TIA Portal V17
Introduction

Your gateway to automation in the Digital Enterprise
Totally Integrated Automation Portal (TIA Portal)
One for all… The proven basis for innovative solutions

- One common database
- Consistent and unified operator concept
- Common, central services
TIA Portal
Even more than an engineering framework

Work open, virtual and networked! Digital workflow with TIA Portal
Reduce your time to market! Integrated engineering with TIA Portal
Increase your productivity! Transparent operation with TIA Portal

Your gateway to automation in the Digital Enterprise
OUR EXISTING TIA PORTAL ECOSYSTEM FOR MAXIMUM FLEXIBILITY
Networked workflows wherever and whenever needed

- **TIA¹**: TIA Portal V17 and TIA Portal Cloud for different needs and maximum flexibility (subscription); Variety of different TIA Portal options, e.g. Multiuser addressing working in teams, PLCSIM Adv. and Test Suite for testing and simulation scenarios
- **TIA²**: TIA Use Cases for OT/IT Integration based on OPC UA and involving Security measures in connectivity / TIA Use Case Continuous Integration, a SW development workflow inspired by IT and app development
- **TIA³**: IT-like engineering

**Benefits**

- Addressing individualized requirements
- Efficient engineering by standardization
- Increase flexibility in your everyday work while maintaining total data consistency, regardless of the terminal used

**Our offering**

- TIA Portal and options
- TIA Portal Cloud incl. options
- Standardization
- TIA Use Case Continuous Integration
- TIA Use Case Data processing for OT-IT integration
## TIA Portal V17
### Positioning of highlights in Gateway to automation storyline

<table>
<thead>
<tr>
<th>TIA Portal Test Suite</th>
<th>Security by Default / TLS + Wizard</th>
<th>SIMATIC OPC UA S7-1200 (Server + Comp. Specs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIA Portal Version Control Interface (VCI)</td>
<td>Adv. Motion Control (S7-1518T/TF)</td>
<td>OPC UA A&amp;C / Online diagnosis / Companion Specs</td>
</tr>
<tr>
<td>TIA Portal Openness</td>
<td>SIMATIC S7-1500R/H (incl. Safety)</td>
<td>SIMATIC Energy Suite</td>
</tr>
<tr>
<td>TIA Add-Ins</td>
<td>Multiuser Engineering &amp; UMAC</td>
<td>Central User Management - UMC</td>
</tr>
<tr>
<td>TIA Portal Cloud</td>
<td>Additional editors (CEM &amp; CFC)</td>
<td>ProDiag</td>
</tr>
<tr>
<td></td>
<td>WinCC Unified Unified + View of Things</td>
<td></td>
</tr>
</tbody>
</table>

**Work open, virtual and networked!**
Digital workflow with TIA Portal

**Reduce your time to market!**
Integrated engineering with TIA Portal

** Increase your productivity!**
Transparent operation with TIA Portal
# TIA Portal

## Product overview: Engineering and Runtime options

<table>
<thead>
<tr>
<th>Engineering options</th>
<th>Runtime options</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMATIC STEP 7</td>
<td>SIMATIC ProDiag</td>
</tr>
<tr>
<td>TIA Portal Multiuser Engineering</td>
<td>SIMATIC Energy Suite RT / S7-EE-Monitor</td>
</tr>
<tr>
<td>TIA Portal Teamcenter Gateway</td>
<td>SIMATIC OPC UA</td>
</tr>
<tr>
<td>TIA Portal Cloud Connector</td>
<td>Safe Kinematics</td>
</tr>
<tr>
<td>TIA User Management Component</td>
<td>SIMATIC Robot Library</td>
</tr>
<tr>
<td>SIMATIC Energy Suite ES</td>
<td>SIMATIC STEP 7 CFC</td>
</tr>
<tr>
<td>TIA Portal Test Suite</td>
<td>Unified RT Options</td>
</tr>
<tr>
<td>SIMATIC S7-PLCSIM Advanced</td>
<td>WinCC/WebUX</td>
</tr>
<tr>
<td>SIMATIC STEP 7 Safety</td>
<td></td>
</tr>
</tbody>
</table>
## TIA Portal V17
### Digital Workflow with TIA Portal

