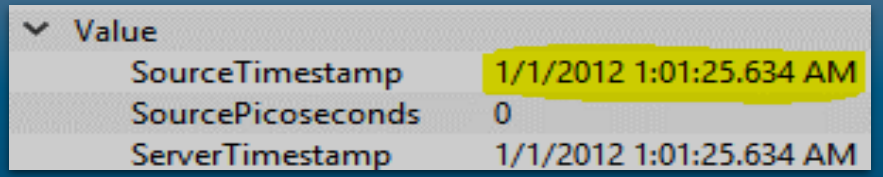


time stamp

source = server

Information required by the SCADA system at end customer

challenge: No differentiation in OPC UA server between source and server timestamp



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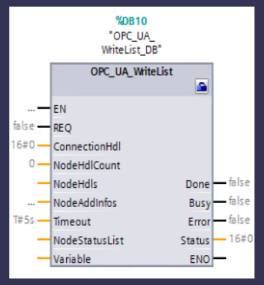
OPC UA – Edit timestamp / attributes in user program

Writing source timestamps of nodes

Structure with data value, timestamp, statuscode

fbSetDataValue

Name	Data type	Default value
CurrentTest	Int	0
ConnectionHdl	DWord	-42
NodeCount	UInt	2
NodeIds	Array[0..299] of OP...	
Variable	Struct	
Int	Struct	
DataValue	Struct	
Value	Int	0
StatusCode	DWord	16#0
SourcePicoseconds	UInt	0
SourceTimestamp	LDT	LDT#1970-01-01-0
WString	Struct	



Value	
SourceTimestamp	21.06.2010 23:22:23.255
SourcePicoseconds	4321
ServerTimestamp	30.08.2021 14:14:07.765
ServerPicoseconds	0
StatusCode	Good (0x0000007f)
Value	Hallo, hallo

- Consisted data
- Only for modelled server interface
- Addressing via node ids

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OPC UA – Quantity structures @ S7-1500
Improvements for server interface & subscriptions

- Higher number of nodes within user-defined server interfaces
- More subscriptions per session
- Higher amount of max. recommended monitored items (within 1s sampling/publish)

	CPU 1510…13		CPU 1515/16	
	V17	V18 / FW3.0	V17	V18 / FW3.0
Server Interface				
No. of server interfaces, max.	10	10	10	10
No. of nodes for user-defined server interfaces, max.	1,000	**15.000**	5,000	**30.000**
Subscriptions				
No. of subscriptions per session, max.	20	**50**	20	**50**
No. of monitored items per subscriptions, max.	10,000	10,000	10,000	10,000
Sampling interval, min.	100ms	100ms	100ms	100ms
Publishing interval, min.	500ms	**200ms**	200ms	**100ms**
Monitored items, max.	10,000	10,000	20,000	20,000
Recommended monitored items, max *for 1 s sampling & 1 s publish interval*	1,000	**4.000**	2,000	**4.000**

*) more details / help to subscriptions: https://support.industry.siemens.com/cs/ww/de/view/109755846

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OPC UA – Reference Namespace mapping

Extensions & enhancements for easy handling and more individual potentials

- Import & export of reference namespace mappings. Mapping can be created in TIA Portal and SiOME.
- Support the optional “Reference” attribute for TypeMapping extensions on reference namespace import/export.
- Hierarchical node generation for TypeMapping Reference attribute.
- Updated reference namespace editor.

- Fast and easy creating and maintaining of mappings.
- Simple definition of reference attributes in SiOME as basis for the server interface generation in TIA Portal.
- Automatically generating of server interface nodes - in “IT- and OT friendly” format.
- UaDataTypes displayed as children of … DataTypes folder
- UaObjectTypes displayed as children of … ObjectTypes folder

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PLCSIM / PLCSIM Advanced

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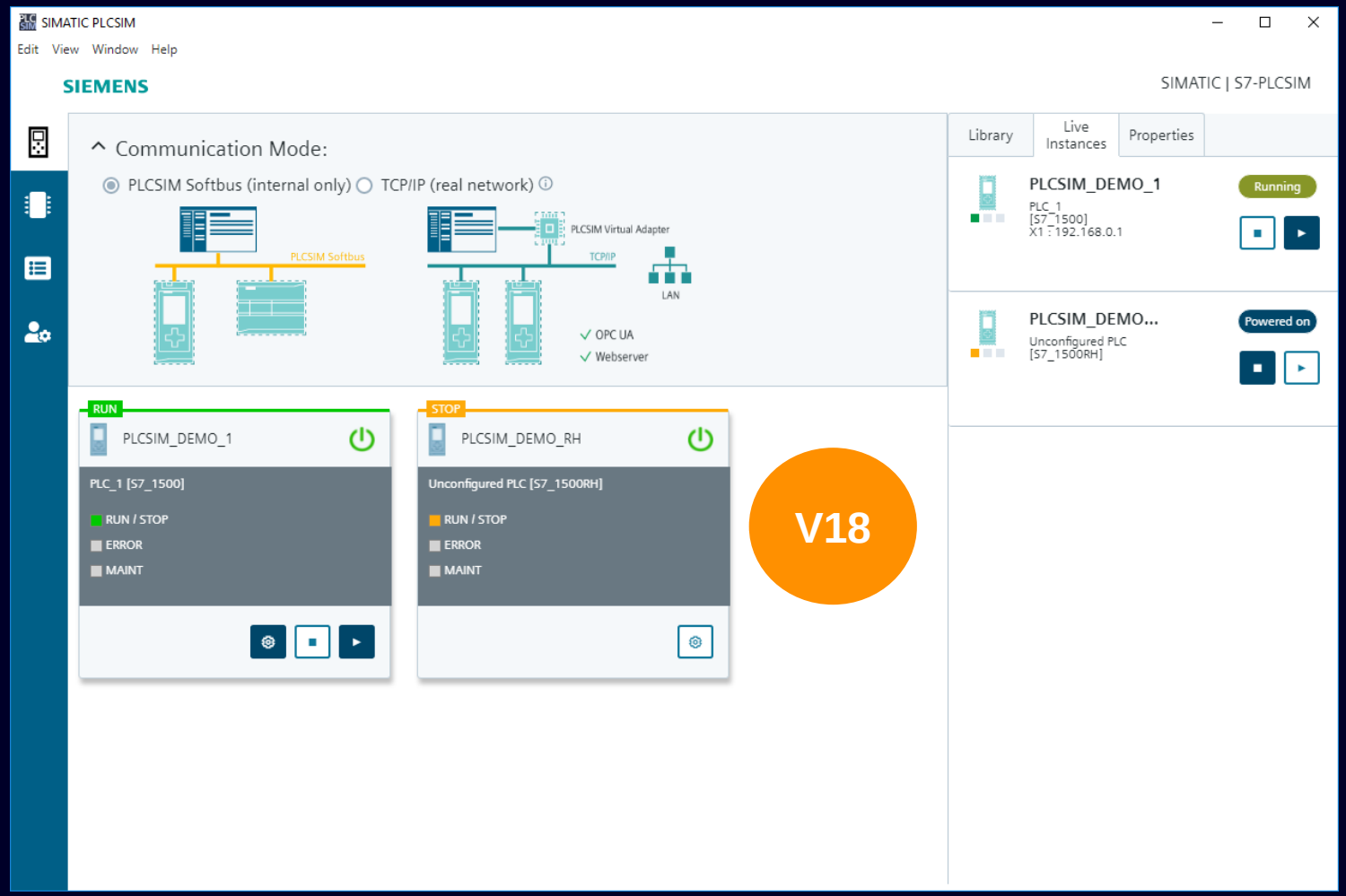
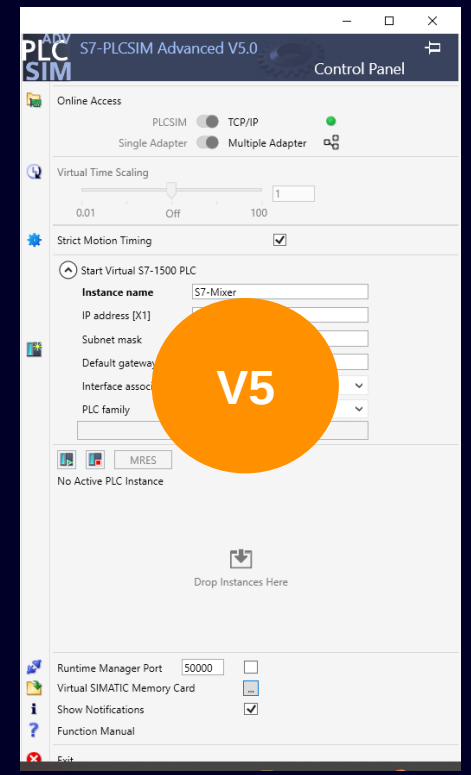
TIA Portal S7-PLCSIM V18

New user interface for S7-PLCSIM V18 with integrated S7-PLCSIM Advanced



"We work together!"



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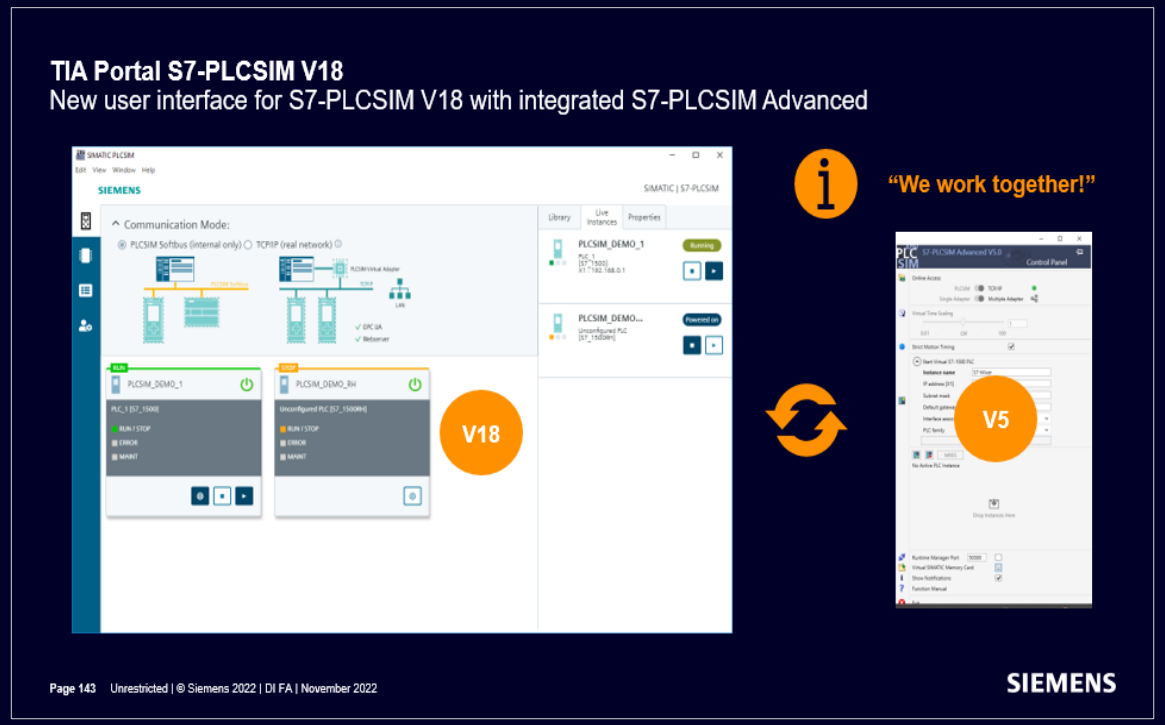
TIA Portal S7-PLCSIM V18
The new User Interface works for two functional levels

Create ONE PLCSIM Product User Interface



Advantages of the new PLCSIM V18 UI

- S7-PLCSIM V18 functionality as is with **new** UI as free of charge STEP 7 option
- S7-PLCSIM V18 customers are aware of the valuable features S7-PLCSIM Advanced V5.0 provides

…and

- S7-PLCSIM **Advanced** V5.0 features can be used with the **new** S7-PLCSIM V18 UI also for Co-Simulation purposes
- S7-PLCSIM **Advanced** V5.0 customers can leverage the product advantages faster

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TIA Portal S7-PLCSIM V18 User Interface
The functionality and licensing remain unchanged

With the new S7-PLCSIM V18 User Interface …

…we support S7-PLCSIM Advanced Features on the same User Interface!

