TIA Portal

Always ready for tomorrow!

SIEMENS

Efficient engineering is crucial for a company.

Highly skilled engineering teams are a key asset to **improve** company's internal performance and prepare it for external changes.

TIA Portal brings various benefits

Siemens provides a unique engineering framework for automation

Holistic engineering platform

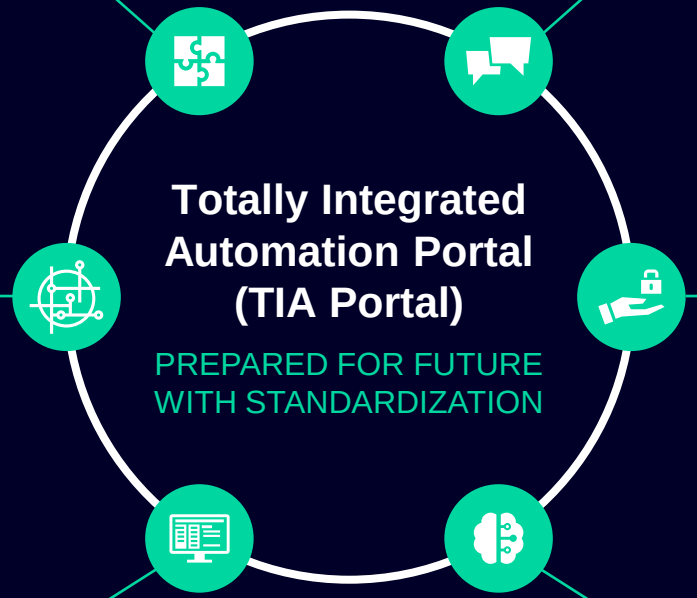
One platform for all engineering tasks
- Engineering of PLC, HMI, drives, communication and peripheral devices
- One consistent data platform
- Open interfaces to collaboration platforms

Multiuser engineering

Joined working on a project
- Multiuser engineering and commissioning
- Simple collaboration and tracking on project server

Ready for fully automated workflows

Full generation of automation projects
- Automated code generation with TIA Portal Openness
- HMI generation with SIMATIC Visualization Architect (SiVArc)



Standardization concept

Create your standardized module library
- Integrated library and versioning concept
- Open interfaces for data import & export
- Standard compliant programming (e.g., PLCopen, IEC)

Integrated testing & simulation

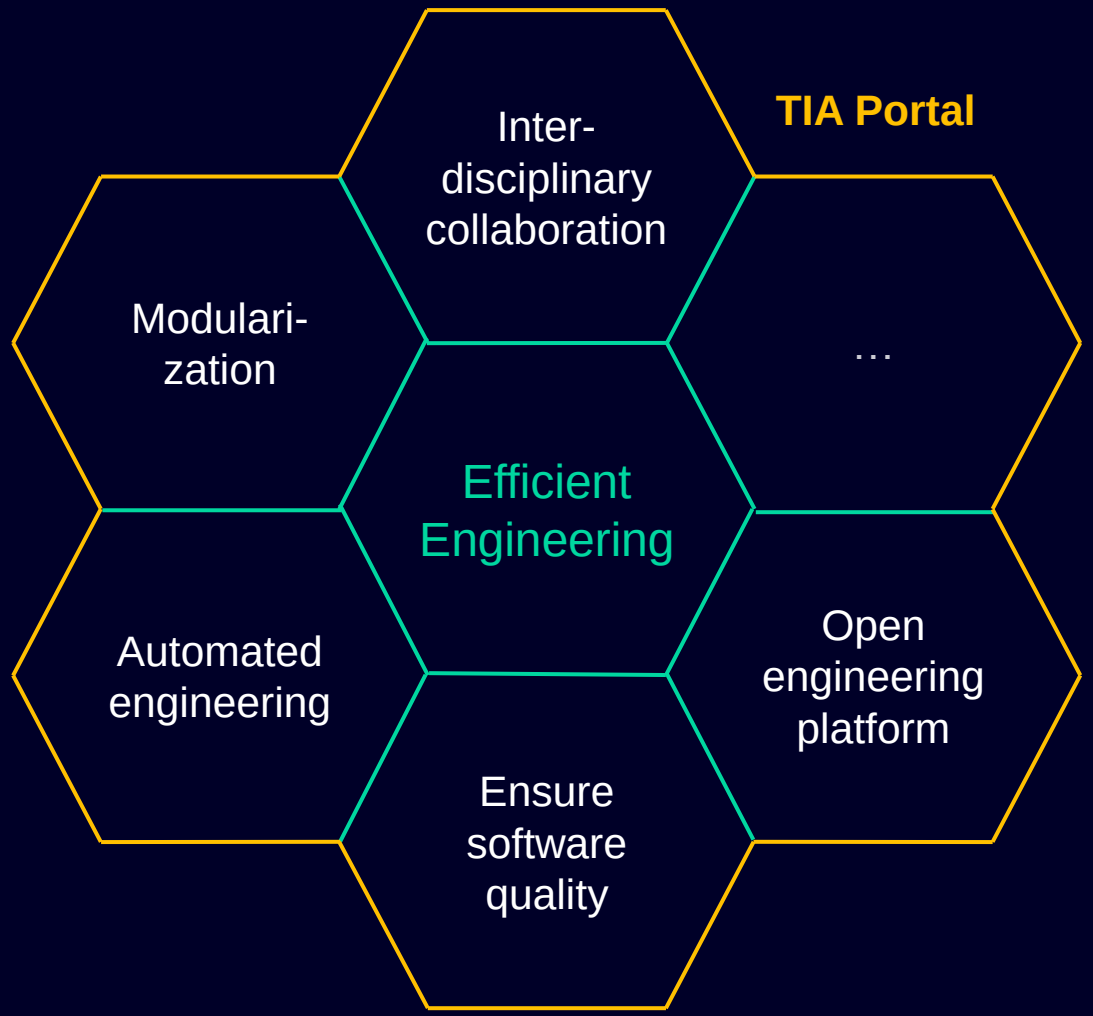
Scalable testing & simulation environment
- Integrated logic testing with TIA Portal Testsuite
- Simulation options with PLCSim Advanced and SIMIT
- Automated testing via Continuous Integration approaches

OT/IT integration

Secure processing of automation data
- Open communication standards (e.g., OPC UA)
- State-of-the-art Security (TLS)
- Central User Management (UMAC, UMC)

SIEMENS

The way to efficient engineering in automation



Interdisciplinary collaboration

Increase corporate collaboration and reduce errors with a common database

Modularization

Reuse of proven, tested and transparent software modules

Automated engineering

Significantly reduce engineering time by generation of code and visualizations

Ensure software quality

Establish testing and simulation methods into your engineering workflow

Open engineering platform

Holistic engineering platform to reduce training efforts and yet customizable to your needs

SIEMENS

TIA Portal V19

Extended usecases with STEP 7

SIEMENS

The Challenge

In volatile markets new trends and requirements arise faster and last shorter. To quickly adapt to changes and to fulfill those requirements engineering needs to be faster than ever. Gaining efficiency in automation engineering is the greatest lever to reduce the time-to-market.

- Avoid manual alignment between and within engineering departments
- Create reusable high-quality software modules
- Identify repetitive and simply automatable engineering tasks
- Reduce late detection of errors during software engineering
- Reduce onboarding times for new engineers
- Free up time for innovative tasks

Interdisciplinary collaboration

Increase corporate collaboration and reduce errors with a common database

Modularization

Reuse of proven, tested and transparent software modules

Automated engineering

Significantly reduce engineering time by generation of code and visualizations

Ensure software quality

Establish testing and simulation methods into your engineering workflow

Open engineering platform

Holistic engineering platform to reduce training efforts and yet customizable to your needs

SIEMENS

Automated Engineering
Introduction to TIA Portal V19

TIA Portal V19 further fosters efficient engineering in automation and enhances the benefits to further applications.

- **Multiuser engineering** for SIMATIC WinCC Unified System
- **Modularization and standardization** are a key element of efficient engineering. TIA Portal V19 offers named value data types within Software Units and extends its utilization towards Motion Control applications
- **Agile development workflows** with TIA Portal V19 significantly reduces engineering time in automation engineering and ensures software quality by enhancements in testing and simulation
- **Simplify motion control engineering** with the SIMATIC Motion Interpreter
- Extended availability in Cloud Engineering – instant access to TIA Portal versions V14…V19
- Simple integration of **security standards** in hardware and software and logging of changes on SIMATIC S7-1500 PLCs

Efficient Engineering in Automation

Interdisciplinary collaboration

Increase corporate collaboration and reduce errors with a common database

Modularization

Reuse of proven, tested and transparent software modules

Automated engineering

Significantly reduce engineering time by generation of code and visualizations

Ensure software quality

Establish testing and simulation methods into your engineering workflow

Open engineering platform

Holistic engineering platform to reduce training efforts and yet customizable to your needs

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

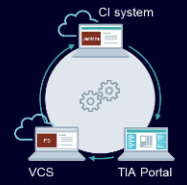
Collaborative Engineering
- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization
- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization
IT-oriented library development
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality
SIMATIC PLCSIM Adv V6.0
- New design of PLSIM Adv. UI
- Support of SW Controller



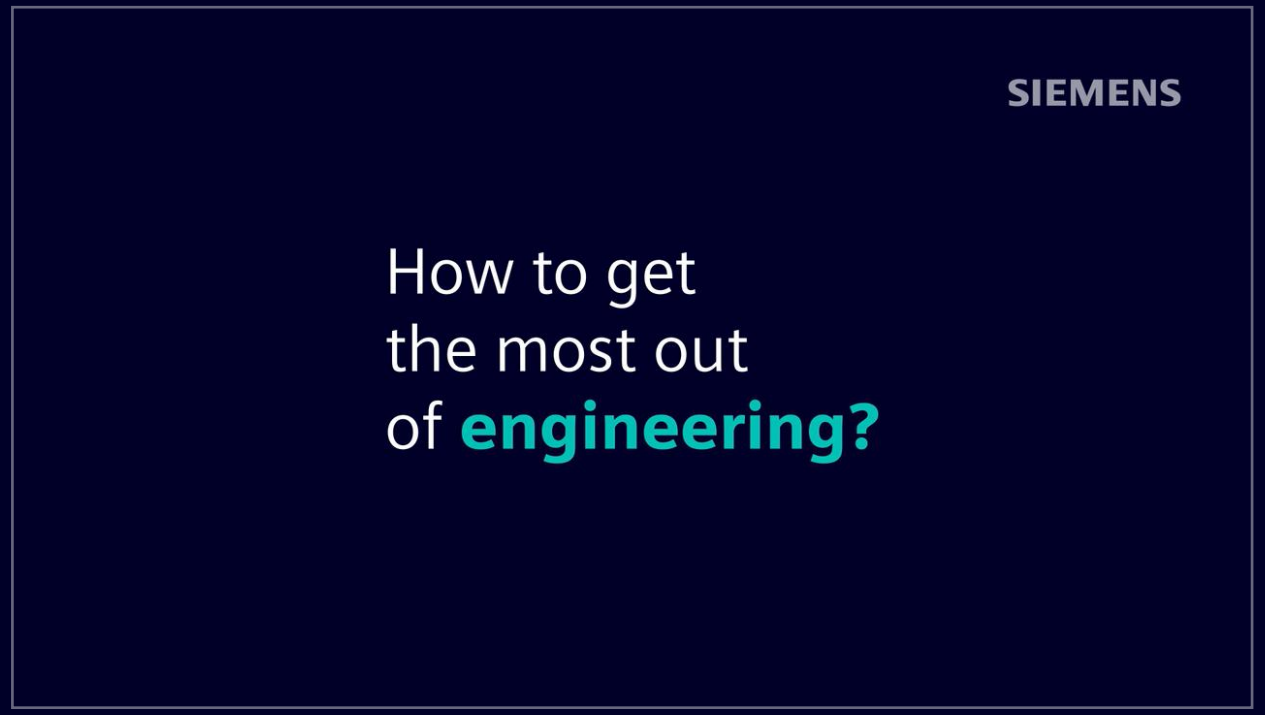
Automated engineering
- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements
- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

Automation Engineering
Efficient Engineering in Automation



Efficient Engineering in Automation With TIA Portal V19

Challenge

Integration of new technologies binds precious capacities of engineering departments. Keeping time-to-market on a competitive level and flexibly react on market requirements requires efficient engineering frameworks.