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optimized development of standards</strong></td>
<td>• More flexible use of own standardized library types with own responsibility</td>
</tr>
<tr>
<td>• more flexible library types</td>
<td>• Automated library checks</td>
</tr>
<tr>
<td>• Support of nested (F-) data types</td>
<td>• Automated execution of engineering tasks with scripts</td>
</tr>
<tr>
<td>• Extension of the Openness API</td>
<td>• Full import/export interface for software objects</td>
</tr>
<tr>
<td><strong>Enhancements for TIA Portal Openness</strong></td>
<td>• easy integration and use of Openness scripts with TIA Add-Ins</td>
</tr>
<tr>
<td>• Extensions of the Openness API for multi-user projects</td>
<td>• Simple cross-project administration and maintenance of users User groups in the system</td>
</tr>
<tr>
<td>• Integration of Openness scripts into the TIA Portal interface with TIA Add-Ins</td>
<td>• Defined access rights in production</td>
</tr>
<tr>
<td><strong>TIA Portal User Management</strong></td>
<td></td>
</tr>
<tr>
<td>• Managing users and user groups in TIA Portal</td>
<td></td>
</tr>
<tr>
<td>• More detailed user rights for engineering tasks in TIA Portal</td>
<td></td>
</tr>
</tbody>
</table>
# TIA Portal V17
Integrated Engineering with TIA Portal

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support of S7-1500HF PLCs</strong></td>
<td></td>
</tr>
<tr>
<td>• SIMATIC S7-1500R/H for fail-safe high-availability applications</td>
<td></td>
</tr>
<tr>
<td>• Support of PROFIsafe I/O and fail-safe PLC/PLC communication</td>
<td></td>
</tr>
<tr>
<td><strong>New editor Cause-Effect-Matrix (CEM)</strong></td>
<td></td>
</tr>
<tr>
<td>• Efficient and easy to learn project planning language (S7-1200/S7-1500)</td>
<td></td>
</tr>
<tr>
<td>• Graphical diagnosis in online mode</td>
<td></td>
</tr>
<tr>
<td><strong>Support of Continuous Function Charts (CFC)</strong></td>
<td></td>
</tr>
<tr>
<td>• Graphical programming and wiring of blocks and signals for S7-1500</td>
<td></td>
</tr>
<tr>
<td>• Hierarchical structuring of charts</td>
<td></td>
</tr>
<tr>
<td>• Migration of TDC applications to TIA Portal</td>
<td></td>
</tr>
</tbody>
</table>

> • Seamless portfolio extension of the S7-1500 to include fail-safe applications  
> • Programming like normal safety applications  
> • Implementation of applications for specific industries  

> • Enhancement of existing IEC programming languages for efficient project planning of action and reaction  
> • Simplified diagnosis of situations thanks to a cause and effect display  

> • Additional editor for structured programming of SIMATIC S7-1500  
> • Simplified project planning of signal wiring  
> • Creation and (further) use of CFC libraries in TIA Portal  

Page 11  Unrestricted | © Siemens 2021
# TIA Portal V17
## Transparent Operation with TIA Portal

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
</table>
| **Open communication with OPC UA:**                   | • Integration of messages and alarms in standardized machines and plant concepts with OPC UA  
• S7-1500 OPC UA Server with Alarms & Conditions       | • Increased security through management and transfer of access certificates |
| • Certificate management with GDS                      | • Simplified programming of OPC UA client applications in the controller |
| • OPC UA Client: Compact blocks                        |                                                                         |
| **Basic visualizations with Unified View of Things**   | • Creation and use of web-based basic visualizations without HTML knowledge |
| • Creation of the basic visualization with WinCC Unified| • Seamless integration into the controller and HMI project planning      |
| • Use as web visualization on SIMATIC web servers      | • Access to visualization without additional hardware or installation of tools |
| • Access to visualization with any browser             |                                                                         |
## TIA Portal V17
### Security with TIA Portal

