

Welcome

PLCnext Engineer

Selección y Nivel Básico

Antonio Gordillo IMA Septiembre - Diciembre 2020

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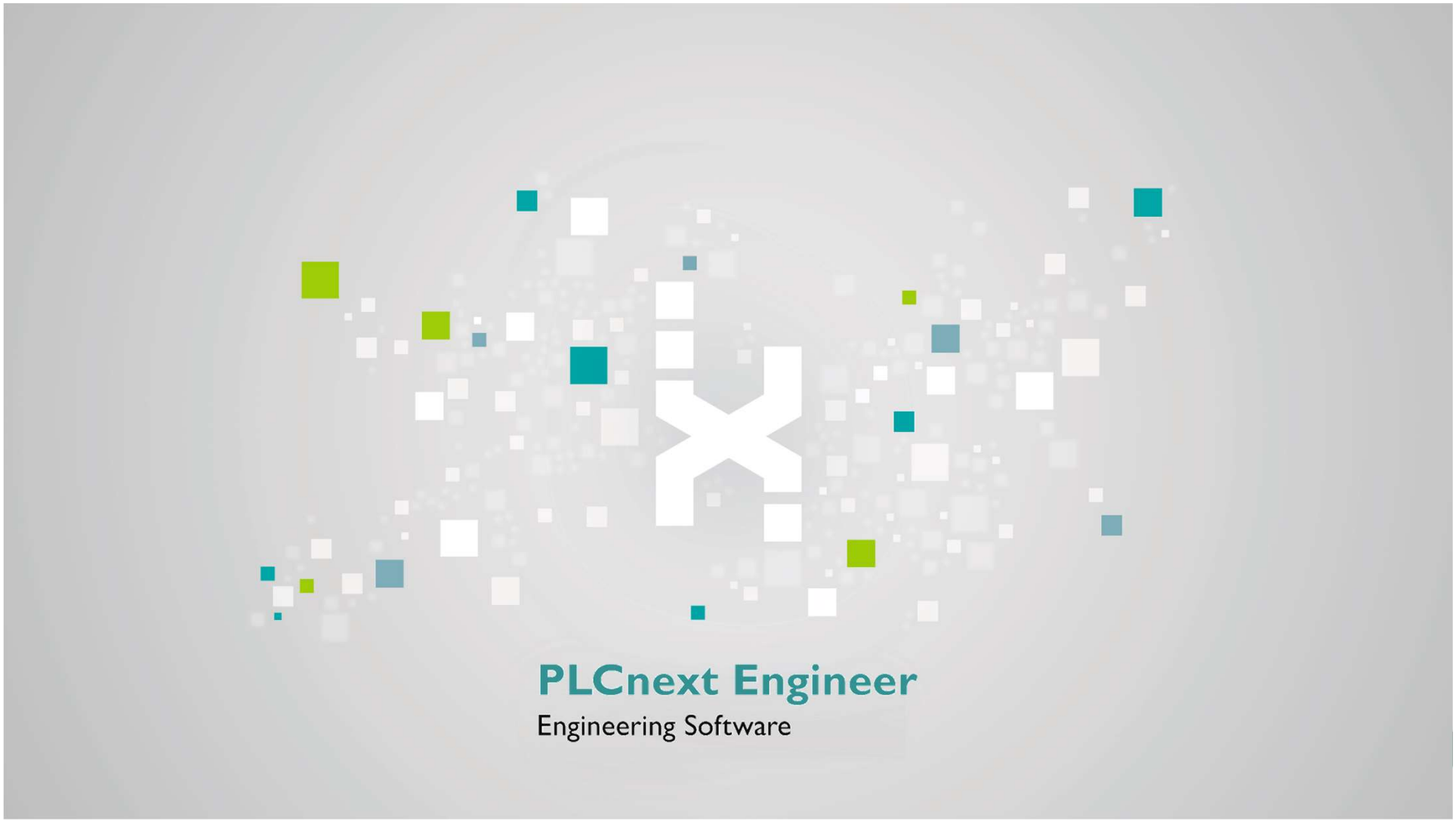
Webinars

Agenda

- Selección
- Nivel Básico PLCnext Engineer
- Nivel Básico PLCnext Engineer HMI



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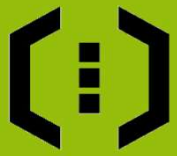

PLCnext Engineer
Engineering Software

PLCnext Technology
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Ecosystem & PLCnext Store

The Open Ecosystem for Limitless Automation

PLCnext Technology
enhance your automation thinking

PLCnext Control	PLCnext Engineer	PLCnext Store	PLCnext Community
			
Open Control Platform PLCs in various performance classes including PLCnext Runtime System and accessories for PLCnext Technology	**Engineering Software** Engineering tool for commissioning, configuring, and programming PLCnext Controls	**Software Store for Automation** Apps for functional extension of PLCnext Control and PLCnext Engineer	**User Collaboration & Resources** Information, support, and helpful resources about PLCnext Technology including FAQs, forums, tutorials and a GitHub presence

The scope of PLCnext technology as an umbrella brand ranges from technology, equipment, tools and software to technical systems and processes. Source: https://de.wikipedia.org/wiki/Technologie

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PLCnext Technology
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PLCnext Engineer

PLCnext Technology Configuration and Engineering

Fast and flexible configuration

- C-Code, Simulink models, function components, IEC61131-3, Safety, HMI

Extendable

- By licensed add-ins like the Viewer for Simulink

Easy handling

- Intuitive user interface
- Clear structures



The software for configuration and engineering

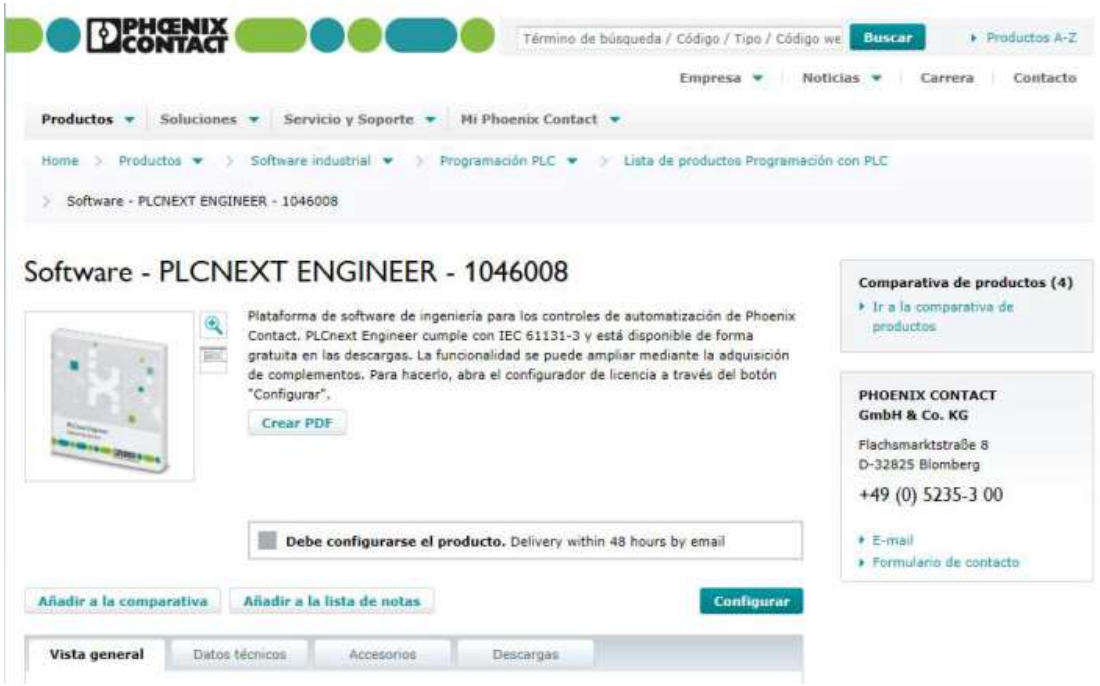
1046008

PLCNEXT ENGINEER

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INSPIRING INNOVATIONS

Selección

PLCnext Engineer



INSPIRING INNOVATIONS

Area de descargas

Note Open Source

PLCnext Engineer

Change Notes

Activation Wizard

Industrial Security

Indicaciones de uso

	Descripción	Idioma	Versión
☐	[html, 307 KB] Indicaciones de uso Nota del software Open-Source PLCnext-Engineer-2020-Open-Source-Software-Notice.html	inglés	1
☐	[pdf, 1 MB] Indicaciones de uso Prod.-Id. 107913: AH DE INDUSTRIAL SECURITY Maßnahmen zum Schutz von netzwerkfähigen Geräten mit Kommunikationsschnittstellen, Lösungen und PC-basierter Software vor unberechtigten Zugriffen ah_de_industrial_security_107913_de_03.pdf	alemán	03
☐	[pdf, 142 KB] Indicaciones de uso Prod.-Id. 108455: AH DE PHOENIX CONTACT ACTIVATION WIZARD - CHANGE NOTES Phoenix Contact Activation Wizard - Änderungshinweise im Überblick ah_de_phoenix_contact_activation_wizard_change__108455_de_03.pdf	alemán	03
☑	[pdf, 277 KB] Indicaciones de uso Prod.-Id. 108337: AH DE PLCNEXT ENGINEER - CHANGE NOTES PLCnext Engineer - Änderungshinweise im Überblick ah_de_plcnext_engineer_change_notes_108337_de_14.pdf	alemán	14
☑	[pdf, 266 KB] Indicaciones de uso Prod.-Id. 108337: AH EN PLCNEXT ENGINEER - CHANGE NOTES PLCnext Engineer - Change notes at a glance ah_en_plcnext_engineer_change_notes_108337_en_14.pdf	inglés	14
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☑	[pdf, 1 MB] Indicaciones de uso Prod.-Id. 107913: AH EN INDUSTRIAL SECURITY Measures to protect network-capable devices with communication interfaces, solutions, and PC-based software against unauthorized access ah_en_industrial_security_107913_en_03.pdf	inglés	03

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Quick Start Guide

- **PLCnext Engineer**



Installing and operating the PLCnext Engineer software

Quick start guide

UM QS EN PLCNEXT ENGINEER

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PLCnext Engineer

Quick Start Guide

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Quick Start Guide

PLCnext Engineer

- Licenses
  - Button Configure
  - Activation Wizard

1.5 PLCnext Engineer licenses

The basic functions of PLCnext Engineer are available as a free of charge license. Once installed, these functions are available without limitation and free of charge. Further functions can be added for a fee (even at a later stage). The licenses are bound to the hardware of a PC or a USB dongle.
To order further licenses, proceed as follows:

- Log in with your access data at phoenixcontact.net/products or register for the first time.
- Select the PLCNEXT ENGINEER product (Order No. 1046008).
- Select "Configure" on the PLCNEXT ENGINEER product page to configure your personal license.

Once you have sent your order, within 48 hours you will receive an email from Phoenix Contact that contains a ticket ID. You need the ticket ID to activate the license.

The Phoenix Contact Activation Wizard is used for the activation process of licenses for further functions. The Phoenix Contact Activation Wizard is a part of the PLCnext Engineer installation package. In order to start the application you will find an .EXE-file under the installation path (Default path: „C:\Program Files (x86)\PHOENIX CONTACT\Phoenix Contact Activation Wizard\").

The USB dongle ESL STICK USB A (Order No. 1080084) for saving licenses for various software products is delivered without licenses. The Phoenix Contact Activation Wizard is also used for the activation process of USB dongle licenses.

- To activate a license, follow the instructions in the Phoenix Contact Activation Wizard.