Solution

TIA Portal V19 further enhances engineering efficiency as well as automation capabilities in alignment with latest hardware innovations. Utilizing the full potential of engineering departments makes it possible to devote oneself to new innovations.

Customer value

- Increase development performance and reduce time-to-market
- Gain flexibility and react fast to changing market demands
- Reduce complexity, e.g. simplify motion control applications with Motion Control Interpreter and Named value data types
- Extend transparency during production with SymbolicAccess@Runtime
- Gain project transparency with SIMATIC Project Insight or Profilling on SIMATIC CPU S7-1500
- Extent OT applications through IT know-how

Products & Services

- TIA Portal V19
- TIA Portal Options

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

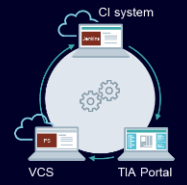
Collaborative Engineering
- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal
- UMAC on PLC

Modularization
- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization
IT-oriented library development
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality
SIMATIC PLCSIM Adv V6.0
- New design of PLSIM Adv. UI
- Support of SW Controller



Automated engineering
- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

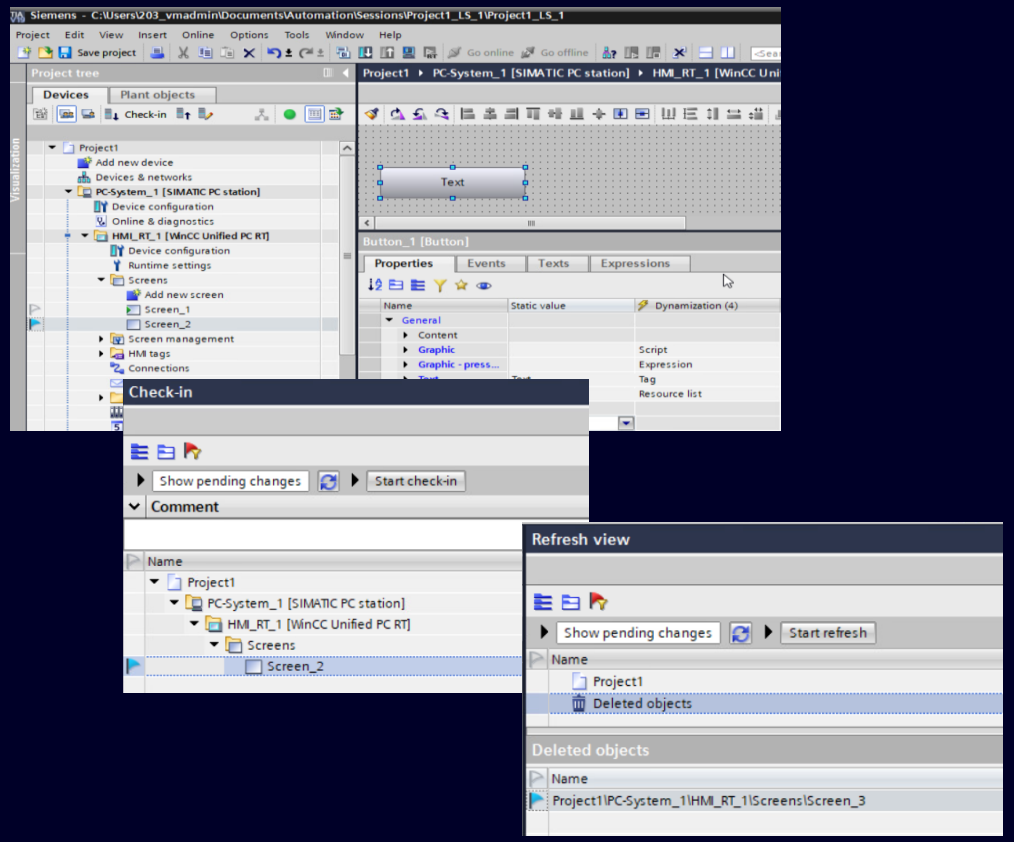
Security Improvements
- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

WinCC Unified V19 - Efficient Engineering
MultiUser Support for Unified Device Screens

NEW

Unified Basic Panel ✓	Unified Comfort Panel ✓	WinCC Unified PC ✓

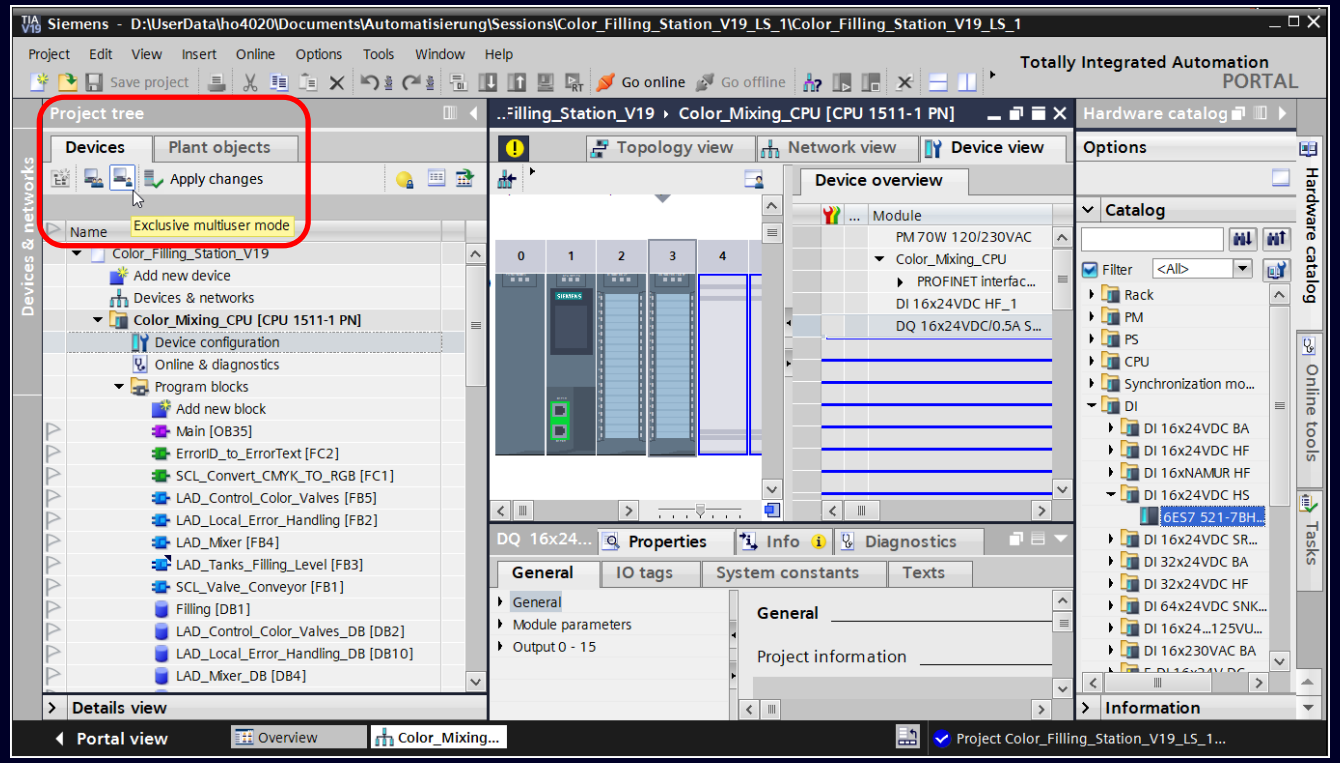


Reduced engineering time using MultiUser project collaboration for screens in Unified devices

- MultiUser Support for Screen:
  - Properties,
  - Events,
  - Dynamization (Tag, Expression, Resource list, Flashing),
  - Texts,
  - Script: InProgress
- Check-In of Marked screens to Server Project
- Refresh Local session from Server Project

SIEMENS

TIA Portal Multiuser
New object types and Exclusive Multiuser Mode



New object types in a local session

- TIA Portal Test Suite rules
- WinCC Unified screens, messages and variables

New “Exclusive Multiuser Mode”

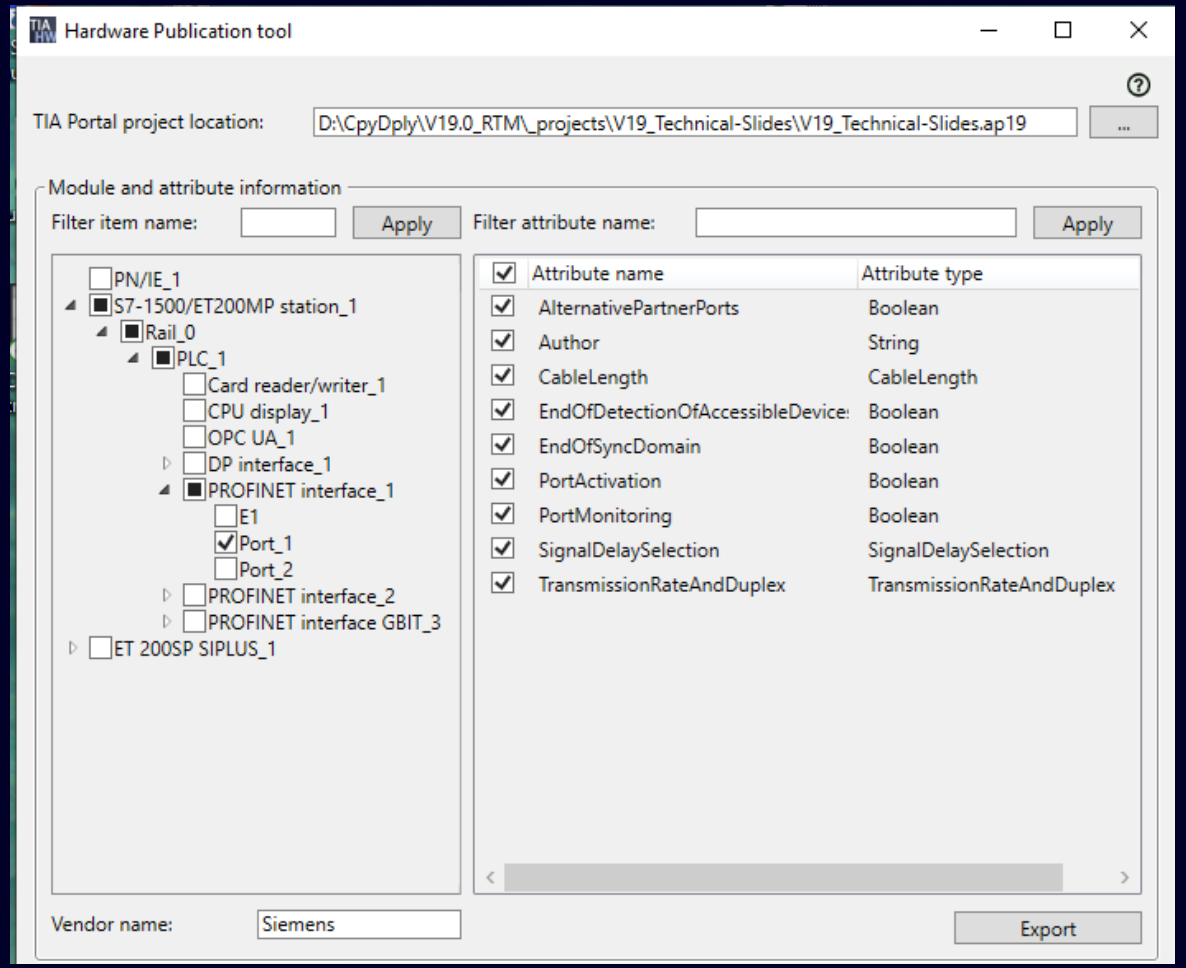
- The new Exclusive Multiuser mode allows quick changes to objects that cannot be edited in a local session, e.g. changes to the device configuration.
- When switching to the exclusive multiuser mode, all changes are retained in the local session.
- The precondition for switching quickly to exclusive multiuser mode is that the local session is based on the current project revision.

Advantages

- Switching to exclusive multiuser mode is done directly from the current local multiuser session.
- Using Server Project View is often no longer necessary.
- The transfer of changes to the TIA Project-Server from the exclusive multiuser mode is significantly improved.

