EcoStruxure™ Control Engineering Converter

User Guide

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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Before You Begin

Do not use this product on machinery lacking effective point-of-operation guarding. Lack of effective point-of-operation guarding on a machine can result in serious injury to the operator of that machine.

⚠WARNING

UNGUARDED EQUIPMENT

- Do not use this software and related automation equipment on equipment which does not have point-of-operation protection.
- Do not reach into machinery during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

This automation equipment and related software is used to control a variety of industrial processes. The type or model of automation equipment suitable for each application will vary depending on factors such as the control function required, degree of protection required, production methods, unusual conditions, government regulations, etc. In some applications, more than one processor may be required, as when backup redundancy is needed.

Only you, the user, machine builder or system integrator can be aware of all the conditions and factors present during setup, operation, and maintenance of the machine and, therefore, can determine the automation equipment and the related safeties and interlocks which can be properly used. When selecting automation and control equipment and related software for a particular application, you should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual (nationally recognized in the United States of America) also provides much useful information.

In some applications, such as packaging machinery, additional operator protection such as point-of-operation guarding must be provided. This is necessary if the operator's hands and other parts of the body are free to enter the pinch points or other hazardous areas and serious injury can occur. Software products alone cannot protect an operator from injury. For this reason the software cannot be substituted for or take the place of point-of-operation protection.

Ensure that appropriate safeties and mechanical/electrical interlocks related to point-of-operation protection have been installed and are operational before placing the equipment into service. All interlocks and safeties related to point-of-operation protection must be coordinated with the related automation equipment and software programming.

NOTE: Coordination of safeties and mechanical/electrical interlocks for point-of-operation protection is outside the scope of the Function Block Library, System User Guide, or other implementation referenced in this documentation.

Start-up and Test

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check are made and that enough time is allowed to perform complete and satisfactory testing.

⚠WARNING

EQUIPMENT OPERATION HAZARD

- Verify that all installation and set up procedures have been completed.
- Before operational tests are performed, remove all blocks or other temporary holding means used for shipment from all component devices.
- Remove tools, meters, and debris from equipment.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future references.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and temporary grounds that are not installed according to local regulations (according to the National Electrical Code in the U.S.A, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage.

Before energizing equipment:

- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.
- Remove all temporary grounds from incoming power lines.
- Perform all start-up tests recommended by the manufacturer.

Operation and Adjustments

The following precautions are from the NEMA Standards Publication ICS 7.1-1995:

(In case of divergence or contradiction between any translation and the English original, the original text in the English language will prevail.)

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer’s instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer’s instructions and the machinery used with the electrical equipment.
- Only those operational adjustments required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

About the Document

Document Scope

The present user guide describes the functionality provided by EcoStruxure Control Engineering - Converter.

Validity Note

This document has been updated for the release of EcoStruxure Control Engineering V26.0.

Product Related Information

⚠WARNING

LOSS OF CONTROL

- Perform a Failure Mode and Effects Analysis (FMEA), or equivalent risk analysis, of your application, and apply preventive and detective controls before implementation.
- Provide a fallback state for undesired control events or sequences.
- Provide separate or redundant control paths wherever required.
- Supply appropriate parameters, particularly for limits.
- Review the implications of transmission delays and take actions to mitigate them.
- Review the implications of communication link interruptions and take actions to mitigate them.
- Provide independent paths for control functions (for example, emergency stop, over-limit conditions, and error conditions) according to your risk assessment, and applicable codes and regulations.
- Apply local accident prevention and safety regulations and guidelines.[1]
- Test each implementation of a system for proper operation before placing it into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

[1] For additional information, refer to NEMA ICS 1.1 (latest edition), *Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control* and to NEMA ICS 7.1 (latest edition), *Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems* or their equivalent governing your particular location.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- Perform a risk assessment as per ISO 12100 and/or other equivalent assessment in view of your use of EcoStruxure Control Engineering.
- In your risk assessment, consider all applicable regulations and standards that apply to your development process and to your machine/process.
- Verify that your use of EcoStruxure Control Engineering is fully covered in the definition of your software development process and that your software development process meets all applicable regulations and standards.
- After modifications of any type whatsoever to the source code of your application resulting from your use of EcoStruxure Control Engineering, commission or recommission the machine/process in compliance with all regulations, standards, and process definitions applicable to your machine/process.
- During commissioning or recommissioning of the machine/process, verify the correct operation and effectiveness of all safety-related functions and non-safety-related functions by performing comprehensive tests for all operating states, for the defined safe state of your machine/process, and for all potential error situations.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

EcoStruxure Control Engineering - Converter converts the application logic, database, structure, and behavior of controller applications. Infrastructure-specific code (for example, code relating to hardware, communication infrastructure, configuration, axes, counters) is not converted or may only be partially converted, for example, because the tool cannot be aware of the configuration and requirements of your target system. Therefore, certain code parts will miss from the converted code, or have only been partially converted.

You must subject the entire code converted by EcoStruxure Control Engineering - Converter to a full review, verification and validation.

In this process, you must, among other things, adapt the code to your target infrastructure. The information on post-conversion steps provided in the present user guide is not exhaustive, because only you, the user of EcoStruxure Control Engineering - Converter, can be aware of all requirements relating to your target controller application.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- In your risk assessment, consider all potential effects of using EcoStruxure Control Engineering - Converter, including, but not limited to, inappropriate, incorrect or incomplete input code as well as inappropriate, incorrect or incomplete converted output code.
- Verify that the converted code is properly adapted to all requirements of your target system.
- Subject the converted code to a full review, verification and validation by appropriately qualified personnel; and according to all applicable regulations, standards, and process definitions.
- Do not rely on the conversion report provided by EcoStruxure Control Engineering - Converter as the sole source of information in reviewing, verifying, validating, or otherwise assessing or using the converted code.
- Ensure that your overall machine/process for which EcoStruxure Control Engineering - Converter has been used is properly certified and/or approved according to all standards, regulations, and directives applicable at the installation site of the machine/process.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

EcoStruxure Control Engineering - Converter is neither certified nor intended for conversion of safety-related code.

⚠WARNING

INSUFFICIENT AND/OR INEFFECTIVE SAFETY-RELATED FUNCTIONS

- Do not convert safety-related code with EcoStruxure Control Engineering - Converter.
- Re-design any and all converted code in compliance with all applicable safety-related regulations, standards, and certification requirements if, after the conversion, you decide to use any part of such converted code for safety-related purposes.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

No tool can provide analysis procedures for all potential types of code and methods of creating code. For example, a code block in your source code may be semantically invalid, but syntactically correct. The tool may not be able to detect such a condition.

Software development environments may provide code protection features intended to, for example, block access to intellectual property. Unlock such protected code blocks in your software development environment before creating export files to be used with EcoStruxure Control Engineering.

⚠WARNING

INCORRECT OR INCOMPLETE SOURCE CODE ANALYSIS

- In your risk assessment, consider all potential effects of inappropriate, incorrect, or incomplete input files used with EcoStruxure Control Engineering.
- Verify that the source code exported from your software development environment and to be used by EcoStruxure Control Engineering is complete and up to date.
- After modifications of any type whatsoever to the source code of your application resulting from your use of EcoStruxure Control Engineering, verify the correctness of the modified source code.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

General Cybersecurity Information

In recent years, the growing number of networked machines and production plants has seen a corresponding increase in the potential for cyber threats, such as unauthorized access, data breaches, and operational disruptions. You must, therefore, consider all possible cybersecurity measures to help protect assets and systems against such threats.

To help keep your Schneider Electric products secure and protected, it is in your best interest to implement the cybersecurity best practices as described in the Cybersecurity Best Practices document.

Schneider Electric provides additional information and assistance:

- Subscribe to the Schneider Electric security newsletter.
- Visit the Cybersecurity Support Portal web page to:
  - Find Security Notifications.
  - Report vulnerabilities and incidents.
- Visit the Schneider Electric Cybersecurity and Data Protection Posture web page to:
  - Access the cybersecurity posture.
  - Learn more about cybersecurity in the cybersecurity academy.
  - Explore the cybersecurity services from Schneider Electric.