Functionality / License	S7-PLCSIM V18 aka Standard	S7-PLCSIM Advanced V5.0 *
S7-1200 / S7-1500 PLC	✓ / ✓	✗ / ✓
Local / distributed communication	✓ / ✗	✓
TCP/IP / OPC UA / http(s)	✗	✓
Virtual time scaling	✗	✓
Virtual memory card	✗	✓

“The functionality split and licensing remain unchanged”

*** With a S7-PLCSIM Advanced license the S7-PLCSIM V18 User interface can be used without limitations**

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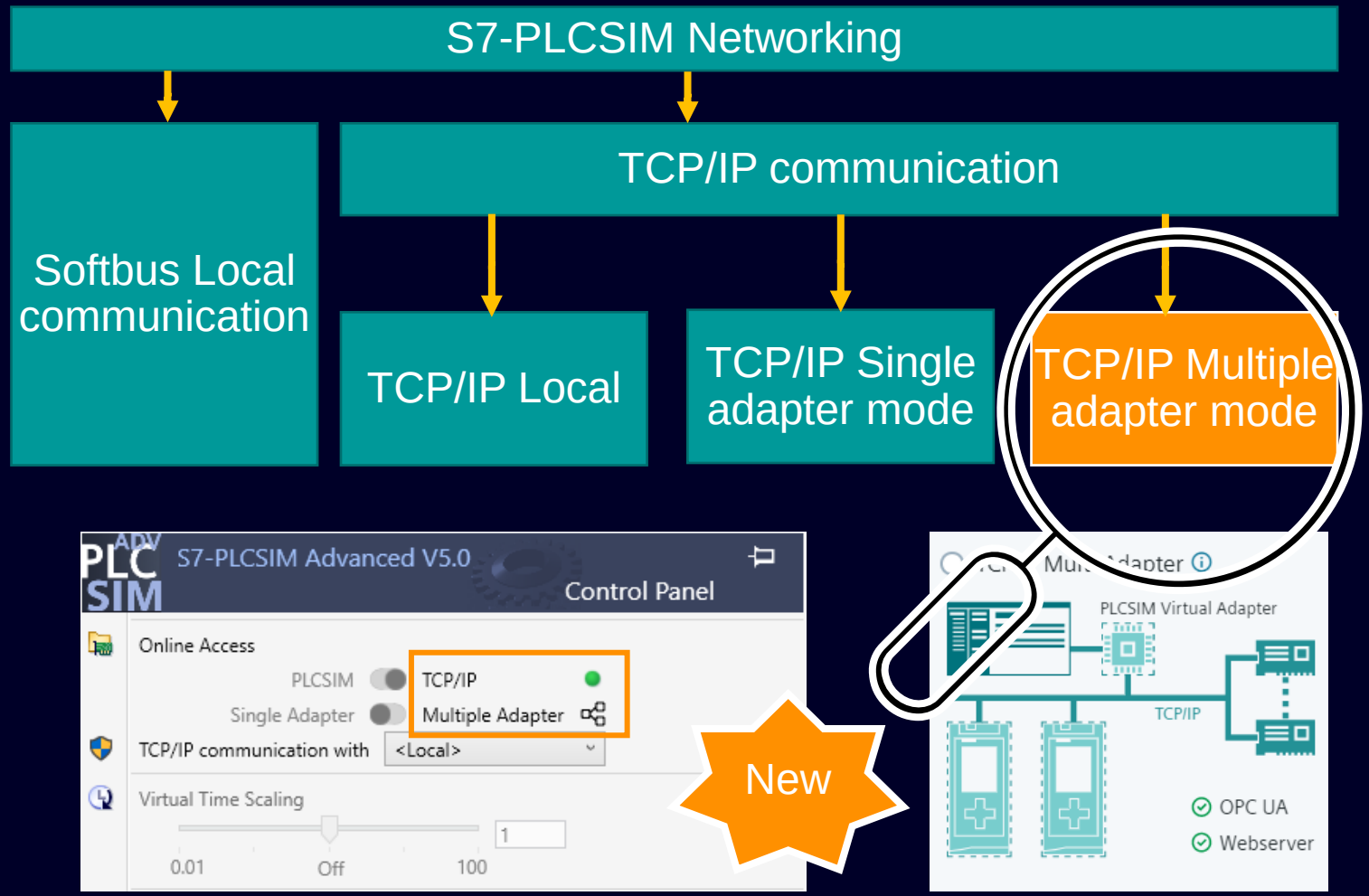
S7-PLCSIM Advanced V5.0
New communication mode “TCP/IP - Multiple Adapter” leads to Cloud readiness



With the new “**Multiple Adapter Mode”** S7-PLCSIM Advanced can be operated also in IT Infrastructure scenarios where the “Network Promiscuous Mode” is prohibited as in public cloud infrastructures like Azure Cloud or AWS.

To make S7-PLCSIM Advanced V5.0 ready to use with no limitations in a Cloud environment, we built-in the new “**Multiple Adapter Mode”**. Any interface of a simulated PLC can be separately configured.

This enables the following use cases:

- Visibility to external networks for any interface
- Communication over 2 or more virtual machines and their running PLC instances to any of their interface
- Addressing from outside PLC interfaces from different networks.
- A network separation is possible while the mapping isn’t done.

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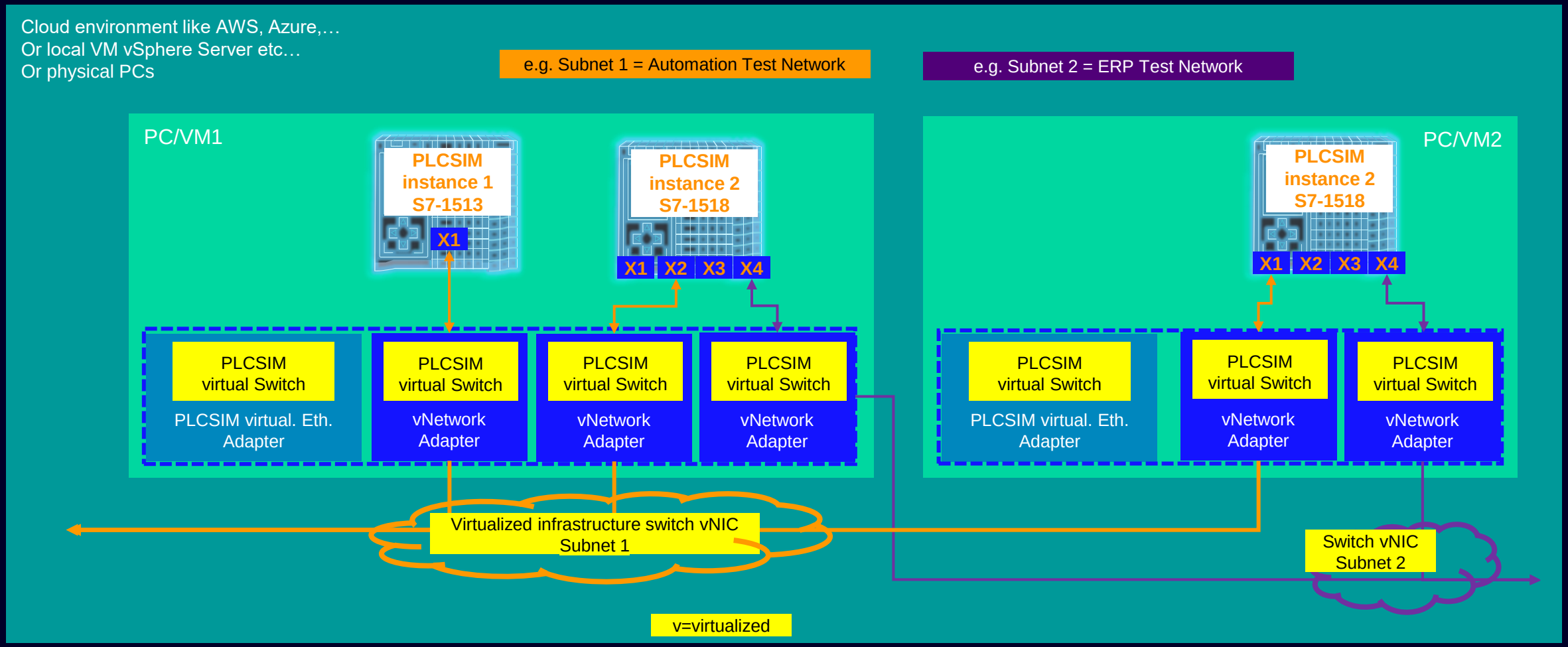
S7-PLCSIM Advanced V5.0
New communication mode “TCP/IP Multi Adapter” – full flexibility network topologies

Multi Adapter Mode – multiple network adapter mapped to one simulation instance



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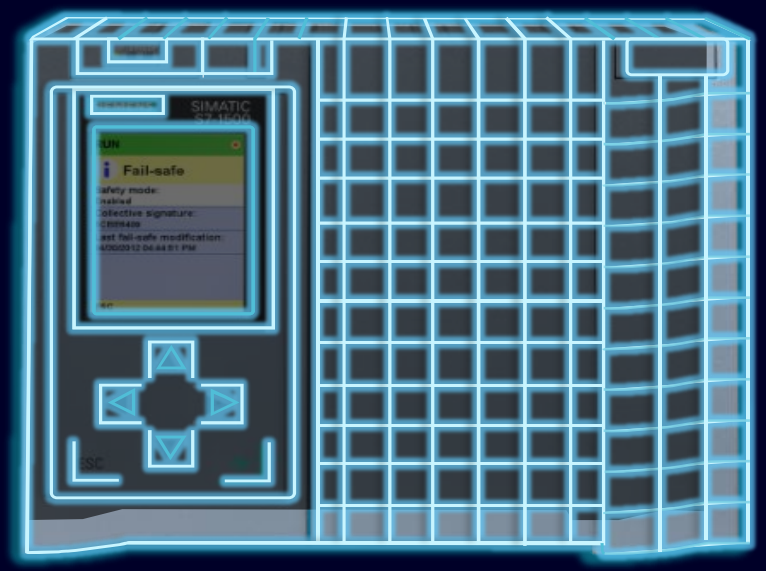
S7-PLCSIM Advanced V5.0
New features related to S7-1500 PLC



New CPU types

- New ET 200SP CPU 1514SP (F/T/TF)-2 PN PLC Types are now supported
- All new article numbers for Firmware V3.0 including SIPLUS PLCs

New PLC related features

- R1 and/or S2 configuration of S7-1500 R/H PLCs are downloadable
- The simulation with active NTP time synchronization is now supported.
- It is possible to test the backup and restore functions via the S7-1500 web server
- Data logs (SFB140-148) and recipes (SFB1003/1004) can be read and written

Compatibility

- TIA Portal projects from versions V14 to V18 and CPU firmware versions V1.8 – V3.0 are now supported in PLCSIM / PLCSIM Advanced.

