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# Integrated Engineering

TIA Portal Innovation Tour

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[siemens.com/tia](https://www.siemens.com/tia)





# Integrated Engineering with TIA Portal

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Reduce your Time-to-Market



One for all



Efficient  
Engineering



Working  
in a Team



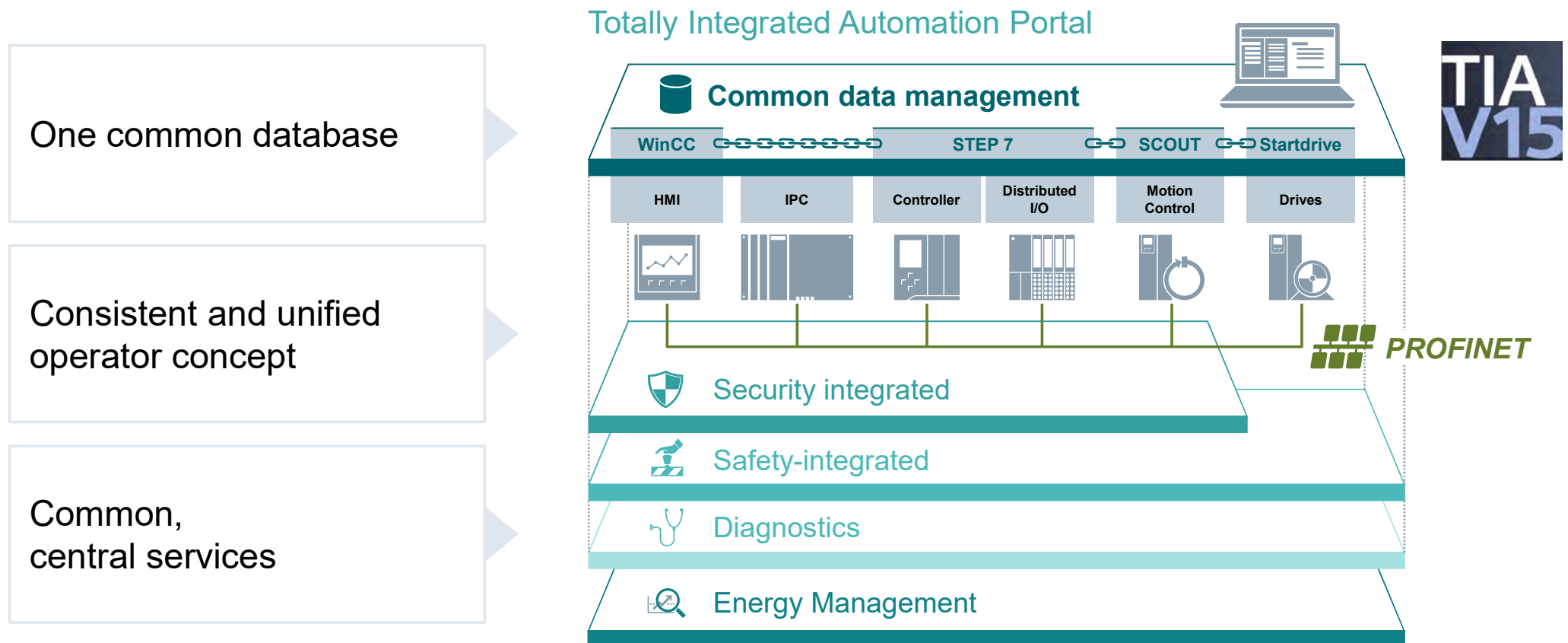


**“We wanted to have a future oriented automation system and innovative engineering platform.”**

**“The complexity of the system has reduces and the flexibility has increased.”**

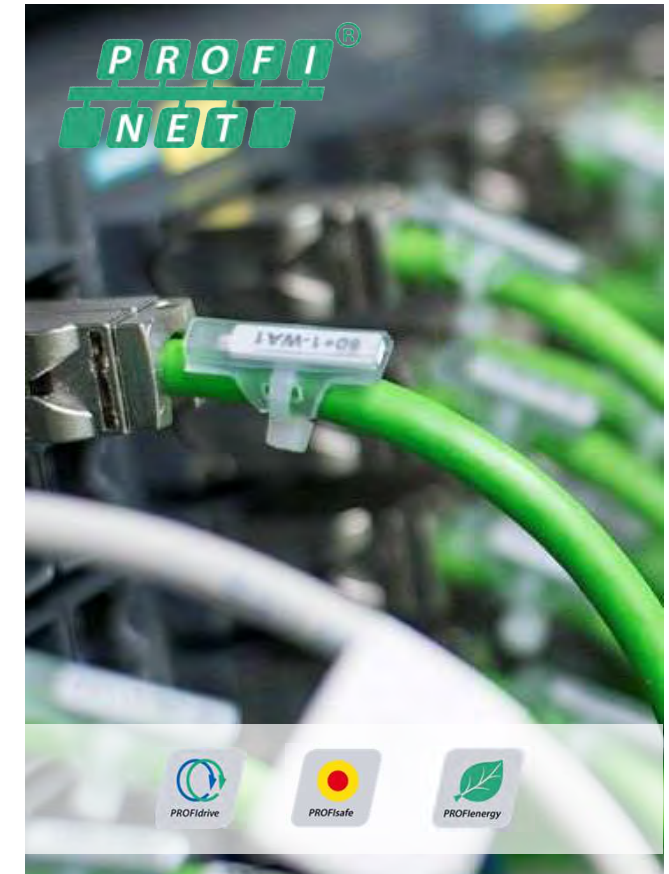