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure communication:</td>
<td>• Integration of the latest security mechanisms</td>
</tr>
<tr>
<td>• TLS-based protection of communication to PG/HMI (TLS V1.3)</td>
<td>• Increased security thanks to management and transfer of own certificates</td>
</tr>
<tr>
<td>• Introduction of individual security keys and certificates</td>
<td>• Easy configuration of security settings through user-friendly wizard</td>
</tr>
<tr>
<td>• Security Wizard</td>
<td></td>
</tr>
<tr>
<td>Extended rights management in TIA Portal</td>
<td>• Extended definitions of user rights in engineering</td>
</tr>
<tr>
<td>• User Management &amp; Access Control (UMAC)</td>
<td>• Support of Single Sign-on and SIMATIC Logon protocols</td>
</tr>
<tr>
<td>• Central User Management (UMC)</td>
<td></td>
</tr>
<tr>
<td>Secure communication with OPC UA</td>
<td>• Increased security thanks to access certificate management and transfer</td>
</tr>
<tr>
<td>• Certificate management with GDS</td>
<td></td>
</tr>
</tbody>
</table>
TIA Portal V17
New payment and licensing models

Subscription as additional licensing model to the existing perpetual license
New payment and licensing models available for TIA Portal V17 and TIA Portal Cloud

Rental of SW
Always current version

OR

Purchase of license
Lifetime ownership of one version

Subscription
Installation: On Premise
Installation: Cloud
Bundles
Bundles
Single license
Packages
Bundles
... 
SUS

NOT AVAILABLE IN AUSTRALIA – AVAILABILITY TBA
Introduction of Subscription packages with TIA Portal V17 (TIA Portal V17 – on premise)

**Summary**

- Introduction of “Easy-to-use” Subscription packages

- Easy entry to the TIA Portal Framework

- Packages tailored to needs and applications

---

**TIA Portal Engineering & Simulation**
- “TIA Portal Engineering”-package
- PLCSIM Advanced
- Test Suite

**TIA Portal Basic**
- STEP 7 Basic
- WinCC Basic
- Safety Basic

**TIA Portal All-in-one**
- “Tia Portal Engineering and Simulation” - package
- SiVArc
- Energy Suite

**TIA Portal Engineering**
- STEP 7 Prof
- WinCC Adv/Unified
- Safety Adv
- Multiuser

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**NOT AVAILABLE IN AUSTRALIA – AVAILABILITY TBA**
Continuous Integration with TIA Portal
3 main parts for transparency and efficiency in development processes

<table>
<thead>
<tr>
<th>Engineering System</th>
<th>Source Control</th>
<th>Continuous Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Multiple programmers work as a team on one TIA Portal project</td>
<td>• Record changes to software objects and documents</td>
<td>• Automatically generate a build from the individual software modules</td>
</tr>
<tr>
<td>• Based on a standardized programming guide</td>
<td>• Coordination of joint access to objects by multiple developers</td>
<td>• Automatically test the software functions</td>
</tr>
<tr>
<td>• Perfect collaboration and transparency of software changes</td>
<td>• simultaneous processing of a project via several development branches</td>
<td>• Test results as a report to the programmers</td>
</tr>
</tbody>
</table>

![Diagram showing the integration process with Bob, Alice, Carol, and Dan]  

![Diagram showing the build, test, and pass or fail cycle]
Continuous Integration with TIA Portal
Solutions with TIA Portal components and options

0 | Software requirement management

1 | Standardization
   - TIA Portal Libraries

2 | Distributed working
   - TIA Portal Multiuser Engineering

3 | Versioning
   - Continuous Integration
   - TIA Portal Libraries
   - TIA Portal Project Server

4 | Functional testing
   - S7-PLCSIM Advanced
   - TIA Portal Openness

5 | Continuous Integration
   - Jenkins (open source)
## TIA Portal V17
### Continuous Integration with TIA Portal

