



CODESYS®

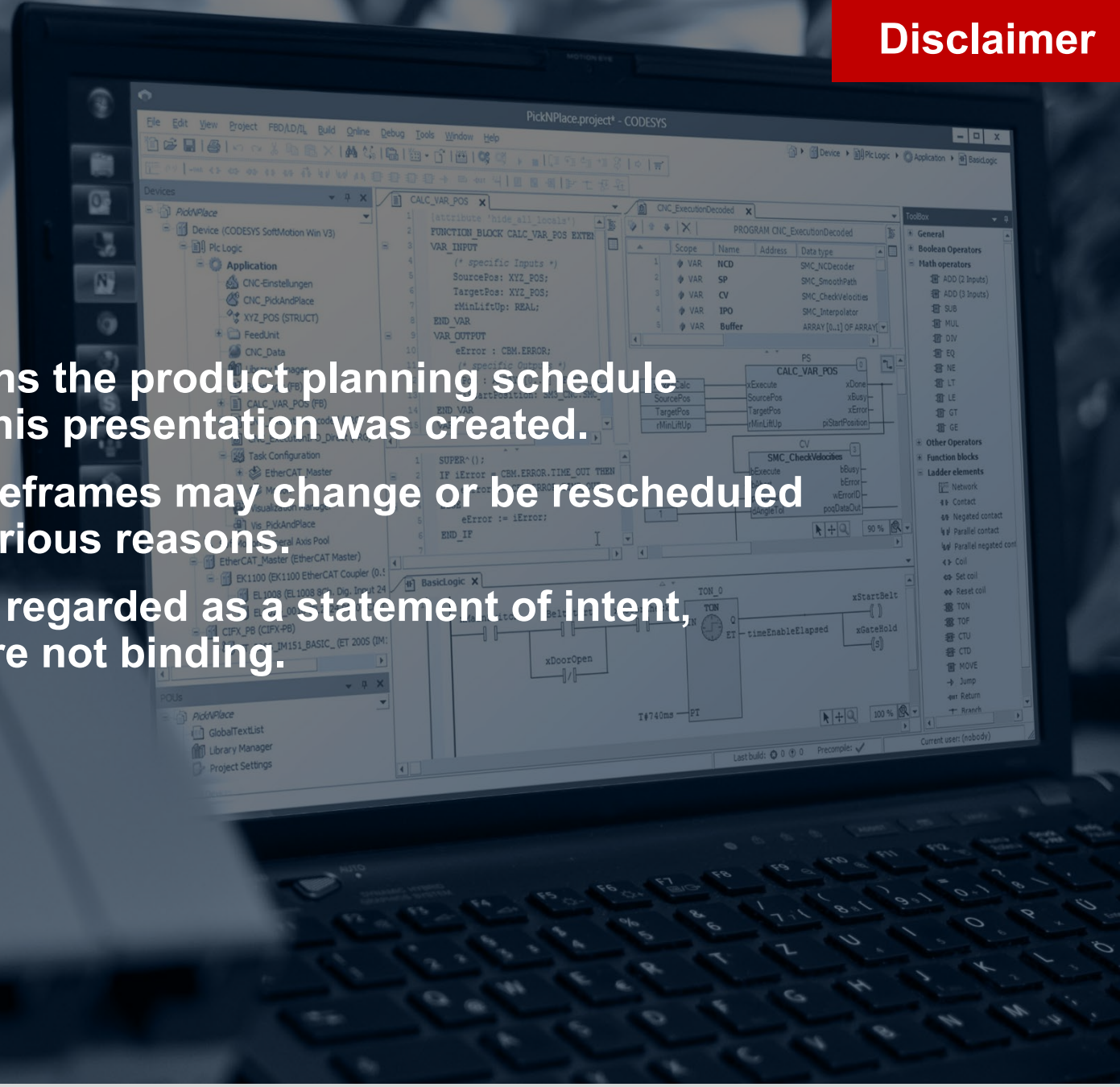
The Comprehensive Software Suite for Automation Technology

Roadmap [last update: June 2024]
Hilmar Panzer, Managing Director & CTO

This presentation contains the product planning schedule defined at the time this presentation was created.