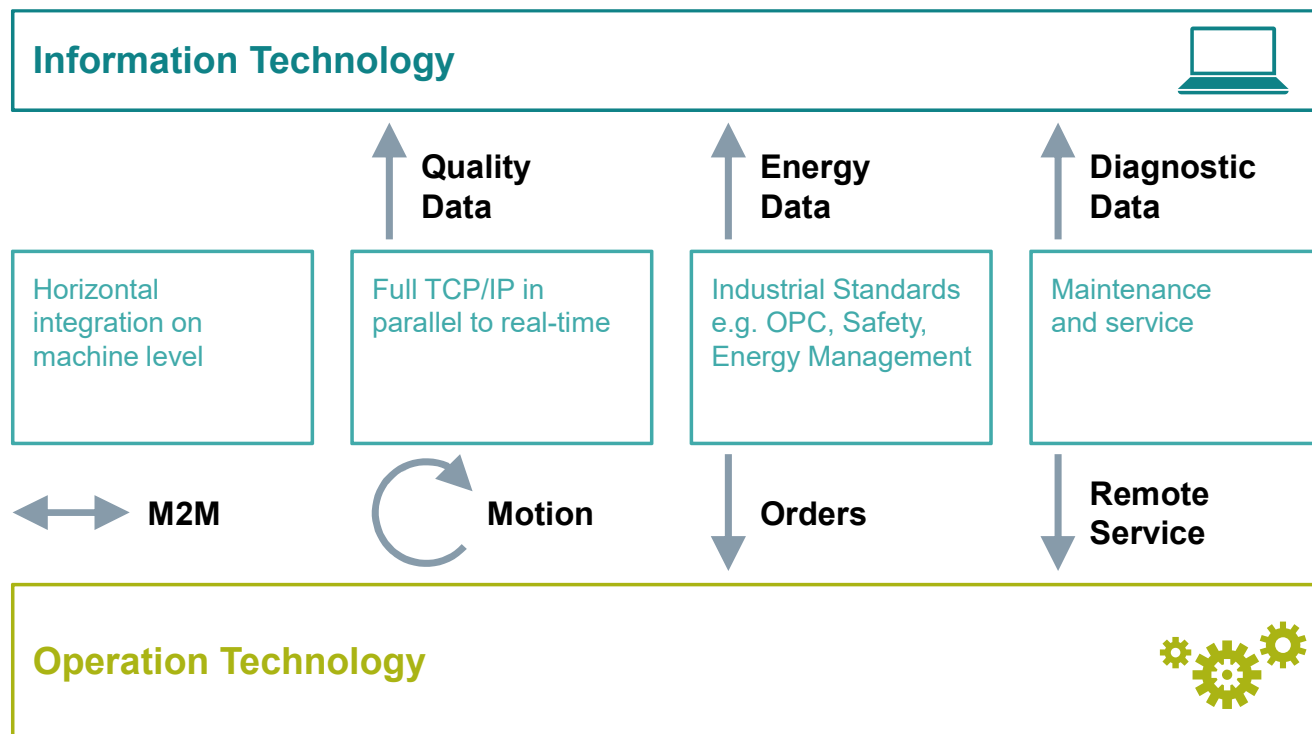
# TIA Portal – The proven basis for innovative solutions

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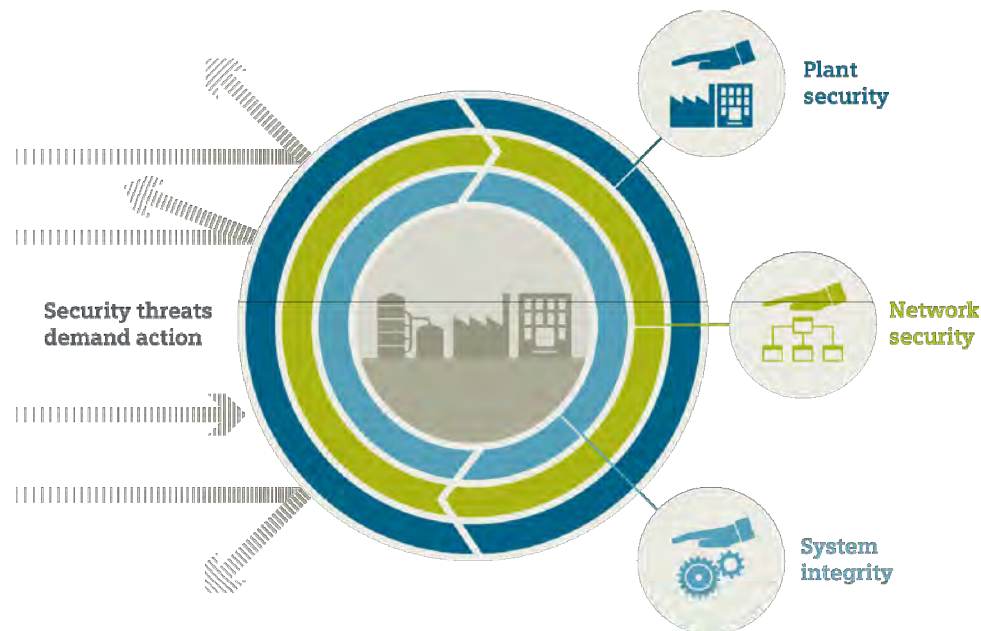
# Industrial Communication – Real-time performance and open Ethernet communication

PROFINET – Consistent from operation level to information level



# Industrial Security – Challenge of the Digital Factory

The Siemens security concept –  
“Defense in Depth”



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Siemens products and systems offer integrated security