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Quick Start Guide

Quick UM

- PLCnext Engineer

"COMPONENTS" area

The "COMPONENTS" area contains all the components available for the project. The components can be divided into the following categories based on their function:

- Developing program code ("Data Types", "Programs" and "Functions & Function Blocks")
- Showing all devices available for the "PLANT" area and adding them via GSDML or FDCML ("Devices")
- Editing HMI pages ("HMI")
- Adding libraries such as firmware libraries, IEC user libraries or libraries provided by Phoenix Contact ("References")

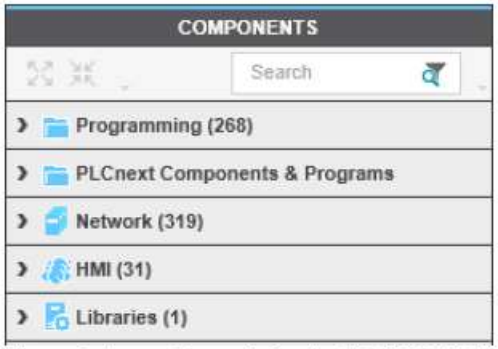


Figure 3-4 Example for the "COMPONENTS" area

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Selección Software actual PLCnext Engineer 2020.6.2

PLCnext Engineer

- Ir a página www.phoenixcontact.com/global

- 1046008 PLCNEXT ENGINEER

Software

	Descripción	Idioma	Versión
☐	[exe, 470 MB] **Software** PLCnext Engineer 2020.6.2: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la familia PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. SHA256 Checksum: 5c381602b353cdd19c4761dc5b58082ea489635ef24d130a3b5470a572cd6bea PLCnext_Engineer_Setup_2020.6.2_64bit.exe	Internacional	2020.6.2
☐	[exe, 467 MB] **Software** PLCnext Engineer 2020.0 LTS Hotfix 1: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la línea PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. SHA256 Checksum: 0f656daa0a19023070db58cb6f9e13b75cbebe3b5f4c529f269fcc31c2696ec8 PLCnext_Engineer_Setup_2020.0.1_LTS_(64bit).exe	Internacional	2020.0.1 LTS
☐	[zip, 47 MB] **Software** El asistente de activación de Phoenix Contact sirve para activar licencias de software para las que previamente se solicitó un ID de ticket. SHA256 Checksum: 970da4622347af2b2bee4a6184364847a7ed2c396600c77951a643b7c9b64e6f Activation Wizard Setup 1.3.2.zip	Internacional	1.3.2

Selección del software

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Selección Software DEMO

PLCnext Engineer

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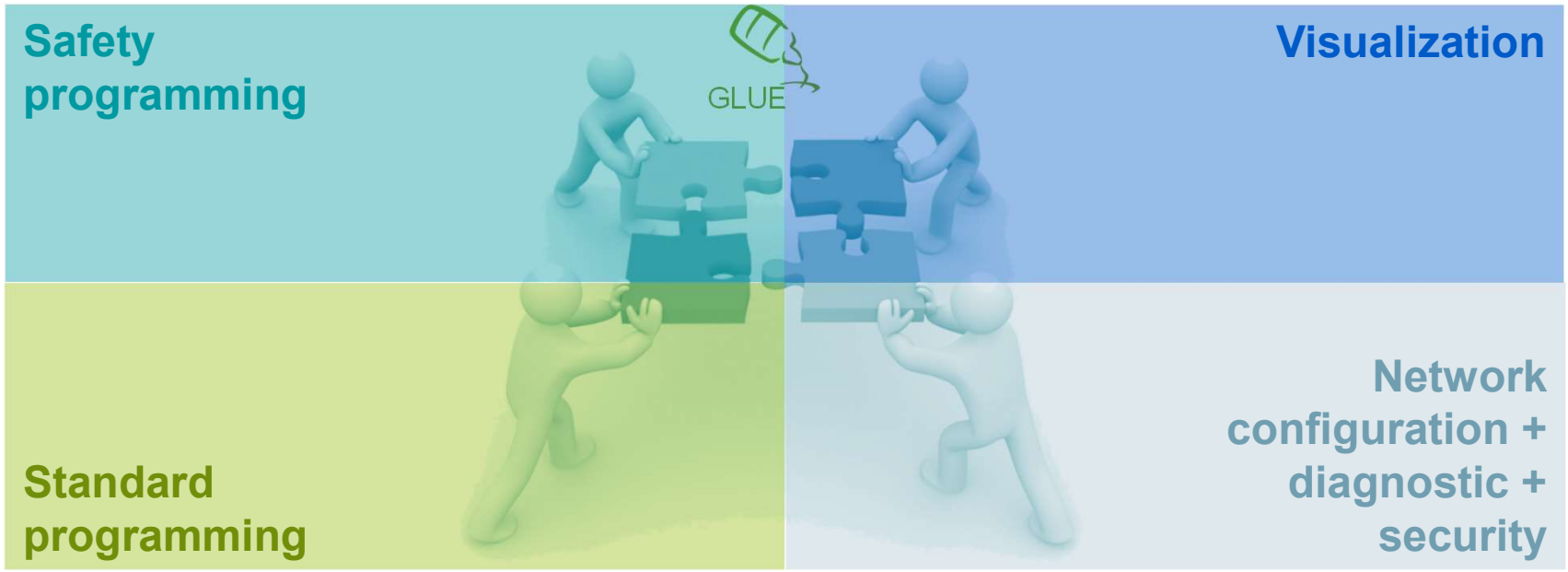
Demo-Software (revisions)

	Descripción	Idioma	Versión
☐	[exe, 470 MB] Demo-Software (revisions) PLCnext Engineer 2020.6: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la familia PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. PLCnext-Engineer-Setup-2020.6-64bit.exe	Internacional	2020.6
☐	[exe, 476 MB] Demo-Software (revisions) PLCnext Engineer 2020.3 Hotfix 1: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la familia PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. PLCnext-Engineer-Setup-2020.3.1-64bit-.exe	Internacional	2020.3.1
☐	[zip, 476 MB] Demo-Software (revisions) PLCnext Engineer 2020.3: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la familia PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. PLCnext Engineer Setup 2020.3 (64bit).zip	Internacional	2020.3
☐	[zip, 467 MB] Demo-Software (revisions) PLCnext Engineer 2020.0 LTS: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la línea PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. PLCnext_Engineer_Setup_64bit_2020.0_LTS.zip	Internacional	2020.0 LTS
☐	[zip, 433 MB] Demo-Software (revisions) PLCnext Engineer 2019.9: PLCnext Engineer es la plataforma de software modular para los sistemas de control de la línea PLCnext Control. Incluye las disciplinas técnicas necesarias para la configuración, el desarrollo y la puesta en servicio de una aplicación de automatización. PLCnext_Engineer_Setup_(64bit)_2019.9.zip	Internacional	2019.9

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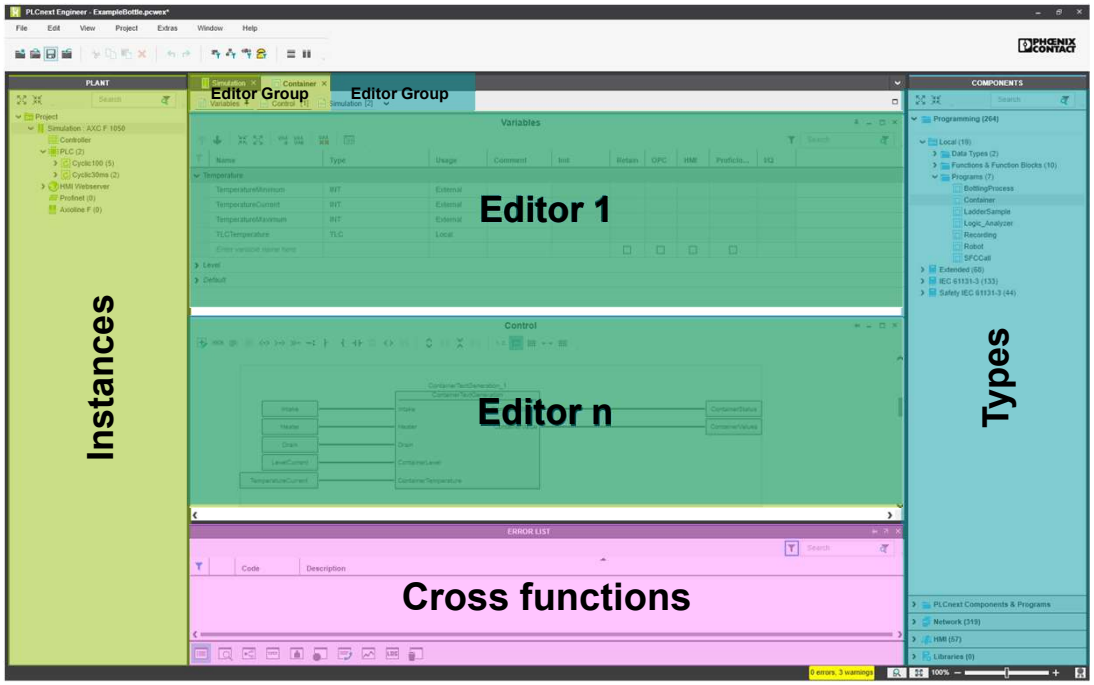
Complete Integrated System



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Information Architecture

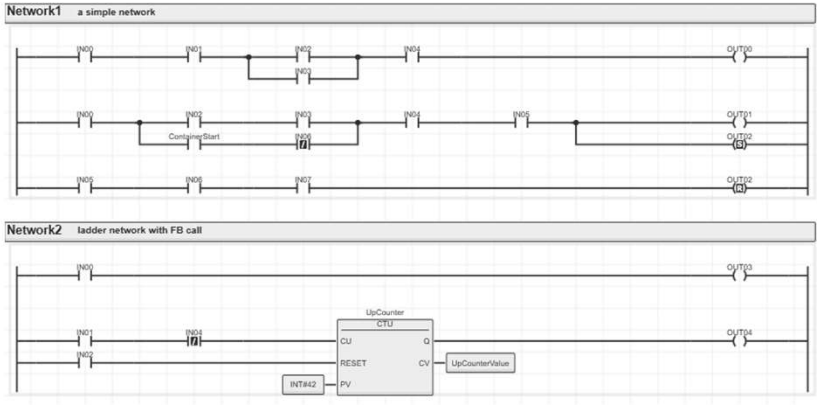


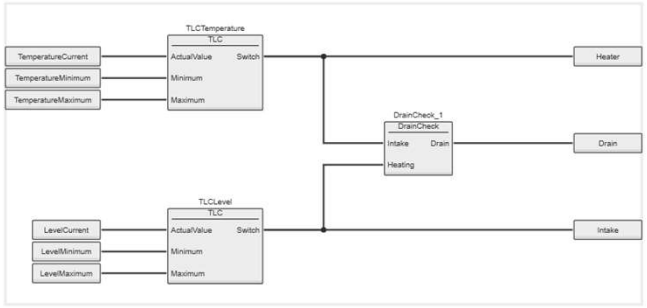
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IEC 61131-3 Editors

- **Graphical programming**
  - Function Block Diagram (FBD)
  - Ladder (LD)
  - Network based or free graphical editor
  - Methods on function blocks in graphical languages



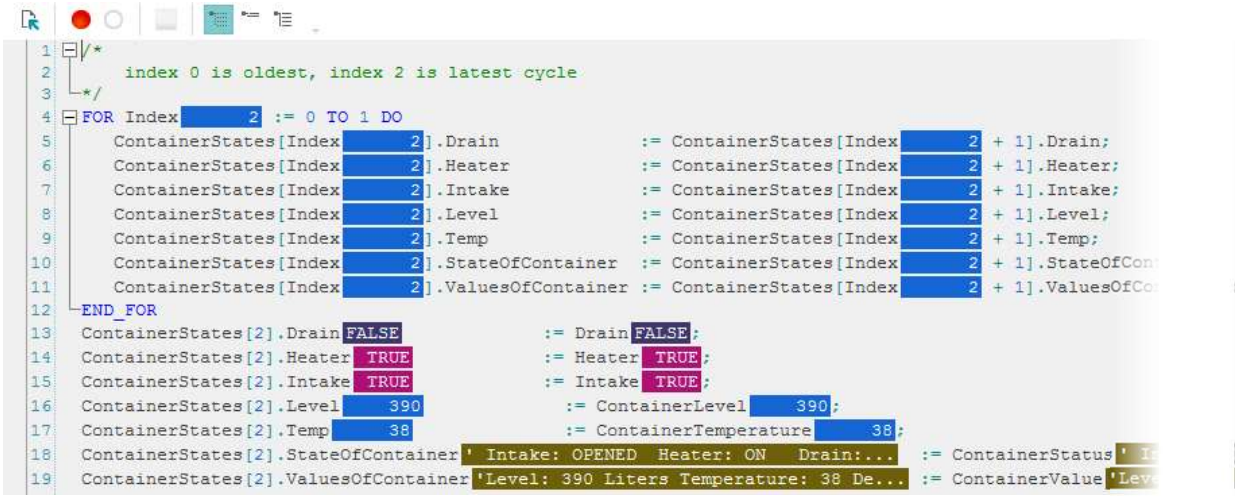


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IEC 61131-3 Editors

- **Structured Text (ST)**
  - Syntax highlighting
  - Autofill assistant
  - IntelliSense function
  - Folding of code segments
  - RolePicker assistant
  - Templates for statements
  - Methods on function blocks