The specified contents and timeframes may change or be rescheduled for various reasons.

They should therefore be regarded as a statement of intent, but are not binding.



Modularization, Installer, Deployment Server ...

- **Sandbox Light** (released with V3.5 SP20, March 2024)
 - CODESYS installations can use separate repositories and will have no cross impact.
- **Sandbox** installation (Q3 2024)
 - A CODESYS installation is contained in a folder and can be copied from one PC to another without executing a full setup.
 - The CODESYS Installer manages the sandboxes as it does with standard installations.

New project format for CODESYS V3

- **Support *CODESYS go!* project format** (Q4 2024)
Alternative project format that allows to generate and load the new *go!* project format (text-based)

IEC 61131-10 – essential support (V3.5 SP21, Q1 2025)

- Import/export format according to IEC 61131-10
- First step will cover elements of CODESYS Essentials
- Needs to be implemented subsequently in the add-ons

Symbol Sets Editor (Q2 2025)

- Support of PLC Handler, in addition to OPC UA

Scripting (Q4 2024)

- Update scripting engine to IronPython 3 (Q4 2024)

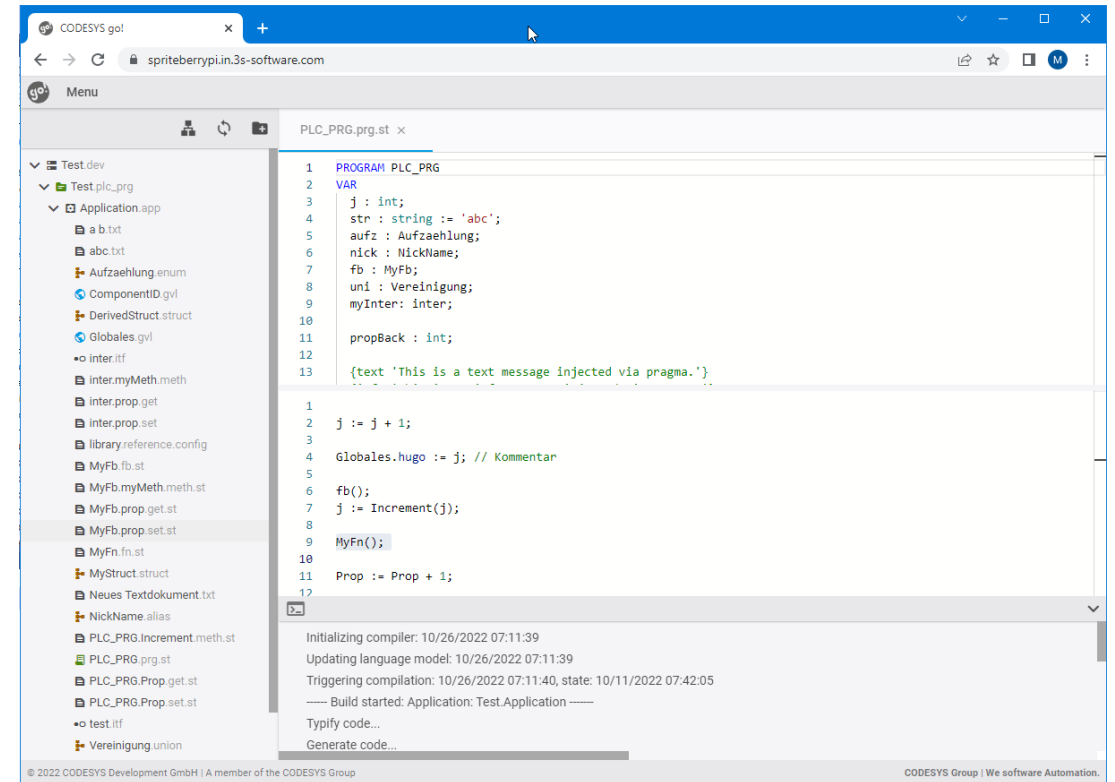
Compiler

- Define-pragmas in interfaces (V3.5 SP20)
 - Allow *defines* in declaration part of POUs
 - Supported on whole project including V3-compiled libraries
- M4 Export Improvement bundle (2024)
 - Several bug fixes and improvements

CODESYS go!