Know-how and  
copy protection



Authentication  
and user  
management

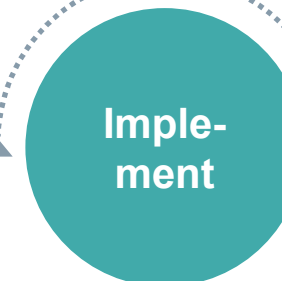


Firewall and VPN  
(Virtual Private  
Network)



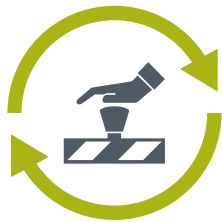
System  
“hardening”

Siemens Plant Security Services



## Safety-Integrated – To meet the challenge of digital manufacturing

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Analyze

Evaluate

React

### All from a single source

Integrated safety solutions for recording, evaluating, all the way to responding



### Reduce complexity

by means of an integrated safety solution



### Easy fulfillment of machine directives

due to standard-conformant evaluation and certified products



# Startdrive V15 – Safety-Integrated acceptance test

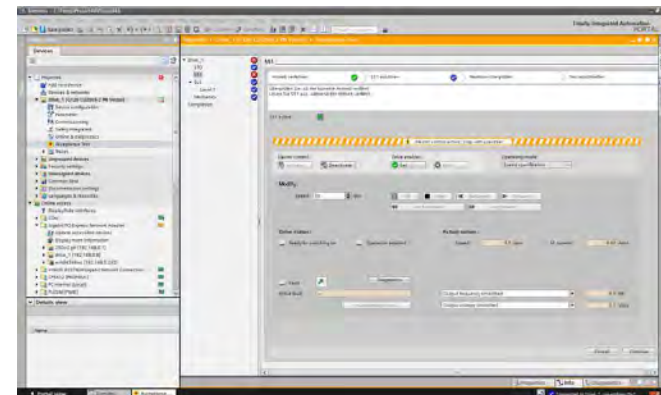
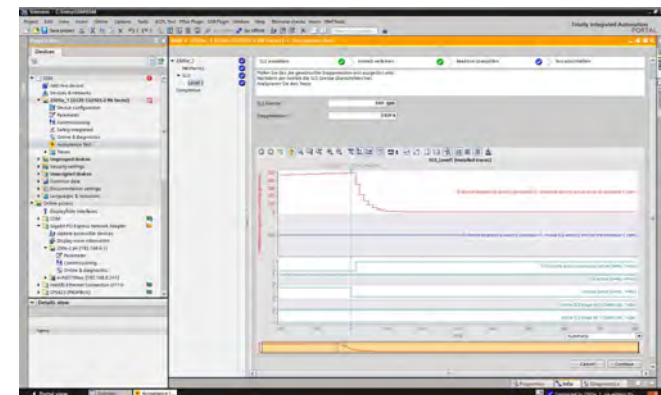


## Feature/function

- Managed acceptance test assistant for all drive-based, safety-integrated functions (basic and extended safety)
- Automatic and safety-function-specific creation of traces
- Generation of an acceptance protocol as an Excel file
- Available for G110M, G120, G120C, G120D, G120P

## Benefits

- Efficient execution and documentation of the safety acceptance test
- Support in compliance with the machinery directive
- High time saving



G120 ✓

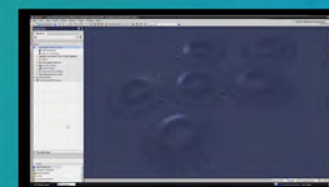
CU320-2 based drives ✗

## Demonstration with TIA Portal

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# Live Demo

## Safety-Integrated acceptance test



# The automation portfolio for the Digital Enterprise with efficient proven automation components

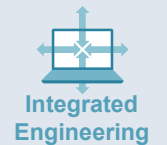
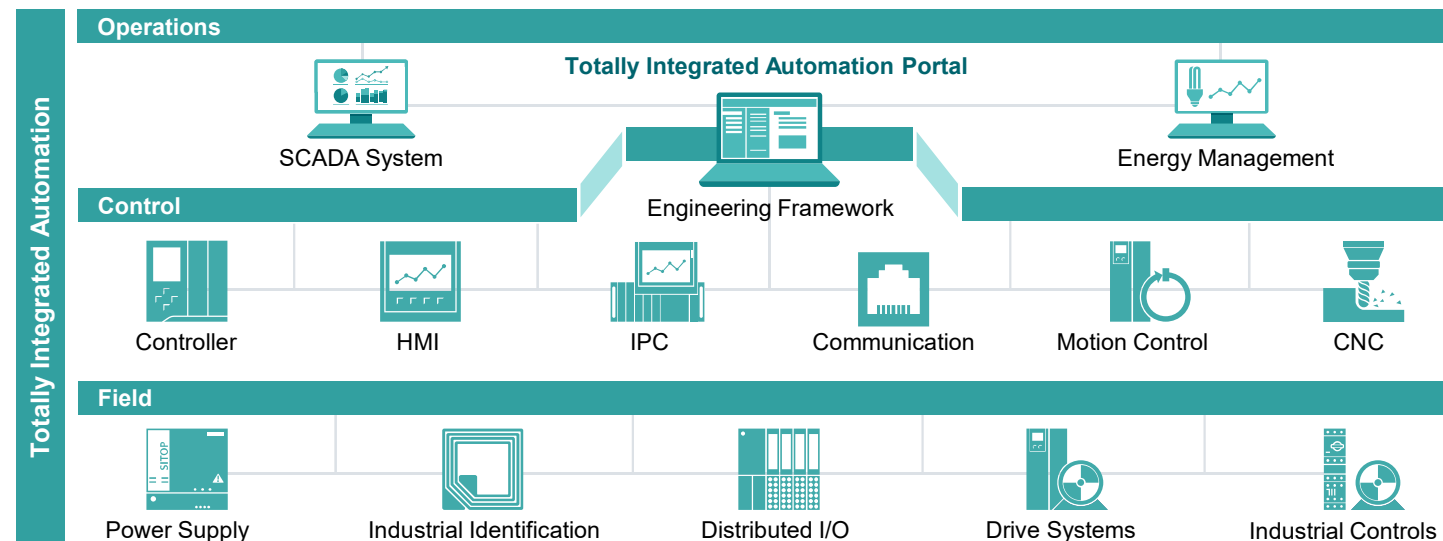
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## Totally Integrated Automation

