



CODESYS®

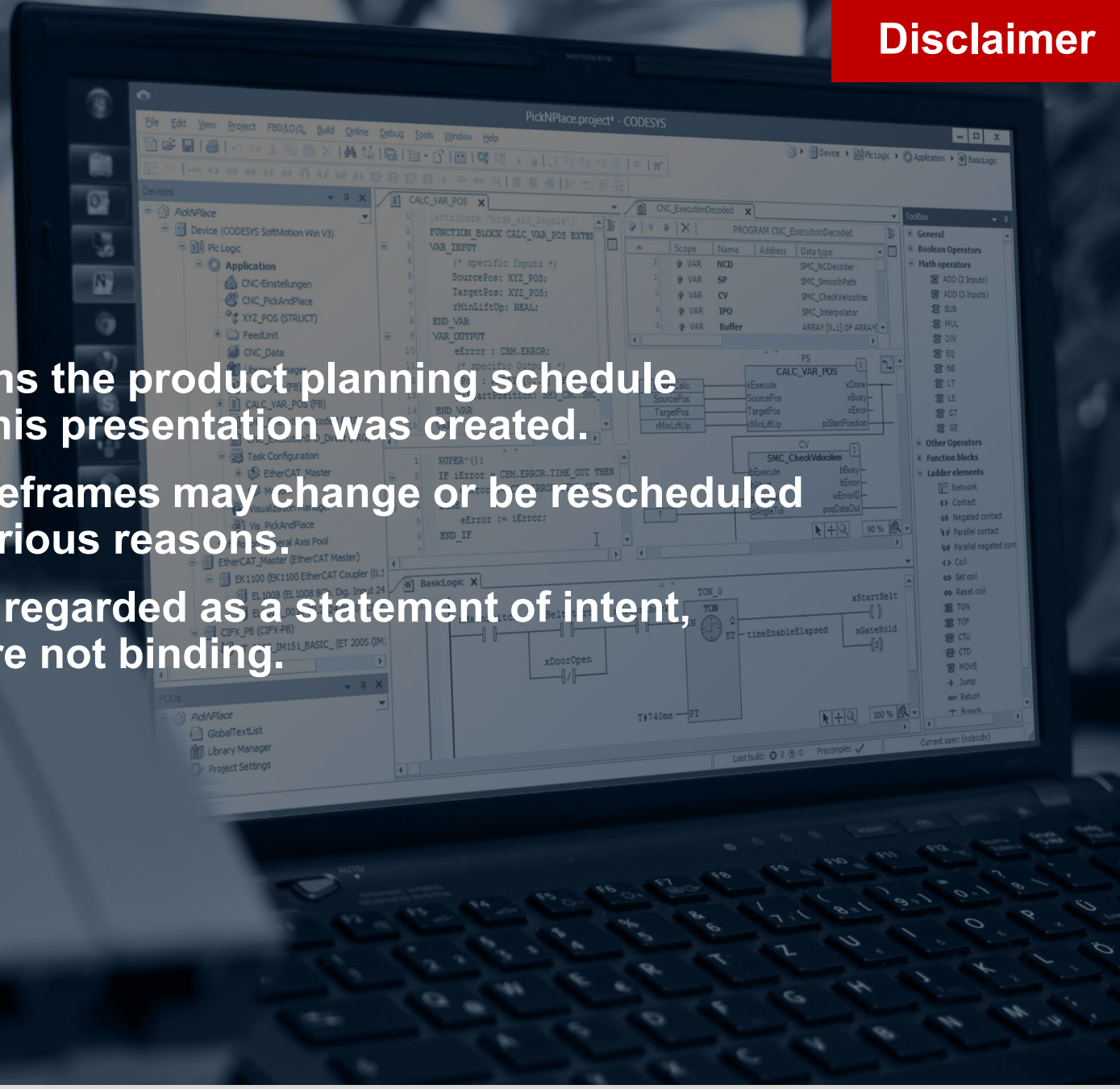
The Comprehensive Software Suite for Automation Technology

**Roadmap [last update: March 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** (V3.5 SP20, March 2024)
 - CODESYS installations can use separate repositories and will have no cross impact.
- **Sandbox** installation (Q2 2024)
 - A CODESYS installation is (almost) completely 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** (V3.5 SP21, Q1 2025)
Alternative project format that allows to generate and load the new *go!* project format (text-based)

Usage analysis, usage poll

- User survey in CODESYS will be rolled out in V3.5 SP20 (March 2024).