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working in a team</td>
<td>• Efficient teamwork during engineering and commissioning</td>
</tr>
<tr>
<td>• Enhancements for team engineering with</td>
<td>• Automation of engineering tasks with the help of Openness</td>
</tr>
<tr>
<td>multiuser and project server</td>
<td>• Generate and check TIA Portal projects thanks to stand-alone tools</td>
</tr>
<tr>
<td>• Addressing multiuser projects via TIA</td>
<td></td>
</tr>
<tr>
<td>Portal Openness</td>
<td></td>
</tr>
<tr>
<td>• Team commissioning with PLC</td>
<td></td>
</tr>
<tr>
<td>synchronization of folders and units</td>
<td></td>
</tr>
<tr>
<td>Versioning of software objects</td>
<td>• Free management and versioning of software objects in TIA Portal</td>
</tr>
<tr>
<td>• Integrated versioning of software objects</td>
<td>Project Server</td>
</tr>
<tr>
<td>in the TIA Portal project server</td>
<td>• Simplified integration of TIA Portal projects in Teamcenter</td>
</tr>
<tr>
<td>• Storage of projects and individual</td>
<td></td>
</tr>
<tr>
<td>software objects in Teamcenter with</td>
<td></td>
</tr>
<tr>
<td>Teamcenter Gateway</td>
<td></td>
</tr>
<tr>
<td>Integration of function tests</td>
<td>• Guarantee constant software quality through</td>
</tr>
<tr>
<td>• Simulation of the application with</td>
<td>the definition and execution of test cases</td>
</tr>
<tr>
<td>extended CPU support in PLCSIM (e.g. S7-</td>
<td>• Saving engineering and commissioning time through seamless test</td>
</tr>
<tr>
<td>1500R/H)</td>
<td>integration</td>
</tr>
<tr>
<td>• Support of CPU1518HF in PLCSIM Adv.</td>
<td>• Support of collaboration in the team</td>
</tr>
<tr>
<td>• Application Test and Styleguide Testing</td>
<td></td>
</tr>
<tr>
<td>with TIA Portal Test Suite</td>
<td></td>
</tr>
</tbody>
</table>
Benefits of Continuous Integration with TIA Portal

<table>
<thead>
<tr>
<th>Accelerated development process</th>
<th>Lower risk of faults</th>
<th>Increased transparency of processes</th>
<th>Time savings through automated processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The continuous cycle of rapid changes and automated function tests reduces the risk of faults.</td>
<td>Automated processes ensure consistency and reduce the time required for engineering. Multiple developers can work on the same project simultaneously.</td>
<td>Test projects are generated automatically, not manually. Function tests and the testing of programming rules are also automated.</td>
<td>Version management ensures transparency over changes made by all the developers working on a project and enables traceable workflows.</td>
</tr>
</tbody>
</table>
Additonal information

Highlight webpages

• TIA Portal
  www.siemens.com/tia-portal
• TIA Portal Cloud
  www.siemens.com/tia-portal-cloud
• Standardization with TIA Portal
  www.siemens.com/tia-portal-standardization
• Continuous Integration with TIA Portal
  www.siemens.com/tia-portal-ci
• Stage presentation “Inspiration meets Automation”
  EN/DE

Web-based Highlight Trainings

• SITRAIN Highlight Training V15
• SITRAIN Highlight Training V15.1
• SITRAIN Highlight Training V16
• SITRAIN Highlight Training V17 - coming soon
Your easy introduction to the TIA Portal

Promotional packages
- Trial license (21 days):
  - Download via Siemens Industry Online Support
- SIMATIC hardware starter packages:
  - SIMATIC S7-1500: www.siemens.com/s7-1500-starter-kits
  - SIMATIC S7-1200: www.siemens.com/s7-1200-starterkits
  - WinCC Unified Comfort Panel: www.siemens.com/comfort-panel-starter-kits

TIA Portal Tutorial Center
- Numerous videos provide an overview of the general functions and tools of the TIA Portal. www.siemens.com/tia-portal-tutorial-center

SIMATIC Automation Tasks
- Web tutorials for Totally Integrated Automation www.siemens.com/automation-tasks

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- Individual modernization support: www.siemens.com/industry/contact
  www.siemens.com/fa-services
- For the comprehensive, complete service (consulting, implementation, project completion) www.siemens.com/fa-migration

TIA Portal newsletter
Subscribe
# TIA Portal Highlights of TIA Portal V17 (Featured Next week)

## WinCC – Innovations
- **WinCC Advanced:**
  - Template & Popup screens in the library
- **WinCC Professional:**
  - Raw data for S7-1500, new system tags

## Startdrive – Innovations
- Support of SINAMICS G115D
- S120: Data set switching, manual optimization
- SINAMICS DCC: Know-how-protection

## STEP 7 – Innovations
- **CEM – Cause Effect Matrix**
- **CFC – Continuous Function Chart (planned for July 2021)**
- Download / Upload of user groups
- Functional enhancements in the cross-reference list
- Openness extensions for project generation

## System functions
- Openness-extensions for libraries and UMAC
- User Management & Access Control (UMAC)
- Library
- Security per Default
- TIA Portal Language Packs
- Last used objects