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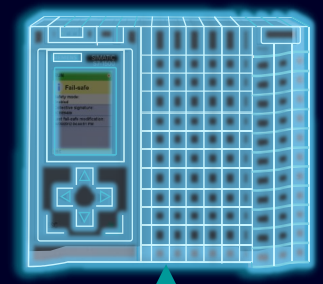
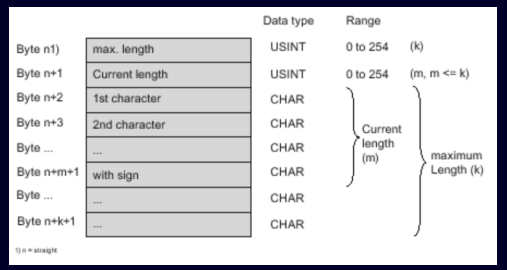
S7-PLCSIM Advanced V5.0
API supports the Data Type “String” and “WString”



String read/write
“PackageTrackingID#1234”



Benefit

- For simulation of e.g., material flow, material tracking or standard interface data you may need to exchange the data in STRING format with the PLCSIM API. This enables complete test scenarios without Code changes with the upper data layer like MES/ERP Systems and e.g. Plant Simulation.

New API data Type String & WString

- String and WString can be used in the "User Defined Datatype" (UDT) as Data Blocks or in Arrays.
- String tag in TIA portal which uses UTF8 encoding is 256 bytes long which contains 254 characters. Two bytes are reserved, one for maximum length and one for current length of the string.
- A WSTRING has similar structure as String but can be 16382 characters long. First 2 bytes are reserved for maximum length and 2 bytes after that are used for current length of the string. WSTRING is used for UTF16 encoding.
- Array of STRING / WSTRING are handled in the same way as array of other primitive types.

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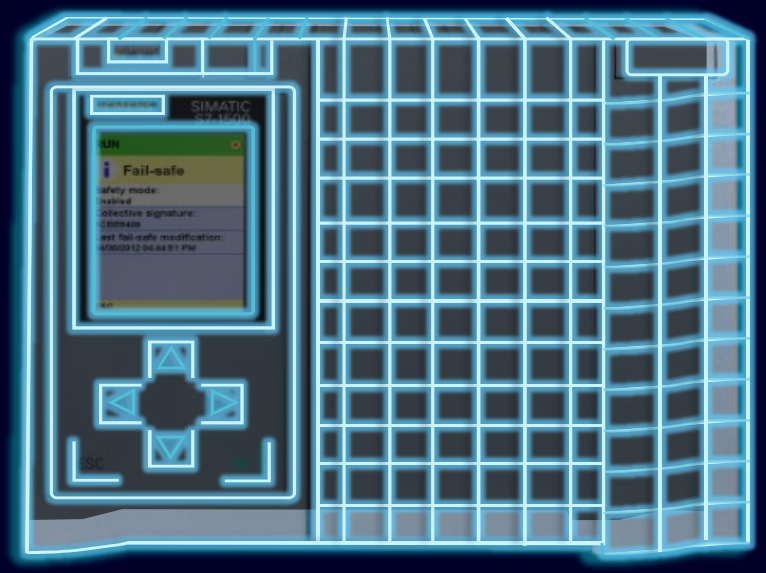
S7-PLCSIM Advanced V5.0
New API related features



API News

- Register multiple user functions in C++ API to the callback methods of the same event. This is now possible as is already in the .NET API.
- The default settings for the “DefaultStoragePath” of the newly created instances can be get/set directly by the API

Refactoring API TIA Portal Download

- To be notified by the PLCSIM-API if a “software change” happens in operating state "STOP" or "RUN“, some new API methods were implemented.
  - OnSoftwareConfigurationChanged (with operating state indicator)
  - RegisterOnSoftwareConfigurationChangedCallback
  - RegisterOnSoftwareConfigurationChangedEvent
  - UnregisterOnSoftwareConfigurationChangedCallback
  - UnregisterOnSoftwareConfigurationChangedEvent
  - WaitForOnSoftwareConfigurationChangedEvent
- Now obsolete API method:
  - OnConfigurationChanging

    Has former informed about a download of hardware or software configuration change in general.

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SIMATIC Target for Simulink®

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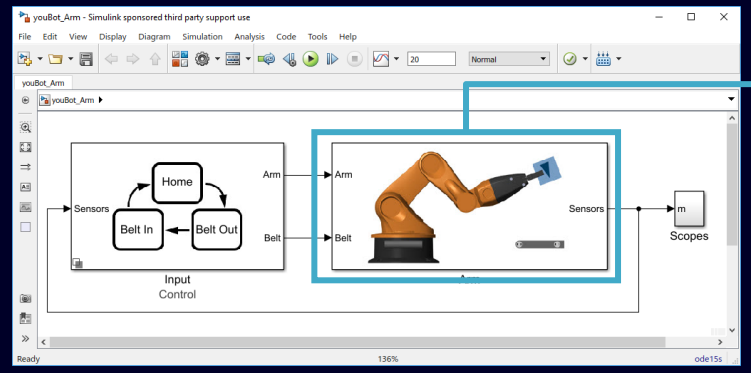
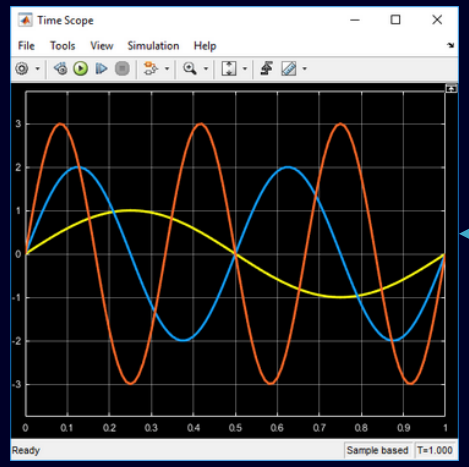
SIMATIC Target™ for Simulink® V6.0
Monitoring and Debugging with External Mode for LiveTwin Edge app



MATLAB and Simulink



Function

- External Mode communication between Simulink and LiveTwin Runtime
- Monitoring of model signals
- Tuning of model parameters

Benefit

- Monitoring of model behavior directly on the runtime
- Comparison of model behavior between Simulink simulation and realtime execution on LiveTwin
- Adaptation of model behavior

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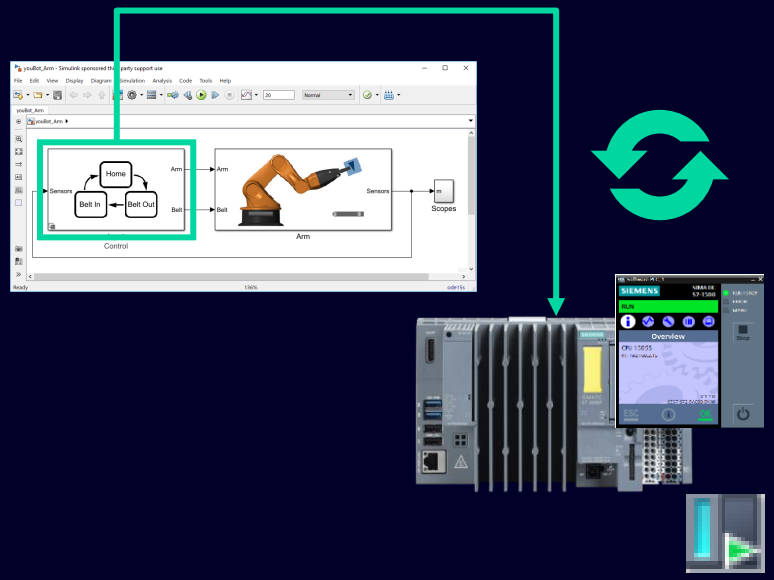
SIMATIC Target™ for Simulink® V6.0
General Improvements

Automated Load / Unload handling

"Download in RUN" behavior for Simulink models

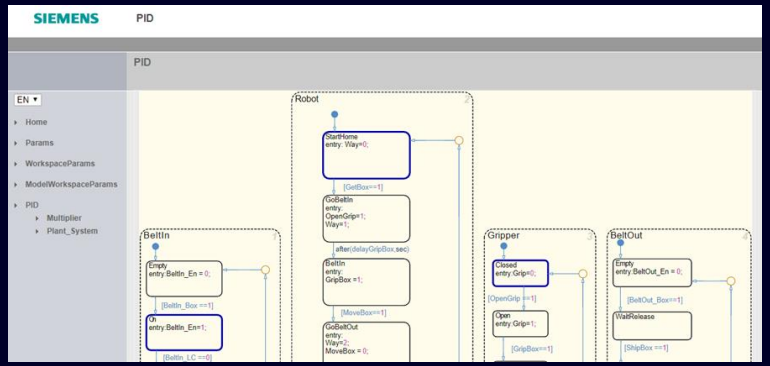
- Handling of the Load and Unload ODK blocks is integrated in the generated PLC program blocks
- No RUN/STOP transition required to run updated model



Usage of PLC Web API

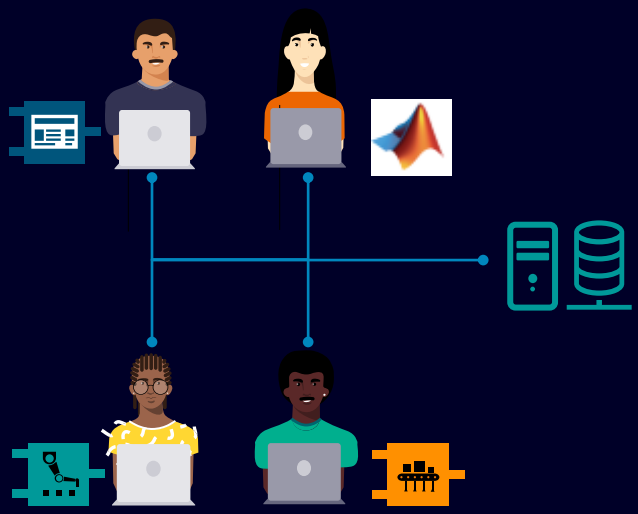
Web Visualization of Simulink Model is now based on the new PLC Web API mechanisms