SIEMENS

CAx: AutomationML Exchange
Exchange of additional attributes on communication objects



Support of custom attributes at communication objects

- Additional attributes at communication objects can now be exchanged as custom attributes via AutomationML
- Custom attributes are available at subnets, interfaces, nodes, ports, and IO systems
- The CAx Publication Tools now support also the retrieval of custom attributes at communication objects

Benefits

- Easy retrieval of available custom attributes via CAx Publication Tools
- Extended reuse of hardware configuration created outside TIA Portal

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

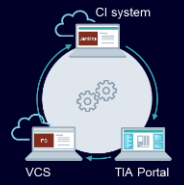
Collaborative Engineering
- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal
- UMAC on PLC

Modularization
- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization
IT-oriented library development
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality
SIMATIC PLCSIM Adv V6.0
- New design of PLSIM Adv. UI
- Support of SW Controller



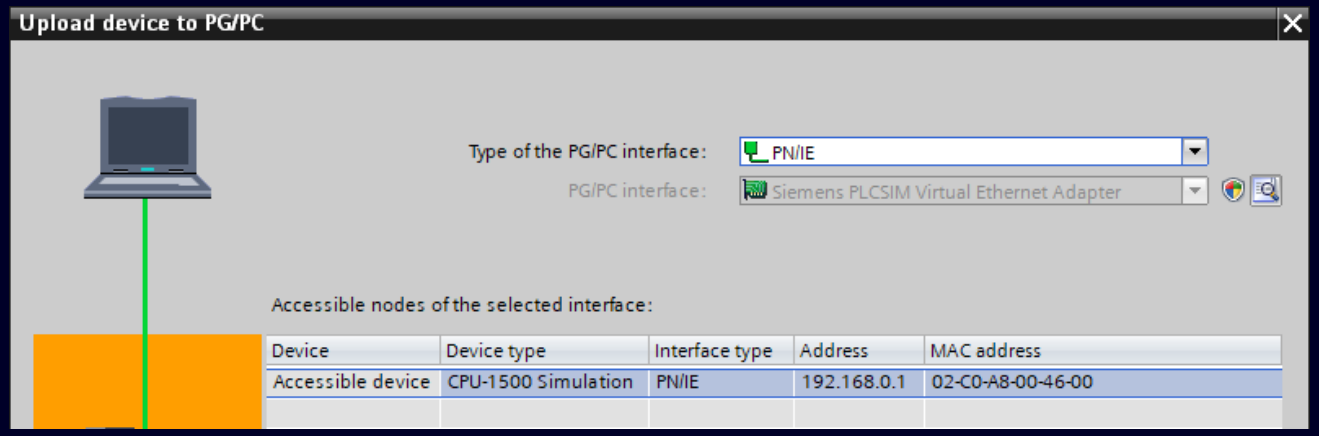
Automated engineering
- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

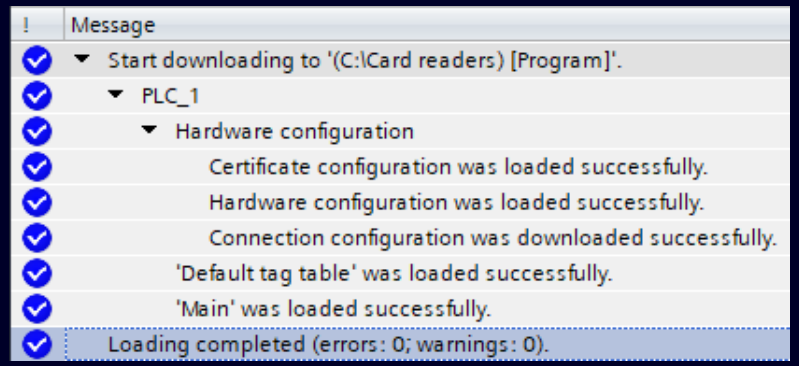
Open engineering framework
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements
- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC

SIEMENS

User Management & Access Control
on SIMATIC S7-1500





Accessible online devices

Retrieve a list of accessible online devices via TIA Portal Openness for a station upload or download.

Create SIMATIC memory card

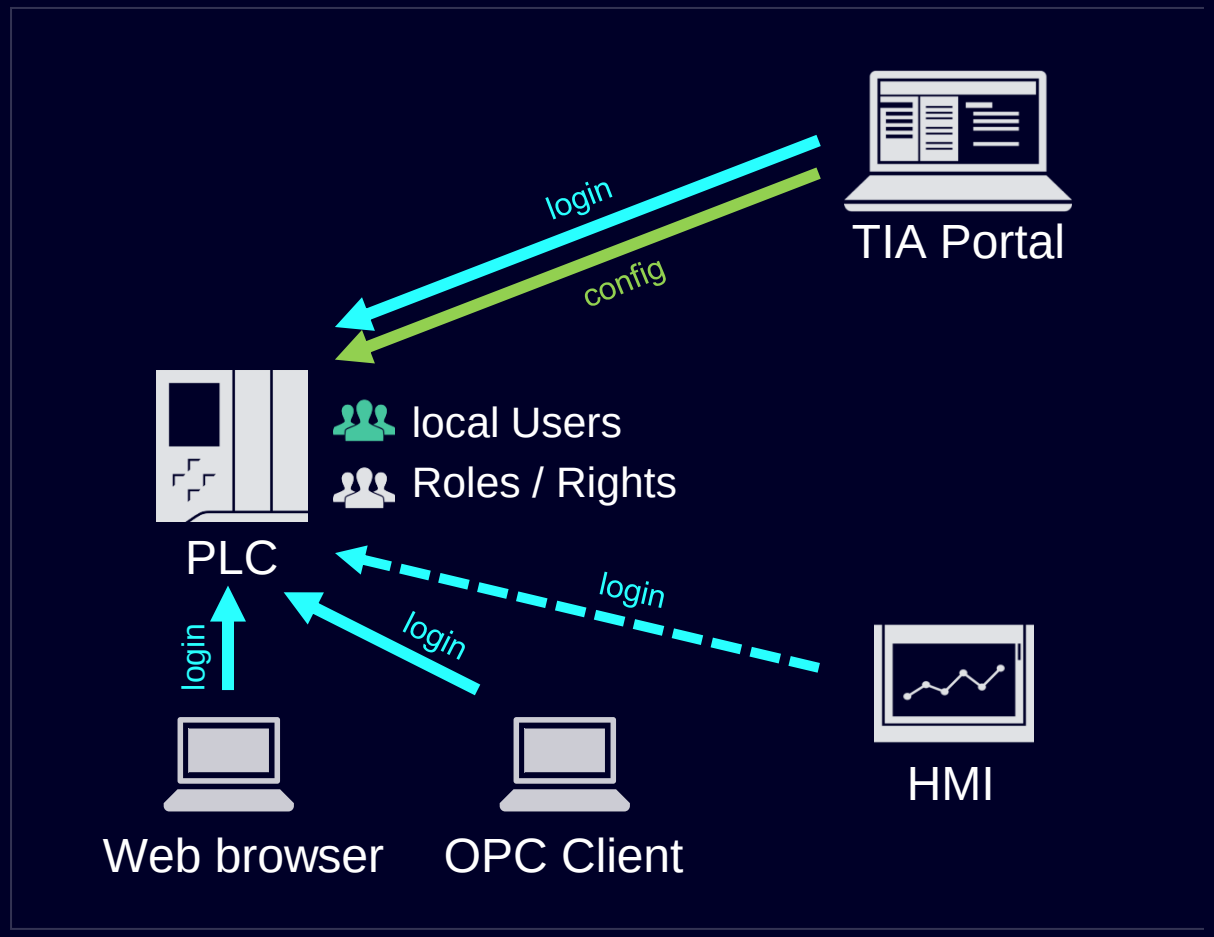
Download a PLC including Safety to a SIMATIC memory card folder or create a PC system configuration (PSC) file including Safety via TIA Portal Openness.

UMAC on PLC

Configure project users and roles, handle UMAC user management data for download to PLC and provide UMAC credentials for online PLC access legitimation via TIA Portal Openness.

SIEMENS

System functions
Consistent user and rights management for S7-1500 PLCs and Software Controller



Flexible access control for multiple users, based on individual rights with unified user management in S7-1200/1500 PLCs and Software Controller

- Unique user accounts with individual access rights for suitable access configuration according to users tasks
- Single user account usable for different PLC services (e.g. engineering access, Webserver)
- Roles / Rights concept for different PLC functionality integrated into existing TIA Portal UMAC configuration
- Support of user changes on PLC during runtime

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

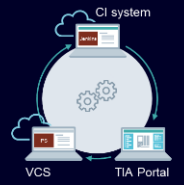
Collaborative Engineering
- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization
- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization
IT-oriented library development
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality
SIMATIC PLCSIM Adv V6.0
- New design of PLSIM Adv. UI
- Support of SW Controller



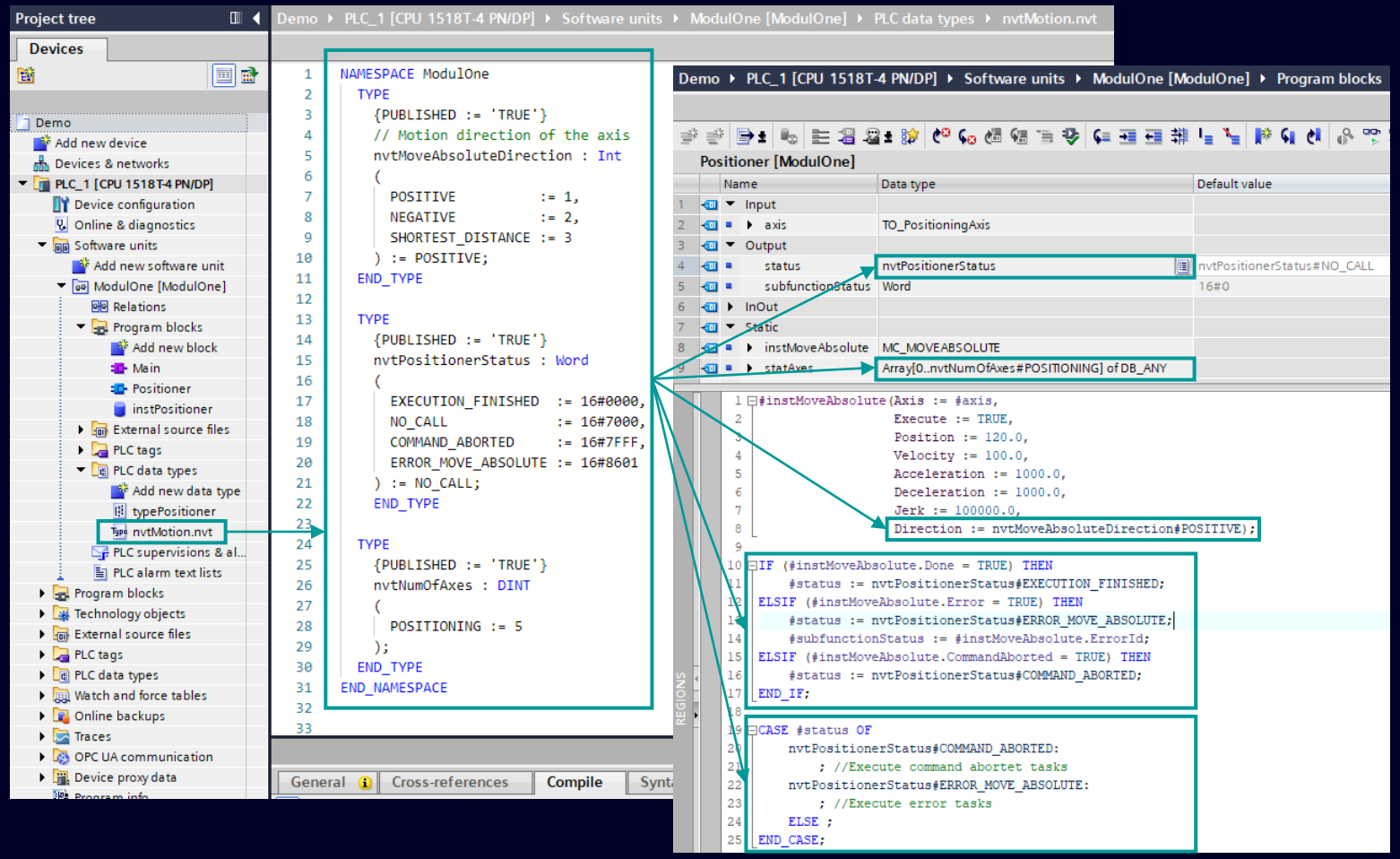
Automated engineering
- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements
- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

STEP 7 – Innovations
Named value data types within Software Units



Data types with named values based on IEC 61131-3

Within software units, user can create now data types with named values (NVTs). It is a data type that is defined by a set of named, constant values of a certain elementary data type (Byte, Word, Int, ...). Variables of the data type named value can also accept values that are not defined in the NVT.