“TIA in the Digital Enterprise”

**TIA**  
**V15**



Integrated Engineering



Industrial Data Management



Industrial Communication



Industrial Security



Safety Integrated



# Integrated Engineering with TIA Portal

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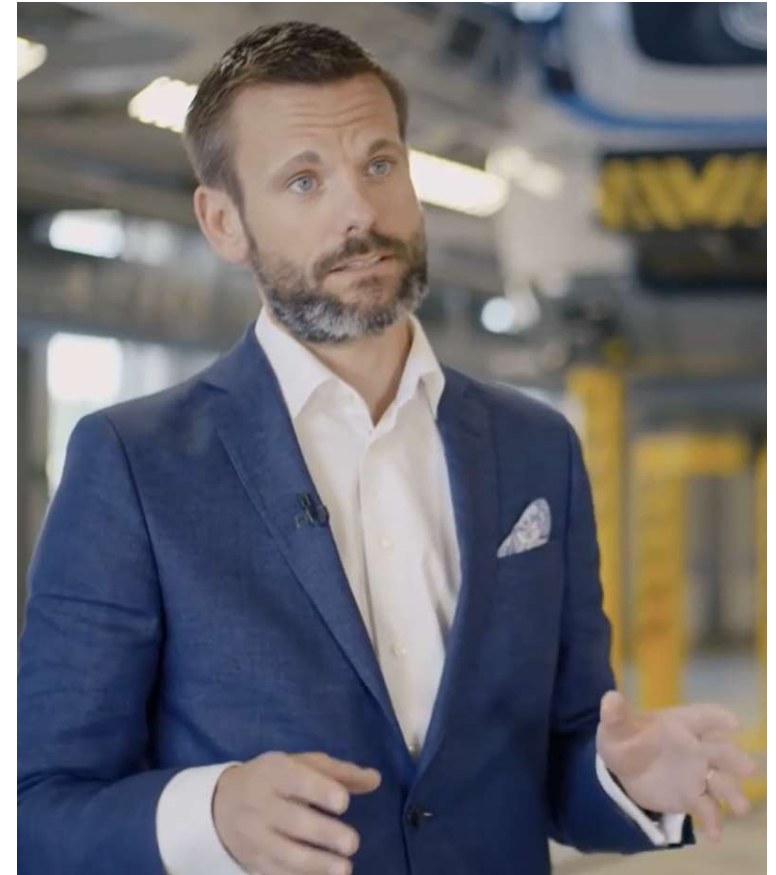
**“The requirement from the customer is that we have an easy way to find the faults for the operator. TIA Portal saves us approximately 20% of fault finding time.”**

## TIA Portal V15 – Advantages of your Engineering Tasks



### New TIA Portal functions

- ... **reduces engineering time** even more
- ... helps to **find faults** in program blocks **easier**
- ... useful Tools during commissioning helps to **find fault faster** and do program **updates more efficient**





# Startdrive V15 – TIA Portal Openness

## Startdrive app “Edit parameters in several drives”

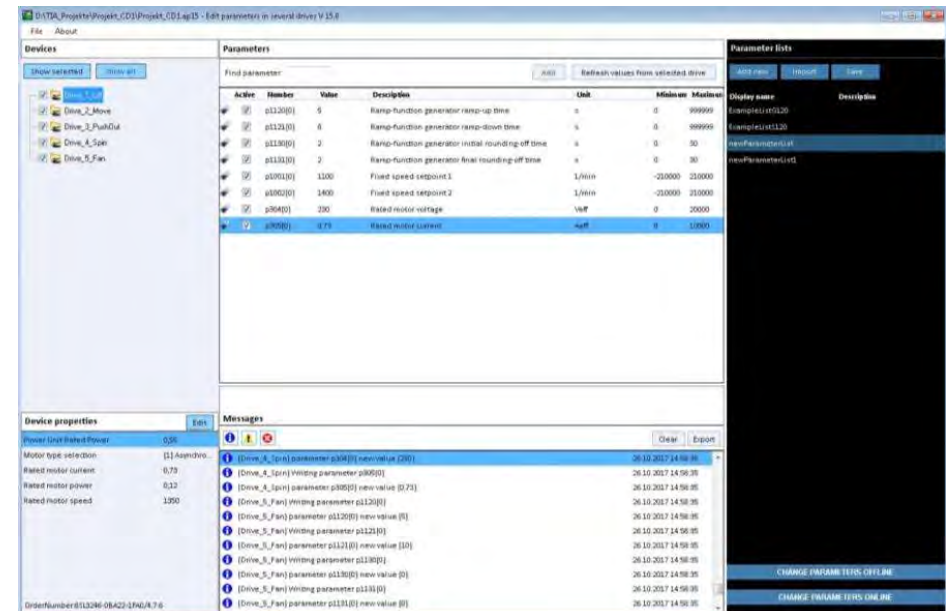


### Feature/function

- User-defined settings in many drives in a project at once
- TIA Portal external application
- Simple and intuitive to use
- Usable for the SINAMICS G120 family and CU320-2 based drive units (SINAMICS S120, G130, G150, S150 and MV)