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

- Import/export format according to IEC 61131-10

Symbol Sets Editor (Q4 2024)

- Support of PLC Handler, in addition to OPC UA

Scripting

- Update scripting engine to IronPython 3 (Q4 2024)
- Support for Trace objects (Q2 2024)

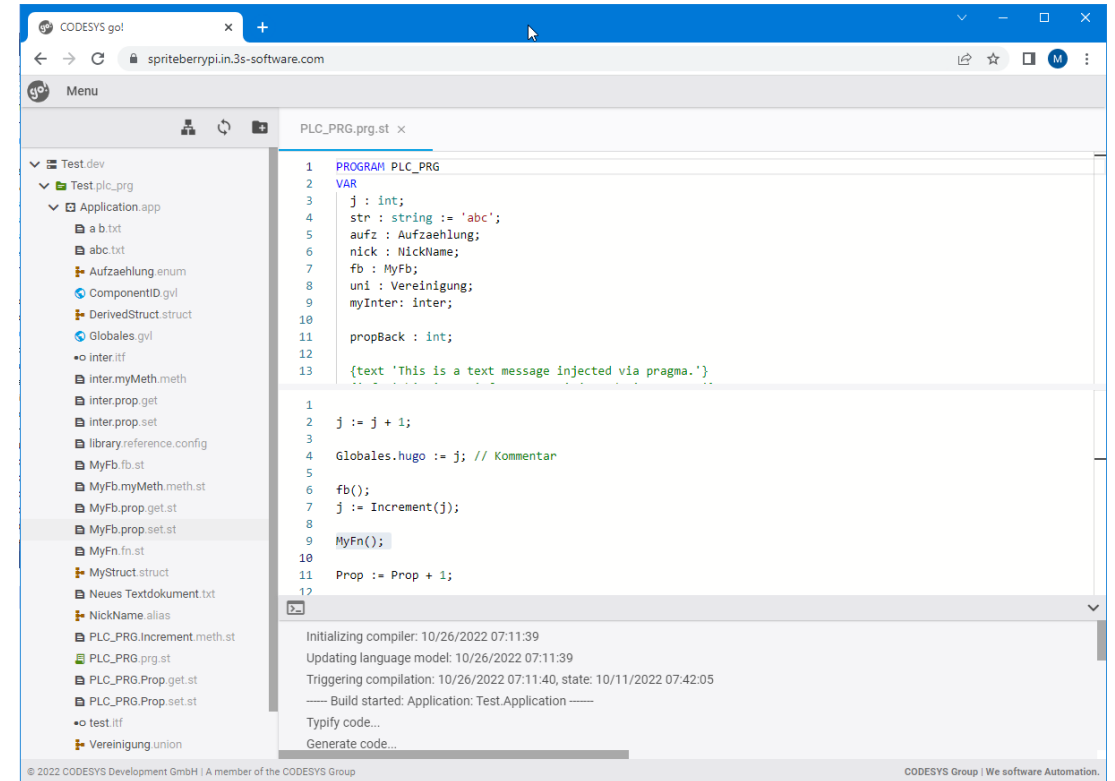
Compiler

- 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)

CODESYS Offline Help (Q1 2024, V3.5 SP20)

- CODESYS Help as local installation containing the same content as the Online Portal, except:
 - Library documentation (available in the Library Manager instead)
 - Scripting API