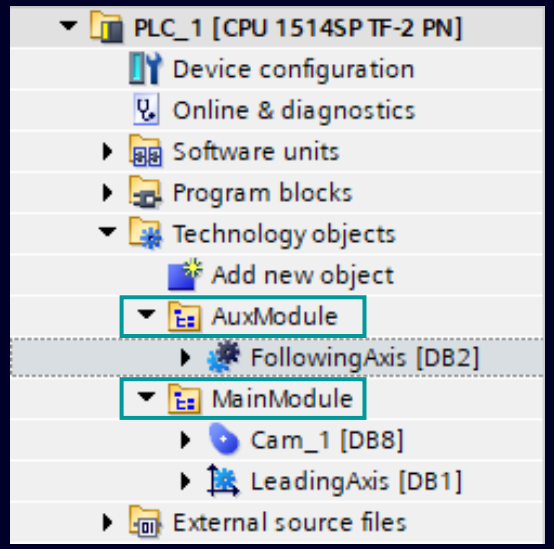
Benefits

- **Readability and Maintainability -** Meaningful names to constants make the code more intuitive and self-explanatory
- **Applicable on existing code base -** Existing library blocks don´t need to be adapted, as NVTs with a corresponding elementary data type can be used as a block parameter
- **Avoiding hardcoded numbers -** Makes programming less error-prone
- **Autocompletion for NVTs -** Reduces the chances of typographical errors
- **Refactoring and Extensibility -** New options or states can be easily added without affecting existing functionality

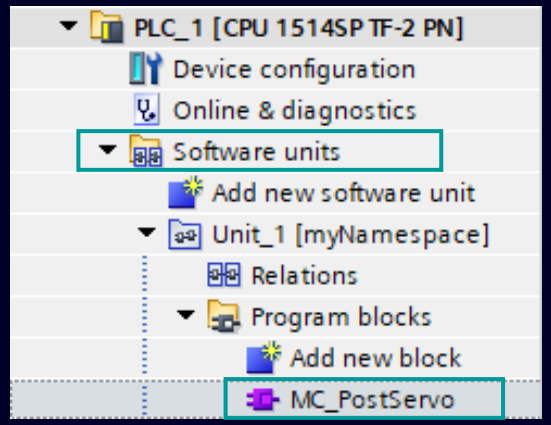
SIEMENS

Motion Control – Innovations
Advanced Programming

Ergänzen Benefits?



- Organization of technology objects in groups.
  - ✓ Improved program structure



- Organization blocks for Motion Control can be used in software units
  - ✓ Improved program structure
  - ✓ Use of Namespaces and Named Values

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

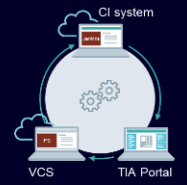
Collaborative Engineering
- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization
- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization
IT-oriented library development
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality
SIMATIC PLCSIM Adv V6.0
- New design of PLSIM Adv. UI
- Support of SW Controller



Automated engineering
- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements
- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

Automation Engineering
Efficient Engineering in Automation

IT-like engineering
Xpanding existing automation solutions

Challenge

The automation industry is facing new challenges, a shortage of skilled workers, scarce resources, and volatile demand and supply chains. Some say: “Just hire more people” or “Just do what IT does”. There is a trend of introducing IT best practices and mindset to the OT world and employing IT-like automation engineers can be the solution to the workforce crisis. But, the current automation landscape does not provide the right toolset to unlock their capabilities. As a conclusion, automation engineering solutions need to be tailored to a new target group that expects a more flexible and adaptable toolchain.

Solution

- Collaborative toolchains that help IT-like automation engineers to fully utilize their IT skills bringing the OT world to the next level
- Interdisciplinary collaboration enabling scalable modularization and standardization
- Providing more flexibility regarding hardware requirements and maintenance

Customer value

- IT meets OT – Addressing IT-like engineers in automation
- Flexibility – Extending, not replacing, the existing portfolio to enable new use cases
- Optimize invest – Flexible payment and new business models

Products & Services

- TIA Portal V18, V19
- SIMATIC AX

SIEMENS

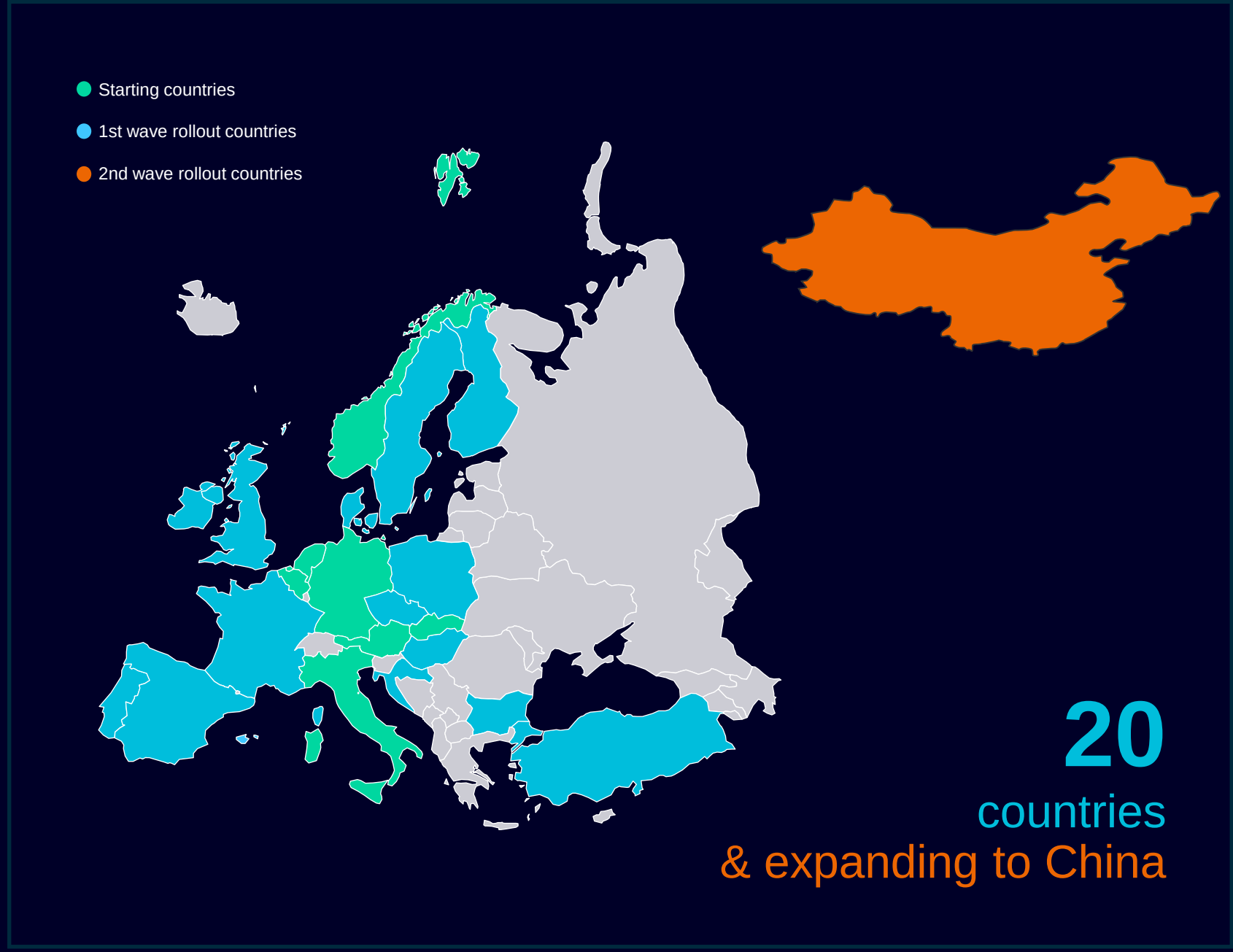
SIMATIC AX

Rollout & Availability

Available in[1]

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

Limited Sales Release together with TIA Portal V19

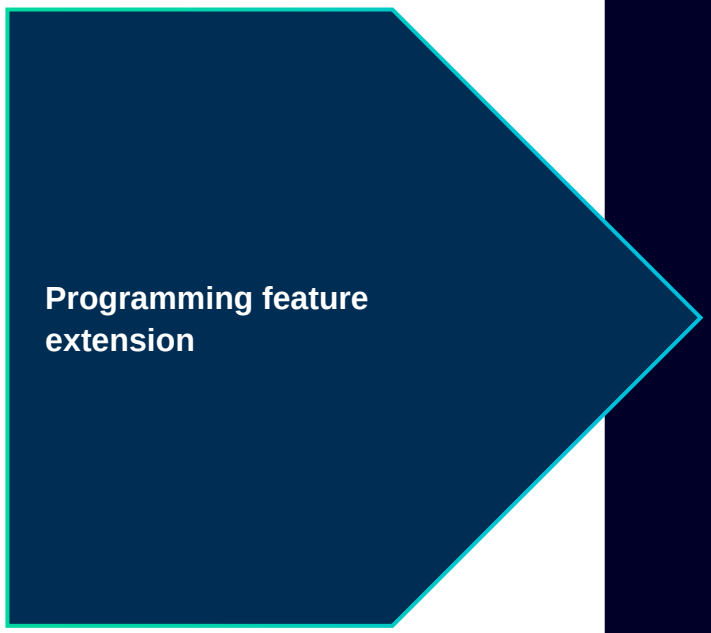


[1] 1 No free market access of SIMATIC AX. Please contact your local DI FA Sales Representative regarding technical limitations and purchase
[2] Planned for 2024

SIEMENS

SIMATIC AX

TIAX Offering



TIA Portal V18 Update 2 provides the following improvements when importing library blocks from SIMATIC AX into the TIA Portal:

- Import variables and block comments that are defined in SIMATIC AX
- Import initial values of variables, structures and arrays that are defined in SIMATIC AX
- OOP artifacts, motion library and system library are saved in a separate folder within the TIA project
- Support for class arrays defined in the static interface of FBs//Classes
- Reduce length limitations for namespace and name

New with TIA V19

- Support of S7-1500 Software Controller and S7-1500 Virtual Controller

New in SIMATIC AX

- HMI / OPC UA / WEB API access for variables can be configured within SIMATIC AX

SIEMENS

SIMATIC AX

TIAX Offering

Libraries extension & clean-up

- Library cleanup of unused blocks (>= TIA Portal V18 Update 2)
- Additional library offer for OOP Motion Control like APC FBAxisCtrl (Class/Interface SpeedAxis, PosAxis, SyncAxis & SyncAxisAdvanced for T-CPU) with Named Values
- Avoid duplication of base library blocks (Planned for Q1 2024)

Debugging Enhancement

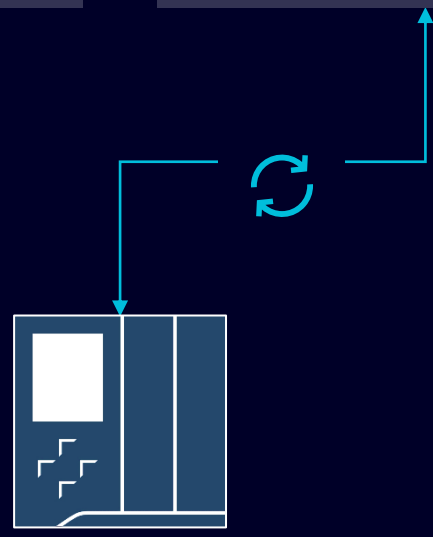
- Failsafe PLC debugging
- Debugging of static block variables (>= TIA Portal V18 Update 2)
- Configure call path for debugging blocks