- Alternative programming tool based on web technology
 - Only the compilers are reused.
- Compatible with CODESYS Control V3
- Platform-independent engineering tool for CODESYS PLCs
 - Running on desktop, server, cloud, or on the PLC itself
 - Server is running on Windows or Linux
- Textual project storage

- Development started in 2020.
- First public presentation on the CODESYS Technology Day (10 May 2023)
- Not yet available for users



```
1 PROGRAM PLC_PRG
2 VAR
3   j : int;
4   str : string := 'abc';
5   aufz : Aufzaehlung;
6   nick : NickName;
7   fb : MyFb;
8   uni : Vereinigung;
9   myInter: Inter;
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11 propBack : int;
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13 {text 'This is a text message injected via pragma.'}
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Initializing compiler: 10/26/2022 07:11:39
Updating language model: 10/26/2022 07:11:39
Triggering compilation: 10/26/2022 07:11:40, state: 10/11/2022 07:42:05
---- Build started: Application: Test.Application ----
Typify code...
Generate code...

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CODESYS Group | We software Automation.

CODESYS go! – next steps

- Architecture and deployment
 - Extension platform – component-based architecture, allowing customer extensions in the future
 - Controller deployment – install and run the server on Raspberry Pi as proof of concept
 - Desktop deployment – install and run the server on Windows
 - On-prem deployment – install and run the server on Linux systems
 - Cloud deployment – *go!* is hosted on AWS.
 - CAS integration – integration into the CODESYS Automation Server



CODESYS go! – next steps

- UI and editors
 - Navigator and editor/view host
 - Command infrastructure
 - ST editor
 - Enhanced offline functionality
 - online mode and debugging
 - Ladder editor (offline)
- Fieldbus configuration:
 - Textual configuration of on-board GPIOs on Raspberry Pi with IO mapping
 - EtherCAT (textually configured)
- Compiled library generation, compatible with V3



CODESYS Online Portal (<https://www.helpme-codesys.com/>)

- Installation of CODESYS Examples directly from the Online Help Portal (Q3 2024)
- Machine translation based on terminology data base (Q3 2024)

FAQ in help portal (Q4 2024)

- The FAQs will be transferred in the help portal.
- They will be revised on this occasion.
- The previous page (faq.codesys.com) has been shut down for security reasons.
- The old FAQ content is available as a pdf file on a transitional basis.



CODESYS Virtual Control SL (4.12.0.0 – 07/2024)

- Runtime running in a container
- Easy to install and use
- Scalable (many runtimes on one device)
- Connection to field via IT mechanisms (vLAN, vXLan, TSN, specialized switches)
- Based on CODESYS Control 3.5 SP20 Patch 1
- Delivered as Debian (osadl) based container image