PLCnext Engineer

Integrated Visualization Editor

- **Deeply integrated**
  - Based on central handling
- **Scalable**
  - From small scale controllers to IPCs
- **No client installation**
  - Modern web browser
- **Technology-neutral**
  - Screens are stored in neutral format
- **Lightweight**
  - Low resource demands on PLC

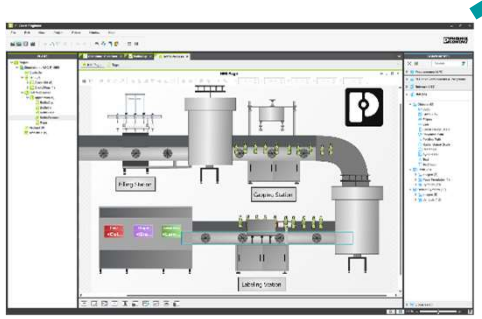


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Visualization Runtime Concept

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One project
(PLC + HMI)



PLCnext Engineer
Engineering Software



HMI application
HMI project

variable
values



Client(s)

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PLCNEXT ENGINEER

Página Internet Internacional

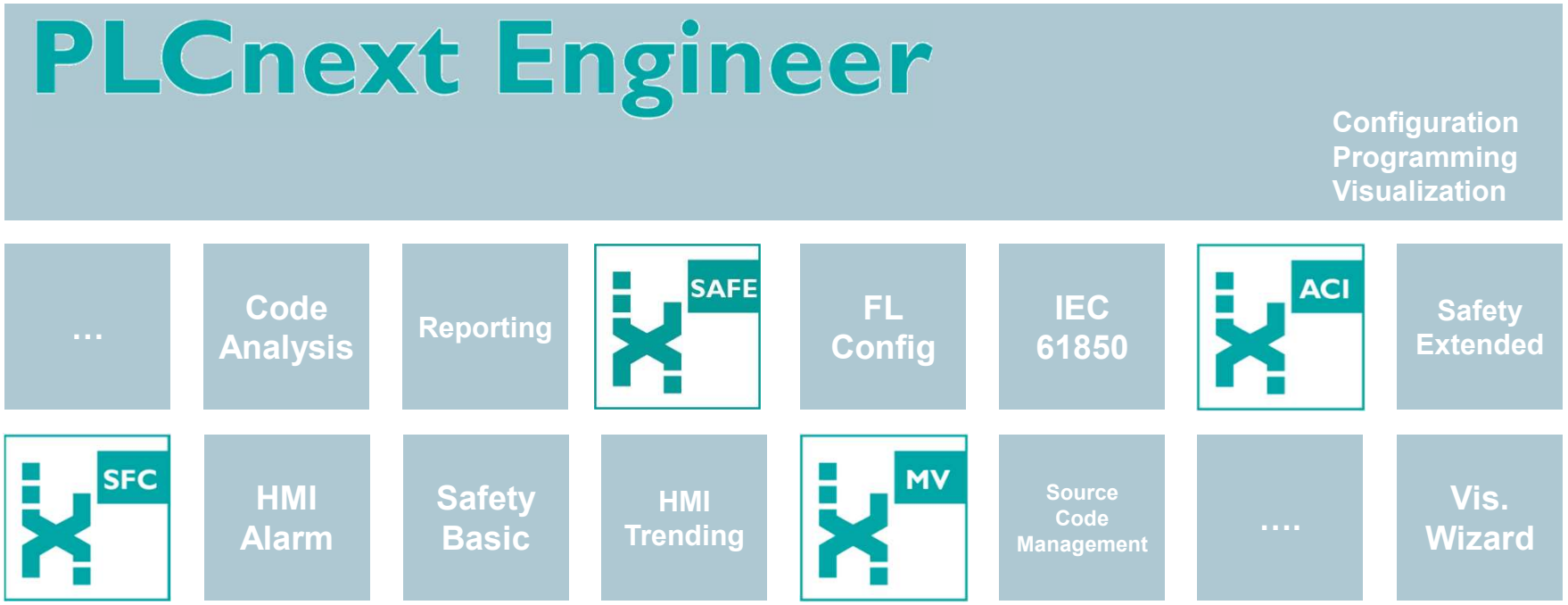
- **Configurar**



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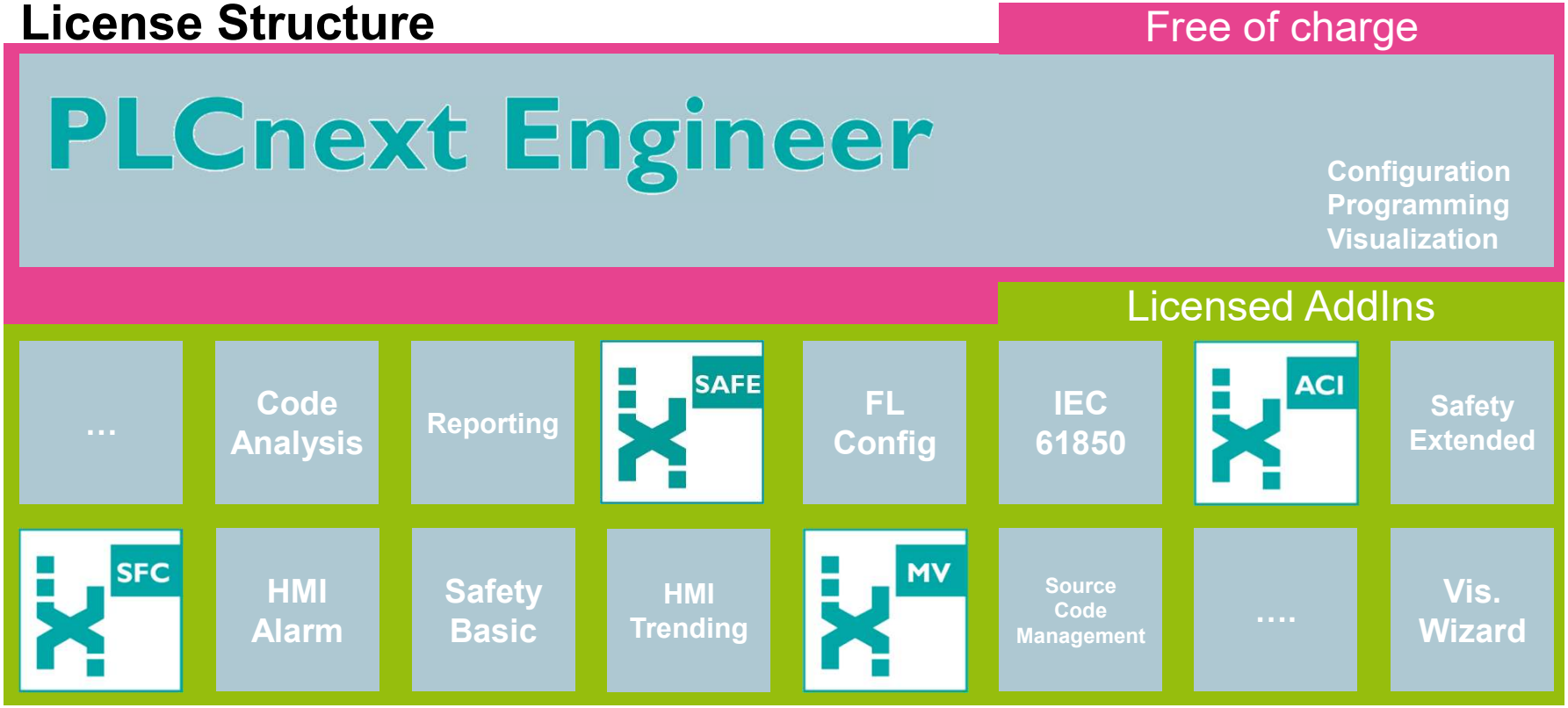
License Structure



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License Structure



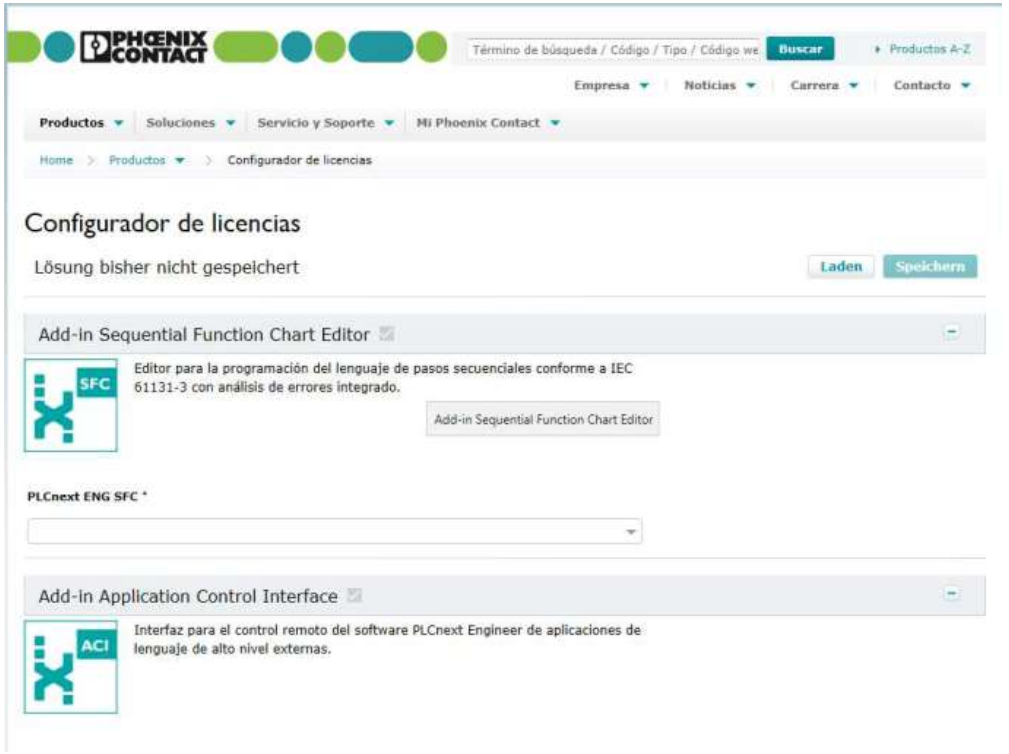
Icon = available Add-In

No icon = Idea about future Add-Ins

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Opciones

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Opciones

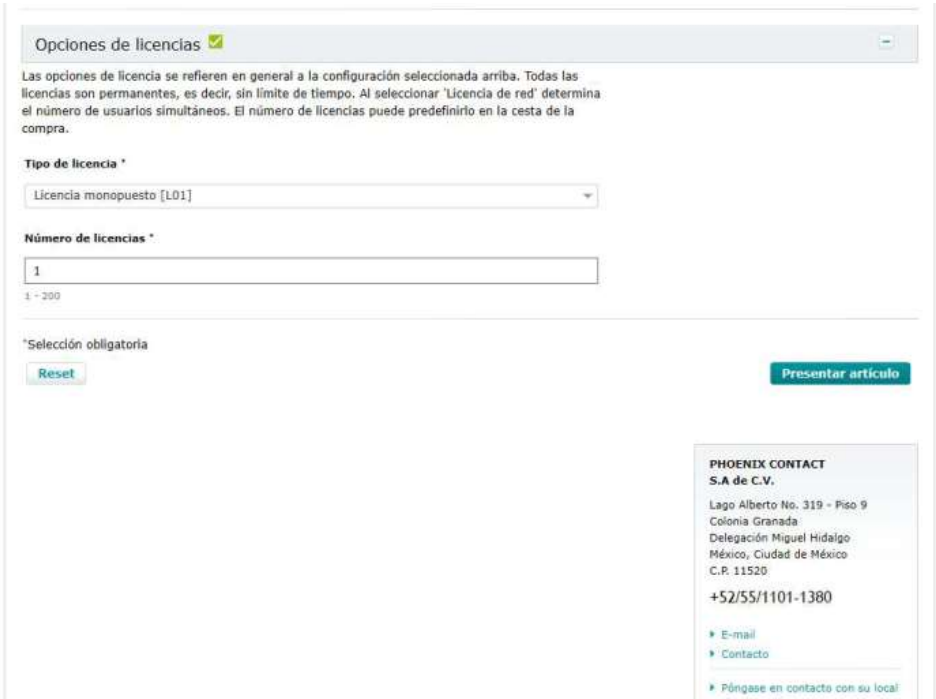
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Opciones