Product Related Cybersecurity Information

Machines, controllers, and related equipment are usually integrated into networks. Unauthorized persons and malware may gain access to the machine as well as to other devices on the network/fieldbus of the machine and connected networks because of insufficiently secure access to software and networks.

Schneider Electric adheres to industry best practices in the development and implementation of control systems. This includes a "Defense-in-Depth" approach to secure an Industrial Control System. This approach places the controllers behind one or more firewalls to restrict access to authorized personnel and protocols only.

⚠WARNING

UNAUTHENTICATED ACCESS AND SUBSEQUENT UNAUTHORIZED MACHINE OPERATION

- Evaluate whether your application environments are connected to your critical infrastructure and, if so, take appropriate steps in terms of prevention, based on Defense-in-Depth, before connecting the automation system to any network.
- Limit the number of devices connected to a network to the minimum necessary.
- Isolate your industrial network from other networks inside your company.
- Protect any network against unintended access by using firewalls, VPN, or other, proven security measures, such as an Intrusion Prevention System or Intrusion Detection System.
- Monitor activities within your systems.
- Prevent subject devices from direct access or direct link by unauthorized parties or unauthenticated actions.
- Install certificates that are issued by publicly known Trusted Certificate Authorities.
- Keep your systems up-to-date and rely only on legitimate sources.
- Prepare a recovery plan including backup of your system and process information.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For more information on organizational measures and rules covering access to infrastructures, refer to ISO/IEC 27000 series, Common Criteria for Information Technology Security Evaluation, ISO/IEC 15408, IEC 62351, ISA/IEC 62443, NIST Cybersecurity Framework, Information Security Forum - Standard of Good Practice for Information Security, and refer to Cybersecurity Guidelines for EcoStruxure Machine Expert, Modicon and PacDrive Controllers and Associated Equipment.

For reasons of Internet security, for those devices that have a native Ethernet connection, TCP/IP forwarding is disabled by default. Therefore, you must manually enable TCP/IP forwarding. However, doing so may expose your network to possible cyberattacks if you do not take additional measures to protect your enterprise. In addition, you may be subject to laws and regulations concerning cybersecurity.

⚠WARNING

UNAUTHENTICATED ACCESS AND SUBSEQUENT NETWORK INTRUSION

- Observe and respect any and all pertinent national, regional and local cybersecurity and/or personal data laws and regulations when enabling TCP/IP forwarding on an industrial network.
- Isolate your industrial network from other networks inside your company.
- Protect any network against unintended access by using firewalls, VPN, or other, proven security measures.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Consult the Schneider Electric Cybersecurity Best Practices for additional information.

Related Documents

Title of documentation	Reference number
EcoStruxure Control Engineering - Documentation - User Guide	EIO0000004426 (eng)
EcoStruxure Control Engineering - Verification - User Guide	EIO0000004424 (eng)
EcoStruxure Control Engineering - Tester - User Guide	EIO0000005747 (eng)
Cybersecurity Best Practices	7EN52-0390
EDI2200, Manuel de référence	1590595K01000 (fre)
EcoStruxure Control Engineering, Hardening Guide	EIO0000004982 (eng)

To find documents online, visit the Schneider Electric download center (www.se.com/ww/en/download/).

Information on Non-Inclusive or Insensitive Terminology

As a responsible, inclusive company, Schneider Electric is constantly updating its communications and products that contain non-inclusive or insensitive terminology. However, despite these efforts, our content may still contain terms that are deemed inappropriate by some customers.

Terminology Derived from Standards

The technical terms, terminology, symbols and the corresponding descriptions in the information contained herein, or that appear in or on the products themselves, are generally derived from the terms or definitions of international standards.

In the area of functional safety systems, drives and general automation, this may include, but is not limited to, terms such as *safety*, *safety function*, *safe state*, *fault*, *fault reset*, *malfunction*, *failure*, *error*, *error message*, *dangerous*, etc.

Among others, these standards include:

Standard	Description
IEC 61131-2:2007	Programmable controllers, part 2: Equipment requirements and tests.
ISO 13849-1:2023	Safety of machinery: Safety related parts of control systems. General principles for design.
EN 61496-1:2013	Safety of machinery: Electro-sensitive protective equipment. Part 1: General requirements and tests.
ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 14119:2013	Safety of machinery - Interlocking devices associated with guards - Principles for design and selection
ISO 13850:2015	Safety of machinery - Emergency stop - Principles for design
IEC 62061:2021	Safety of machinery - Functional safety of safety-related electrical, electronic, and electronic programmable control systems
IEC 61508-1:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: General requirements.
IEC 61508-2:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: Requirements for electrical/electronic/programmable electronic safety-related systems.
IEC 61508-3:2010	Functional safety of electrical/electronic/programmable electronic safety-related systems: Software requirements.
IEC 61784-3:2021	Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses - General rules and profile definitions.
2006/42/EC	Machinery Directive
2014/30/EU	Electromagnetic Compatibility Directive
2014/35/EU	Low Voltage Directive

In addition, terms used in the present document may tangentially be used as they are derived from other standards such as:

Standard	Description
IEC 60034 series	Rotating electrical machines
IEC 61800 series	Adjustable speed electrical power drive systems
IEC 61158 series	Digital data communications for measurement and control – Fieldbus for use in industrial control systems

Finally, the term *zone of operation* may be used in conjunction with the description of specific hazards, and is defined as it is for a *hazard zone* or *danger zone* in the *Machinery Directive* (*2006/42/EC*) and *ISO 12100:2010*.

NOTE: The aforementioned standards may or may not apply to the specific products cited in the present documentation. For more information concerning the individual standards applicable to the products described herein, see the characteristics tables for those product references.

Introduction to EcoStruxure Control Engineering - Converter

EcoStruxure Control Engineering - Converter is a code conversion and re-engineering tool for controller applications. The tool supports modernization and migration projects by converting a controller application to a different controller brand, model, and/or programming language, maintaining the behavior and semantics of the source controller application.

EcoStruxure Control Engineering - Converter focuses on the conversion of the application logic, database, structure, and behavior. Infrastructure-specific code (for example, code relating to hardware, communication infrastructure and configuration) is not converted because the tool cannot be aware of the configuration and requirements of your target system.

Specific transformation instructions can be added to the conversion by your Schneider Electric representative. These transformation instructions modify the programmable logic code during the execution of the product to adapt the code output as needed. For example, refactoring the converted code or renaming variables.

EcoStruxure Control Engineering - Converter is a Software as a Service (SaaS) tool accessible using a web browser.

The number of source and target systems that EcoStruxure Control Engineering - Converter supports is increased on an ongoing basis. The supported systems are available at https://ecostruxure-control-engineering.se.app/.

In terms of Web Content Accessibility Guidelines (WCAG), the software meets level AA.

Registration, Login, Account Settings, Licenses and Sessions

Registration

Overview

The EcoStruxure Control Engineering tools are accessible using the cloud version or using a dedicated server for your organization.

The URL of the cloud version is https://ecostruxure-control-engineering.se.app/.

If a dedicated server has been set up for your organization, the URL is available from your system administrator.

In both cases, you must create a user account to use the tools.

Browser Compatibility

The following web browsers are supported:

- Mozilla Firefox from version 102
- Google Chrome from version 127
- Microsoft Edge from version 127
- Apple Safari from version 17

Account Types

The following types of accounts are available:

- For the cloud version: Schneider Electric Account
- For the dedicated server version: EcoStruxure Control Engineering Account

Registration with the Cloud Version

Registration procedure:

Step	Action
1	Go to https://ecostruxure-control-engineering.se.app/.
2	Click **Use A Schneider Electric Account**.
3	Click **Register Here**.
4	Enter your registration information and complete the registration by following the on-screen instructions.