### Benefits

- Efficient mass data operation
- Open source example for use of Openness interface for drive settings



## Demonstration with TIA Portal

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# Live Demo

Is provided with V15

App and documentation available  
SIOS ID: [109752526](#)

## Startdrive App



# STEP 7 Language Innovations – New statements – FileReadC/FileWriteC



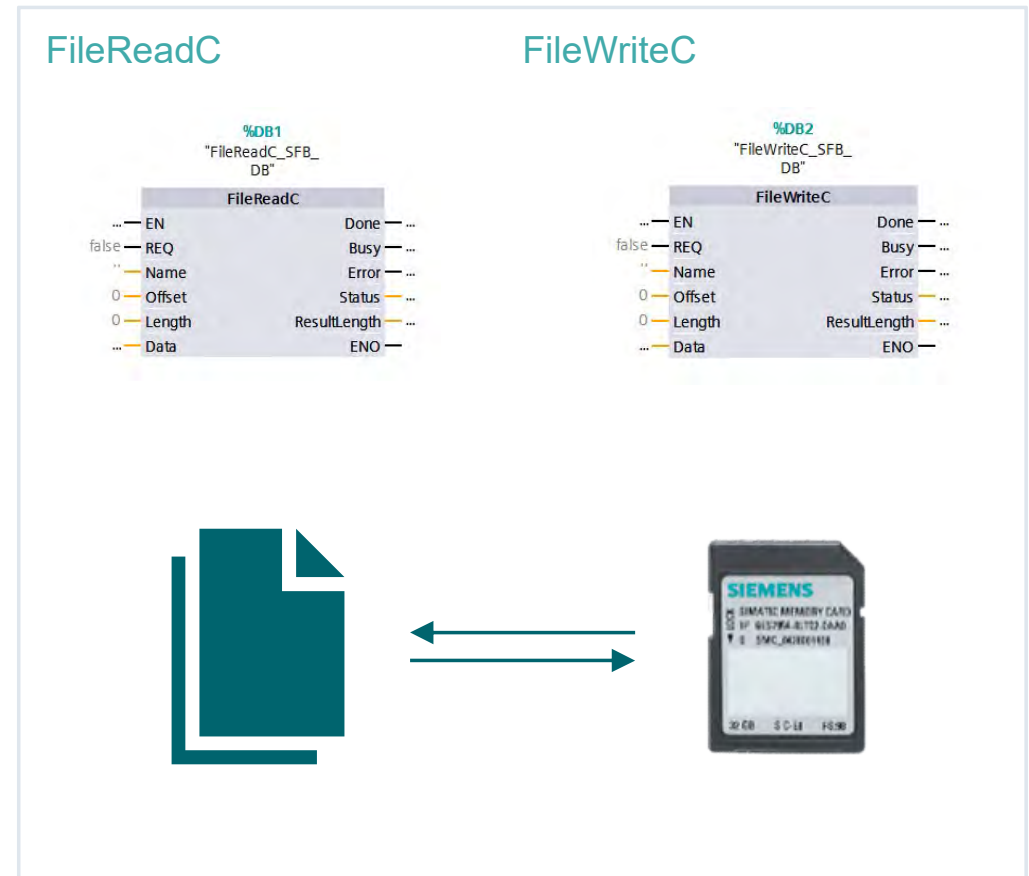
## New Instruction for S7-1500 PLCs

Read and Write data from an ASCII file from the SIMATIC memory card via Program instructions

### Customer benefits

Complex file structures are used in free ASCII format on the SIMATIC memory card, for example to

- Import recipes in cases where CSV is not flexible enough
- Import complex parameterizations or configuration files
- Output complex files for documentation