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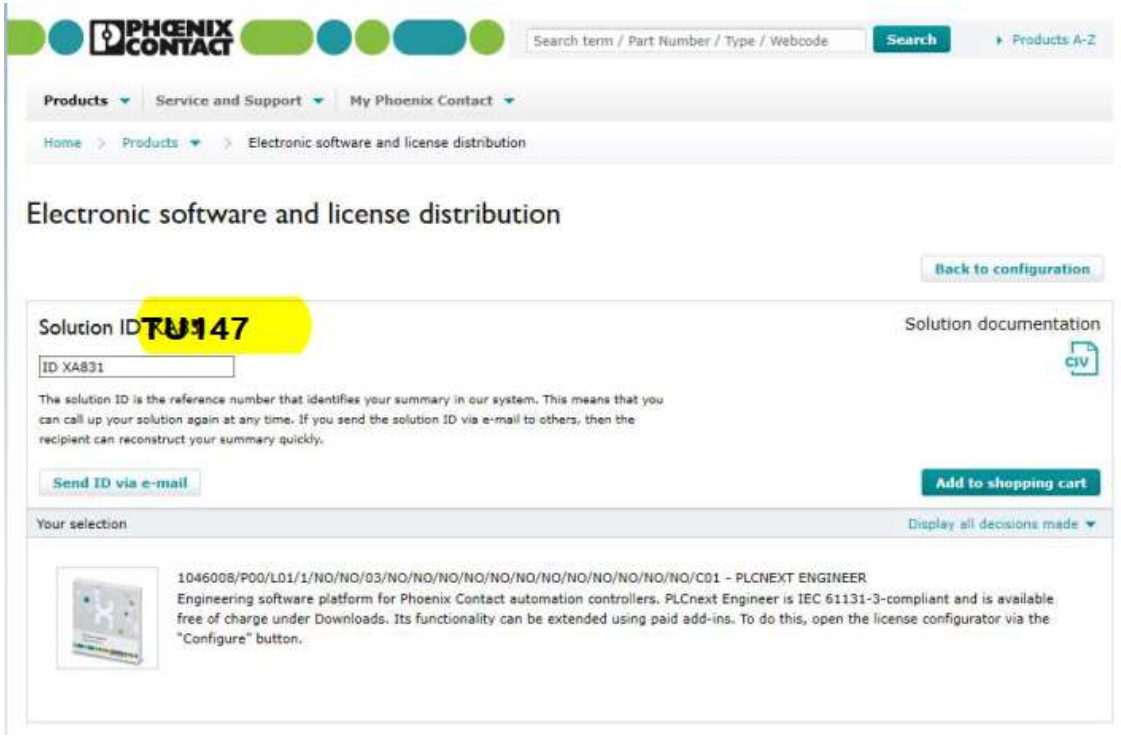
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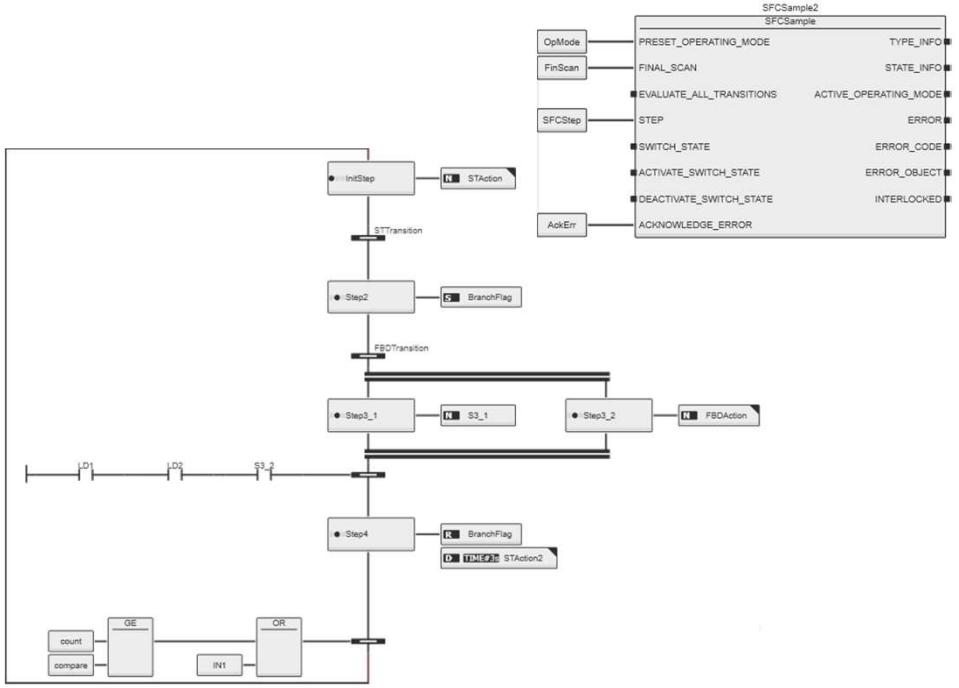


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Sequential Function Chart – SFC

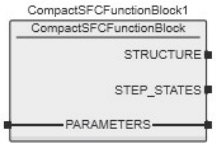
- Represented as a function block
- Automatic generated TypeInfo and StateInfo structure
- Error handling
- Directly connected transitions
- Transitions in separate worksheets (FBD, ST, LD)
- Operation modes:
  Automatic, Manual Step, Halted

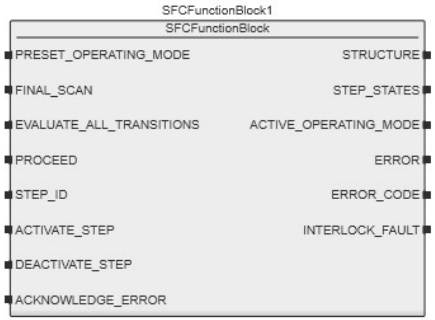


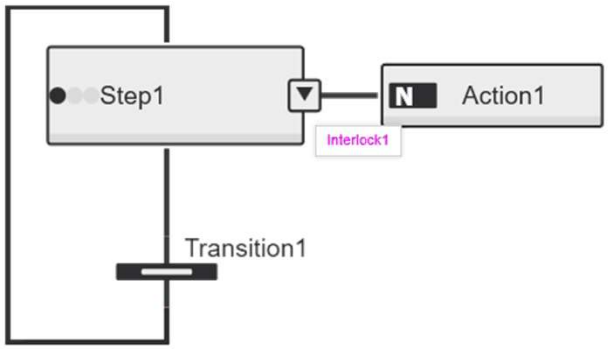
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Sequential Function Chart – SFC

- Compact SFC
- STEP Interlock
  can be used to control the execution of actions associated to a step
- Pre-Execute worksheet
- Post-Execute worksheet







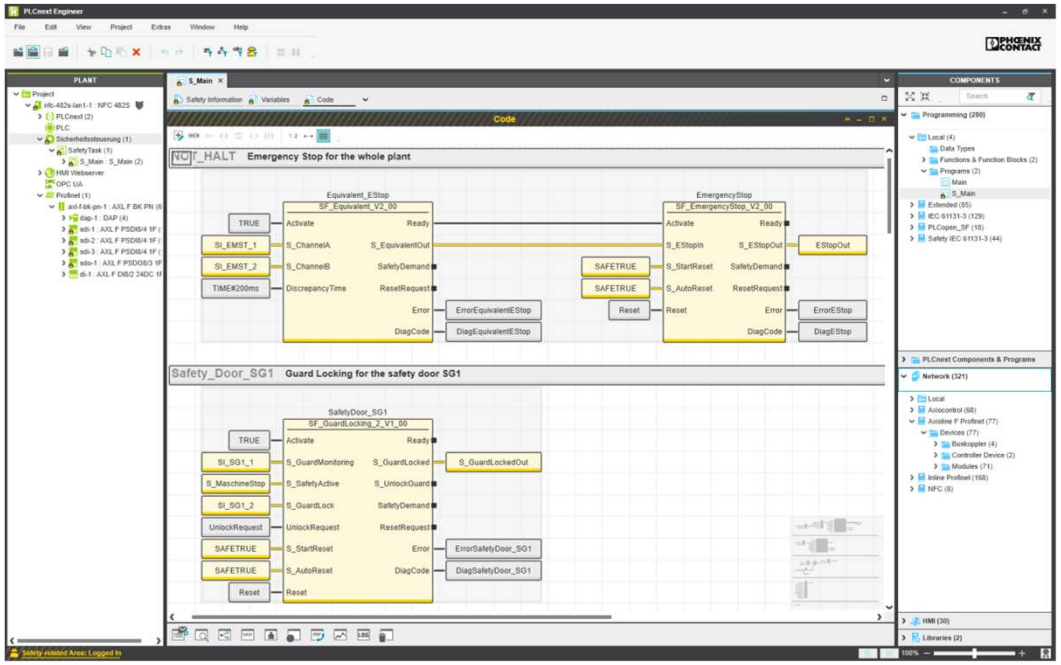


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Functional Safety Programming

Fully integrated Safety Programming

- TÜV Rheinland certified according to IEC 61508
- Editor with common behavior as known from standard FBD or LD editor
- Low Variability Language support
- Network granular CRC checksums
- PROFIsafe Support

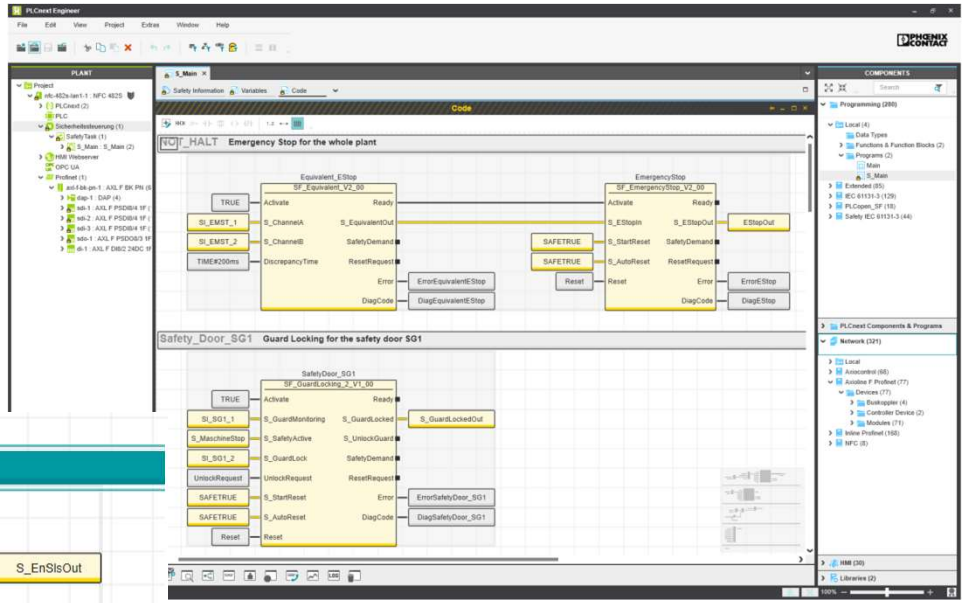


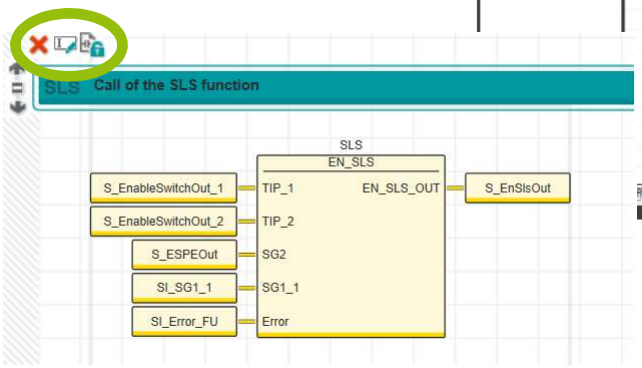
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Functional Safety Programming