SIEMENS

Automation Engineering
Efficient Engineering in Automation

SIMATIC AX
- Library development
- Library testing
- Library conversion into TIAP

STEP 7 TIA Portal
- Technology objects
- Hardware configuration
- User-program
- HW & SW download



Modularization
TIAX: IT-oriented library development

Challenge
- Automation solutions are getting more and more complex which leads to an increased demand in modularization and efficiency
- Changing job requirements call for more adapted IT workflows in automation engineering

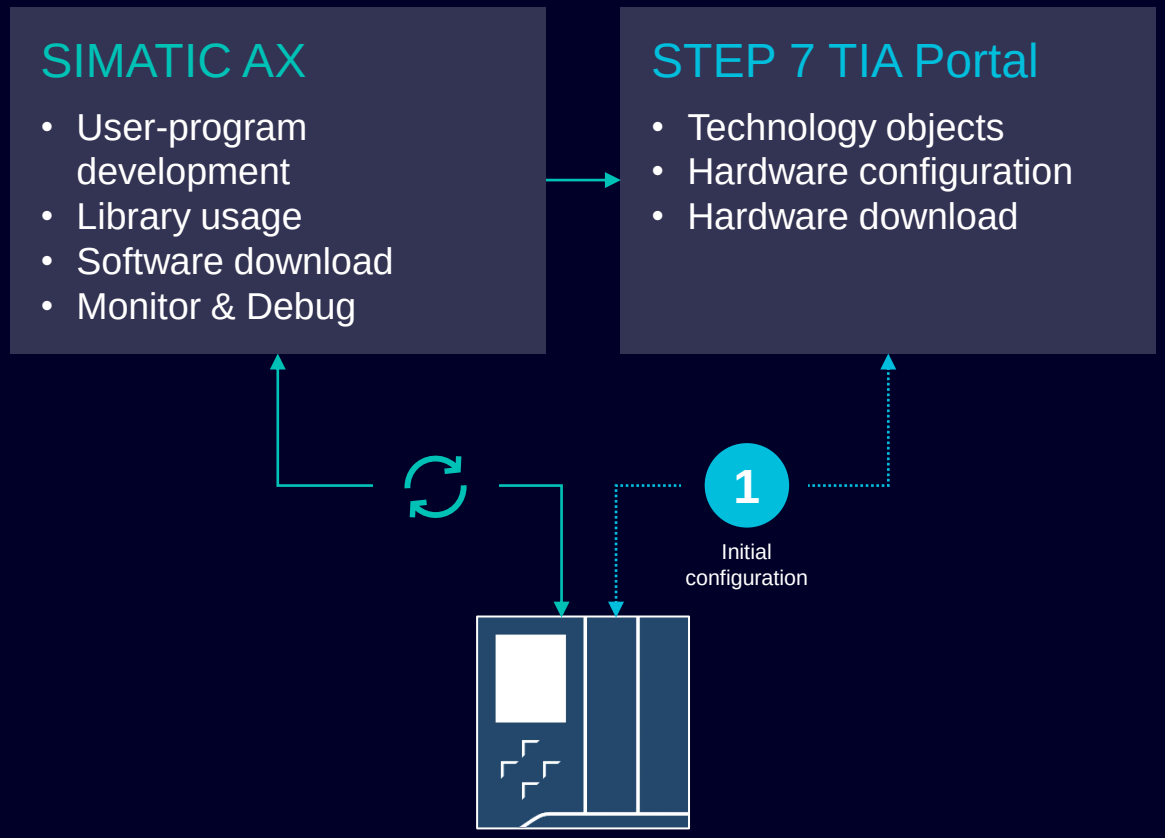
Solution
- IT-like library development & testing in SIMATIC AX
- Well known hardware & technology objects configuration as well as user program creation & download to PLC in TIA Portal

Customer value
- Shorter time to market through IT best practices for standardized library development
  - Automate repetitive tasks by CI / CD & Package Management
  - Ensure software quality with Unit Testing
  - Enhance collaboration through GIT-workflows
- Increase attractiveness for IT-savvy workforce by providing them a familiar environment & workflows

Products & Services
- TIA Portal V18, V19
- SIMATIC AX

SIEMENS

Automation Engineering
Efficient Engineering in Automation



Modularization
TIAX: IT-oriented direct loading

Challenge
- Code changes for the development of especially motion applications can be time intensive with the TIAX library use case
- Providing a way for IT-like automation engineers to perform a full engineering workflow to provide flexibility of IT technology

Solution
- Known hardware & technology object configuration in TIA Portal
- IT-like program development & download in SIMATIC AX directly to the PLC

Customer value
- Reduce needed time until code changes are running on the PLC due to no conversion between engineering systems
- Increased attractiveness & flexibility for single person handling by developing the application in SIMATIC AX
- Develop motion application

Products & Services
- TIA Portal V18, V19
- SIMATIC AX

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

Collaborative Engineering

- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization

- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization

IT-oriented library development

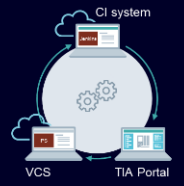
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality

SIMATIC PLCSIM Adv V6.0

- New design of PLSIM Adv. UI
- Support of SW Controller



Automated engineering

- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework

- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements

- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

S7-PLCSIM V19
Enhanced new User Interface support Standard and Advanced Customers

- New design of the user interface for the S7-PLCSIM standard, which also allows the use of S7-PLCSIM Advanced* functions.
- Improved workspace concept
- Supports Sequences
- Settings enhanced
  - Languages
  - Appearance
  - Default Workspace location
  - Reset to default
- PLCSIM Advanced Multiple Adapter mode now supported
- Support for the latest firmware versions in S7-1200 V4.6 and S7-1500 V3.1
- Support of PLCSIM advanced with Software Controller V30.0
- All new PLC order numbers for TIA V19/ FW V3.1 are supported, including RAIL and SIPLUS variants

* S7-PLCSIM Advanced license required

SIEMENS

S7-PLCSIM Advanced V6.0
Supports now the Software Controller PLC Family

SIMATIC S7-1500
S7-PLCSIM Advanced & Software Controller

- Simulation of all types Software- /Open Controllers (SWC)
- from version SWC V30.0 with TIA V18 on possible
- once available also the SWC V30.1 in TIA V19
- supports the synchronous ODK functionality as is since S7-PLCSIM Advanced V3.0 for ODK ready PLCs.

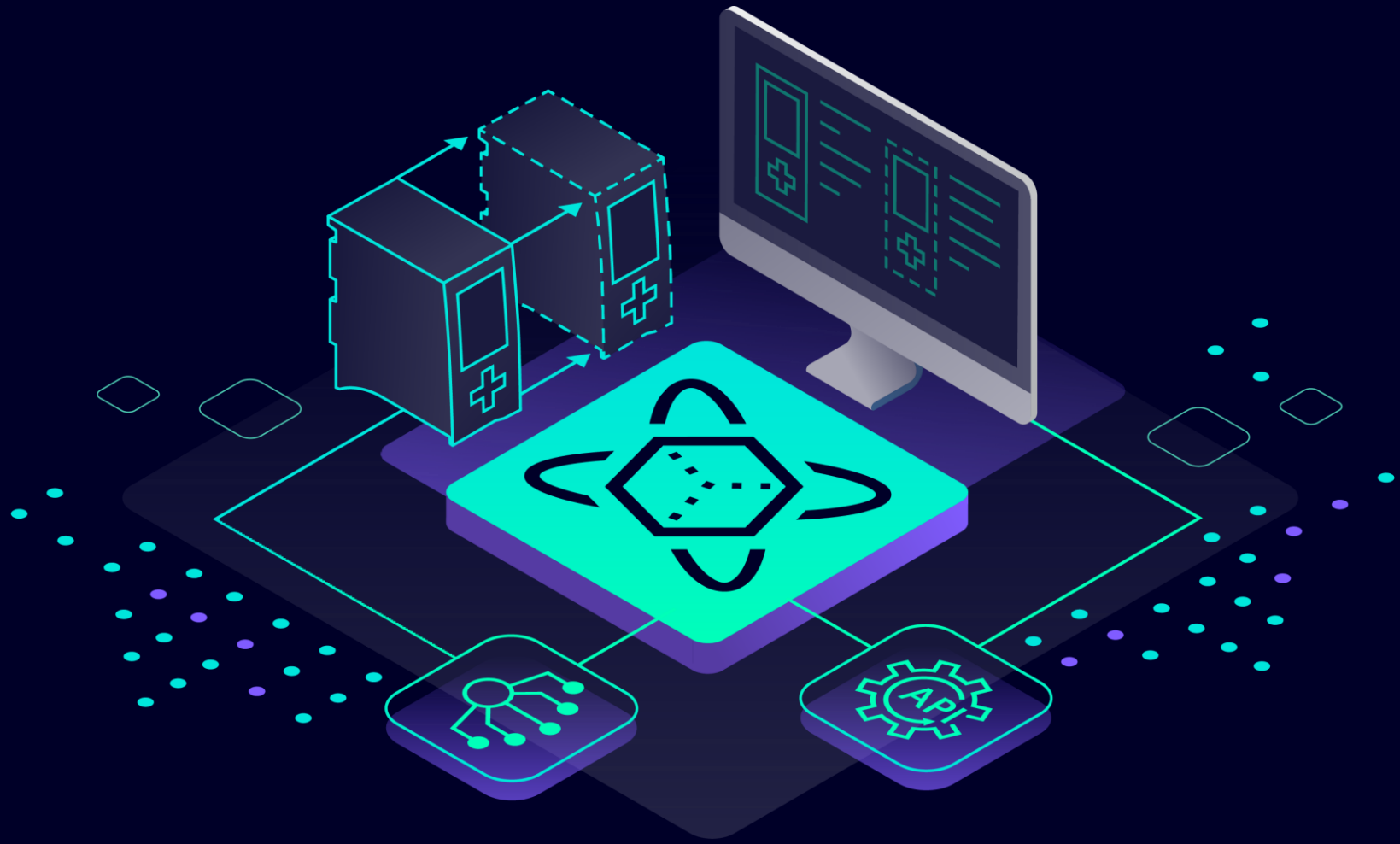
Customer Value

- No PLC change in the TIA project more needed, download project as is and simulate/ co-simulate
- Closing the last gap in supported PLC Family's of S7-1500
- Simulation Software Controller to foster the digitalization strategy
- Will be also supported by S7-PLCSIM Standard with limited functionality

SIEMENS

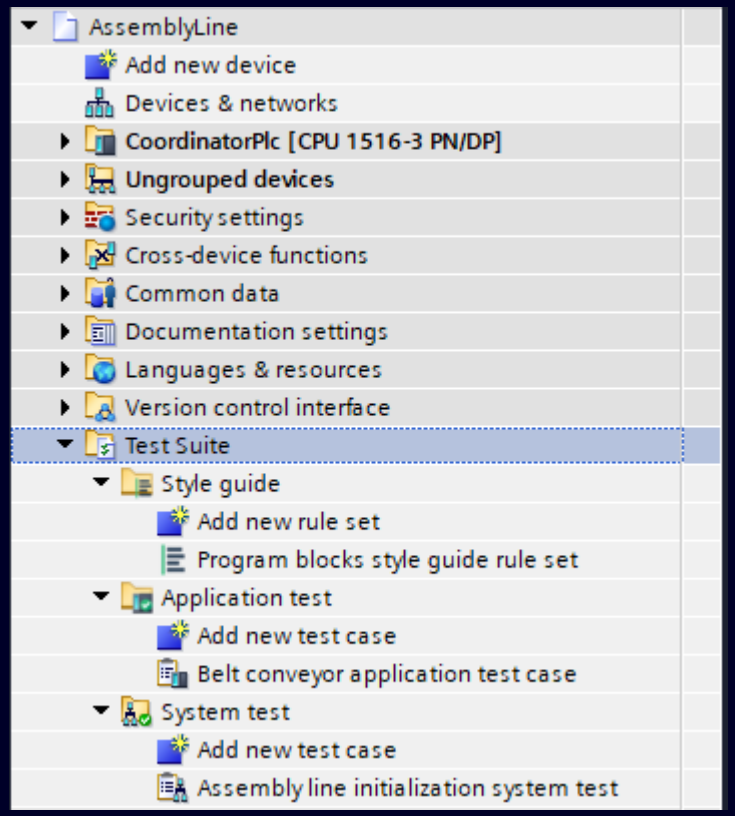
S7-PLCSIM Advanced V6.0
New Features and Compatibility

- All new S7-1500 PLC order numbers for TIA V19/ FW V3.1 are now supported, including RAIL and SIPLUS variants.
- TIA Portal projects from versions V14 to V19
- S7-1500 firmware support for V1.8 – V3.1
- Improved applicability of the network configuration trough the API
- Product manual split in application and API manual.