CODESYS Virtual Control SL (4.13.0.0 – Q3 2024)

- Based on CODESYS Control 3.5 SP20 Patch 2
- Improved robustness and usability

RedHat integration (Q4 2024)

- Delivered as RedHat based container image (UBI)

TargetVisu support for Control Linux SL and Linux ARM SL (4.12.0.0 – 07/2024)

Web-based management (4.13.0.0 – Q3 2024)

- Cockpit plugin for generic Linux SL systems
- Convenient licensing, esp. network licenses

Realtime Ethernet on Linux using XDP (2025)

- Fast sending/receiving of Ethernet frames bypassing OS layers

RedHat integration (Q4 2024)

- Package Manager (RPM) support

User right support: root access is not longer essential (Q4 2024)

Deploy Tool (Q4 2024)

- Unify deploy tool for all SL platforms)

Mass Licenser (Q3 2024)

- Support of license bundles (ABL)

Control SL: new types, support for new devices

- CODESYS Control for Weidmüller SL (Q4 2024)
- CODESYS Control for CtrlX SL (2025)
- CODESYS Control for Wago C100 SL (2025)

CODESYS Control

- Independent release cycle for Runtime Toolkits (SP21, Q1 2025)
 - Instead of releasing the runtimes along with CODESYS V3 Essentials, they can be released in an independent cycle.
- User management backend to Linux (based on PAM) (SP21, Q1 2025)
- Redundancy improvements (SP21, Q1 2025)
- Handling of certificates in the runtime (SP21, Q1 2025)
 - SCEP support (to enroll certificates)
 - Improve management of certificates

OPC UA

- OPC UA non-transparent redundancy (Q1 2025)
- OPC UA compliant alarms (Q1 2025)
 - Improve the current basic support of alarms and events
- OPC UA Server certification
 - Embedded device profile (Q1 2025)
- OPC UA Client library enhancements (Q3 2024)
 - arbitrarily nested data structures

PROFINET

- Certification on virtual controls (2024)
- Device S2 redundancy (2025)

EtherNet/IP

- Connection API for scanner and local adapter (Q3 2024)

EtherCAT

- EtherCAT mailbox gateway (Q3 2024)

CAN FD (SP21, Q1 2025)

- Support layer 2
- Only for communication between controller and programming system

J1939 (Q3 2024)

- Display and edit signals with a graphical editor

Online change support (2025 and later)

- Extended online change support for IO configuration

Simulation interface (Q3 2024)

- Enable virtual commissioning and automated HW/SW testing of CODESYS controlled machines
- Integrate CODESYS applications in third-party simulation tools (Software-in-the-loop)
- Standard interface based on OPC UA PubSub
- Alternate easily between simulation and real target without project changes

Application Composer update (Q4 2024)

- Performance improvements
- Maintenance

OSCAT library update (Q3 2024)

- Security fix

Control loop library update (Q3 2024)

- 4 new transfer functions (PT1, PT2, IT1, DT1)

PLCopen FBs: MC_CamIn extensions (4.17.0.0 – Q3 2024)

- Additional ramp-in modes when starting a cam table