## Hardware configuration
- Global Offline/Online comparison
- Offline/Online comparison at parameter level
- CPU 1518HF-4PN: Safety and redundancy
- Extended quantity structures for S7-1500 and ET200 CPUs
- Extensions for CPU 1518 MFP
- Disable and enable I-Device
- DHCP and DNS for S7-1500 and ET200 CPUs
- Web server innovations
- S7-1200 Highlights with FW4.5 (OPC UA/Webserver)
- CPU 1518T/TF-4 PN/DP: High performance motion control

## WinCC Unified
- Improved screen engineering with new style
- Graphics and faceplates (with functional enhancements) in library
- Extended communication and 1st set of system diagnostic
- Audit for PC
- WebClient for panel

## TIA Portal Options
- **OPC UA**
  - S7-1200: Diagnostics, methods; S7-1500: Alarms and Conditions, Server modelling, Client: new Compact blocks, GDS – certificate handling
- **PLCSIM/PLCSIM Advanced**
  - Support of S7-1500 R/H CPU, secure communication with OPC UA, OUC und HTTPS
- **SIMATIC Target for Simulink**
  - Code-generation for SIMATIC Edge & LiveTwin
  - Integrated S-functions for PLCSIM Adv coupling
- **Test Suite**
  - Openness Support of style guide Check and application test
- **SiVARc**
  - Support of WinCC Unified, new expressions, usability enhancements
- **Energy Suite**
  - Improved load management and flexible energy data connections (by Proxy-DBs)
- **Central User Management (UMC)**
  - Single Sign-on, SIMATIC Logon-protocol, licensing
- **Modular Application Creator**
- **ProDiag**
  - Monitoring within PLC Data Types, usability improvements
- **Teamcenter Gateway**
  - Single Sign-on, PKI, Linking between Teamcenter and TIA Portal objects

## Plant Intelligence Options
- Hardware configuration
  - Global Offline/Online comparison
  - Offline/Online comparison at parameter level
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  - Web server innovations
  - S7-1200 Highlights with FW4.5 (OPC UA/Webserver)
  - CPU 1518T/TF-4 PN/DP: High performance motion control

## TIA Portal Options
- **STEP 7 Safety**
  - Fast Commissioning, nested UDTs, Openness-extensions
  - SIMATIC Safe Kinematics
  - Function, advantages an requirements
  - Multiuser
  - SIMATIC Robot Library

## Hardware configuration
- Global Offline/Online comparison
- Offline/Online comparison at parameter level
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## System functions
- Openness-extensions for libraries and UMAC
- User Management & Access Control (UMAC)
- Library
- Security per Default
- TIA Portal Language Packs
- Last used objects
Side-by-side installation of V13 SP1/SP2 up to V17 allows access to all project versions. The V17 license can be used for all available versions from V11.
## Spare Parts Compatibility
**S7-1200 – FW 4.5 with older TIA Portal versions**

### TIA Portal V12 to TIA Portal V16

<table>
<thead>
<tr>
<th>TIA Portal V12/V13/V13 SP1 project with FW 1.0 to FW 3.0</th>
<th>TIA Portal V14/V14 SP1 project with FW 4.0/4.1</th>
<th>TIA Portal V15/V15.1 project with FW 4.2/FW 4.3</th>
<th>TIA Portal V16 project with FW 4.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firmware V4.5</td>
<td>Firmware V4.5</td>
<td>Firmware V4.5</td>
<td>Firmware V4.5</td>
</tr>
</tbody>
</table>

### TIA Portal V17

<table>
<thead>
<tr>
<th>TIA Portal V17 project with FW 4.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firmware V4.5</td>
</tr>
</tbody>
</table>

**Latest firmware version release:** Online support: ID 109771672

**New functions can be used with TIA Portal V17 and firmware V4.5**
System functions
Spare parts compatibility S7-1500 and ET 200 CPUs – FW 2.9 with older TIA Portal versions

TIA Portal V12 to TIA Portal V16

- V12/V13/V13 SP1 project with FW 1.0 to FW/1.8
- V14/V14 SP1 project with FW 2.0/2.1
- V15/V15.1 project with FW 2.5/FW 2.6

TIA Portal V17

- V16 project with FW 2.8
- V17 project with FW 2.9

Full spare part functionality: Online support: ID 109744163

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

Heath Stranger
Siemens – PLC Product Manager
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