Registration with the Dedicated Server Version

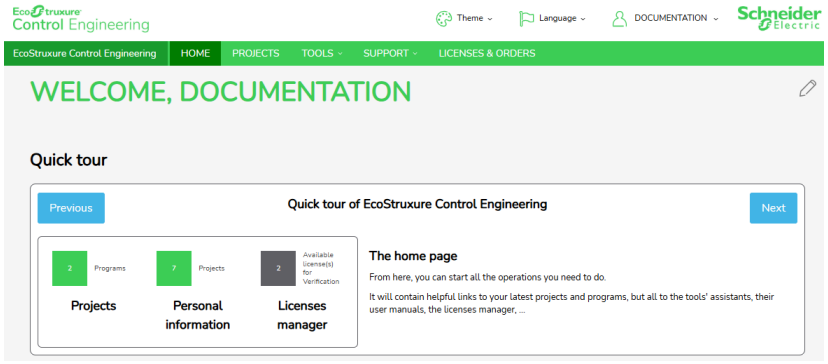
Contact your system administrator to coordinate the registration before you begin the registration procedure.

Registration procedure:

Step	Action
1	In your browser, go to the URL of the dedicated server.
2	Click **Sign up**.
3	Fill in the form with your first and last names, your phone number, your e-mail address (which is used as your identifier) and select a password. Password requirements: • At least one uppercase character • At least one lowercase character • At least one numerical character • At least one special character (such as ”{”, ”/”, “$”) • Password length at least 12 characters
4	Read the *Terms and Conditions* and, if you agree, select **I agree to the Terms and Conditions**.
5	Click **Sign Up**. **Result**: If the dedicated server version is configured to send emails, a verification e-mail is sent to you. If the dedicated server version is not configured to send emails, your account is activated immediately.
6	If the verification e-mail is sent to you: The email contains a link that you must follow. **Result**: Your account is activated.

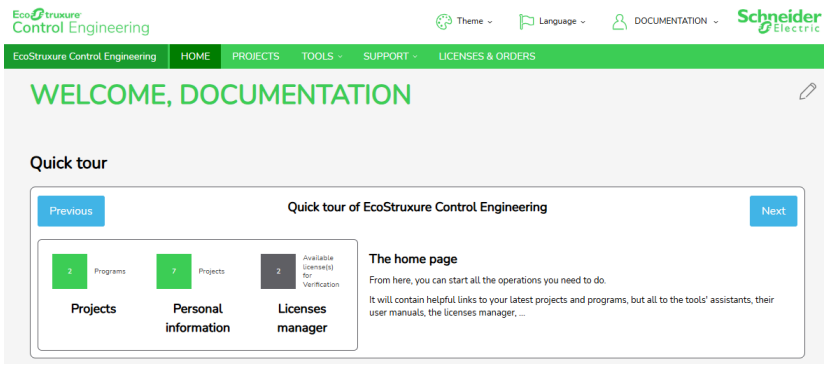
Login

Logging into the Cloud Version Using a Schneider Electric Account

Step	Action
1	When your Schneider Electric account registration is complete and your account is ready, go to https://ecostruxure-control-engineering.se.app/.
2	Click **Use A Schneider Electric Account**.
3	Enter your email address, click **Continue** and then enter your password. **Result**: After validation, you are redirected to your Home page. 

NOTE: If you use an EcoStruxure Control Engineering account but want to migrate to a Schneider Electric account, create a Schneider Electric user account that uses the same email address as your EcoStruxure Control Engineering account. After the first login with a Schneider Electric account, subsequent logins must be completed using your Schneider Electric account. For more information on Schneider Electric accounts, contact your local Schneider Electric service representative.

Logging into the Dedicated Server Version Using an EcoStruxure Control Engineering Account

Step	Action
1	In your browser, go to the URL of the dedicated server.
2	Enter your email address and password.
3	Click **Login**. **Result**: After validation, you are redirected to your Home page. 

Account Settings

Account Settings if a Schneider Electric Account is Used

The **Settings** page lets you access the personal information of the account and the global EcoStruxure Control Engineering platform settings.

Step	Action
1	In the **Home** page, click the profile icon . **Result**: A menu is displayed.
2	Click **Settings**. **Result**: The **Settings** page is displayed.

The **Schneider Electric Profile** tab displays personal information such as your identity, phone numbers and country. To update this information, edit your Schneider Electric profile.

The **Third-Party Apps Settings** tab allows you to generate a password (also referred to as “Token”, depending on the third-party software) to connect your application to EcoStruxure Control Engineering if your application does not support the Schneider Electric account authentication.

The **Notifications** tab allows you to configure the type of email notifications sent to you by the web platform. For example, you can choose to receive a confirmation email after a controller code analysis.

The **View Settings** tab allows you to select the default view for projects.

The **Privacy** tab provides general information on privacy and on the cookies policy. It describes how personal data is used and how you can exercise your rights relating to personal data. In addition, you can delete your personal data.

The **Accessibility** tab allows you to adapt the on-screen representation to your personal needs, for example, **Light mode**/**Dark mode** or themes for color-blindness. You can also click **Theme** at the top right of the Home page to select a theme.

Account Settings if an EcoStruxure Control Engineering Account is Used

The **Settings** page helps you to access the personal information of the account and the global EcoStruxure Control Engineering platform settings.

Step	Action
1	In the **Home** page, click the profile icon . **Result**: A menu is displayed.
2	Click **Settings**. **Result**: The **Settings** page is displayed.

The **Profile** tab displays personal information such as your identity, phone number and country. You can update this information at any time.

The **Password** tab provides the password change form. You can change your password at any time.

The **Notifications** tab allows you to configure the type of email notifications sent to you by the web platform. For example, you can choose to receive a confirmation email after a controller code analysis.

The **View Settings** tab allows you to select the default view for projects.

The **Privacy** tab provides general information on privacy, company-specific information on privacy (if available), and information on the cookies policy. It describes how personal data is used and how you can exercise your rights relating to personal data. In addition, you can delete your personal data.

The **Accessibility** tab allows you to adapt the on-screen representation to your personal needs, for example, **Light mode**/**Dark mode** or themes for color-blindness. You can also click **Theme** at the top right of the Home page to select a theme.

Licenses

General

Schneider Electric offers various license plans for EcoStruxure Control Engineering tools.

Paid License Plans

Contact your local Schneider Electric service representative for details on the available license plans for EcoStruxure Control Engineering tools. A selection of licenses is also directly available from Schneider Electric Software Shop Catalog at https://www.se.com/us/en/shop/software/?offerid=ECEE.

Overview of Your Paid Licenses, Your Orders And Your Contract

In the main menu click **LICENSES & ORDERS** to get an overview of your paid licenses, your orders and your contract.

The overview contains three tabs:

- The **Licenses** tab contains a list of your available licenses.
- The **Orders** tab contains a list of your orders.
- The **Contract** tab contains details of your contract.

Licenses Tab

The **Licenses** tab contains a list of licenses associated with your account. The list contains information such as license ID, name and type.

The buttons **Buy New Licenses On Schneider Electric Software Shop** (cloud version) and **Order Licenses** (dedicated server version) allows you to buy additional licenses.

- If you use the cloud version, the **Buy New Licenses On Schneider Electric Software Shop** button opens the Schneider Electric Software Shop Catalog (https://www.se.com/us/en/shop/software/?offerid=ECEE). After the checkout process, your licenses are automatically added to your account (within approximately 30 minutes).
- If you use the dedicated server version, the **Order Licenses** button opens an assistant. With the assistant you can add the licenses you want to buy. At the end of the process, you must download the license request file and send it to your local Schneider Electric service representative. The local Schneider Electric service representative then sends you a license file. You must install the license file manually using the **Install Licenses** button.

The **Quick Filters** button allows you to filter your licenses. The licenses can be filtered by logic controller brand or by expiration date (licenses that expire within the next three weeks).

The **Transfer Licenses** button allows you to transfer one or more licenses to a different user. A license can only be transferred if the license has not yet been used, has not expired and is not currently associated to a program.

Orders Tab

The **Orders** tab contains a list of orders associated with your account. The list contains information such as name, status and description.

The details of an order can be displayed by clicking the name of an order.

Information for each order:

- The **Overview** tab shows details on the person who created the order and the state of the order.
- The **Order content** tab shows details on the ordered products.
- The **Licenses** tab shows a list of the associated licenses.

Contract Tab

The **Contract** tab contains details of your contract. A contract allows you to provide seat licenses for a group of users and to set default **Glips versions**.

The **Summary** button provides a summary of your contract (contract name, description, contract manager, company and subscribed products) and a list of the members of the contract.