Fully integrated Safety Programming

- Individual safety functions can be protected by a verification function
- Background signal path analysis
- Background safe semantic analysis
- Diversely-redundant code generator



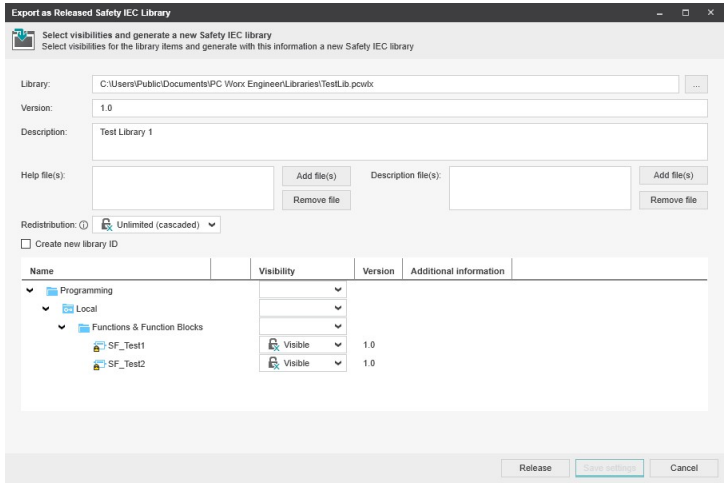


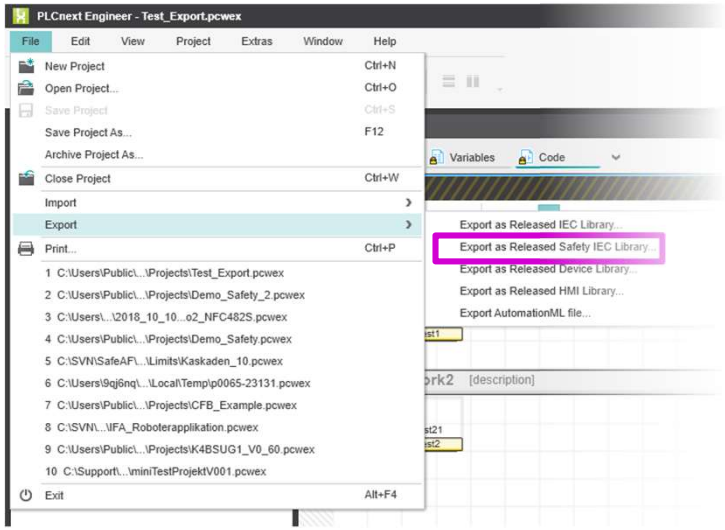
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Functional Safety User Libraries

- Export of safety-related function blocks as new user library





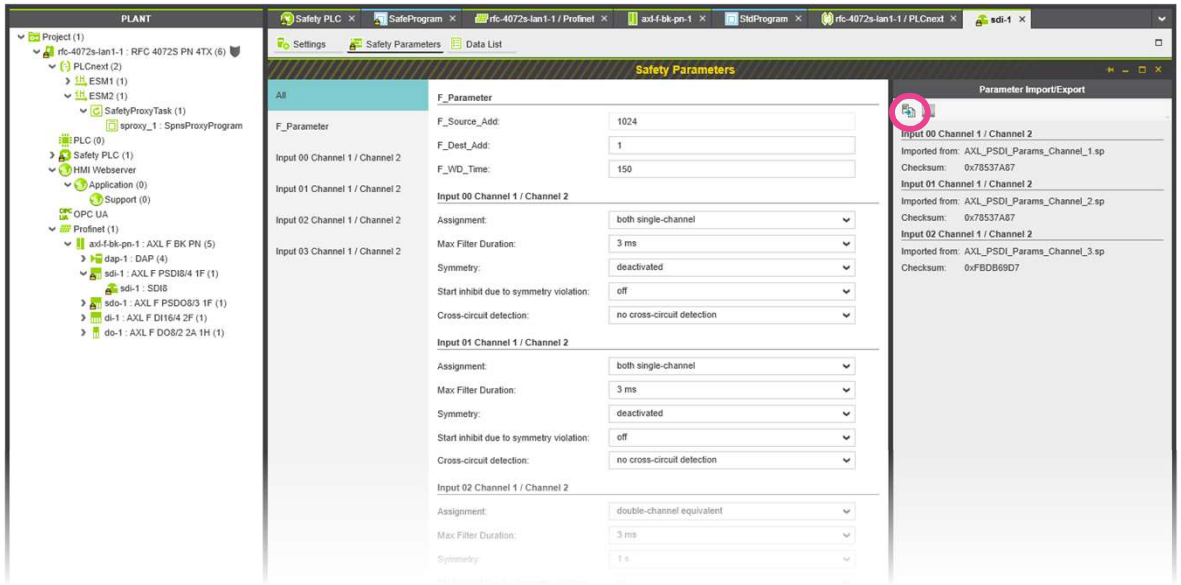
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Safety Parameterization

- Parameterization for PROFIsafe devices
- Export / Import
  - Parameter sets of the whole device
  - Parameter sets of a single group



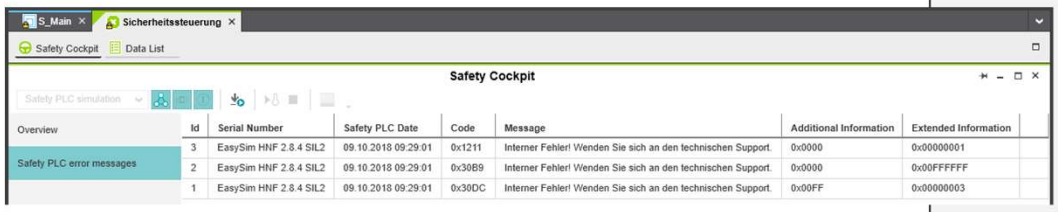
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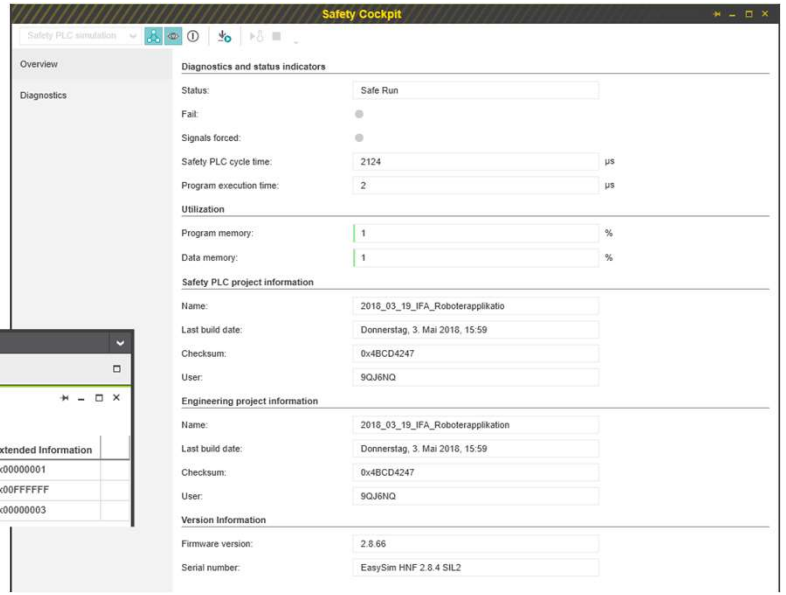
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Safety Cockpit

- Display the status information from the safety-related PLC
- Display the error messages from the safety-related PLC



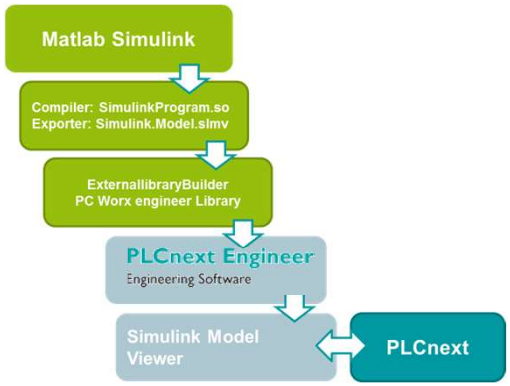


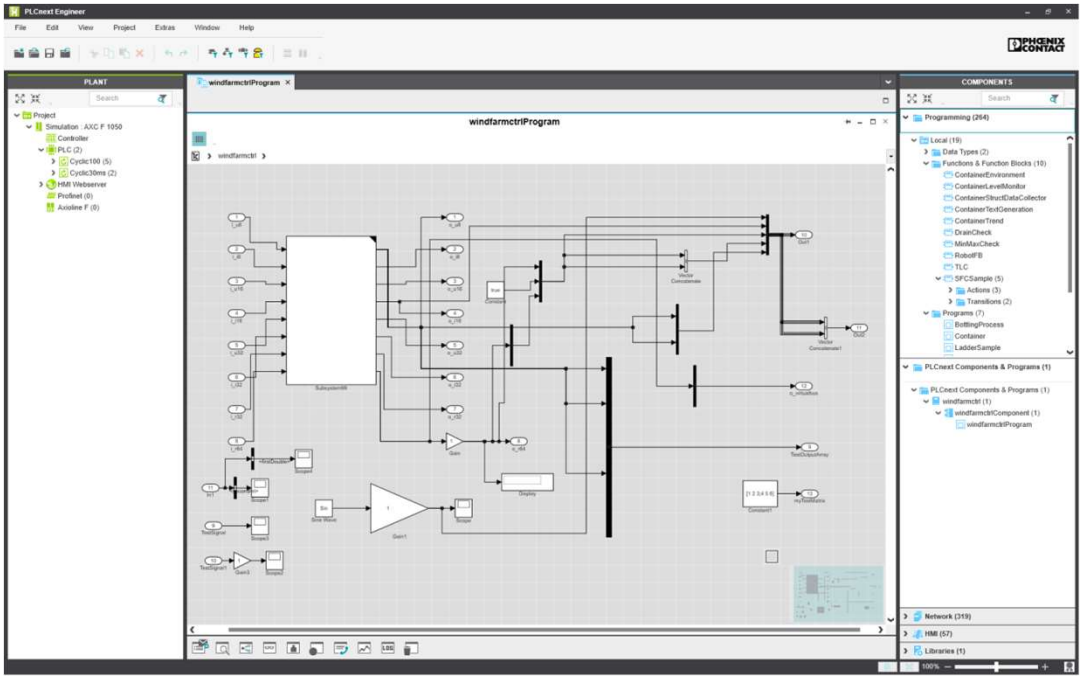
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PLCnext Engineer

Viewer for Simulink

- Model export as part of a PLCnext library
- Drill-down into sub-models
- Online-values for In- and Out-Ports

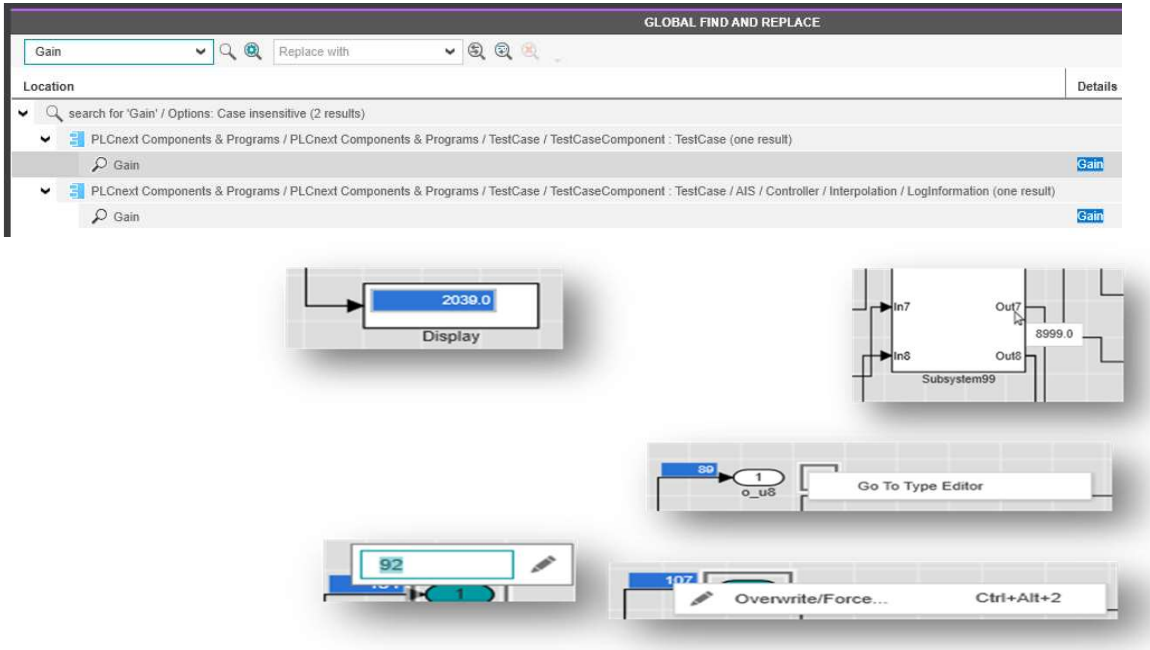




PLCnext Engineer 2019.0

Viewer for Simulink

- Global / Local Search
  - Jumpable objects selected
- Display block
  with online values
- Overwrite of GDS ports
- Jump to Type Model from Instance
- Online Indication on lines
  for boolean in /out ports