- No additional data blocks needed
- No additional system function calls to display the model values on the web server
- Web visualization for up to 4 independent Simulink models on the PLC



TIA Portal Multiuser support

Code generation from Simulink Model to the local session of a TIA Portal Multiuser project



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Test Suite

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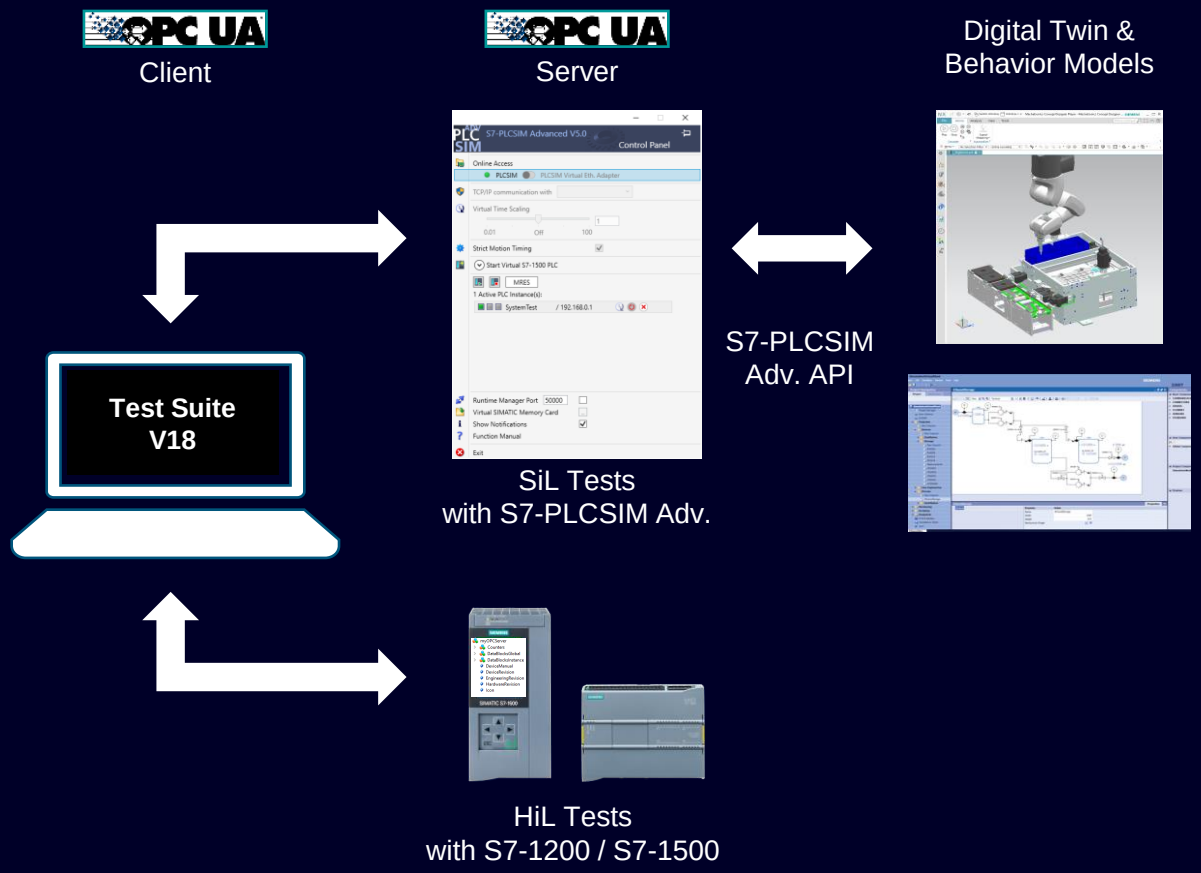
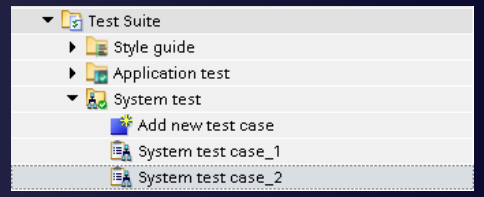
New

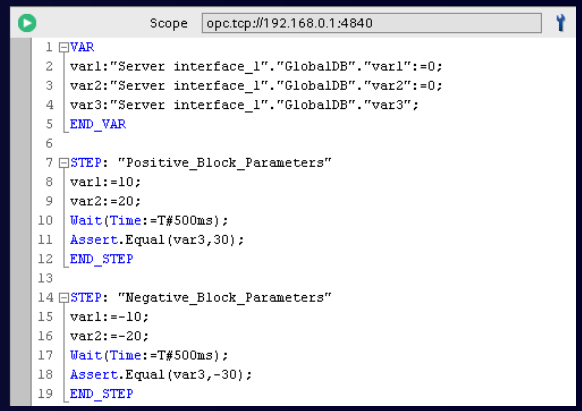
Test Suite Advanced V18
System test via S7-1200 / S7-1500 OPC UA Server



System test via PLC OPC UA Server

In addition to application test via the S7-PLCSIM Advanced API, the Test Suite now offers automated tests via S7-1200 / S7-1500 OPC UA Server interface. When the test is started, then Test Suite connects to the specified server address as an OPC UA client and executes the test step by step.





Benefits

- Black-Box-Tests via OPC UA interface - PLC project is not required
- Software in the loop tests with S7-PLCSIM Advanced
- Machine simulation, e.g. with Simit, NX MCD, etc.
- Hardware in the loop tests with S7-1200 & S7-1500 controller
- Several system tests can run in parallel on one PLC
- Automated tests via TIA Portal Openness

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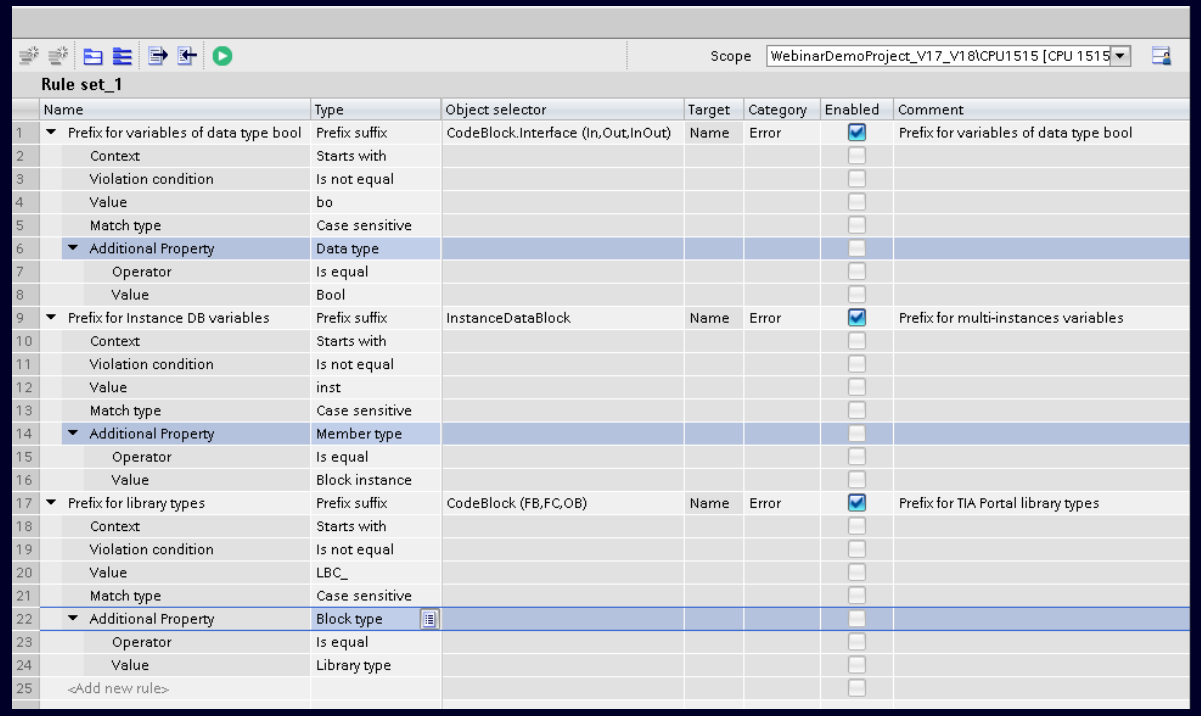
Test Suite Advanced V18
Style guide checker – Additional property



	Name	Type	Object selector	Target	Category	Enabled	Comment
1	Prefix for variables of data type bool	Prefix suffix	CodeBlock.Interface (In,Out,InOut)	Name	Error	☑	Prefix for variables of data type bool
2	Context	Starts with				☐	
3	Violation condition	Is not equal				☐	
4	Value	bo				☐	
5	Match type	Case sensitive				☐	
6	Additional Property	Data type				☐	
7	Operator	Is equal				☐	
8	Value	Bool				☐	
9	Prefix for Instance DB variables	Prefix suffix	InstanceDataBlock	Name	Error	☑	Prefix for multi-instances variables
10	Context	Starts with				☐	
11	Violation condition	Is not equal				☐	
12	Value	inst				☐	
13	Match type	Case sensitive				☐	
14	Additional Property	Member type				☐	
15	Operator	Is equal				☐	
16	Value	Block instance				☐	
17	Prefix for library types	Prefix suffix	CodeBlock (FB,FC,OB)	Name	Error	☑	Prefix for TIA Portal library types
18	Context	Starts with				☐	
19	Violation condition	Is not equal				☐	
20	Value	LBC_				☐	
21	Match type	Case sensitive				☐	
22	Additional Property	Block type				☐	
23	Operator	Is equal				☐	
24	Value	Library type				☐	
25	<Add new rule>					☐	

Style guide rule with additional property

Style guide rules can be extended with one additional property in order to specify their scope on a specific data, member or block type:

- Data Types: Bool, Integer, Char, UDT, IEC_Timer, etc.
- Member Types: Array, Struct, (Array of) Block Instance
- Block Type: TIA Portal library type

Benefits

- ➢ Allows creation of more specific rules
- ➢ Support of Hungarian notation, e.g. bBusy (b=bool), wStatus (w=word), etc.