The **Repository** button shows a list of files that are shared between the contract members, for example, the rules file.

As a contract manager, you can do the following:

- The buttons **Reporting > Activity summary** and **Reporting > History** show usage statistics of the contract members.
- The **Administrate > Contract members** button allows you to add and remove contract members.
- The **Administrate > Default Glips versions** button allows you to set the default **Glips version** for each use case. Verify that the **Glips version** you select meets your requirements and matches the specifics of the input code.

Sessions

Automatic Log-Out (Session Time-Out)

After 11 minutes of inactivity in an EcoStruxure Control Engineering session, you are automatically logged out. If you work with multiple browser tabs, the most recent activity in any of the tabs applies. For example, if you work in tab 1, but not in tab 2, tab 2 does not disconnect you because there is activity in tab 1.

Multiple Sessions

If your credentials are used in multiple sessions, you receive a notification. For example, if you are logged in and another session is established with the same credentials, you receive the following message:

The information on the connection date and time, the IP address, the operating system and the browser help you to determine whether or not a session is legitimate. You can select and close a session with **Close Session(s)**.

Creating Projects and Programs

Introduction to Projects and Programs

Overview

EcoStruxure Control Engineering provides projects and programs for you to organize your work.

A project is a type of container that can hold programs. A project is not specific to an EcoStruxure Control Engineering tool.

When you register with EcoStruxure Control Engineering, the platform provides one default project for you.

A program is assigned to a project. A program is created in conjunction with one of the tools provided by EcoStruxure Control Engineering. A program typically comprises metadata you entered during its creation, the uploaded source code of a controller application, and the results generated with the EcoStruxure Control Engineering tools.

The EcoStruxure Control Engineering tools are launched from within a program. Whether or not a specific EcoStruxure Control Engineering tool is available for a program depends on the source controller/development environment you select during the creation of the program (**PLC Brand** or **PLC source brand**).

Programs can be shared with other users.

Example

Assume you have been assigned the task of improving a machine ABC with two controllers X and Y. In a first step, you want a deeper understanding of the code of the two controller applications. You create a project “Machine ABC”. Then you add two programs to this project: “Controller X” and “Controller Y”.

In both of these programs, you run EcoStruxure Control Engineering - Documentation to visualize the data flow and the control flow.

In the next phase, you manage the creation of a new version of the controller applications with improved quality. You start by running EcoStruxure Control Engineering - Verification in your programs to verify the existing code. You share the two programs with the developers so they can access the results of the code verification for assistance in updating the code.

In subsequent phases, you can upload intermediate versions of the updated code into your program and re-run EcoStruxure Control Engineering - Documentation and EcoStruxure Control Engineering - Verification to document the progress and verify that your coding rules have been properly implemented.

Creating Projects and Programs

Creating Projects

Procedure for creating a project:

Step	Action
1	Select **PROJECTS** in the top menu to display the **Projects** page.
2	Select **Actions > New project**.
3	Provide a unique name for your project. Lowercase and uppercase are ignored which means that, for example, the name of a project to be created cannot be “Controller xyz” if you already have a project with the name “Controller XYZ”.
4	Click **Add** to create the project. **Result**: The project is added to your list of projects on the **Open projects** tab.

Clicking a project in the list displays three tabs. The **Overview** tab provides general information on the project. The **Programs** tab contains the list of programs assigned to this project. The **Settings** tab contains the project settings.

Creating Programs

There are three ways to start the creation of a program:

- From outside of a project select **TOOLS** on the main menu
- From the Home page click **Start**
- From inside a project on its **Programs** tab select **Actions > New program**

Creating a program from outside of a project:

Step	Action
1	From the main menu, select **TOOLS** to display a list of the available tools.
2	Select the tool you want to use for the program. **Result**: EcoStruxure Control Engineering starts the program creation assistant.

Creating a program from the Home page:

Step	Action
1	From the main menu, select **HOME**.
2	Click **Start** for the tool you want to use for the program. **Result**: EcoStruxure Control Engineering starts the program creation assistant.

Creating a program from inside a project:

Step	Action
1	From the main menu, select **PROJECTS**.
2	Select the required project from the list.
3	Display the **Programs** tab of the project.
4	Select **Actions > New program**. **Result**: EcoStruxure Control Engineering prompts you for the tool to be used for the program and starts the program creation assistant.

Program Creation Assistant

Overview

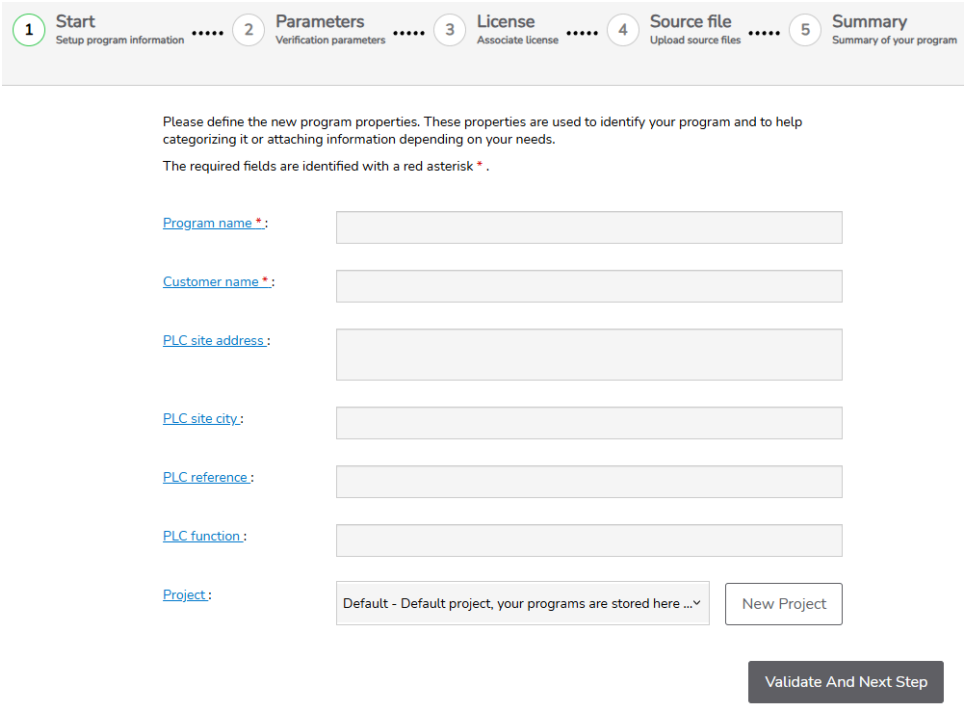
An assistant guides you through the different steps required to create your program and launch the selected EcoStruxure Control Engineering tool.

The project to which the new program is assigned depends on how the assistant is started. If the assistant is started from outside of a project or from the Home page, the program is assigned to your default project. If the assistant is started from inside a project, the program is assigned to this project. In both cases, the project assignment can be adjusted in step 1 of the assistant.

Refer to Creating Programs, page 24 for details.

Step 1 - Start

The first step consists of providing setup information on the program.



Provide the following information:

- The fields **Program name** and **Customer name**, marked with a red asterisk, are mandatory. The defined **Program name** is used to identify the program in the views of EcoStruxure Control Engineering.
- The other fields are for your own use. They are intended to identify the program within the project.

Continue with the next step by clicking **Validate And Next Step**.

Step 2 - Parameters

The second step consists of selecting the source development environment that was used to develop the controller application and the required target development environment for the converted code.

Select the source development environment from the dropdown list **PLC source brand**. Then select the target development environment from the dropdown list

PLC destination brand (the available options depend on your selection for the source development environment).

You can optionally specify the kind of controller used with your target development environment.

Continue with the next step by clicking **Validate And Next Step**.

Step 3 - License

The third step in creating an EcoStruxure Control Engineering program typically consists of selecting the EcoStruxure Control Engineering license to be used with your new program.

An EcoStruxure Control Engineering - Converter program consists of the two main phases of estimation and actual conversion. The estimation phase is based on a code analysis that is started when you finish the assistant. It provides key metrics on the convertibility of your source code (refer to Estimation, page 32 for details). The estimation can be launched without a license. Based on the results of the estimation, you can decide whether you want to convert your code. If you opt for an actual conversion after the estimation, EcoStruxure Control Engineering - Converter prompts you for a license.