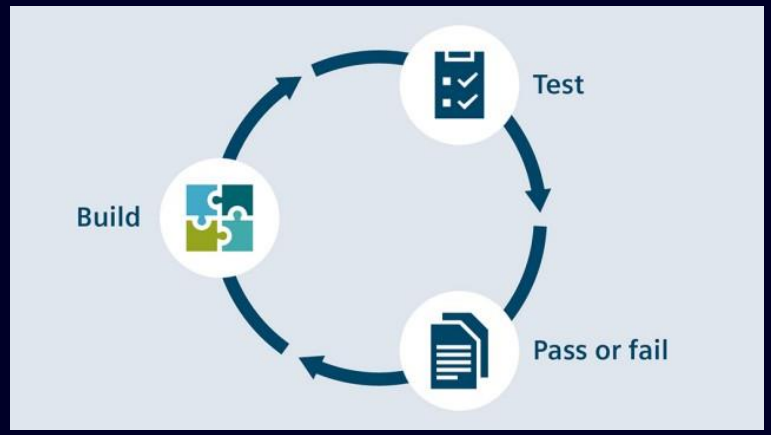


SIEMENS

TIA Portal Openness
New API functions in additional option packages: **Test Suite Advanced**



Automated Build and Test via TIA Portal Openness



Test Suite Advanced

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

For automated project verification

Extended TIA Portal Openness support for configuration of application tests and system tests as well as automated creation via master copies.

Support for automated testing of Safety code in F-PLCs in combination with S7-PLCSIM Advanced by the download to SIMATIC memory card folder via TIA Portal Openness.

Continuous Testing & Integration

Rapid program changes require Continuous Testing. This is one essential part of Continuous Integration.

Benefits of Continuous Testing and Continuous Integration:

- Accelerate the development process
- Lower risk of faults
- Increase transparency of processes
- Save time through automated processes

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

Collaborative Engineering

- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization

- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization

IT-oriented library development

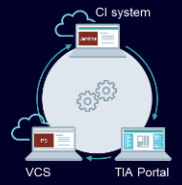
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality

SIMATIC PLCSIM Adv V6.0

- New design of PLSIM Adv. UI
- Support of SW Controller



Automated engineering

- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework

- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements

- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

TIA Portal Openness is our API for automating your engineering workflows

SiePortal: 109792902

Highlighted API extensions in V19:

- Long-term support and compatibility
- More flexible handling of SimaticML files
- Extended access to the hardware configuration
- Extended hardware data exchange
- Online scenarios
- STEP 7 extensions
- New API functions in additional option packages:
  Test Suite Advanced, WinCC Unified, SINAMICS Startdrive

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

SIEMENS

Automation Engineering
Efficient Engineering in Automation

Automated Engineering
Modular Application Creator

Challenge
- Development of complex motion applications
- Drastically reduce engineering time
- Reduce possible errors during engineering

Solution
- Automated generation of machine projects based on predefined software modules
- Management of projects and versioning
- Easy configuration with technological view and graphical guided assistance as well as automatic validation

Customer value
- Shorter time to market with the generation of plc code and visualization
- Ensure software quality due to standardized single source library components
- Reduction of errors by automating tiresome and repetitive tasks
- Increased availability of personnel for technological development

Products & Services
- Modular Application Creator
- TIA Portal
- SIMIT

SIEMENS

Modular Application Creator enables the automatic generation of TIA Portal projects

Hardware configuration

ECAD/HWCN

NEW: Free of Charge with V17.2

Modular Application Creator

- 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	Intelligent Belt	MCS Creator	Printing Standard	Converting Toolbox	Technology Object Generator
WS	OMAC		Update	Update	Update	Update

+

Module Builder

New

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

TIA Portal Project

HMI & Drives (via Openness)

SIMIT

New

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

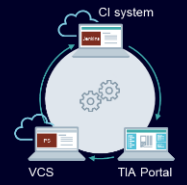
Collaborative Engineering
- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization
- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization
IT-oriented library development
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality
SIMATIC PLCSIM Adv V6.0
- New design of PLSIM Adv. UI
- Support of SW Controller



Automated engineering
- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

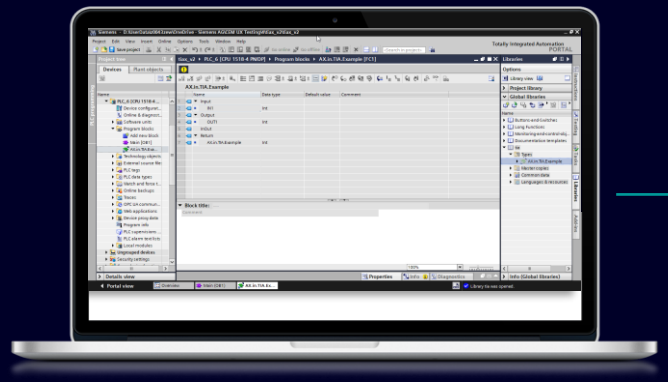
Security Improvements
- Security logging in S7-1500 PLC
- Support of PROFINET Security Class 1
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

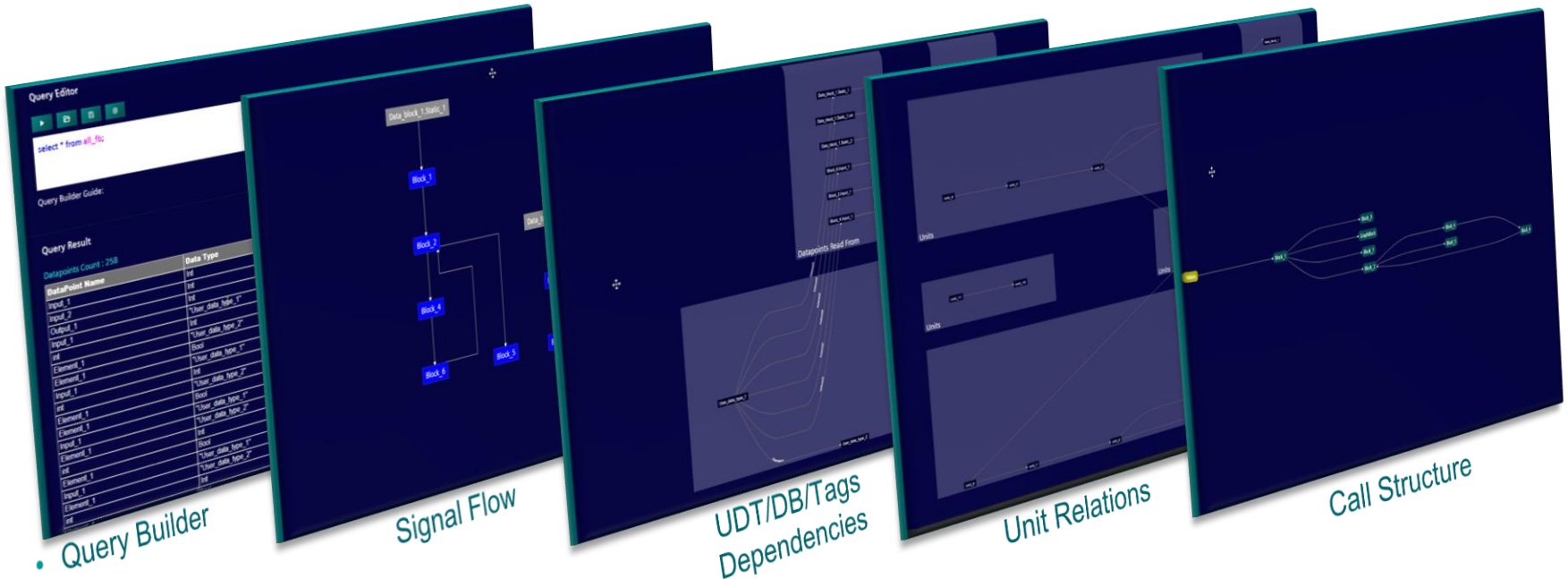
SIMATIC Project Insight

SIMATIC Project Insight helps Standardizers, PLC Engineers, Maintenance Engineers and Data Scientists with Static Analysis of Engineering Projects in order to enable faster orientation and quality improvements, thus saving time.

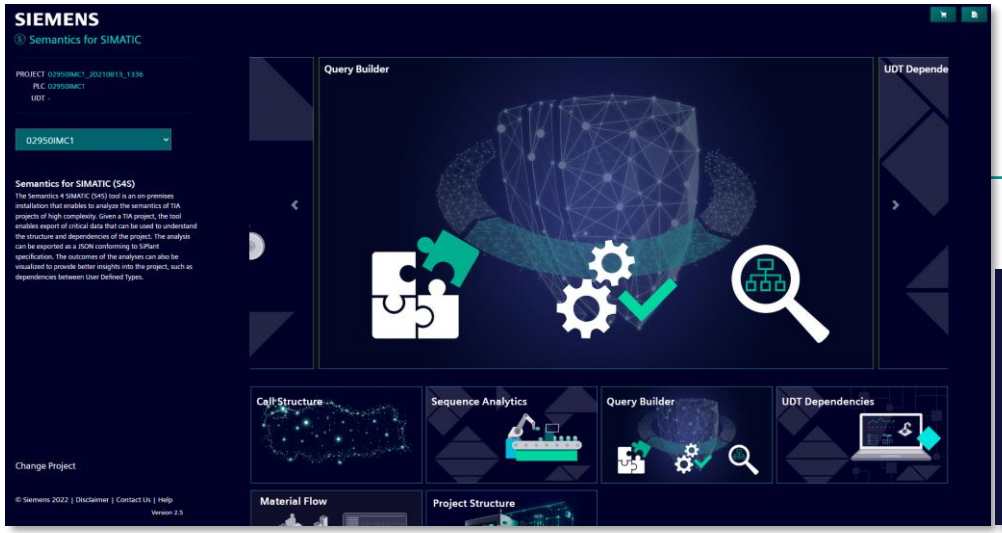
Download available via Siemens Industry Online Support:
109818320