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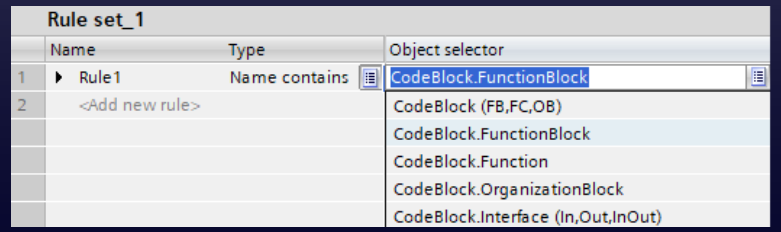
Test Suite Advanced V18
General improvements

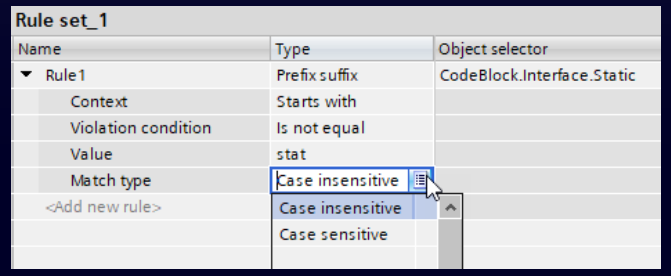
Style guide checker improvements

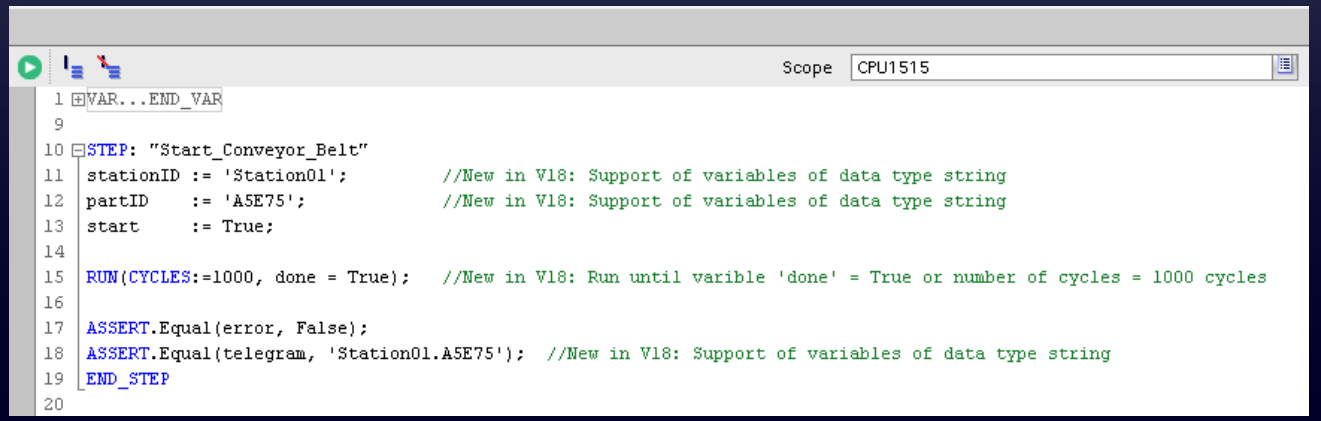
- Additional object selectors for:
  - Function
  - FunctionBlock
  - OrganizationBlock
- Case sensitivity for rules “Name contains” & “Prefix suffix”

Application test improvements

- Run with condition: Stop execution if, e.g. either signal becomes true, or number of cycles is expired
- Support of variables with data type WChar, String or WString







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SiVArc

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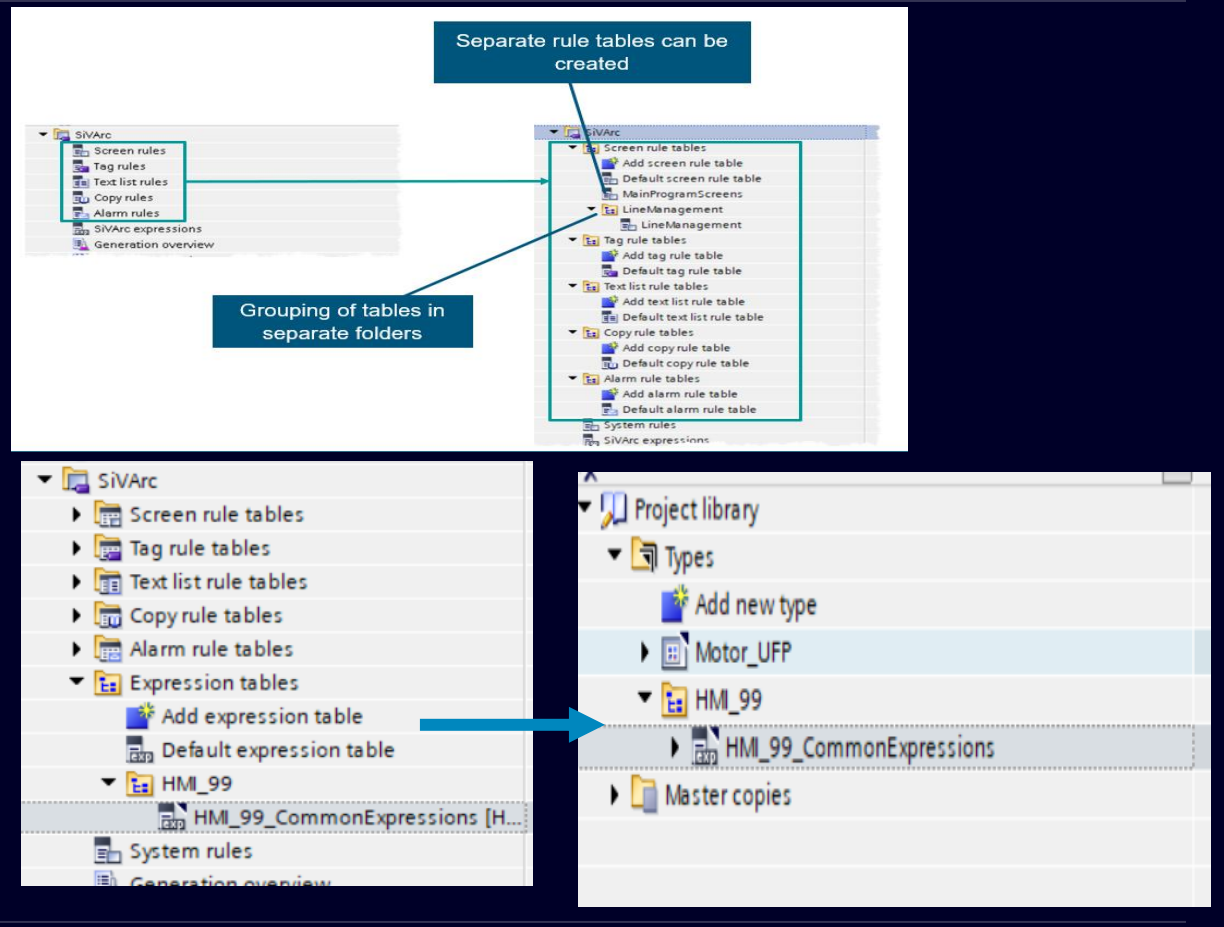
SiVArc V18
SiVArc elements as Types in Library – SiVArc Rules & Expressions

All HMI devices ✓



Use new way of organizing rules and expressions

- Flat list of rules can be structured in multiple rule tables and folder paths
- Same library handling as for UDTs & PLC blocks.
- Version status and control.
- Export & import is supported
- Terminate the connection to type is possible.

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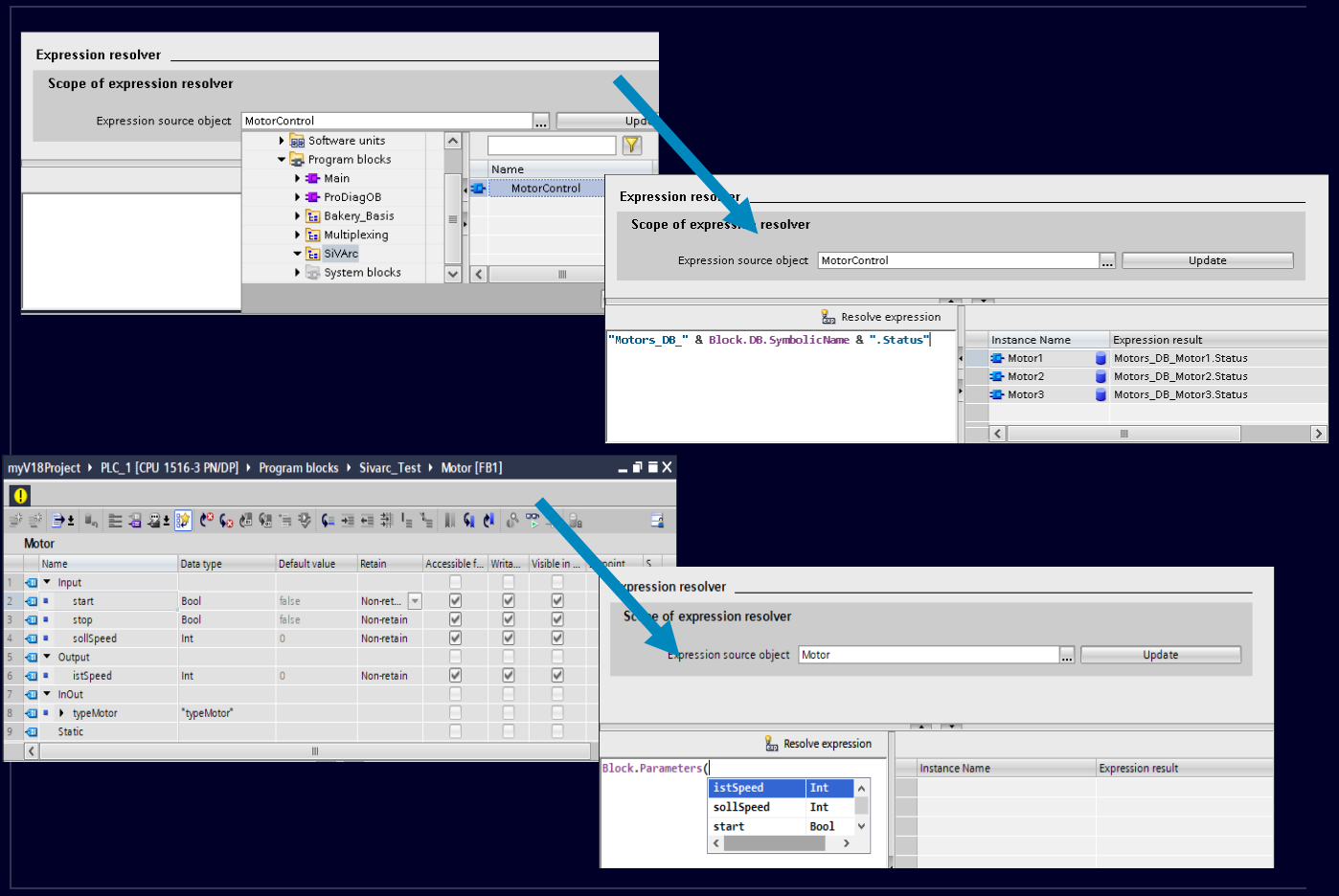
New

SiVArc V18
Improvement in debug functionality of Expression resolver

Unified Comfort Panel ✓ | PC ✓



Now, user can debug expressions with additional functionality,

- Now its possible to select block in expression resolver utility and the results will be displayed for all the instances of the block.
- User can use Auto complete feature to fill the parameters of the selected block.