Click **Validate And Next Step** to continue.

Step 4 - Source file

The fourth step consists of uploading the file with the source code of the controller application that you have exported from the development environment (refer to Manufacturer-Specific File Export Procedures, page 40 for details). This source code is the input material for EcoStruxure Control Engineering. Depending on the EcoStruxure Control Engineering tool used for the program, you may be prompted to upload additional files.

Drag and drop the files to the location indicated or click **Select Files…** to import the files.

Unwanted files can be removed with the garbage can symbol.

Then click **Validate And Next Step** to continue.

If the input files are not yet available when you create the program, you can skip the upload with **Validate And Next Step** and provide the files at a later point in time. Without the uploaded input files, the EcoStruxure Control Engineering tool selected for this program cannot be used.

Step 5 - Summary

The fifth step displays a summary of the information you have provided in creating your program.

Review the information. If you want to make modifications, click **Previous Step** to return to the step you want to modify.

To cancel the assistant, click the **X** button in the top right-hand corner. As a result, the information entered and the files uploaded up to this point in time are removed.

If the information is correct, click **Create Without Executing** to create the program or click **Create And Execute** to create the program and to start the EcoStruxure Control Engineering tool selected for this program (this is possible if you have selected a valid license and if you have uploaded the required files).

Programs

General Information

After you have completed the Assistant, the system displays an overview of the program with the following tabs:

- **Overview** tab
- Tool-specific tab
- **Admin** tab

Overview Tab

The **Overview** tab displays program-specific information, such as creation date and controller-related information.

The **Glips version** determines the way the code is interpreted.

The default **Glips version** for each program is either set by the system or, if you are a Contract Member, by your Contract Manager.

You can modify the **Glips version** to be used for your program. This implies that the results that you receive after a modification of the **Glips version** may be different. Verify that the **Glips version** you select meets your requirements and matches the specifics of the input code.

Tool-Specific Tab

The tool-specific tab allows you to access settings and results related to the tool used for the program.

The menu **<tool-specific> > User awareness > Execution messages** allows you to access the list of categorized messages regarding errors detected while using the tool.

Admin Tab

The **Admin** tab allows you to access settings specific to the program.

Accessing a Shared Program

If a program is shared with you, or if access to the program is not restricted (refer to Sharing a Program, page 29), you can add it to your list of programs by providing its unique program key. The unique program key can be found in the program overview under **Program key**.

To add a program to your list of programs:

Step	Action
1	From the main menu, select **PROJECTS** to access the Projects page. 
2	Click **Shared programs** to display the corresponding tab.
3	Enter the unique program key in the **Add To My Programs** field if you want to add this program to your personal records for access at a later point in time. If you only want to access it once without adding it to your list of programs, enter the program key in the **One Time Access** field.
4	Click **Add To My Programs** or **One Time Access**, depending on the field in which you entered the program key.

Sharing Programs with Other Users

Overview

You can share your programs with other users so that a team can work on the same project. As the owner, you can share your program. Selected users with whom you share your program cannot delegate their access rights, that is, they cannot share this shared program with further users.

In sharing programs, consider confidentiality rules that may apply.

There are two ways of sharing a program:

- Share with selected users: You choose who can access your program. By default, other users cannot share this program because you are the owner.
- Share with everyone: Everyone can access your program.

Sharing with a Specific User

To share a program with selected users:

Step	Action
1	Navigate to the **Program** page.
2	Select **Admin > Collaboration > Users access rights** to display the **User management**.
3	In the **Invited collaborators** area, select **Actions > Add**.
4	Enter the email address of the user to be invited. You can enter the email address the user specified for registration with EcoStruxure Control Engineering, or you can use any other email address. You can also send an invitation notification to the user. On a dedicated server, the invitation notification function requires an email server. Users added to the list of invited users can perform the same actions as you, except for sharing the program and modifying its settings. If you do not want invited users to perform any further actions, deactivate the program with the **Active program** check box in **Admin > Settings**. This sets your program to read-only.

NOTE: If your program uses the EcoStruxure Control Engineering - Verification tool, invited users may not be able to update the rules file and may not be able to work with the **Justifications** function. Refer to the EcoStruxure Control Engineering - Verification user guide for details.

You can revoke sharing by selecting the user account(s) you want to remove from your program and selecting **Actions > Remove access**.

Sharing with Everyone

To share a program with everyone:

Step	Action
1	Navigate to the **Program** page.
2	Select **Admin > Settings**.
3	Deactivate the check box **Private program**. Users accessing your program can perform the same actions as you, except for sharing the program and modifying its settings. If you do not want invited users to perform any actions, deactivate the program with the **Active program** check box in **Admin > Settings**. This sets your program to read-only.

NOTE: If your program uses the EcoStruxure Control Engineering - Verification tool, invited users may not be able to update the rules file and may not be able to work with the **Justifications** function. Refer to the EcoStruxure Control Engineering - Verification user guide for details.

You can disable sharing with everybody by activating the check box **Private program**. With this setting, only users explicitly invited can access your program.

File Repository of Programs

General

Each program has a file repository. You can directly access the files belonging to a program via the file repository.

File Operations

The **Actions** menu contains the following menu items:

Menu item	Description
Add file	You can add additional files to the repository.
Add file synchronized with contract	You can add links to files contained in the contract repository which are then available in your program repository. Any subsequent modifications to such linked files in the contract repository are reflected in your program repository.
Rename file	You can rename a file in the repository.
Delete	You can delete one or several files from the repository.

Get Checksum	You can display the SHA256 checksum of one or several files in the repository.
	
	Use the following **Windows PowerShell** command to compute the checksum of your local file:
	`Get-FileHash <Path to the file> -Algorithm SHA256 | Format-List`
	
	The result is, for example:
	`Get-FileHash C:\Users\SE\Downloads\rulesset_ documentation.pdf -Algorithm SHA256 | Format-List`
	
	`Algorithm : SHA256`
	`Hash : A5978FECDBE98C2C9C6479328AB2F717EBC239C9DA59-D55015AD3D5D50C63750`
	`Path : C:\Users\SE\Downloads\rulesset_ documentation.pdf`

The **Download Repository (ZIP)** button lets you download the files contained in the repository as a single zip file.

Converting Controller Applications

Estimation

General Information

The estimation process is the first phase of a conversion. The objective is to collect information on the potential result of the conversion without actually carrying out the conversion. This provides an overview of the potential quantity and quality of converted code and lets you assess the remaining post-conversion effort.

This estimation is available after the program assistant has been run for the first time. It is possible to run several estimation processes for a given program, even with several target controller/development environments so you can assess different scenarios with your program.

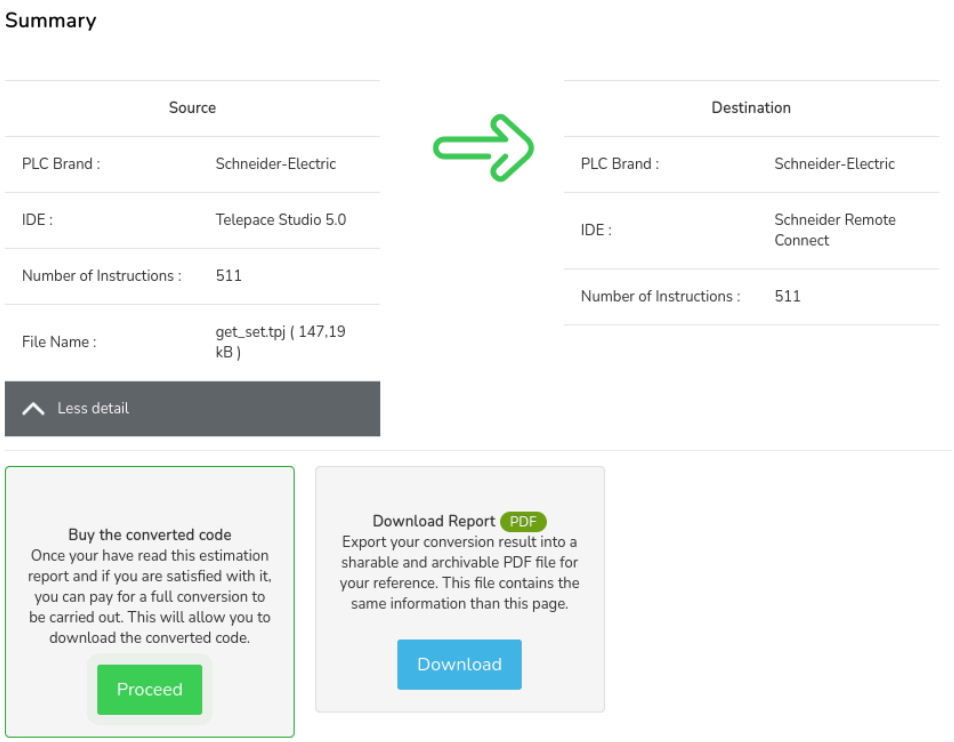
The estimation report provides the following sections:

- **Summary**
- **Statistical Conversion Capability**
- **Conversion Highlight**

To access the estimation report, click **Converter > {target controller/ development environment} > Estimation Report**.