TargetVisu support for Control Linux SL and Linux ARM SL (4.12.0.0 – 06/2024)

Web-based management (4.12.0.0 – 06/2024)

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

Realtime Ethernet on Linux using XDP (2024)

- Fast sending/receiving of Ethernet frames bypassing OS layers

RedHat Package Manager (RPM) integration (2024)

Additional delivery option: VM image (2024)

Control SL: New types, support for new devices

- **CODESYS Virtual Control SL (Q2 2024)**
 - for x86/x64
 - for ARM/ARM64
- **CODESYS Control for Weidmüller SL (Q2 2024)**
- **CODESYS Control for CtrIX SL (2024)**
- **CODESYS Control for Wago C100 SL (2024)**

CODESYS Virtual Control SL (4.12.0.0 – 06/2024)

- 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)



CODESYS virtual PLC



CODESYS Control

- Independent release cycle for Runtime Toolkits (Q2 2024)
 - 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) (Q2 2024)
- Redundancy improvements (Q3 2024)
- Handling of certificates in the runtime (2025)
 - SCEP support (to enroll certificates)
 - Improve management of certificates

Security

- IEC 62443 (2024 and later)
 - CODESYS-internal process certification
 - Audit trail (documentation and supervision of user activities)

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)

PROFINET

- Certification on virtual controls (2024)
- Device S2 redundancy (Q4 2024)

CAN FD

- Support layer 2 (Q4 2024)
- Only for communication between controller and programming system

EtherNet/IP

- Connection API for scanner and local adapter (Q2 2024)
- Conformance test 20 support (Q2 2024)

EtherCAT

- SCI import (Slave Configuration Information) (Q2 2024)
- EtherCAT mailbox gateway (2024)

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

PLCopen FBs: MC_CamIn extensions (4.17.0.0 – Q2 2024)

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

Robotics improvements

- Support for additional/auxiliary axes (Q4 2024)
- Improved logging (Q2 2024)
- Add-on for Stäubli robot support (Q2 2024)
- Allow to program a robot by G-code (Q4 2024)

CNC improvements (Q4 2024)

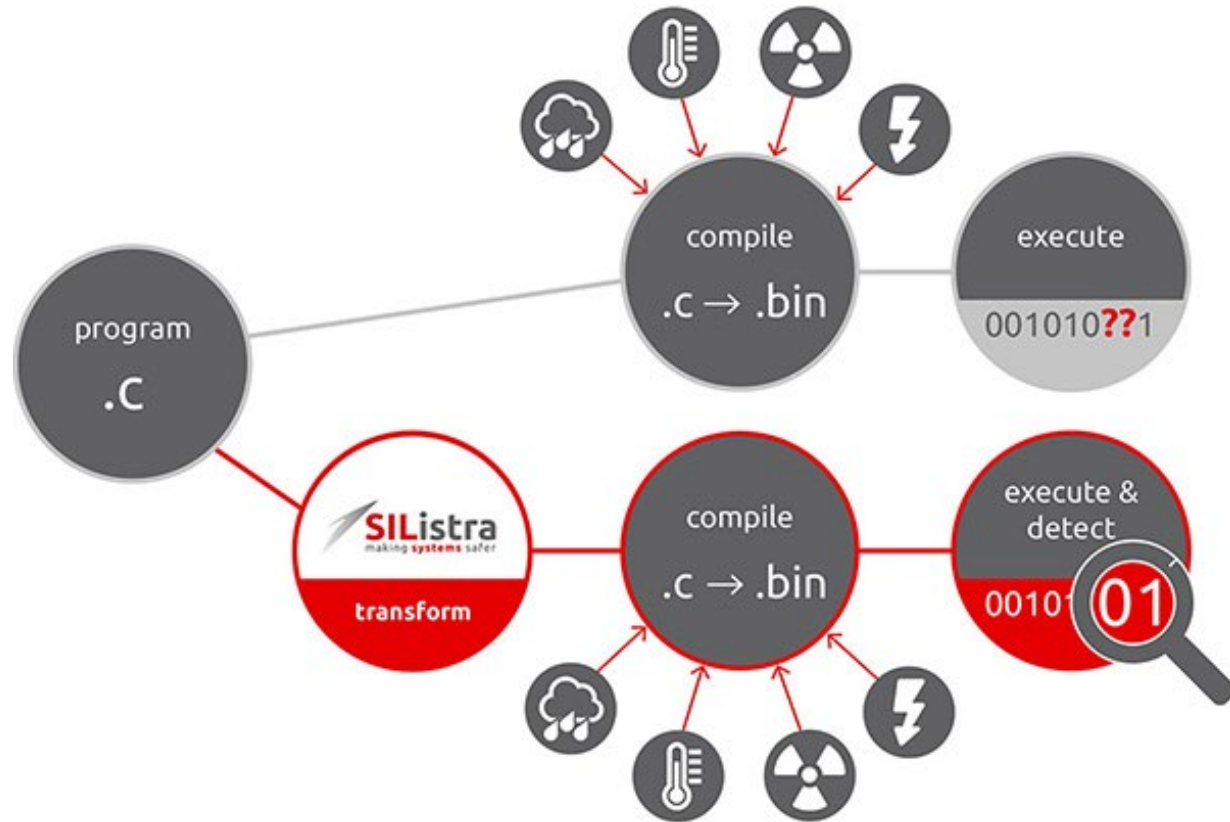
- CNC editor: support already existing kernel features (e.g. sub programs, expressions,...)