- Support additional curve types
- Extended IEC interface for creating cam tables

SoftMotion basic: trigger and forecast (Q4 2024)

- Support for triggers with high time resolution and forecast.
The triggers are comparable to tappets but independent from MC_CamIn.

Robotics improvements (Q4 2024)

- Improved logging
- Add-on for Stäubli robot support
- Support for additional/auxiliary axes (2025)

CNC improvements (2025)

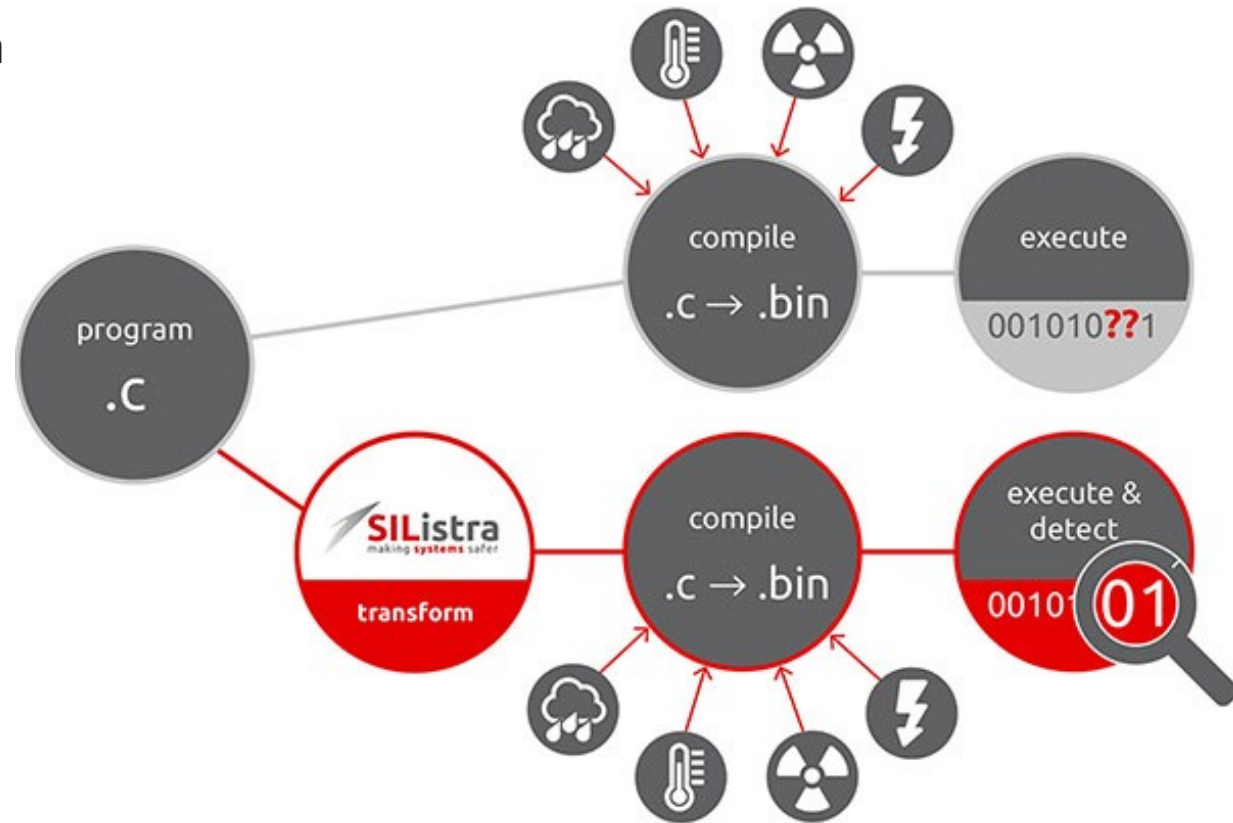
- G-code for robotics: allow to program a robot by G-code
- CNC editor: support already existing kernel features (e.g. sub programs, expressions, ...)

SIL3

- **Tool qualification (Q2 2024)**
 - The safety add-on becomes independent from the installed CODESYS version.
- **64-bit support (Q2 2024)**
- **ProfiSafe 2.6 support (Q3 2024)**
- **Virtual Safe Control SL (2024)**
 - SIL3 runtime based on software, running on standard hardware
- **FSoE Master support in Virtual Safe Control SL (Q2 2025)**

SoftSafety SIL3 (2024)

- TÜV-certified concept for hardware-independent safety
- Based on „Coded Processing“
- SIL3-certified controller realized with a general, multi-purpose server, IPC or ARM-based controller hardware
- no second channel in hardware



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SIL2

- PLCopen FBs for SIL2 (2025)
 - All PLCopen Safety FBs available for SIL2 runtime
(except Motion FBs SafeStop1, SafeStop2 and SafelyLimitedSpeed)

Git

- Bug fixes, esp. in new scripting API (Q3 2024)
- Performance improvements (Q4 2024)
- Usability improvements (Q4 2024)

UML (Q3 2024)

- Maintenance release with bug fixes and minor improvements

Last release before entering service phase!

On-premises support (Q4 2024)

- Cloud-independent Automation Server on customer's own IT infrastructure
- Pre-release versions for pilot customers in Q3 2024

File management / backup / restore

- Exchange files between PLCs and clients via browser (released on June 25, 2024)
- Manage files and folders on PLCs (released on June 25, 2024)
- Central file management on the Automation Server (Q1 2025)
- Deployment of additional files (Q1 2025)
- Backup & restore of PLC files in the Automation Server

Multi-application deployment (Q1 2025)

- **Certificate management (Q3 2024)**
- **Encrypted communication edge <-> PLC (Q4 2024)**
- **CODESYS Virtual Control support (2024)**
- **Rename devices via Automation Server (2025)**
- **Multi-edit and tags for projects and applications (2025)**

Responsive design (4.7.0.0 – Q4 2024)

- Repositioning of elements depending on the client size
- Changing the size of elements depending on the client size

Alarm management (4.7.0.0 – Q4 2024)

- Support of online change

Client-specific localization (4.7.0.0 – Q4 2024)

- Each client can define the language.

HTML5 controls

- Offline display (2024)



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