Section Summary

The section **Summary** provides an overview of the key information concerning the convertibility of your source code.



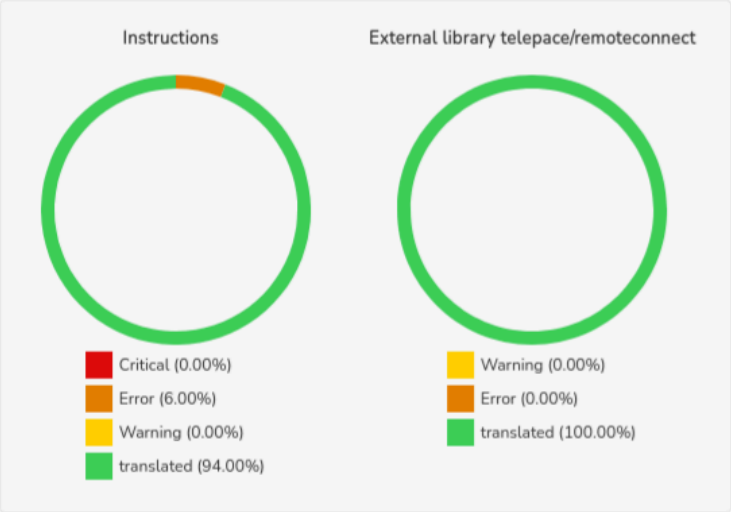
The upper part of the summary contains a table with information on the source and the destination controllers/development environments.

The lower part of the summary provides the following possibilities:

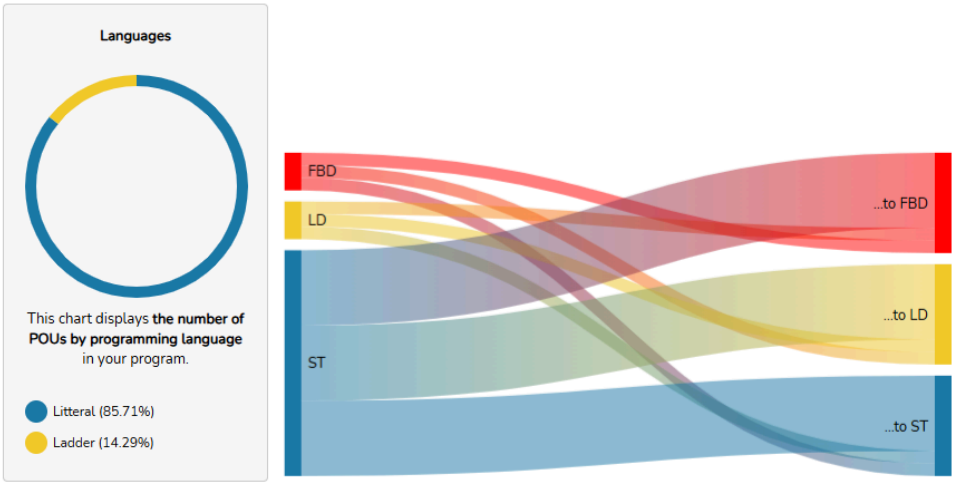
- Proceed to the conversion of the source code.
  For details see Starting the Actual Conversion, page 34.
- Download an excerpt of the converted code.
- Download the estimation report as a PDF file.

Section Statistical Conversion Capability

The section **Statistical Conversion Capability** provides percentage information on the amount of code that can be converted and the percentage of detected issues in the code to be converted.

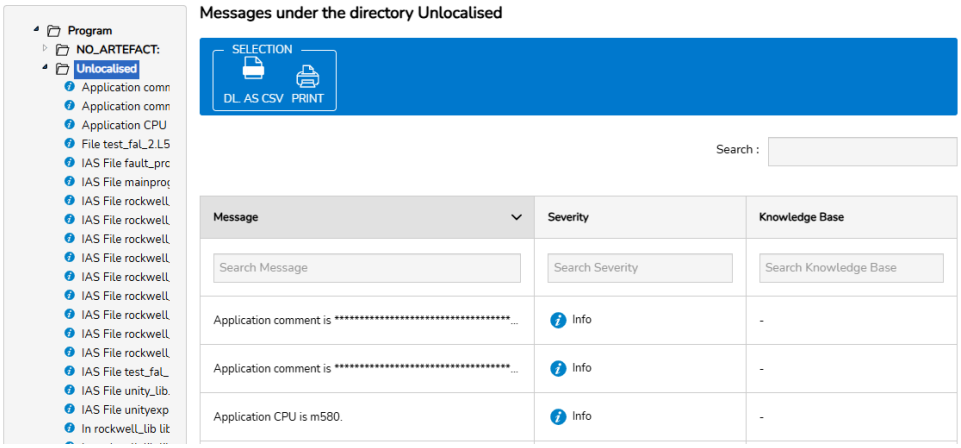


This section provides a **Languages** chart and diagram that give information about programming languages used and language conversion capabilities. Based on the version of Glips and the languages used, this section may not be displayed, contact your Schneider Electric representative for support.



Section Conversion Highlight

The section **Conversion Highlight** provides information on the elements found during the estimation of your source code.



The left side provides a menu structure similar to the internal structure of your source code.

The right side provides a list of detected issues you need to review and resolve in the converted code before the code can be used.

The column **Knowledge Base** may contain an article detailing the conversion process and various steps you need to take after having downloaded the converted code.

The list contains detected blocking issues for the code conversion. Conversion impediment conditions must be resolved in the original source code before the code conversion can be started. The list provides information on the causes that keep the code from being converted. Correct detected conversion impediments in your source code. Then, re-upload your corrected source code and run a new estimation with the updated program.

The list contains also detected issues that do not prevent the code from being converted, but that can affect the quality of the converted code in such a way that you may want to resolve them in the original code before starting the code conversion.

Starting the Actual Conversion

Step	Action
1	To start the conversion, click the **Proceed** button in the section **Summary**.
2	In the assistant, select a licence for the conversion and click **Validate And Next Step**.
3	Select, if required, a mapping for the languages and click **Validate And Next Step**.
4	Read the message and, if you agree, select the check box and click **Proceed**.

If the estimation contains detected conversion impediments in your source code, you cannot start the actual conversion. Correct detected conversion impediments in your source code. Then, re-upload your corrected source code and run a new estimation with the updated program.

If you modify the Glips version, page 27 between the steps **Estimation** and **Conversion**, the estimation results and the conversion results may not be consistent.

After the conversion is complete, you can access the conversion report using the menu of the program.

Conversion

General Information

The conversion process takes place in a second phase, after the estimation process.

A conversion report is available after the conversion process has been completed.