Supports TIA Portal
STEP 7 V14 SP1, V16, V17, V18 and V19*



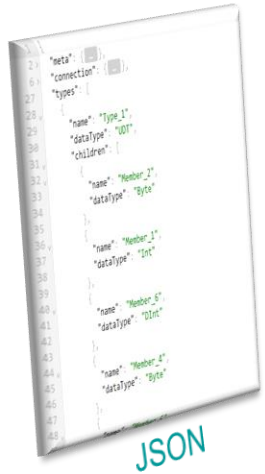
Extract & Analyze TIA Project data



Task Scheduler

Manual Export

Scheduled Batch Export

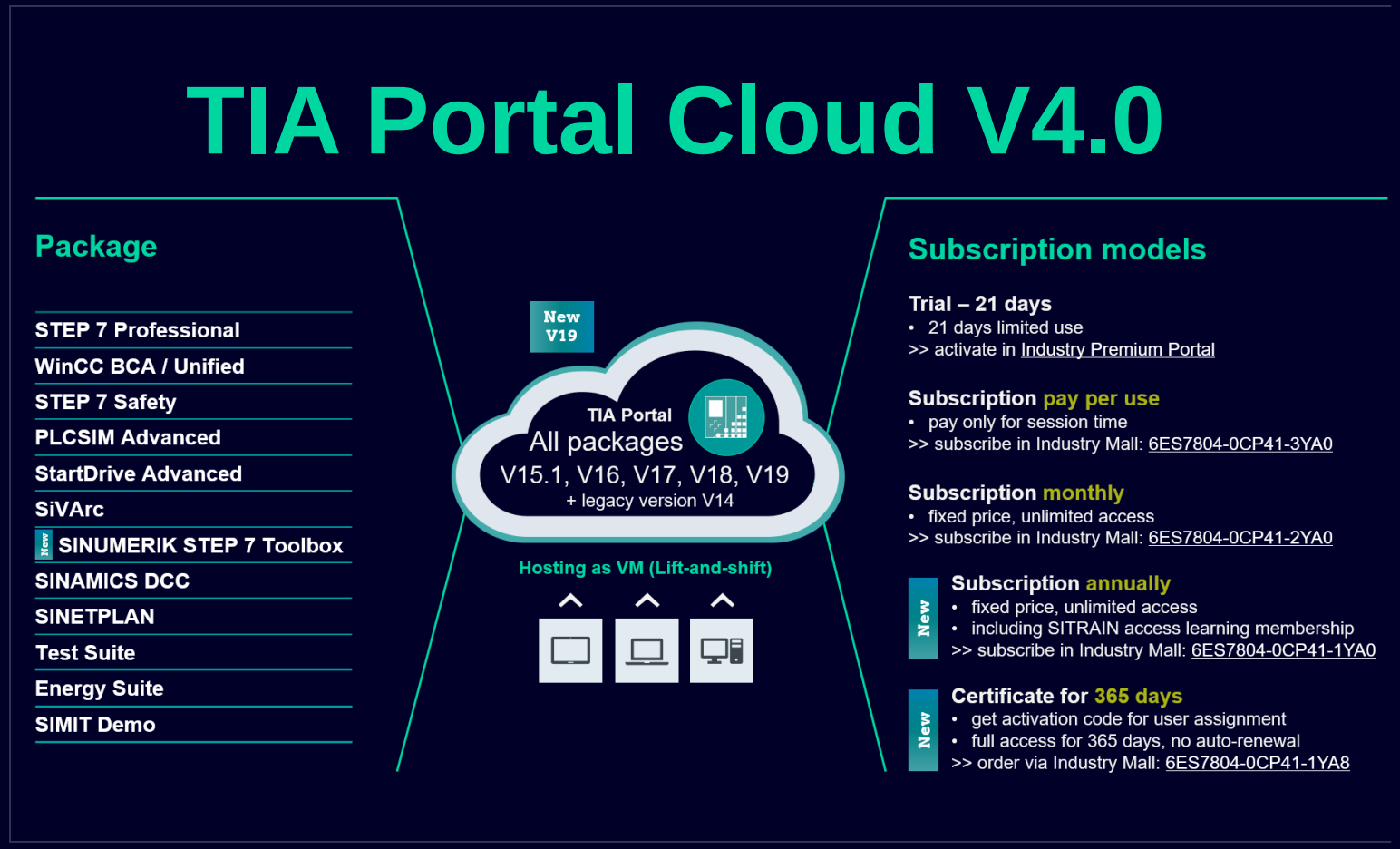


SIMATIC Project Insight Analyzer

*Planned for 2024

SIEMENS

Cloud Engineering with TIA Portal Cloud V4.0



Cloud Engineering in Automation

Challenge

Cost reduction for automation software
Maintenance of exiting applications often require the retention
of old software versions
High service efforts for software maintenance and updates

Solution

Centrally managed and maintained engineering environment in the cloud
Accessibility of latest and predecessor versions of TIA Portal (**V14**, V15.1, V16, V17, V18, **V19**) within TIA Portal Cloud
Demand-oriented payment models (subscription & pay-per-use)

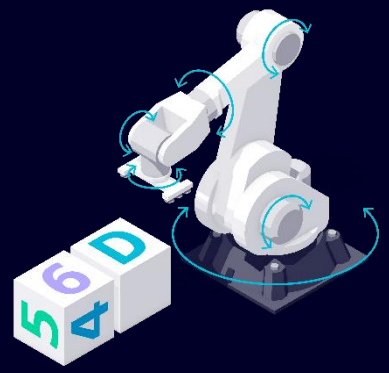
Customer value

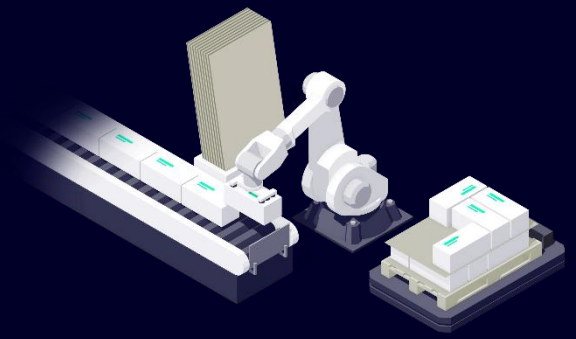
- Instant access to several TIA Portal versions and potion packages
- No software maintenance on user side
- No hardware requirement for Cloud usage
- Cost efficient and demand oriented software usage

For more information about TIA Portal Cloud please follow the link: https://support.industry.siemens.com/cs/us/en/view/109794456

SIEMENS

Automation Engineering – Programming, commissioning and operation of Motion Control





MCL – Motion Control Language

Deep integration within the PLC

Integrate IT and OT

Easy commissioning and monitoring

144 Dialogstation Motion Cube

Easy access to robotics and motion control for everybody

Challenge

- Different kinematic solutions with high engineering complexity on the market available which requires deep domain expertise
- Commissioning, programming and monitoring complex kinematic movements in 3D cartesian space is not easy and need specialized skills
- Path trajectory of a motion program is very complex for the end customer

Solution

- One first class ecosystem for programming of motion control, robotics and automation tasks
- Integration of motion control functions for up to 6D handling systems in SIMATIC Technology CPUs (T-CPU)
- MCL – an intuitive and optimized motion language
- Simulate and validate programs without touching any hardware
- Import and use programs from CAD

Customer value

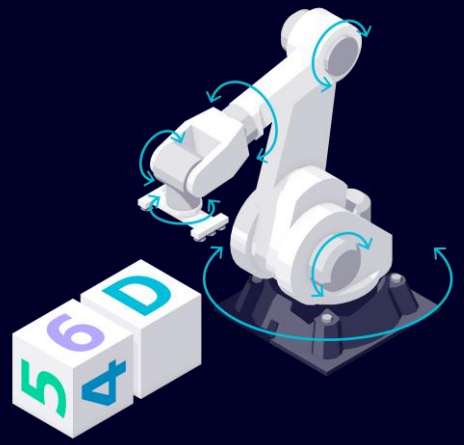
- Users will be able to start without deep programming expertise
- IT-like monitoring (Breakpoint, Debugging on the Trajectory)
- Software solution on a S7-1500T CPU replace the robot control (HW)
- End customer approach: Create and change programs online
- Live Digital twin (web-based with 3D-Viewer)

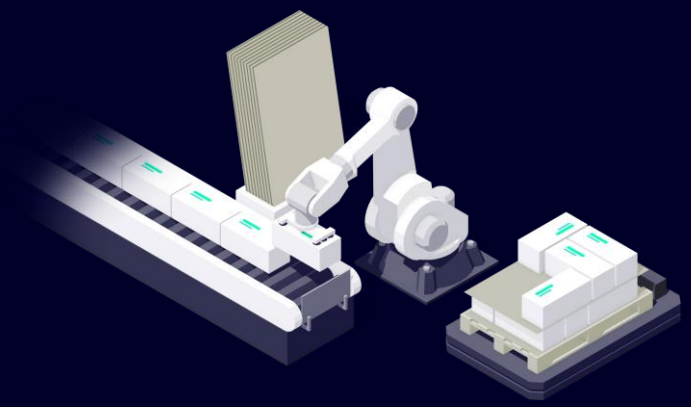
Products & Services

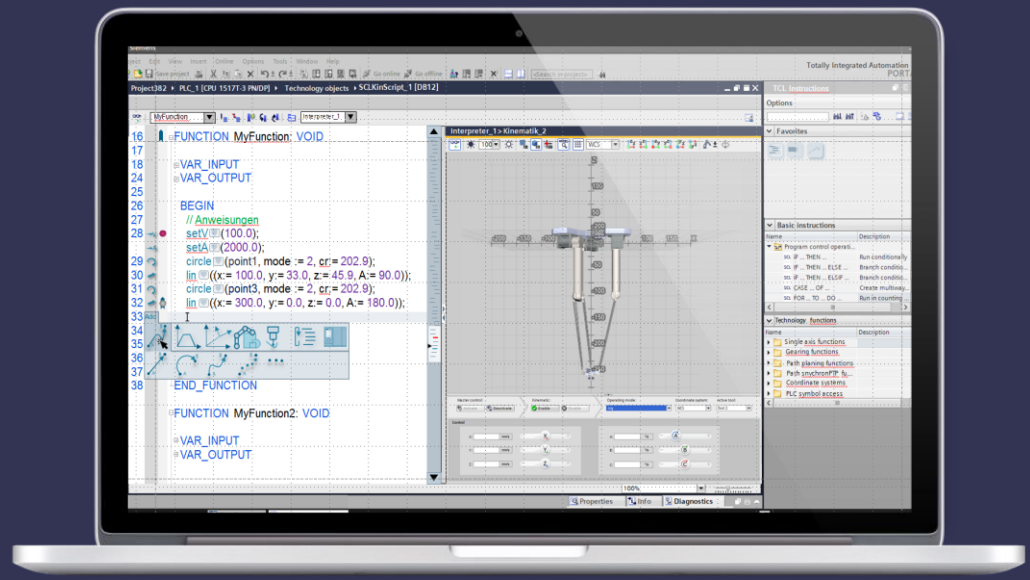
- SIMATIC Motion Interpreter
- SIMATIC Motion Control KinPlus
- S7-1500 T/TF

SIEMENS

SIMATIC Motion Interpreter
Motion Control made easy, flexible and open







MCL – Motion Control Language

Deep integration within the PLC

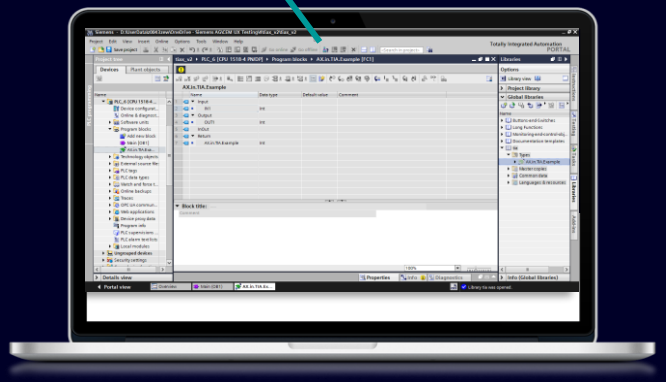
Bringing OT and IT together

Easy commissioning and monitoring

- **Reduced complexity**
  Sequential programming of motion jobs for kinematics and individual axes - without modification of the PLC program.
- **Faster time to market**
  Significant reduction of programming and commissioning times supported by Live Digital Twin
- **End customer centric approach**
  Working outside TIA Portal without dedicated programming skills, program generation from higher level IT systems possible

TIA Portal support of High-Resolution Monitors

TIA Portal does support-High-Resolution Monitors by default, no configuration needed.



TIA Portal support of High-Resolution Monitors

The User Interface of TIA Portal has now an improved support of High-Resolution monitors and displays.

- Better readability of e.g.: texts,..
- Improved visibility of graphics, icons,..