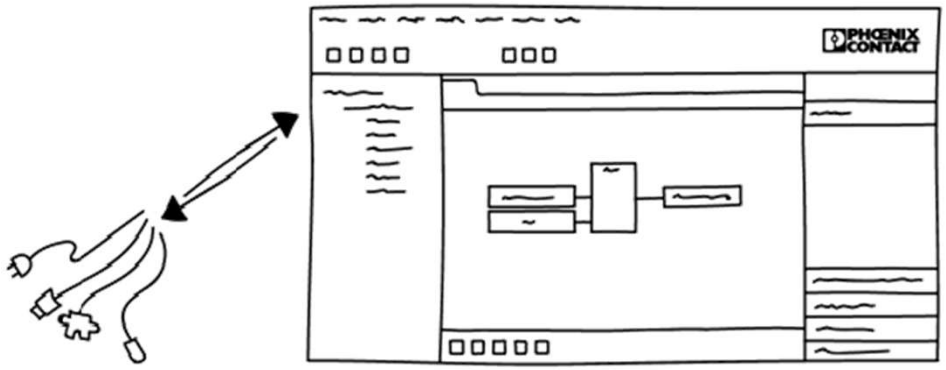


PLCnext Engineer

Application Control Interface (ACI)

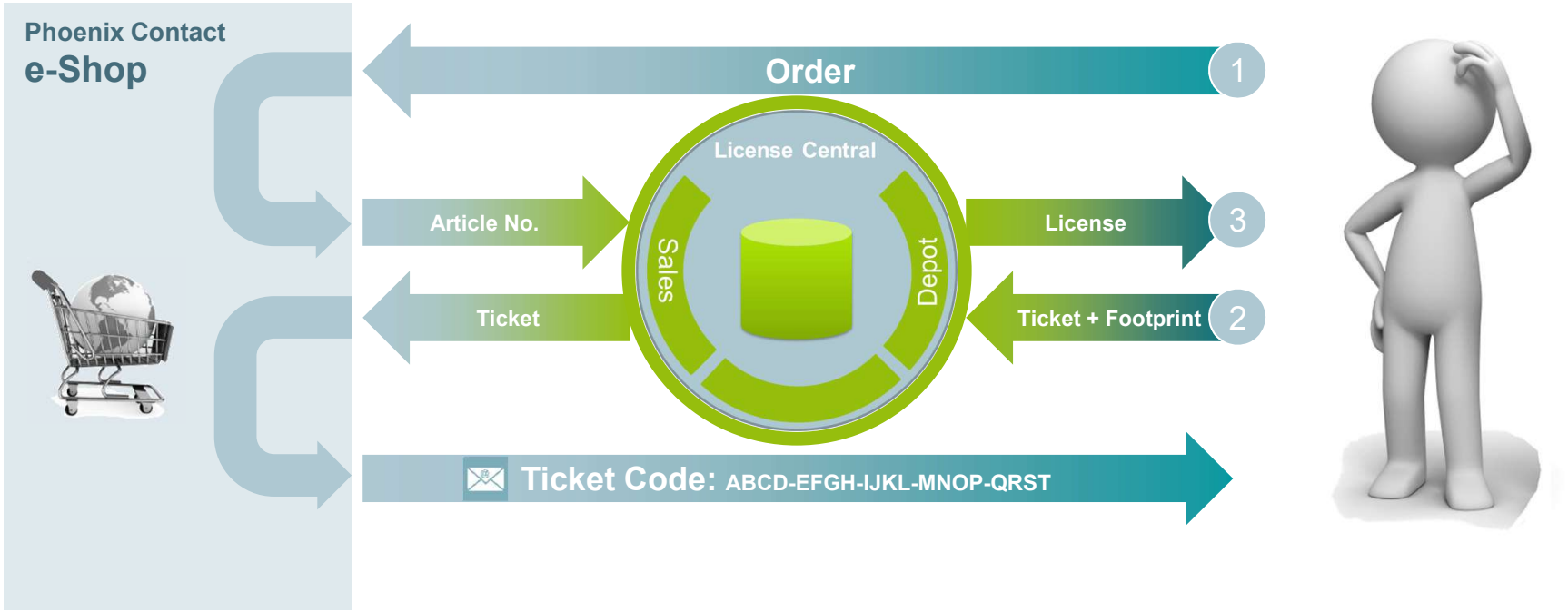
Remote Control of the software:

- Application.BuildPath (property)
- Application.OpenProject (method)
- Application.ProjectOpened (event)
- Project.Close (method)
- Project.Save (method)
- Project.SaveAs (method)
- Project.Closed (event)
- ……



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Software License Distribution

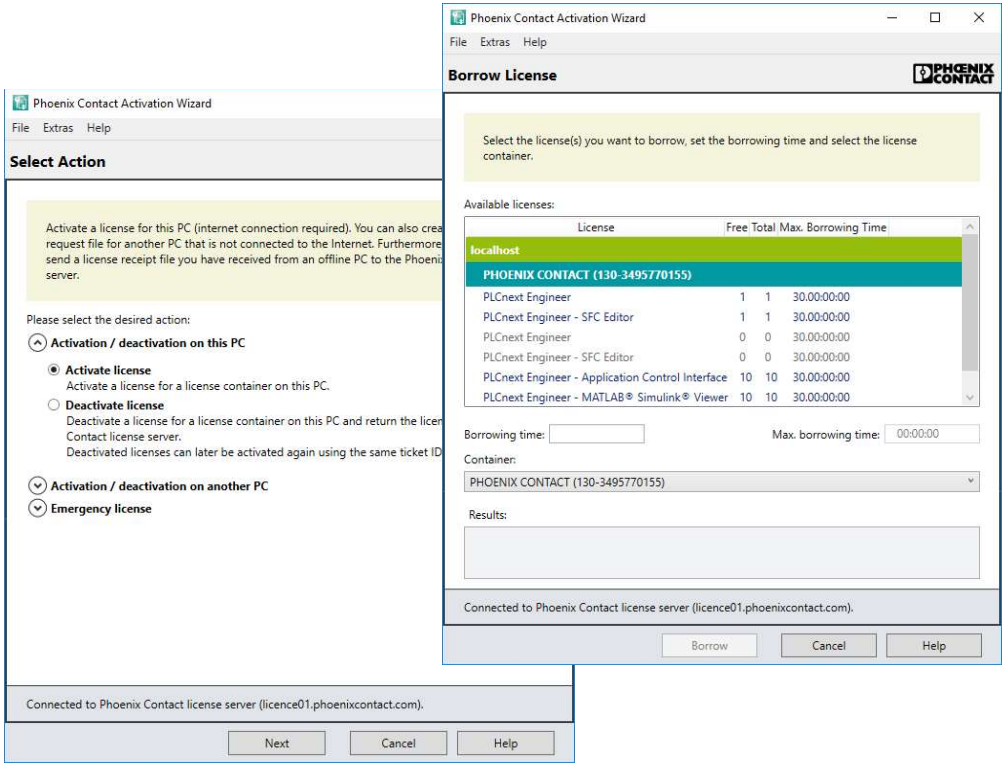


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Licensing

Activation Wizard

- Version 1.1 HMI 2018
  - Deactivating / Moving licenses
- Version 1.2 SPS 2018
  - Network server for licenses
  - Server list; authentication
  - Borrowing of licenses
    (can be returned to pool)



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Electronic Software License on USB A

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Software dongle - ESL STICK USB A - 1080084



CmDongle for saving licenses for various software products

Generate product PDF

current article

Add to product comparison | Add to part list | Add to shopping cart

Overview | Technical data | Downloads

Product Description

Up to 2000 licenses with different license models for various software tools can be stored on the license dongle.
Licenses can be used flexibly by moving the dongle from one computer to another.
Use of a license dongle is recommended when using virtual machines. This means that licenses can still be used after virtual machines are copied or even if settings are changed on the virtual machine.
Using the "Activation Wizard" software tool, activate and deactivate licenses on the license dongle. Or use the "Activation Wizard" to migrate licenses from a PC hard drive to a license dongle (or vice versa), for example.
No additional drivers are required to operate the dongle. After it is connected to a computer, it can immediately be used without administrator rights.

RoHS



IF Design Award 2019

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PLCnext Engineer

Versioning

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PLCnext Engineer
2020.0 LTS

January
2020



PLCnext Engineer
2020.3

March
2020



PLCnext Engineer
2020.6

June
2020



PLCnext Engineer
2020.9

September
2020

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LTS Version

Wikipedia:

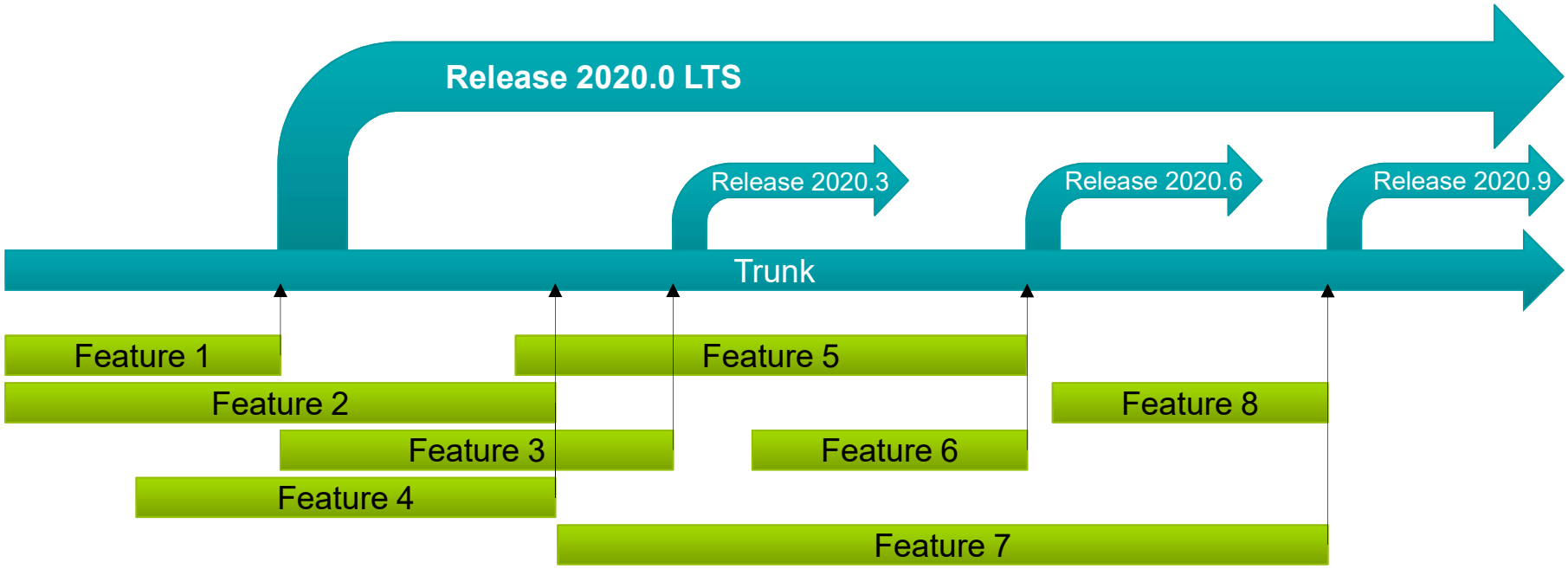
Long-term support (**LTS**) …
… is a product lifecycle management policy in which a stable release of computer software is maintained for a longer period of time than the standard edition. The term is typically reserved for open-source software, where it describes a software edition that is supported for months or years longer than the software's standard edition.