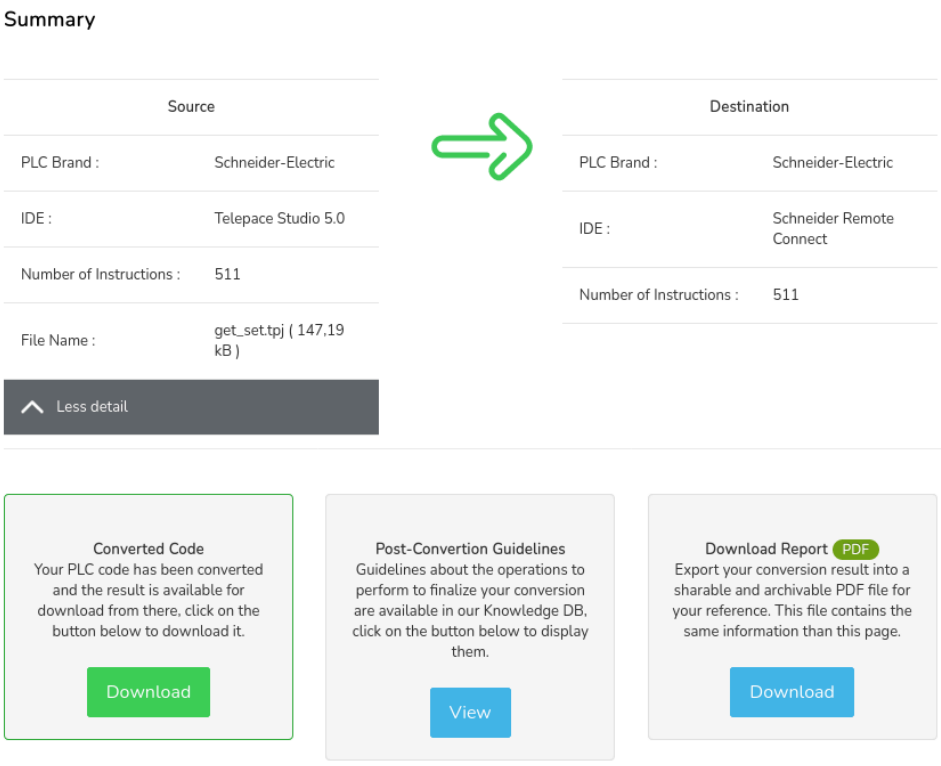
The conversion report provides the following sections:

- **Summary**
- **Statistical Conversion Capability**
- **Conversion Highlight**

To access the conversion report, click **Converter > {target controller/ development environment} > Conversion Report**.

Section Summary

The section **Summary** provides an overview of the key metrics concerning your converted source code.



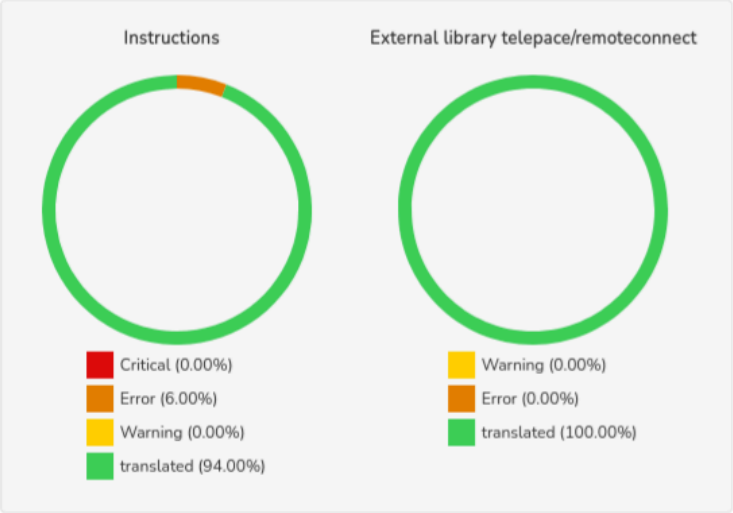
The upper part of the summary contains a table with information on the source and the destination controllers/development environments.

The lower part of the summary provides the following possibilities:

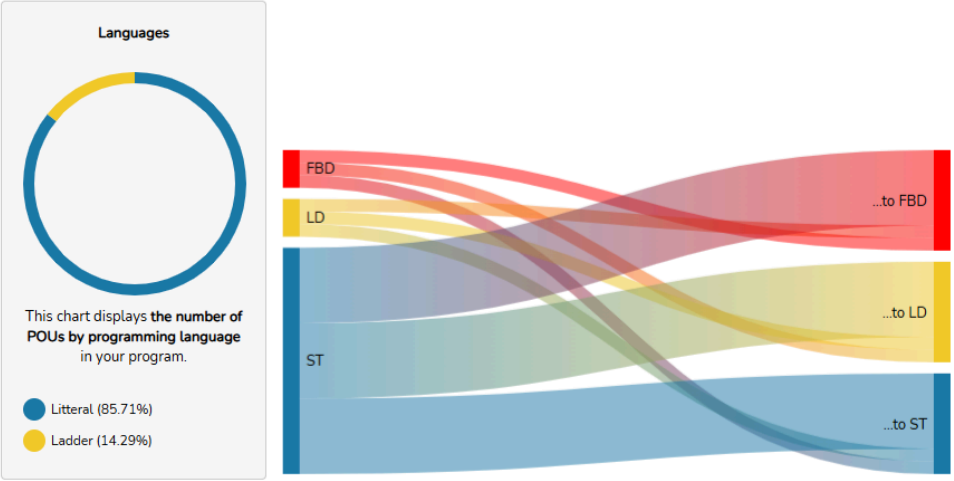
- Download the converted source code
- View post-conversion guidelines
- Download the conversion report as a PDF file

Section Statistical Conversion Capability

The section **Statistical Conversion Capability** provides percentage information on the amount of code that has been converted and the percentage of detected issues in the converted code.

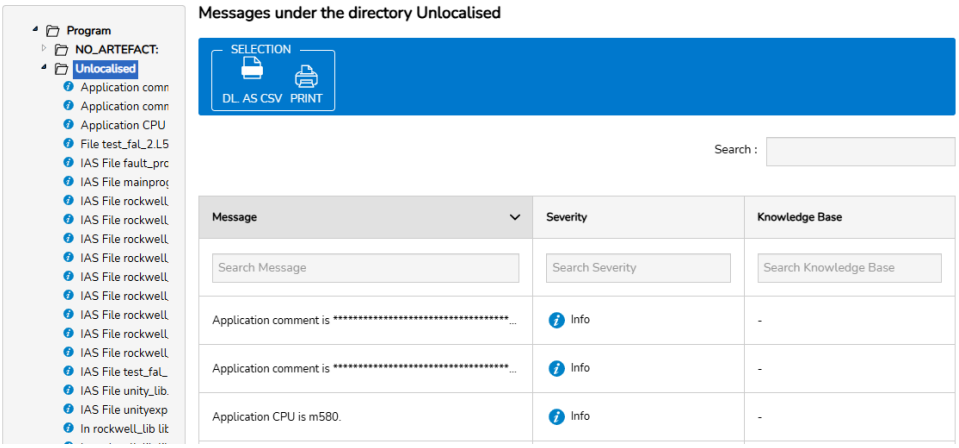


This section provides a **Languages** chart and diagram that give information about programming languages used and language conversion capabilities. Based on the version of Glips and the languages used, this section may not be displayed, contact your Schneider Electric representative for support.



Section Conversion Highlight

The section **Conversion Highlight** provides information on the elements found during the conversion of your source code.



The left side provides a menu structure similar to the internal structure of your source code.

The right side provides a list of detected issues you need to review and resolve in the converted code before the code can be used.

The column **Knowledge Base** may contain an article detailing the conversion process and various steps you need to take after having downloaded the converted code.

Post-Conversion Steps

General Information

EcoStruxure Control Engineering - Converter converts the application logic, database, structure, and behavior of controller applications. Infrastructure-specific code (for example, code relating to hardware, communication infrastructure, configuration, axes, counters) is not converted or may only be partially converted, for example, because the tool cannot be aware of the configuration and requirements of your target system. Therefore, certain code parts will miss from the converted code, or have only been partially converted.

You must subject the entire code converted by EcoStruxure Control Engineering - Converter to a full review, verification and validation.

In this process, you must, among other things, adapt the code to your target infrastructure. The information on post-conversion steps provided in the present user guide is not exhaustive, because only you, the user of EcoStruxure Control Engineering - Converter, can be aware of all requirements relating to your target controller application.