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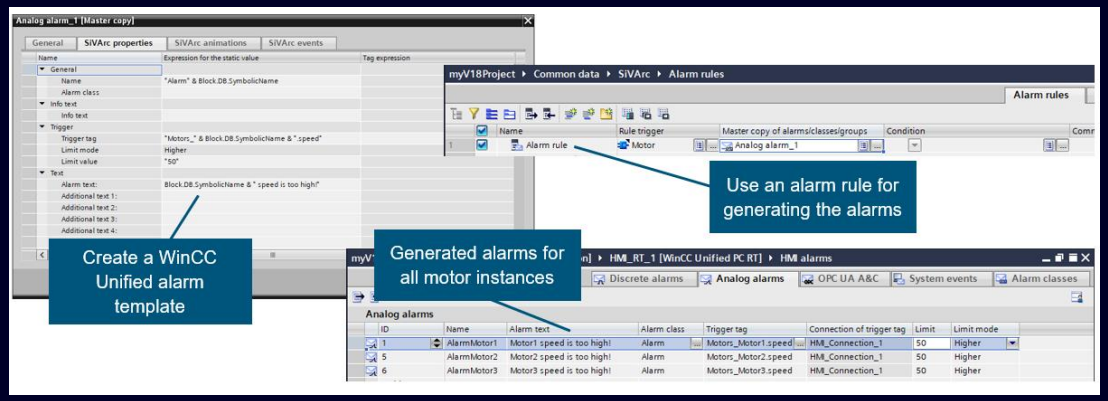
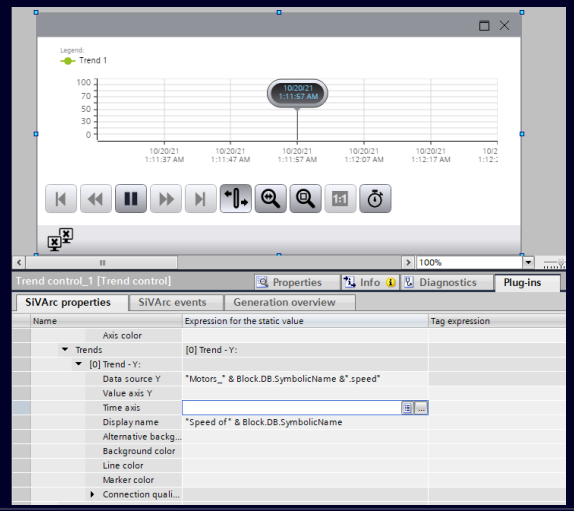
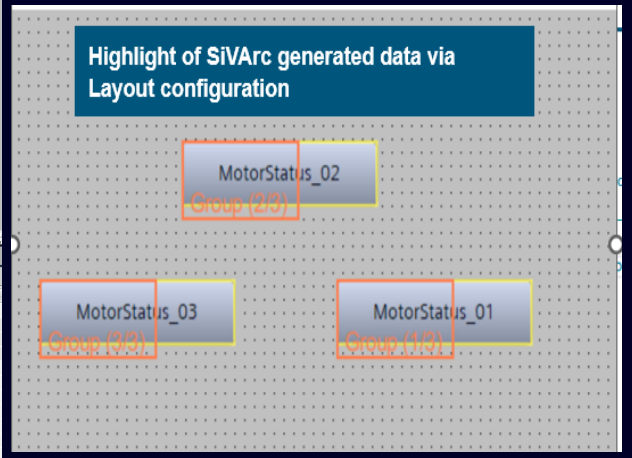
New

SiVArc V18
Unified devices – Additional functionality

Unified Comfort Panel ✓ PC ✓







SiVArc support for following functionality is available now::

- User can configure his plant Layout using Layout template & layout fields.
- Trend control, Function Trend controls are supported for Unified devices.
- User can generate WinCC unified alarms with SiVArc.
- Dynamic SVGs (As library mastercopies) can be generated via SiVArc.

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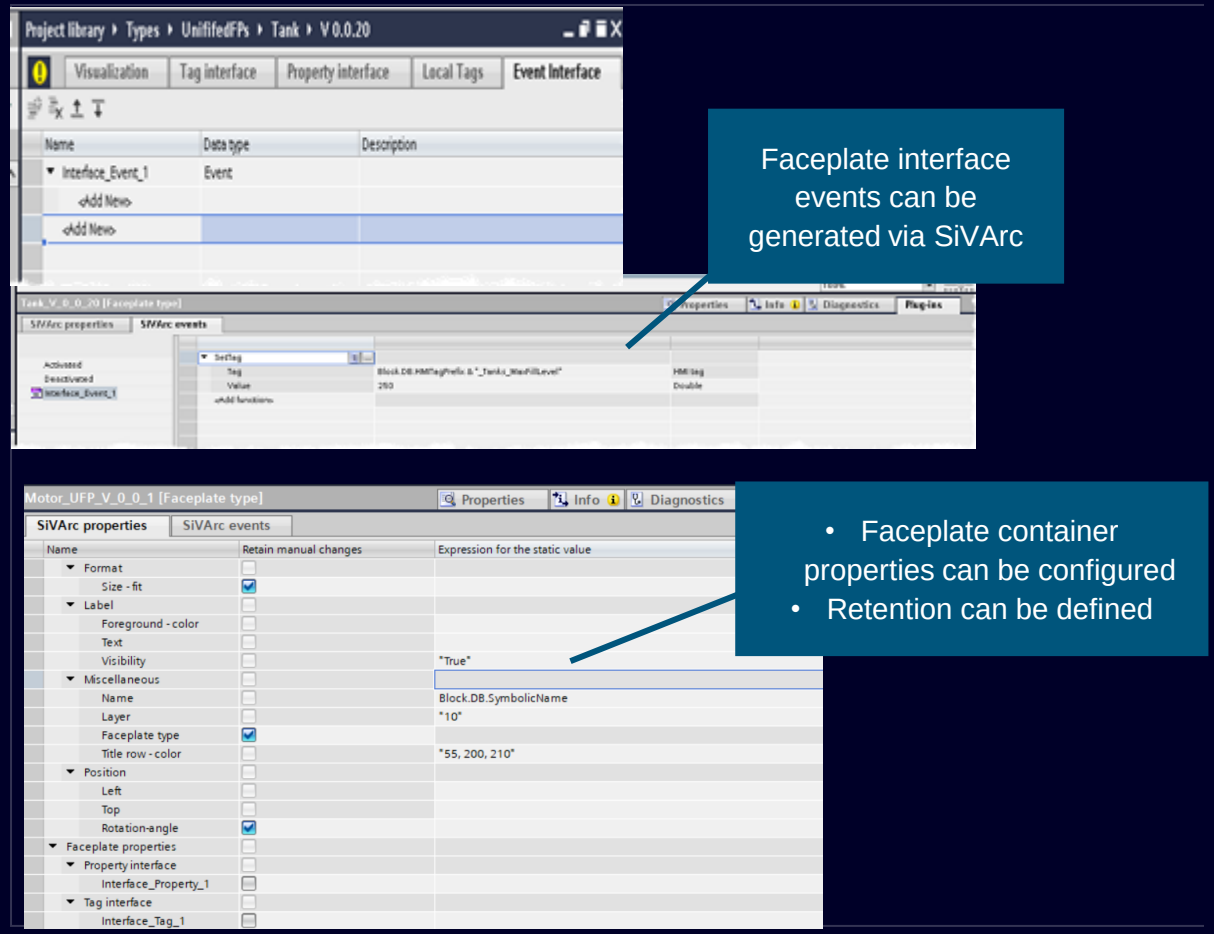
New

SiVArc V18
Unified Faceplates support

Unified Comfort Panel ✗ | PC ✓



User can generate faceplate interfaces using SiVArc

Support for following is available now

- Event interface
- Property interface enhancements
- Tag interface
- Multilingual text generation
- Faceplate container properties
- Retention settings & retention of user changes to unified faceplate properties

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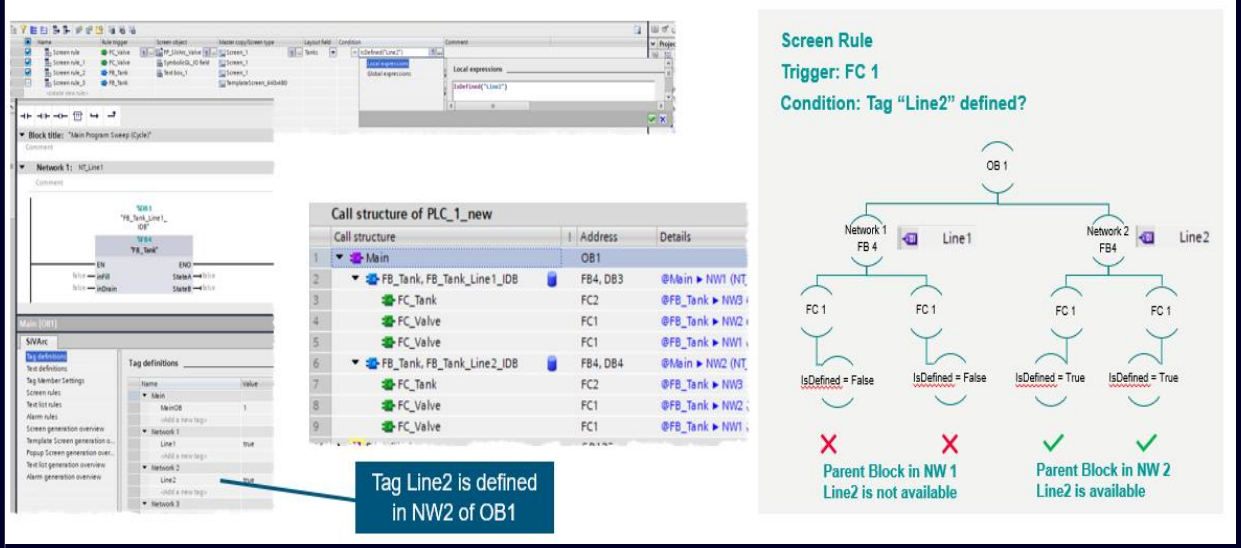
New

SiVArc V18
SiVArc tags are accessible in call hierarchy

Unified Comfort Panel ✓ PC ✓



SiVArc tags can be accessed in all blocks in the hierarchy

The SiVArc tags defined in a block can be accessed in sub ordinate blocks dependant on call structure.

The SiVArc global tag can be checked against a condition to control generation.