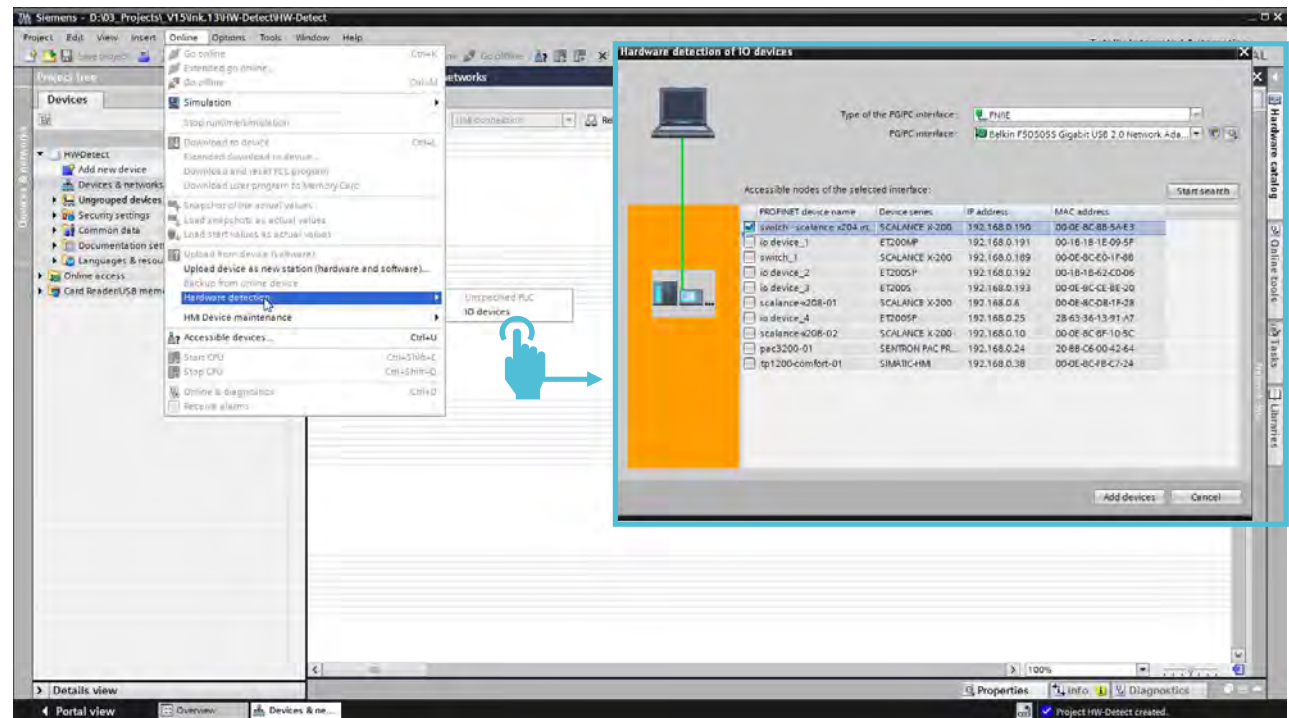


# Hardware Configuration – Hardware detection of PROFINET IO devices

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## Hardware detection of PROFINET IO devices

- Time savings through automatic detection of IO devices
- Instead of manual configuration from the hardware catalog, insertion of IO devices including modules from the system/machine in the project by means of **hardware detection**



# STEP 7 Innovations – Breakpoints on the CPU S7-1500

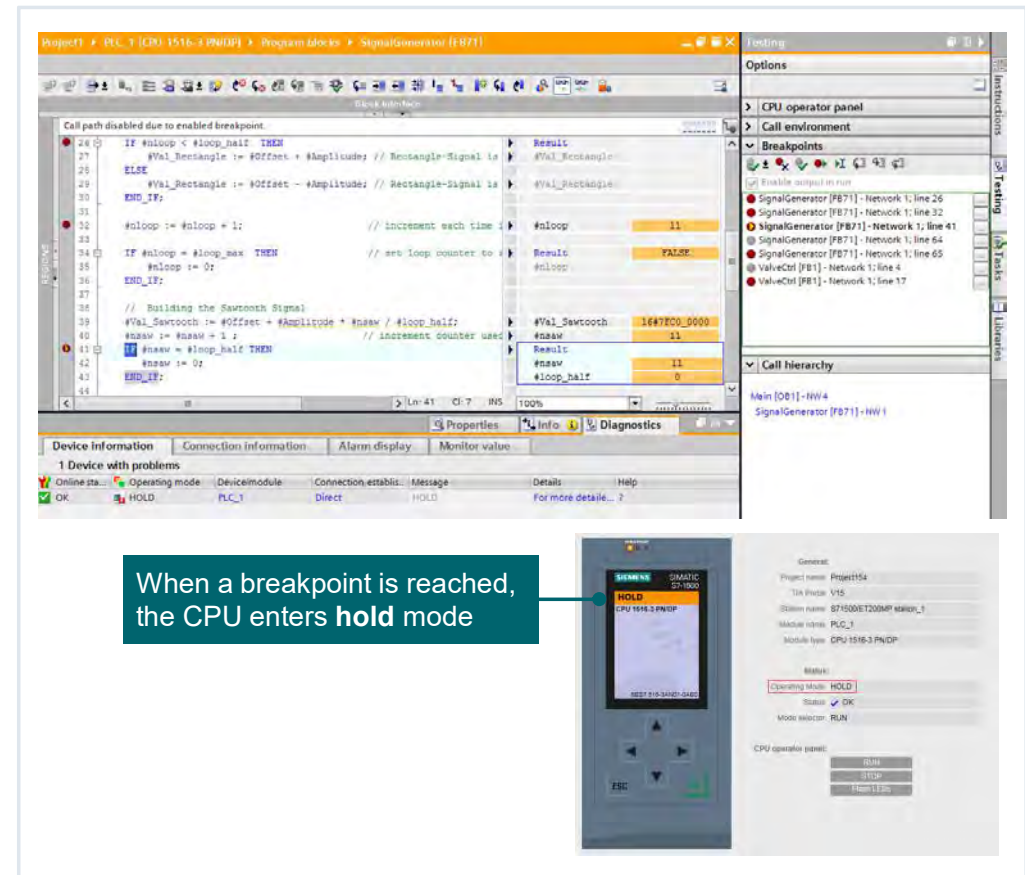
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## Function

- Setting of breakpoints in SCL/STL programs (also possible in mixed LAD/FBD blocks)
- Maximum number of active breakpoints per CPU
  - ≤CPU 1516/CPU 1515SP PC: 8
  - ≥CPU 1517/CPU 1507S/S7-PLCSIM: 20
- From firmware version V2.5 of CPU S7-1500

## Customer benefits

- Testing of SCL and STL program code with the aid of breakpoints
- Step-by-step isolation of errors
- Simple and fast analysis of complex programs in the office **before** actual startup
- Currently not possible with S7-1200



Demonstration with TIA Portal

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# Breakpoints & HW Detection in TIA V15

**LIVE DEMO!**



# Supporting the OEM workflow efficiently with smartphone-apps and stand-alone tools

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## + Update/Service SIMATIC Apps

- Multiple Apps available
- S7 App to analyze SIMATIC S7-1500/S7-1200
- WinCC SMART Client App
- LOGO App
- Industry Online support
  - Details and [Download](#)



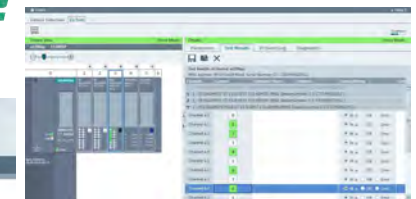
## + Commissioning SIMATIC Automation Tool