Source 2019/01: https://en.wikipedia.org/wiki/Long-term_support

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Feature-Driven Development



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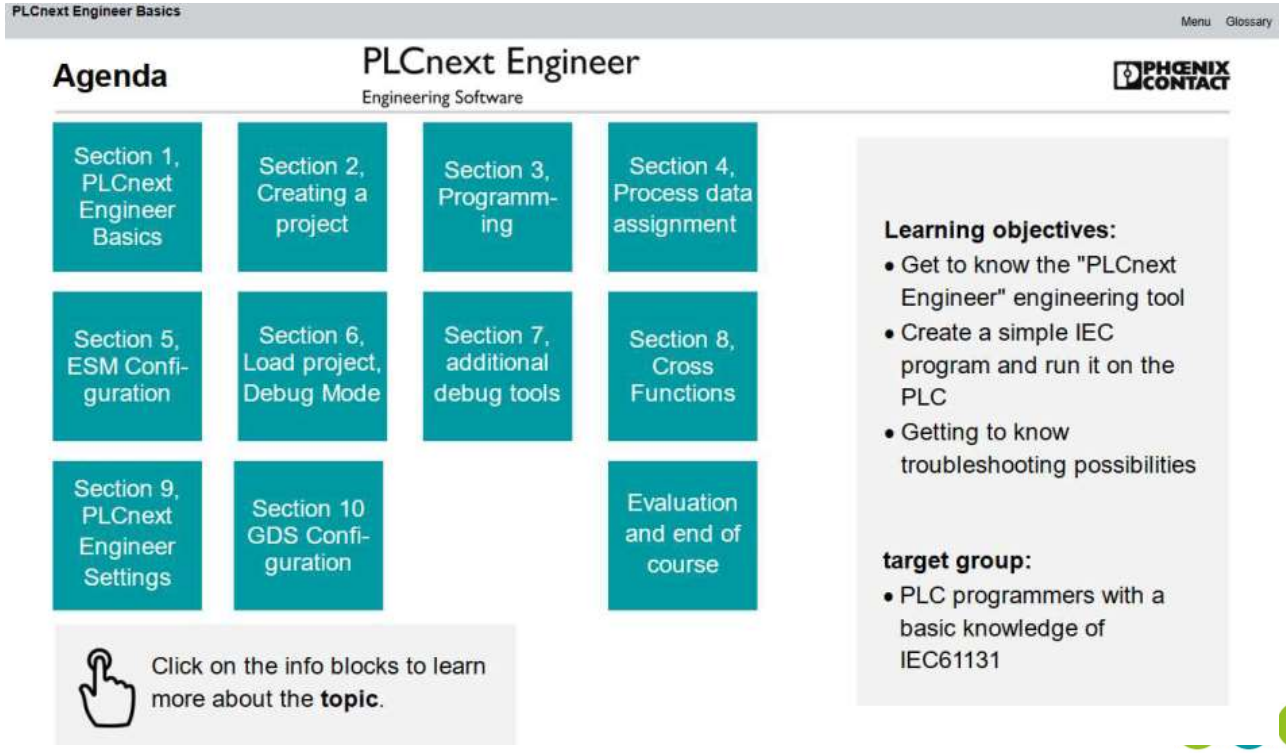
- **Nivel Básico PLCnext Engineer**



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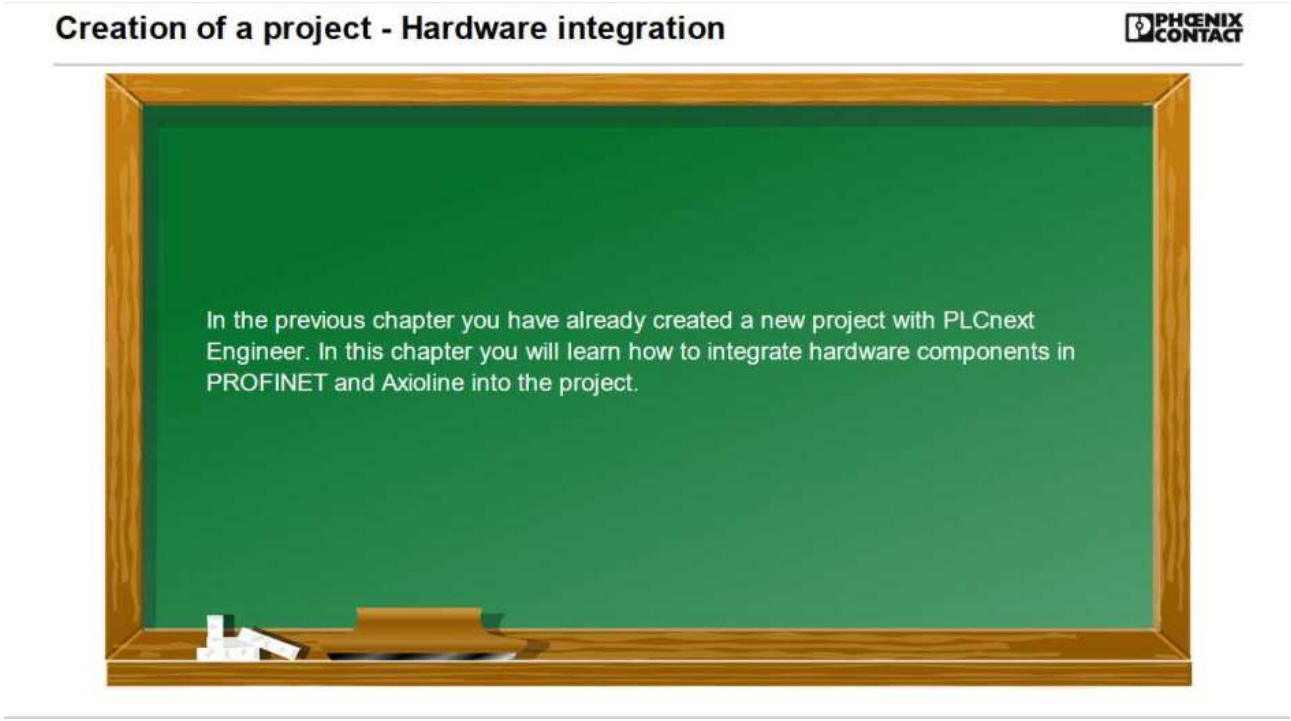
PLCnext Community

E-Learning PLCnext Engineer Basics



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Chapter 2 Creating a Project



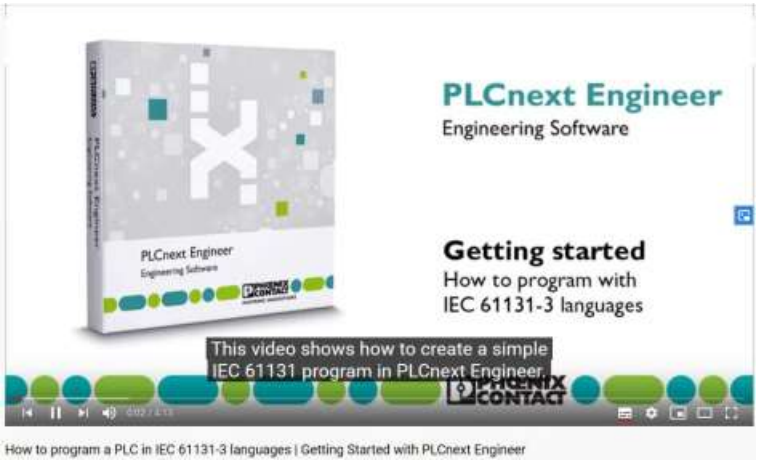
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How to set up a new project | Getting Started with PLCnext Engineer



How to program a PLC in IEC 61131-3 languages | Getting Started with PLCnext Engineer

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[1] PLCnext Engineer | Comenzando con PLCNext - Phoenix Contact

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PLCnext Lesson 4 - Programming the Controller's External Digital IOs



PLCnext Lesson 5 - Programming the Controller's External Analog IOs

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How to create a library out of many device descriptions | Getting started with PLCnext Engineer

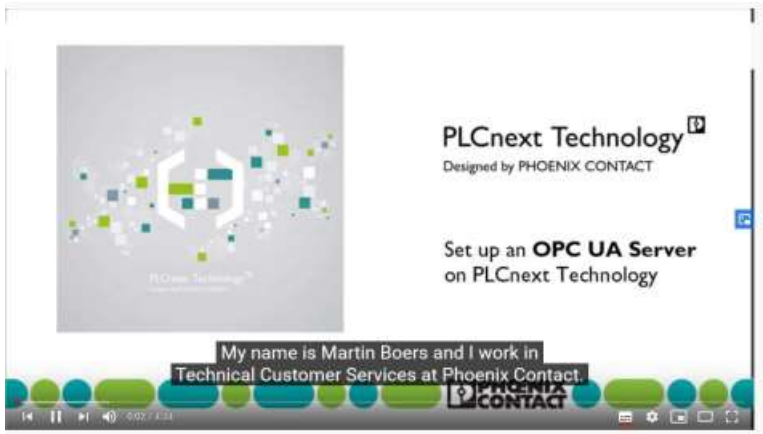


How to import device descriptions and devices libraries | Getting started with PLCnext Engineer

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OPC UA with PLCnext Technology | How to set up a server connection with PLCnext Engineer



OPC UA with PLCnext Technology | How to transfer a file to the PLCnext Control via OPC UA Server

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How to debug using Breakpoints | Debugging with PLCnext Engineer



How to use Wireshark and WinSCP in debugging PLC installations | Working with PLCnext Technology

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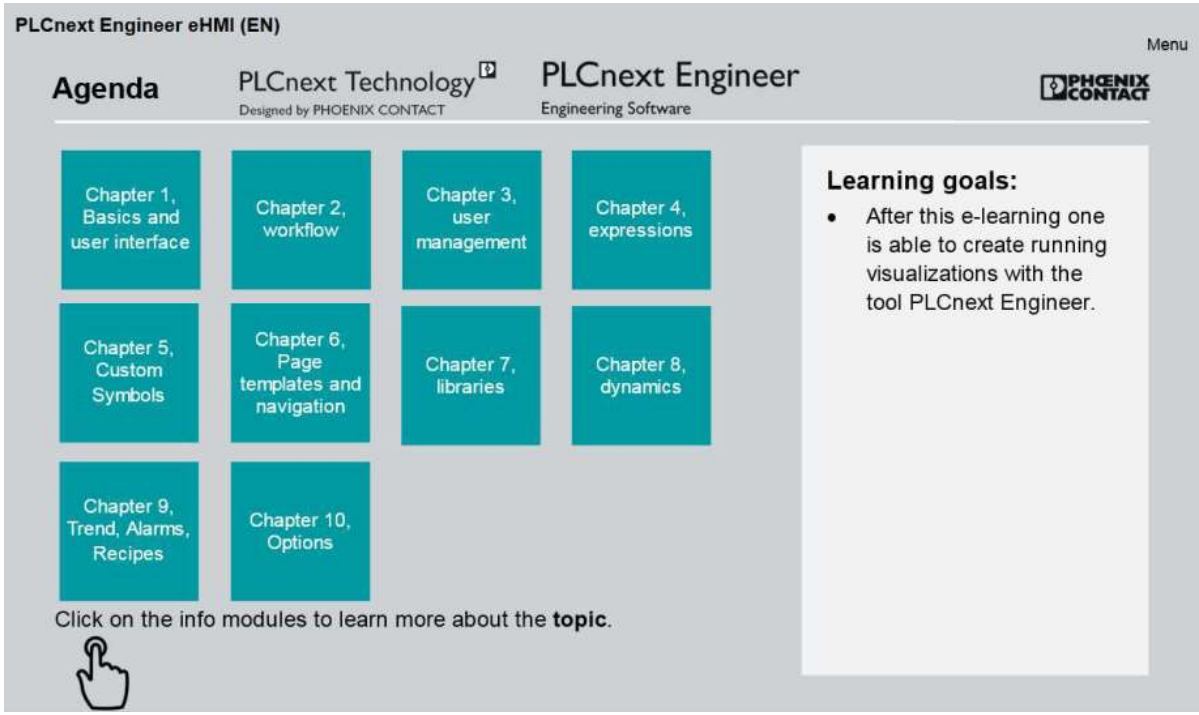
PLCnext Engineer HMI