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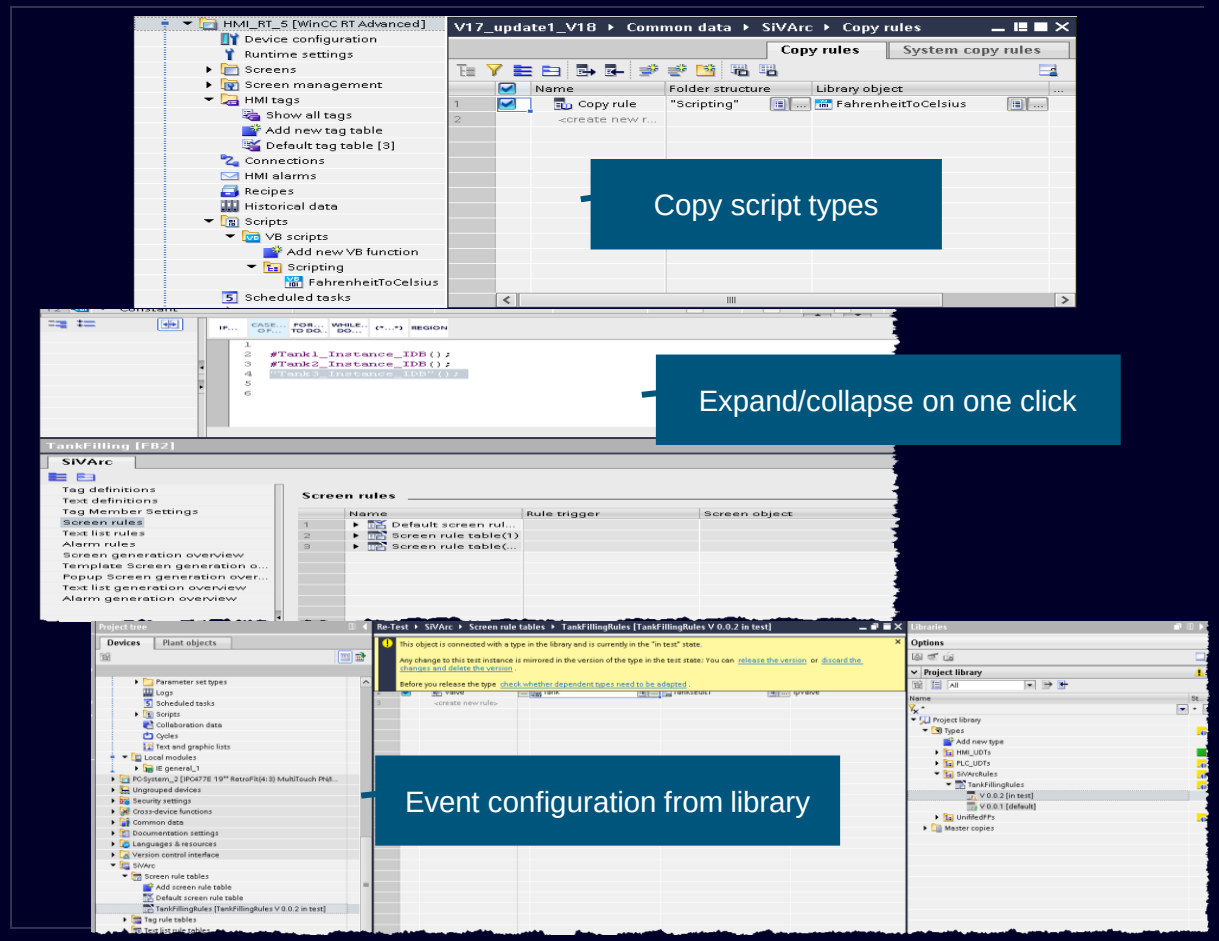
New

SiVArc V18
General improvements

All HMI devices ✓ | Unified Comfort Panel ✓ | PC ✓



SiVArc general improvements

- Copy rule support for Script types (Except unified)
- Copy rule support for java scripts (WinCC Unified)
- Screen rules can target folders now.
- SiVArc event assignment from library.
- User can define his own template for Navigation buttons now.
- Property Configurator - Support for Alarms
- Export of generated data
- Usability improvements: In Plug-in, IECPL editors.

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Energy Suite

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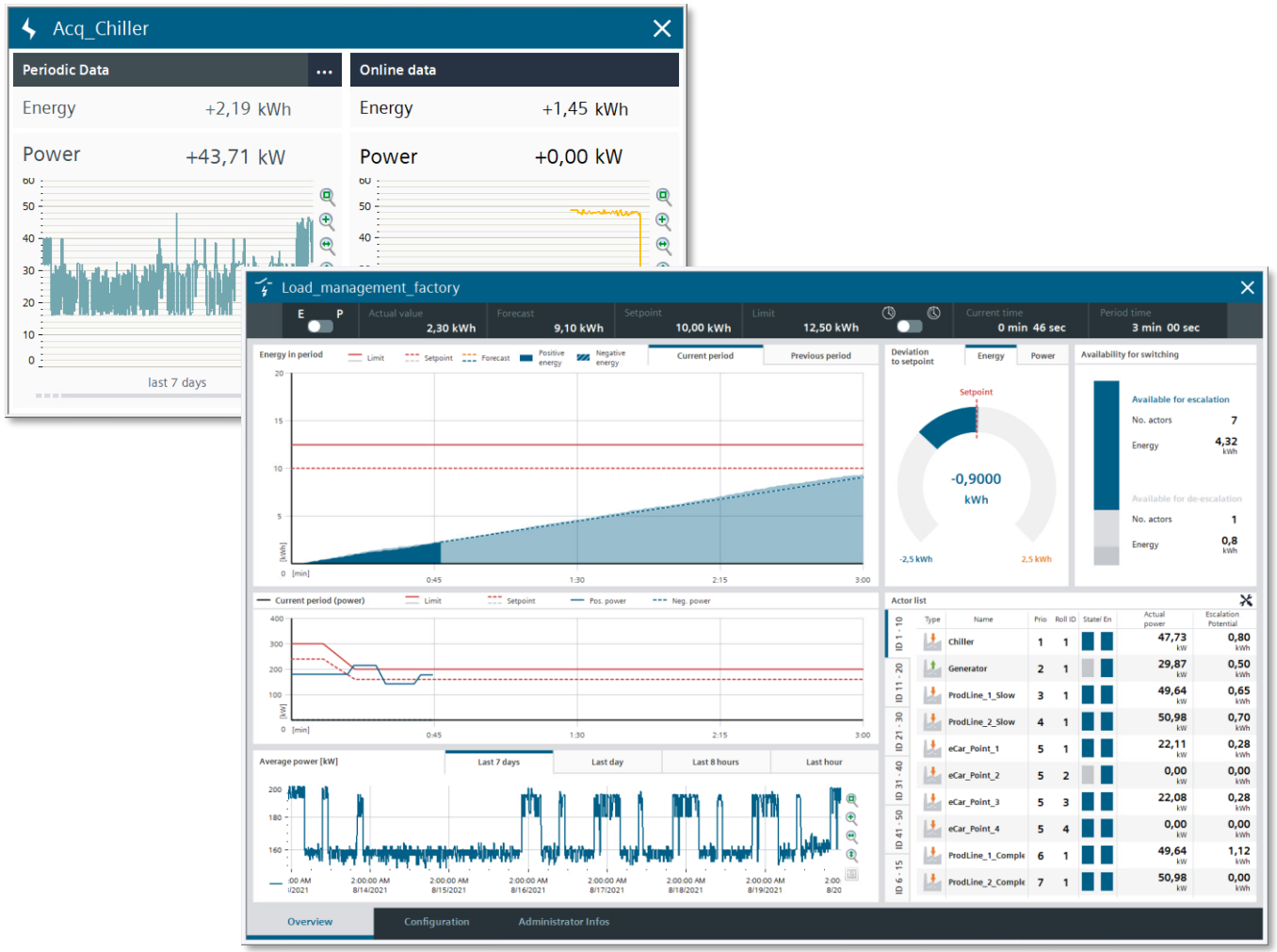
SIMATIC Energy Suite V18
What's new?



WinCC Unified support

- **Everything included:**
  Energy data and load management visualization provided
- **Simple handling:**
  Generating the visualization with SiVArc
- **Data security mechanism:**
  Buffered communication between WinCC and PLC
- **No double licensing:**
  Energy Suite tags are not counted in WinCC Unified

Additional features

- Base Load Management
- Support of energy storage actuators in load management systems
- Support of Software / Open Controller
- Simplified project migration

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Central User Management (UMC)

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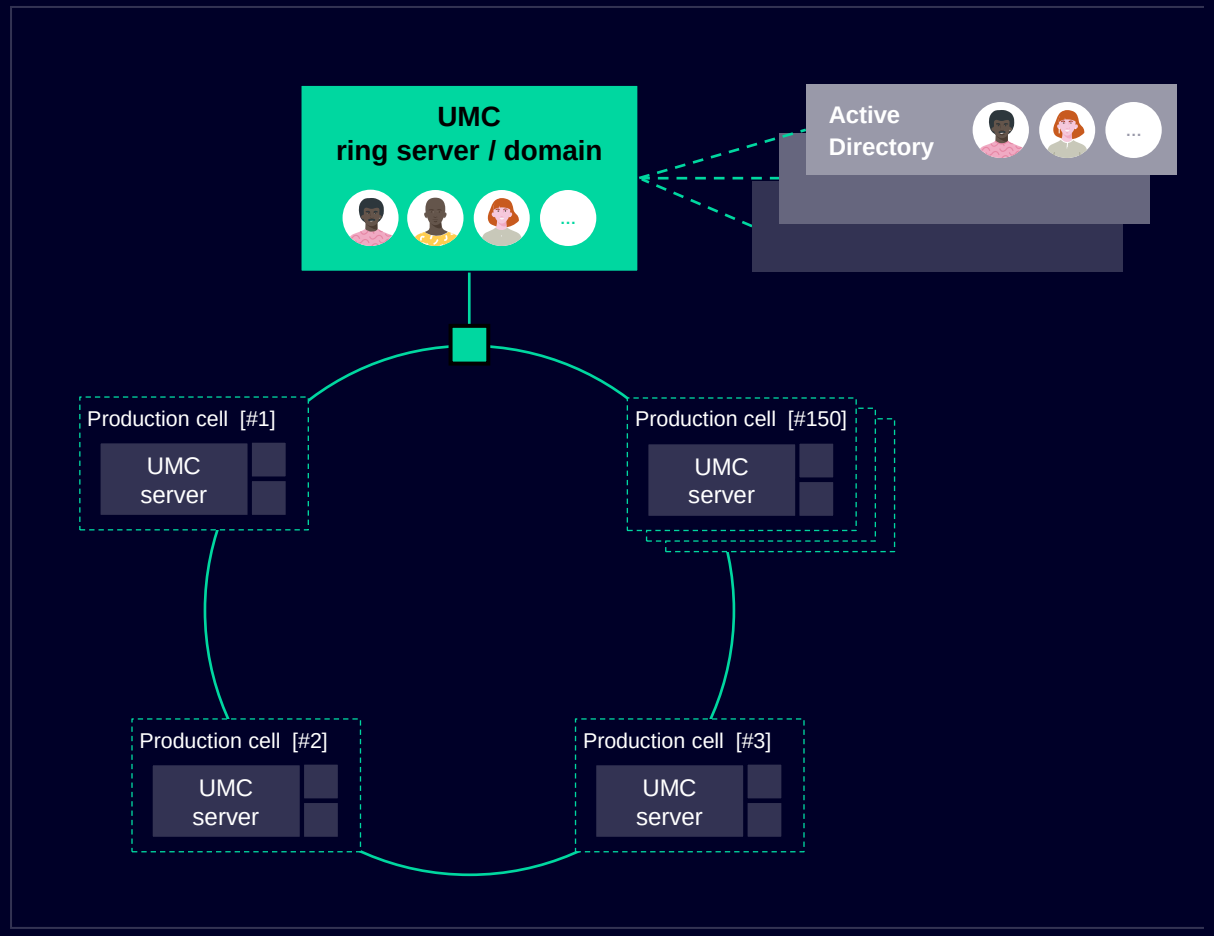
Central User Management (UMC)
Overview of new functions from UMC V2.10



Multiple trusted Active Directory domains

- Multiple “trusted”-AD-Domains can be connected.