- Download PLCs without TIA Portal
- Multiple Firmware updates with one click
- Multiple basic settings
- Mass operation
  - Details and [Download](#)

Select	MAC	IP	Subnet	Gateway	New IP	New Subnet	New Gateway	Password
<input checked="" type="checkbox"/>	00:1B:18:13:28:40	192.168.2.20	255.255.255.0	0.0.0.0	192.168.2.100	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1B:18:13:77:52	192.168.2.21	255.255.255.0	0.0.0.0	192.168.2.101	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1B:18:13:77:55	192.168.2.22	255.255.255.0	0.0.0.0	192.168.2.102	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1B:18:13:70:99	192.168.2.30	255.255.255.0	0.0.0.0	192.168.2.103	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1C:06:00:67:99	192.168.2.31	255.255.255.0	0.0.0.0	192.168.2.104	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1C:06:04:0F:0E	192.168.2.32	255.255.255.0	0.0.0.0	192.168.2.105	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1C:06:05:38:42	192.168.2.33	255.255.255.0	0.0.0.0	192.168.2.106	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1C:06:06:9F:0F	192.168.2.34	255.255.255.0	0.0.0.0	192.168.2.107	255.255.255.0	0.0.0.0	
<input checked="" type="checkbox"/>	00:1C:06:09:3F:20	192.168.2.35	255.255.255.0	0.0.0.0	192.168.2.108	255.255.255.0	0.0.0.0	

## + Loop Check – PROFINET Diagnostic with PRONETA

- Read network configuration
- Compare and analyze network topology
- Change IP address and Device names
- IO Check with ET 200 (Loop check without Controller)
  - Details and [Download](#)



# Integrated Engineering with TIA Portal

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Efficient  
Engineering



Working  
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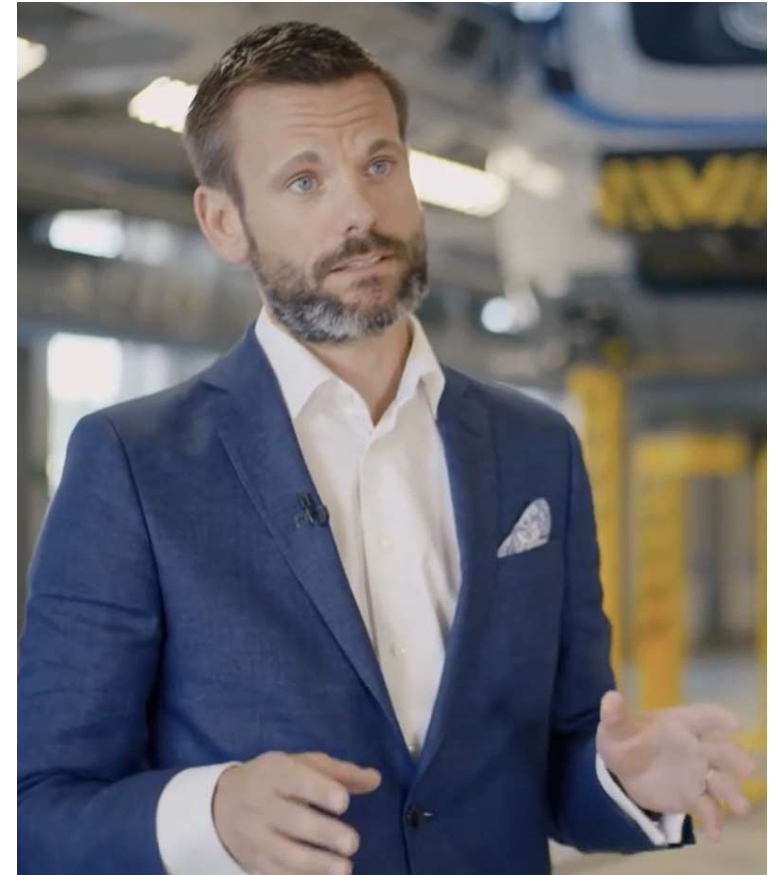
## TIA Portal V15 – Advantages of Multiuser Engineering



### Shorter engineering time

... working in a team.

... parallel engineering of different machines or plant functions.