--> Support of high-resolution monitors, e.g. 4K resolution displays

SIEMENS

TIA Portal V19
STEP 7 and System Highlights

Collaborative Engineering

- Multiuser Support for SIMATIC WinCC Unified
- CAx extended reuse outside TIA Portal

Modularization

- Named value data types within Software Units
- Software Units for Motion Control applications
- Grouping of technology objects

Modularization

IT-oriented library development

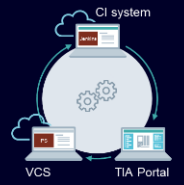
- Support of SW Controller & S7-1500V
- Libraries extension & clean-up
- Debugging Enhancement

TIAX Direct Loading Use Case

Ensure SW quality

SIMATIC PLCSIM Adv V6.0

- New design of PLSIM Adv. UI
- Support of SW Controller



Automated engineering

- Extended TIA Portal Openness capabilities
- New TIA Portal Openness API
- LTS support
- Updated Equipment modules for Modular Application Creator

Open engineering framework

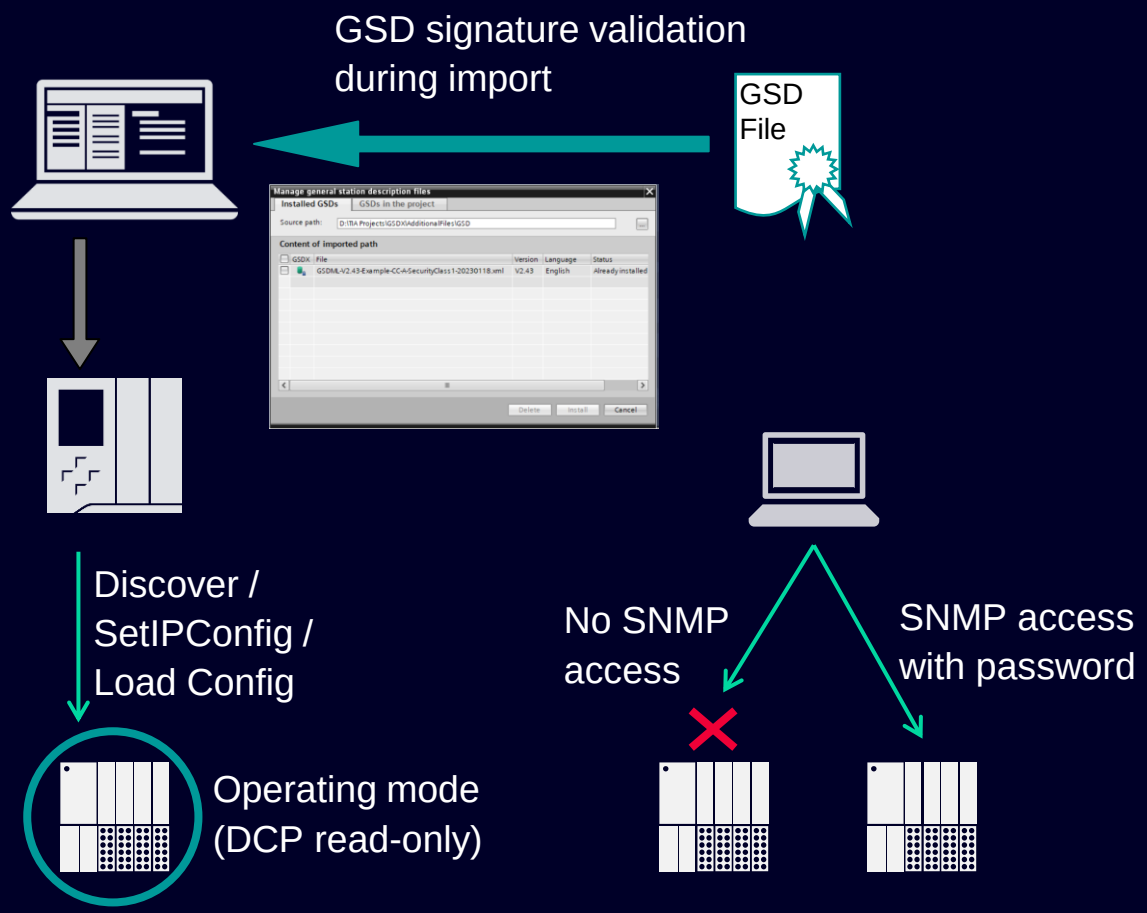
- Extended ecosystem, e.g. SIMATIC Project Insight
- Cloud Engineering with TIA Portal Cloud V4.0
- New option “SIMATIC Motion Interpreter”
- 4K support

Security Improvements

- Support of PROFINET Security Class 1
- Security logging in S7-1500 PLC
- UMAC on PLC
- Extended communication for S7-1500R/H

SIEMENS

Hardware engineering
Support of PROFINET Security Class 1 functionality (Robustness)



Increased robustness for PROFINET communication by additional functionalities for PN components as part of PN Security Class 1:

- **SNMP configuration for PROFINET devices**
  allows individual setup according to machine / plant requirements (disable SNMP, change community name)
- **DCP read-only**
  rejects critical commands (like Reset-to-factory / Set Name) when PN Device is in operating mode.
  ➔ Higher protection against disruption of regular operations
- **GSD signature validation in TIA Portal**
  provides information if imported GSD is unmodified and by intended device vendor

SIEMENS

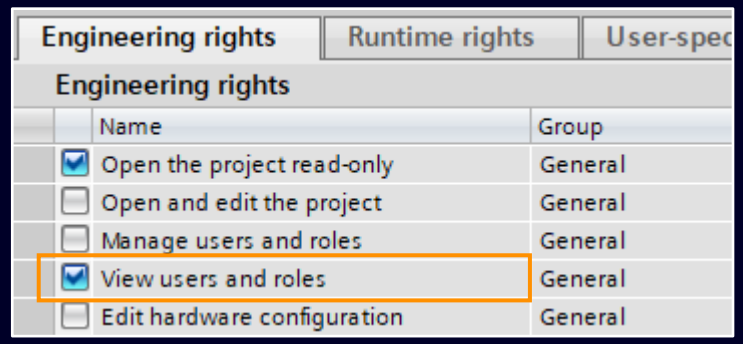
System functions
User Management & Access Control (UMAC)

The TIA Portal project offers integrated user administration and access protection. For consistent access protection, user roles can be configured with function rights for engineering and runtime. Users and user groups can also be managed centrally by connecting TIA Portal to a UMC domain.

New Function right to view users and roles

Beside the existing function right to <Manage users and roles> we provide a new function right to explicitly <View users and roles> only.

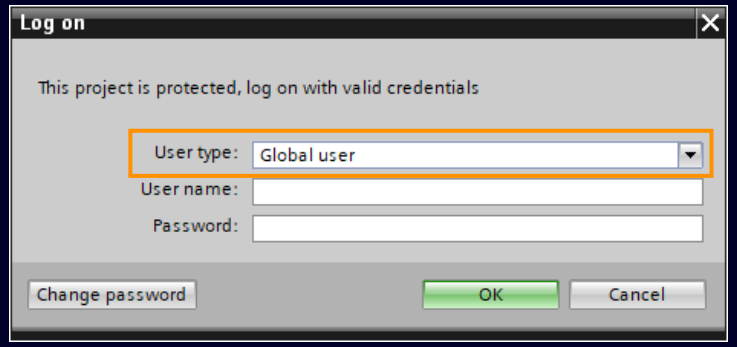
→ This enables the project administrator to configure roles more specific.



New Log on dialog remembers user type

For log on or change user, the last used user type (e.g. global user) is preselected.

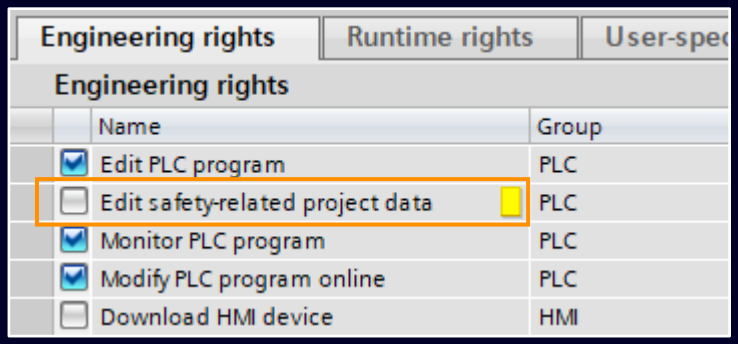
→ This makes authentication little bit more comfortable.



New Highlight safety relevant function rights

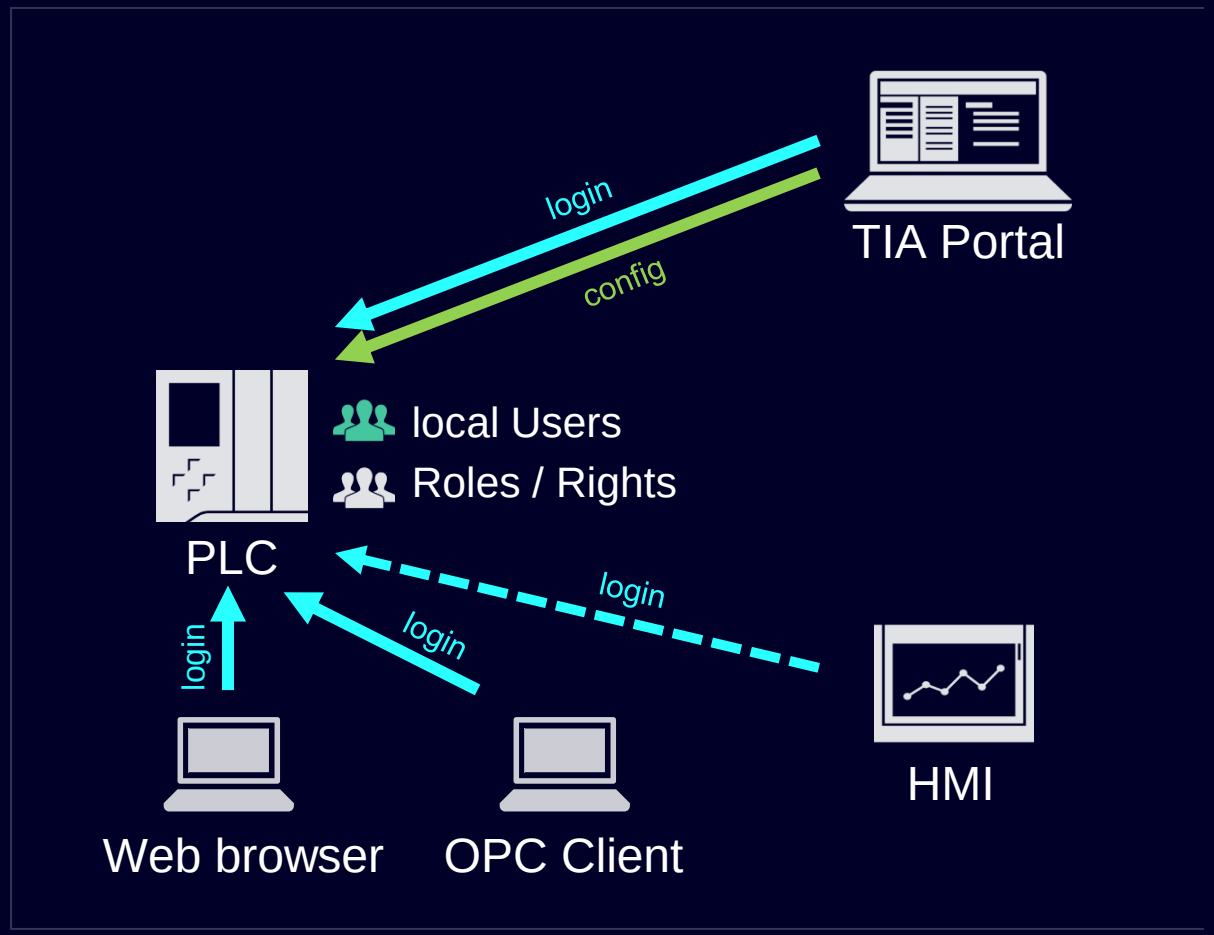
Function rights with safety relevance are visualized with a yellow safety card to avoid misconfiguration of user roles.

→ Easily recognize functions rights with safety relevance for reliable user roles configuration.



SIEMENS

System functions
Unified user and rights management for S7-1500 PLCs and Software Controller



Flexible access control for multiple users, based on individual rights with unified user management in S7-1200/1500 PLCs and Software Controller

- Unique user accounts with individual access rights for suitable access configuration according to users tasks
- Single user account usable for different PLC services (e.g. engineering access, Webserver)
- Roles / Rights concept for different PLC functionality integrated into existing TIA Portal UMAC configuration
- Support of user changes on PLC during runtime

SIEMENS

SIMATIC S7-1500 R/H: Additional Features
Webserver / Secure Communication and additional system functions

Support of Webserver
- New architecture with API based access
- Client Library for .NET is provided on GitHub
  https://github.com/siemens/simatic-s7-webserver-api

- Integrated Web Pages will follow later

Secure Communication for
- Open User Communication
- OPC UA

Support of system functions for
- Data Logs → Allows the use of Energy Suite
- User Files

Further Improvements
- Option to start R/H System with open Ring (Commissioning use case)

SIEMENS

Disclaimer

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

SIEMENS

Contact

Published by Siemens XX

First name Last name
Job title
Group / Region / Department XY
Street 123
12345 City
Country

Phone +49 123 45 67 89
Mobile +49 123 45 67 89 0

E-mail firstname.lastname@siemens.com

SIEMENS