Benefit

- Gives you more flexibility by using UMC with the demands of your IT infrastructure.

Quantity structure

- For larger infrastructures UMC is enabled to synchronize in a network of up to 150 Runtime-Server per Ring-Server.

Benefit

- This gives our more autonomy for designing your UMC infrastructure e.g. with a site-deployment or trade-deployment strategy.

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Modular Application Creator

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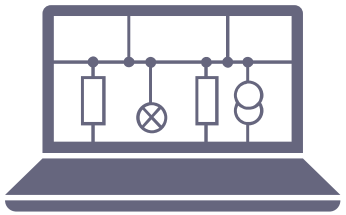
Modular Application Creator enables the automatic generation of TIA Portal projects

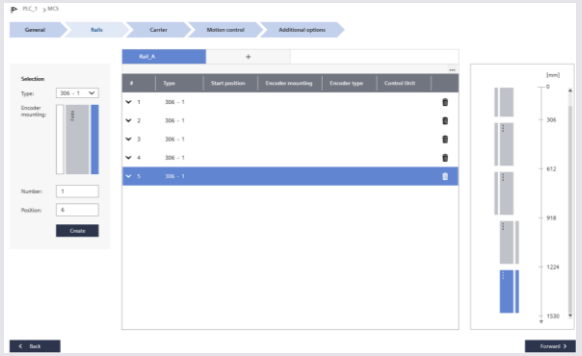
Hardware configuration



ECAD/HWCN

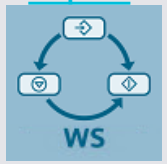
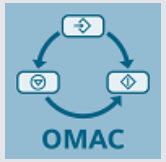
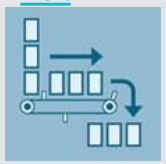
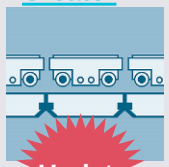
Modular Application Creator

NEW: Free of Charge with V17.2



- Management of **projects and versioned/signed equipment modules**
- Easy configuration with **technological view** and **graphical guided assistance** as well as **automatic validation**
- **Generating instead of programming** TIA Portal projects

Equipment Modules

Weihen-stephan	OMAC[1]	Intelligent Belt	MCS Creator	Printing Standard	Converting Toolbox
					
WS	OMAC		Update	Update	Update

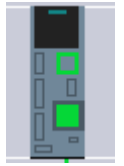
NEW Module Builder

- Visual Studio Extension to create your own **custom modules**

TIA Portal Project:

HMI (via Openness):

Drives (via Openness):



SIMIT:

NEW

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ProDIAG

for WinCC Unified PC based Runtime

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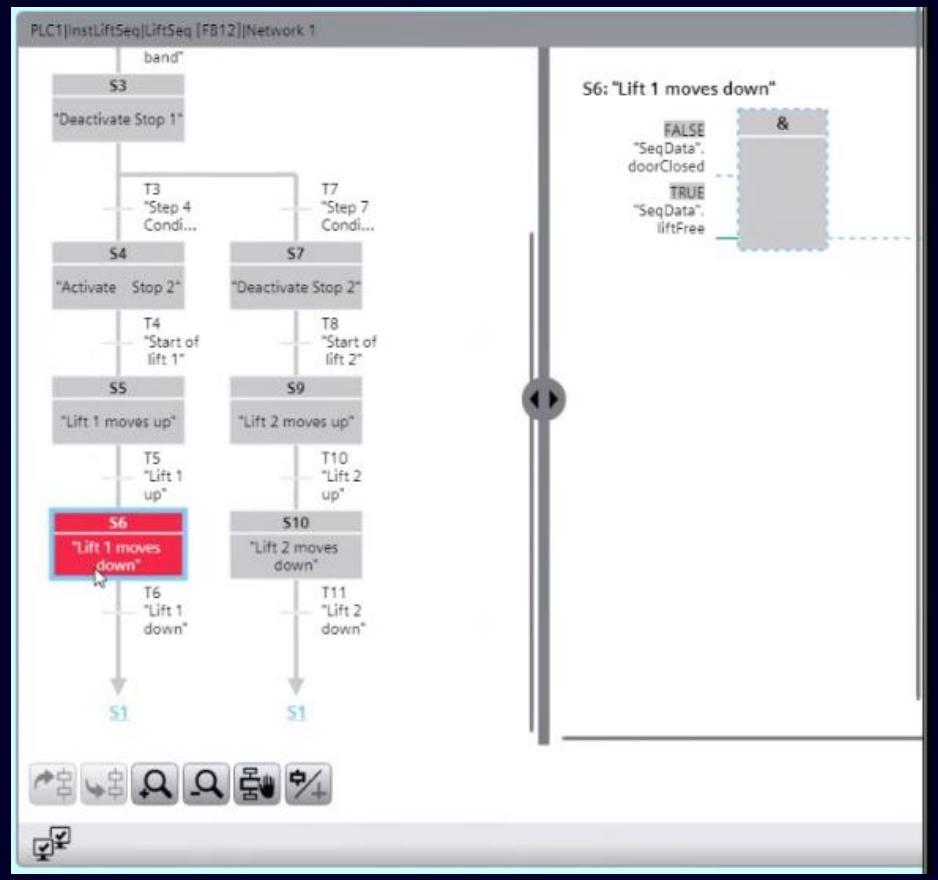
ProDiag for WinCC Unified PC based Runtime
Overview of new functions



S7-GRAPH Overview Control

- Overview over the current steps
- Options:
  - Single line mode
  - Initial step
  - Simultaneous step
  - Operation mode
  - Previous and next step

PLC Code View for S7-GRAPH

- GRAPH Detail area: LAD/FBD
- Header (path)
- Toolbar (bottom line)

Scripting

- Jump into the PLC Code View
- Jump into the TIA Portal
- Jump from the Alarm Control into the TIA Portal
- Control the PLC Code View with external software buttons

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Teamcenter Gateway

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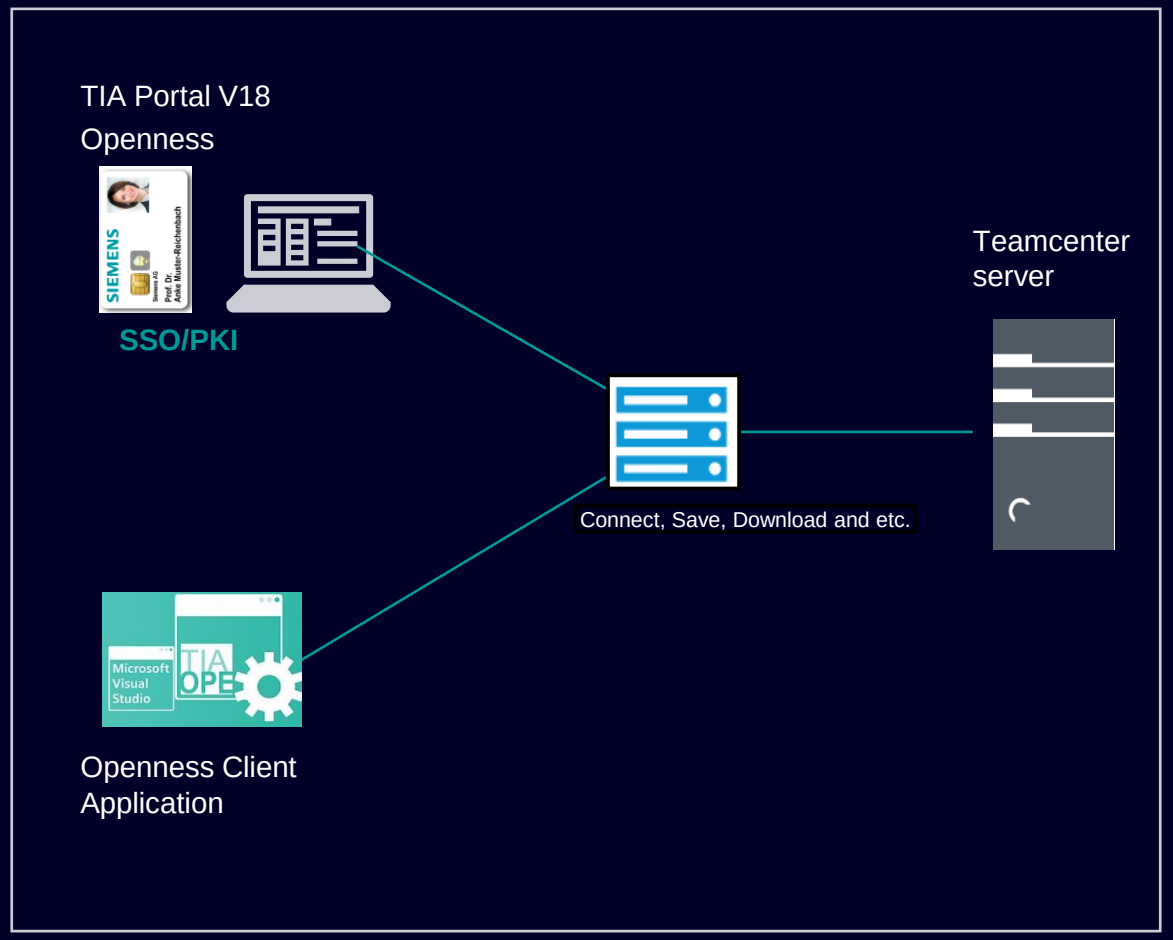
TIA Portal Teamcenter Gateway V18
Openness support for Connect, Save, Search, Lock and Download



Openness support for Connect, Save, Search, Lock and Download workflows

- Supports TIA Portal openness client communicate with Teamcenter.
- A custom client application able to connect, save, search, lock and download TIA Portal projects or library's to/from Teamcenter using openness.

Benefits

- Enables communication to Teamcenter from TIA Portal Teamcenter Gateway using openness.
- Customer not really required to use TIA Portal UI to perform Teamcenter Gateway operations like save and etc.
- Client workflow automation able to achieved using openness

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Contact

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