## TIA Portal V15 – Advantages of Multiuser Engineering



### One common project

... stored centrally on a multiuser server  
and thus flexibly accessible



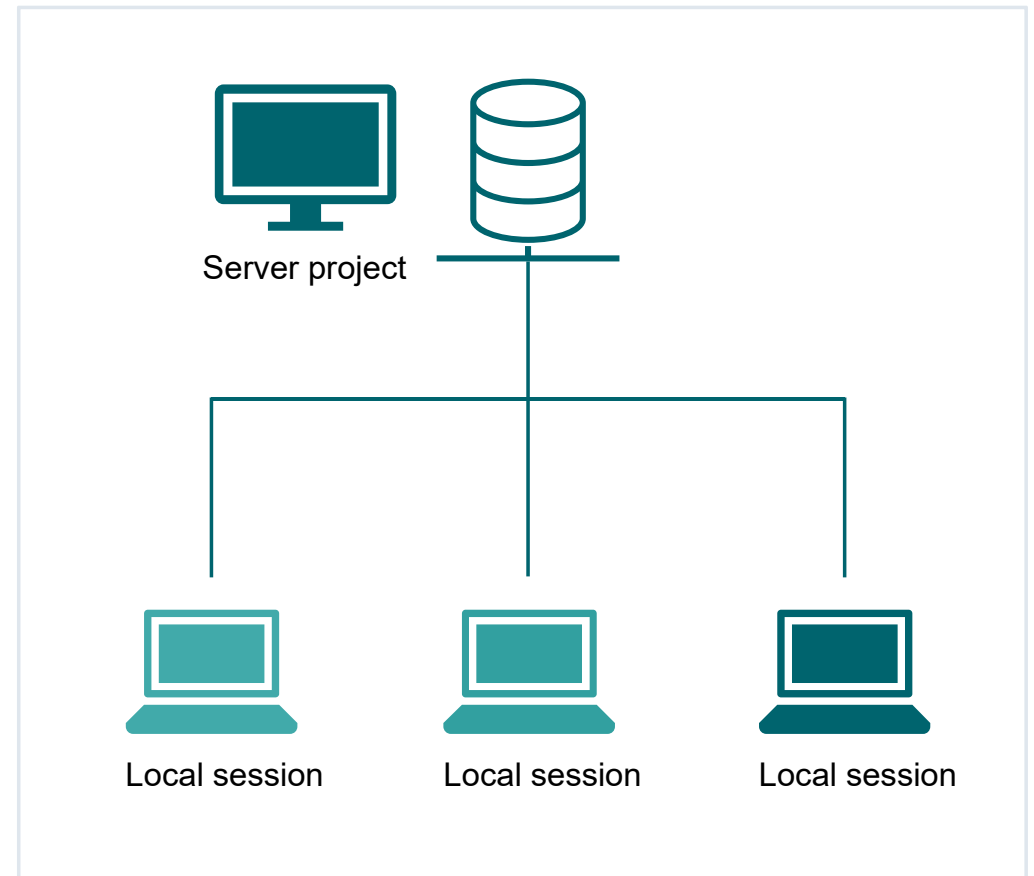
### HMI, PLC and Motion

... permits device- or function-  
oriented division of work



### System-supported synchronization

... reduces the effort for coordination  
work in the team



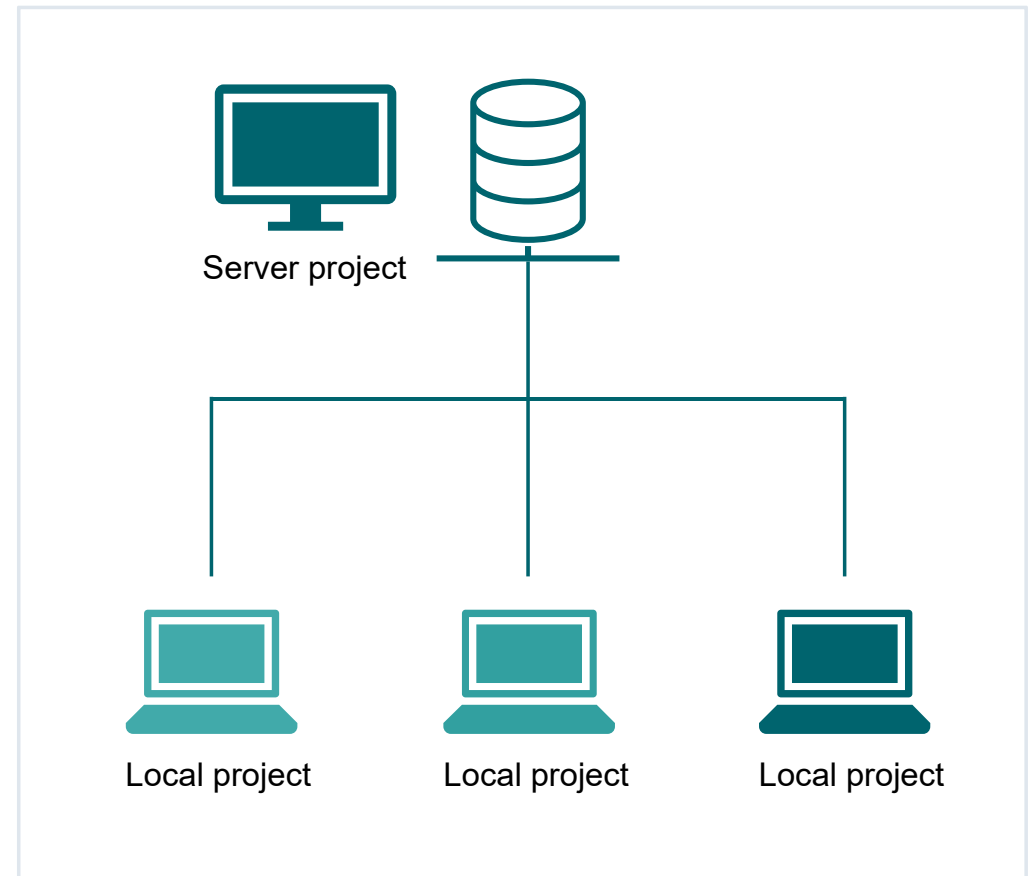
# TIA Portal Options – Multiuser Engineering – Overview of new functions

## Function

- Automatic marking of multiuser objects
- Offline working possible with multiuser engineering
- Enhanced check-in and comment functions
- Project server with extended revision history and recovery functions

## Customer benefits

- Multiuser engineering also possible without active server connection
- Improved usability for quick overview of changed objects and conflict recognition
- Traceability of project progression on the multiuser server (What was changed by whom?)
- Project milestones can be commented and saved
- Project history can be exported for evaluation



## Demonstration with TIA Portal

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# Multuser

VIDEO!



# Summary Efficient Engineering

## 1 | Easy handling of Automation tasks

... through an innovative Engineering framework that covers all automation tasks from PLCs to SCADA

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## 2 | Useful Tools for commissioning

... to find faults on PROFINET networks fast and do program updates without TIA Portal Software

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## 3 | Engineering in a Team

... through Multiuser functionality to have an coordinated engineering via a Server Project