SIL3

- **Tool qualification (04 2024)**
 - The safety add-on becomes independent from the installed CODESYS version.
- **64-bit support (04 2024)**
- **ProfiSafe 2.6 support (Q3 2024)**
- **Virtual Safe Control SL (Q3 2024)**
 - SIL3 runtime based on software, running on standard hardware

SoftSafety SIL3 (2024)

- TÜV-certified concept for hardware-independent safety
- Based on „Coded Processing“
- Vision: SIL3-certified controller running on a server, industrial PC, or ARM-based controller hardware



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SIL2

- PLCopen FBs for SIL2 (Q4 2024)
 - All PLCopen Safety FBs available for SIL2 runtime
(except Motion FBs SafeStop1, SafeStop2 and SafelyLimitedSpeed)

Git (Q4 2024)

- Performance improvements
- Usability improvements

SVN (Q2 2024)

- Update SVN to OpenSSL 3

Last release before entering service phase!

SAN (Q2 2024)

- Check SAN rules during precompile
- Report less false positives
- Redesign of metrics for code complexity

UML (Q2 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 Q2 2024

LDAP support (Q3 2024)

- Support central user and group management

File management / backup / restore (Q2 2024)

- Manage files on PLCs

Licensing repository (Q3 2024)

Multi-application deployment (Q3 2024)

Deployment log (Q3 2024)

- The feature allows administrators to track when which application / commit was changed on which PLCs and by whom.

Recipe management (Q2 2024)

- Full support of recipes

Remote application control (Q1 2024)

- Reset, start, and stop applications

Certificate management (Q2 2024)

Encrypted communication edge <-> PLC (Q2 2024)

CODESYS Virtual Control support (2024)

Task separation of alarm detection and further processing (4.6.0.0 – Q2 2024)

- Fast evaluation of alarm status transitions. This evaluation can take place at the end of the main task.

Additional alarm features (4.6.0.0 – Q2 2024)

- OPC UA and ISA 18.2 compliance

Frame in fixed scrollable mode (4.6.0.0 – Q2 2024)

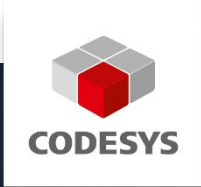
- Frame in this mode will show scrollbars only when necessary

HTML5 controls

- Offline display (2024)

Client-specific localization (4.6.0.0 – Q2 2024)

- Each client can define the language.



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