- **Nivel Básico PLCnext Engineer HMI**



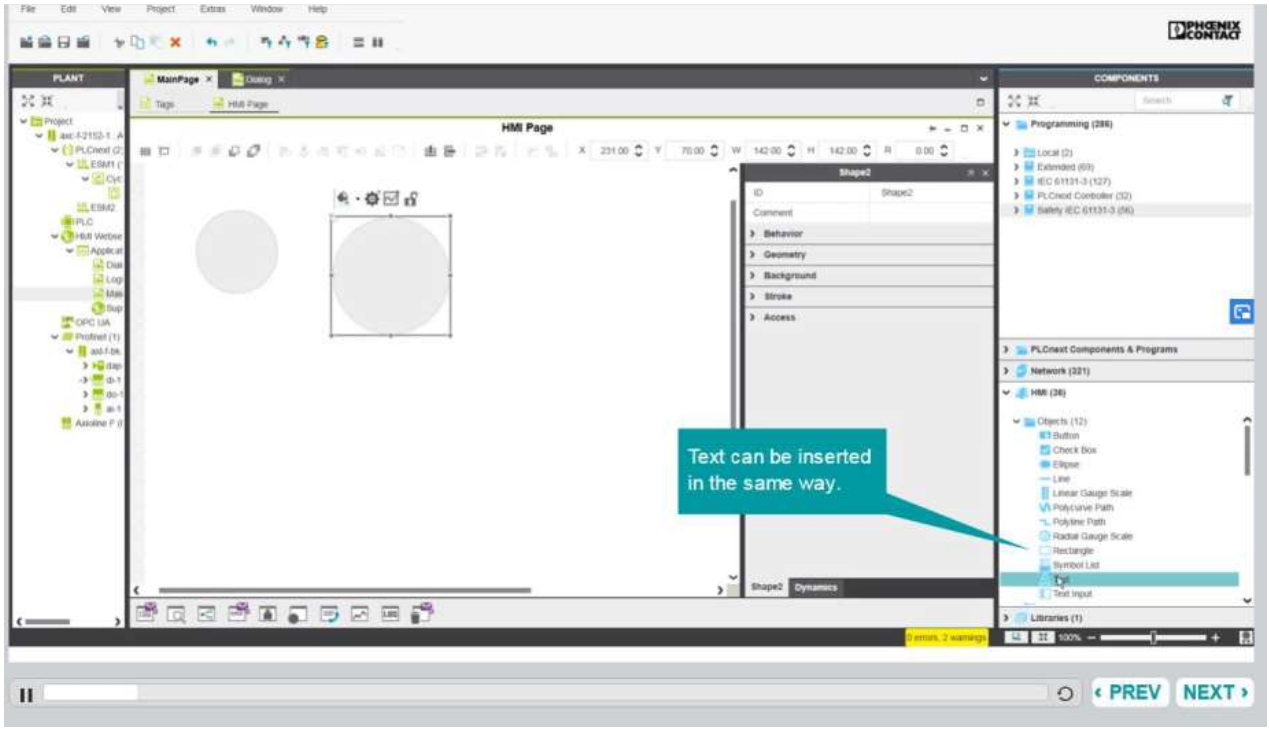
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E-Learning PLCnext Engineer HMI Basics



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Chapter 2



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How to create a basic visualization with PLCnext Engineer

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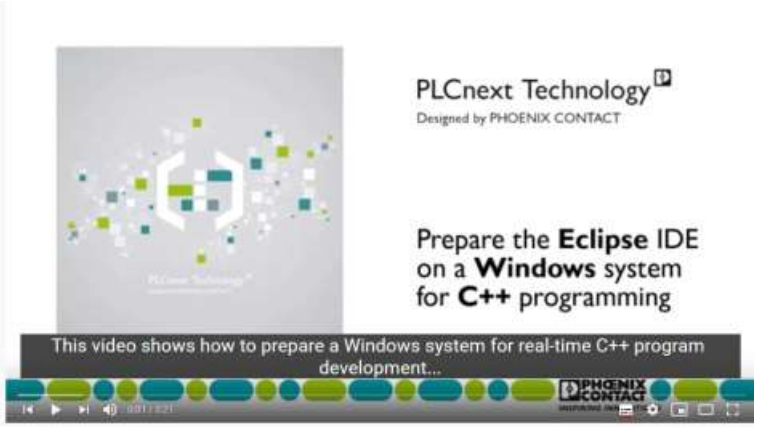


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How to program C++ on a PLCnext control | C++ with PLCnext Technology

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How to install Eclipse IDE tools on Linux | C++ with PLCnext Technology

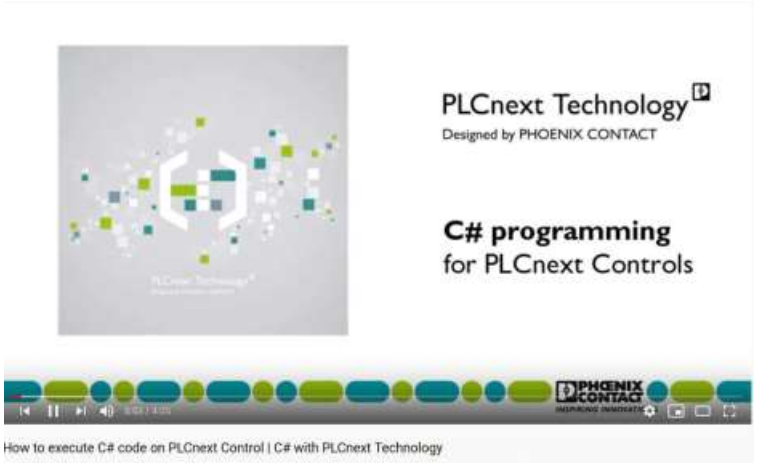


How to add or remove programs and components in C++ programming | PLCnext Technology

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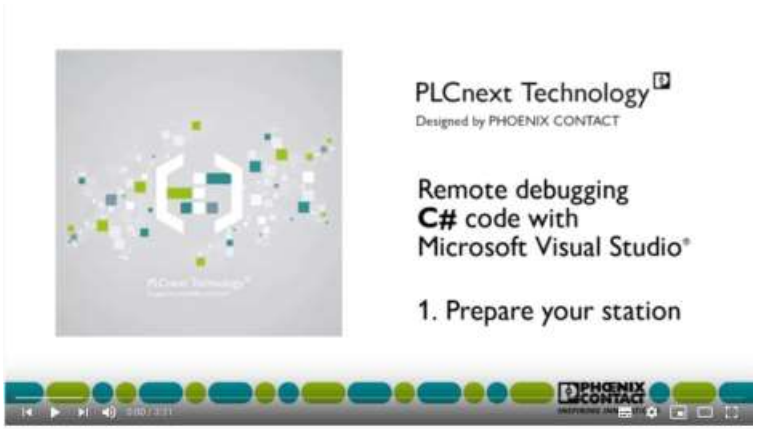
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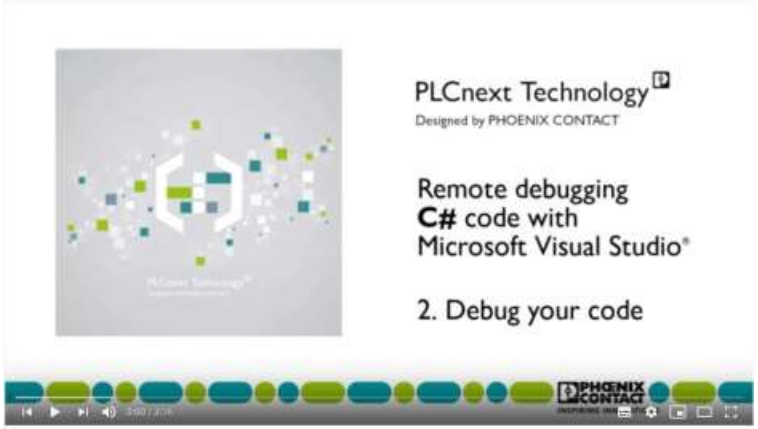
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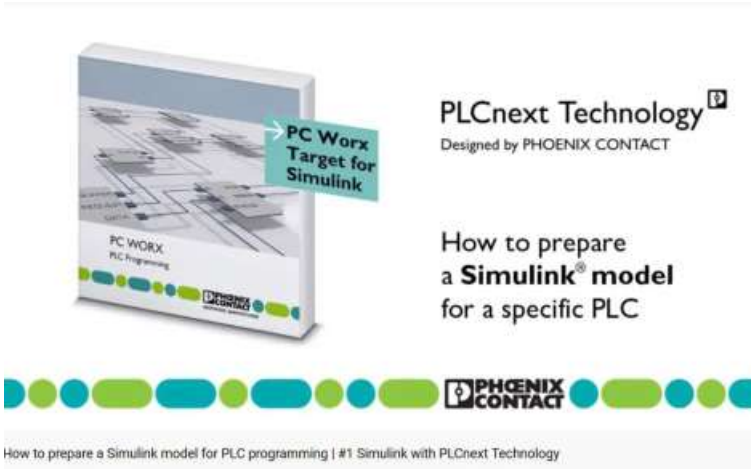


How to debug C# code with Visual Studio development tools | PLCnext Technology

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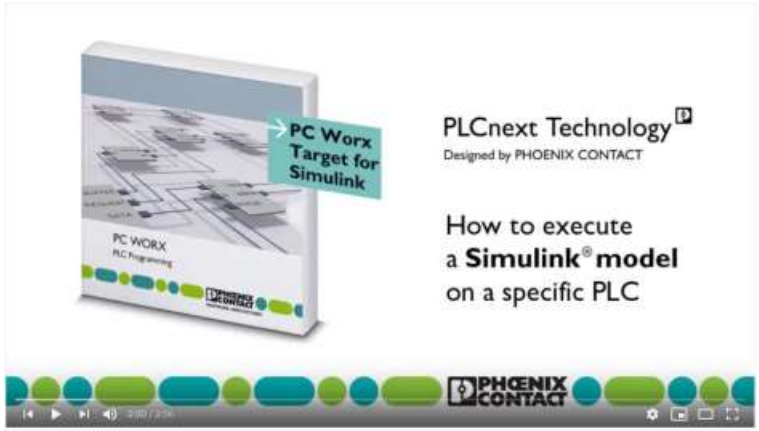
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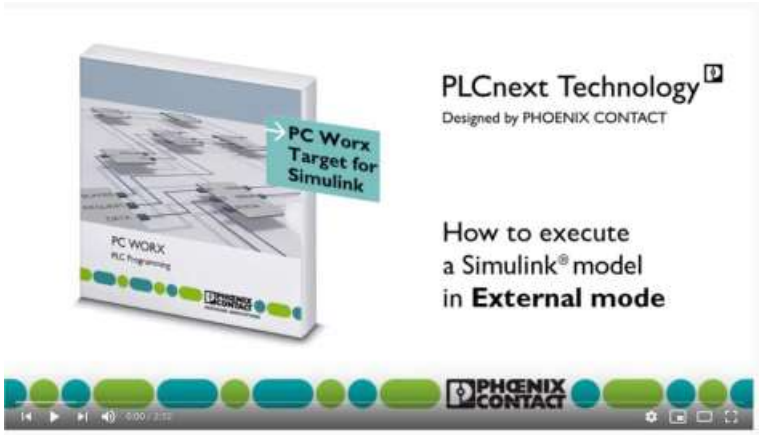
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How to execute a PLC program based on a Simulink model | #2 Simulink with PLCnext Technology



How to set up an External Mode execution | #3 Simulink with PLCnext Technology

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PLCnext Lesson 7 - Designing the HMI for Analog Inputs

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PLCnext Lesson 8 - Designing the HMI for Analog Outputs



PLCnext Lesson 9 - Monitoring and controlling HMI in browser

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Selección y nivel Básico

PLCnext Engineer



Elevator Control System based on PLCnext Technology

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Thank you

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