⚠WARNING

UNINTENDED EQUIPMENT OPERATION

- In your risk assessment, consider all potential effects of using EcoStruxure Control Engineering - Converter, including, but not limited to, inappropriate, incorrect or incomplete input code as well as inappropriate, incorrect or incomplete converted output code.
- Verify that the converted code is properly adapted to all requirements of your target system.
- Subject the converted code to a full review, verification and validation by appropriately qualified personnel; and according to all applicable regulations, standards, and process definitions.
- Do not rely on the conversion report provided by EcoStruxure Control Engineering - Converter as the sole source of information in reviewing, verifying, validating, or otherwise assessing or using the converted code.
- Ensure that your overall machine/process for which EcoStruxure Control Engineering - Converter has been used is properly certified and/or approved according to all standards, regulations, and directives applicable at the installation site of the machine/process.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

EcoStruxure Control Engineering - Converter is neither certified nor intended for conversion of safety-related code.

⚠WARNING

INSUFFICIENT AND/OR INEFFECTIVE SAFETY-RELATED FUNCTIONS

- Do not convert safety-related code with EcoStruxure Control Engineering - Converter.
- Re-design any and all converted code in compliance with all applicable safety-related regulations, standards, and certification requirements if, after the conversion, you decide to use any part of such converted code for safety-related purposes.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The conversion report generated by EcoStruxure Control Engineering - Converter can be used as a starting point for the post-conversion activities to be performed. It contains various types of messages:

- Feature detection from source controller
- Unsupported feature on the target controller for each unsupported system block
- One message for each instance/usage of an unsupported system block

Hardware-Related Logic

The following section provides information on some of the steps to perform on the hardware-related logic of the converted code. Only you, the user of EcoStruxure Control Engineering - Converter can determine the entirety of measures to be taken because they depend on your target controller application which EcoStruxure Control Engineering - Converter cannot be aware of.

- Configuration of racks/modules:
  - Select the modules (depending on the controller application, you may also be able to use tools such as EcoStruxure Migration Expert).
  - Define the appropriate mapping of status bits.
- Communication infrastructure (such as fieldbus, SCADA, interPLCs), control, high-speed counters, motion (typically, this is skipped by the conversion):
  - Assign variables to the right memory location, if required
  - Configure the hardware
  - Replace the empty system blocks that were generated for the target controller with the appropriate code
- Information specific to the controller (system bits/words) related to hardware
- Task mapping on the target controller

Manual Conversion

EcoStruxure Control Engineering - Converter may not have converted certain system blocks from the source controller application to the target controller application, for example, because the code has an unresolvable complexity or is insufficiently documented. Instances and usage of such blocks are documented by messages in the details of the conversion report, page 36.

In such cases, EcoStruxure Control Engineering - Converter may also have included an invalid instruction in the generated code. Such an invalid instruction is intended to be detected as an error by the target software development environment to keep the corresponding code from being used without further processing.

Manually adapt the code blocks to the target controller.

Manufacturer-Specific File Export Procedures

EcoStruxure Control Engineering tools use the source code files of controller applications as input files. These files are exported from the corresponding software development environments. The following sections provide information on generating these export files in various software development environments.

Allen Bradley PLC5 (.PC5, .SY6 Export Files)

Export the Allen Bradley PLC5 controller application to a PC5 and a SYS6 export file in order to be processed with EcoStruxure Control Engineering tools.

Step	Action
1	Open the project in RSLogix 5.
2	From the menu, select **File > Save As > Type**.
3	Select **Library Files (*.PC5)**. **Result**: RSLogix 5 generates the following files: • PC5 file • SY5 file • SY6 file • FIX file • FIX2 file

Only the PC5 and SY6 files are required for conversion.

The PC5 file contains the controller application:

- Hardware configuration
- Code
- Code comments
- Last values of variables

The SY6 files contains:

- Names of variables and comments

Allen Bradley SLC 500 (.SLC and .SY6 Export Files)

Export the Allen Bradley SLC500 controller application to a SCL and a SYS6 export file in order to be processed with EcoStruxure Control Engineering tools.

Step	Action
1	Open the project in RSLogix500.
2	From the menu, select **File > Save As > Type**.
3	Select **Library Files (*.SLC))**. **Result**: RSLogix500 generates the following files: • SCL file • SY5 file • SY6 file • FIX file • FIX2 file

Only the SCL and SY6 files are required for conversion.

The SCL file contains the controller application:

- Hardware configuration
- Code
- Code comments
- Last values of variables

The SY6 files contains:

- Names of variables and comments

April SMC80, SMC600 (Native Application Files)

Controller applications for April SMC80 and April SMC600 are developed with VPeSOFT and EDIDOS.

The EcoStruxure Control Engineering tools that support April SMC use the native controller application files under MS-DOS. The name of the controller application corresponds to the name of the directory. This directory contains the required files. Depending on the SDT, the exact file names may be different.

VPeSOFT files:

- BOOL.DAT: Sequential code section
- CALC.DAT: Calcul code section
- MNEMO.DAT: Variables mnemonics and comments
- MNEMO.CLE : MNEMO.DAT index file
- PIPC.DAT: Sequential section mnemonics and comments
- PIPC.IDX: PIPC.DAT index file

Note: VPeSOFT did not support comments in the Calcul section.

EDIDOS files

- BOOL.SAV: Sequential code section
- CALC.SAV : Calcul code section
- MNEMO.SAV : Variables mnemonics and comments
- COMCAL.SAV: Mnemonics and calcul comments
- PIPC.SAV: Sequential section mnemonics and comments

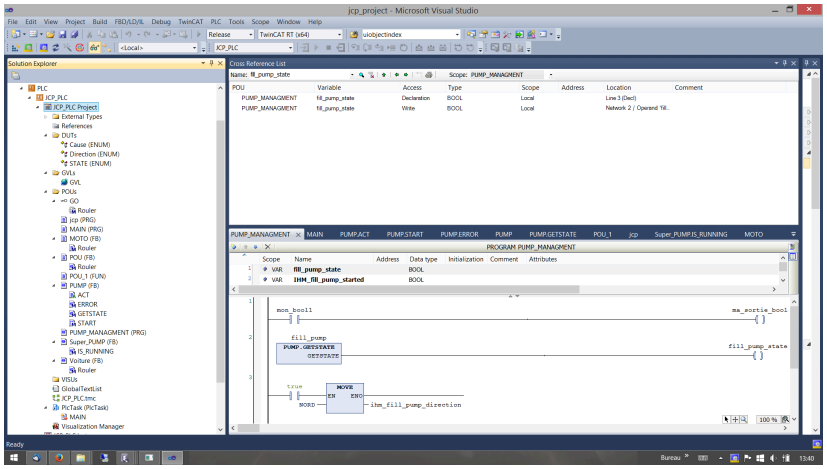
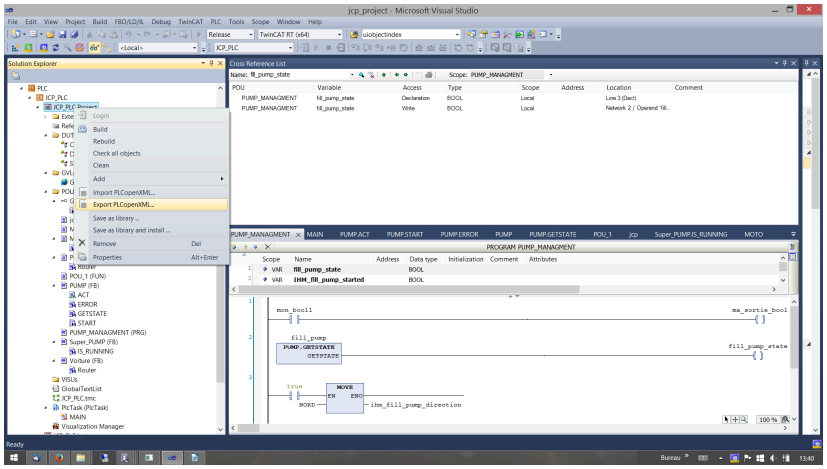
April Orphee 1000 Series (FTA Export File)

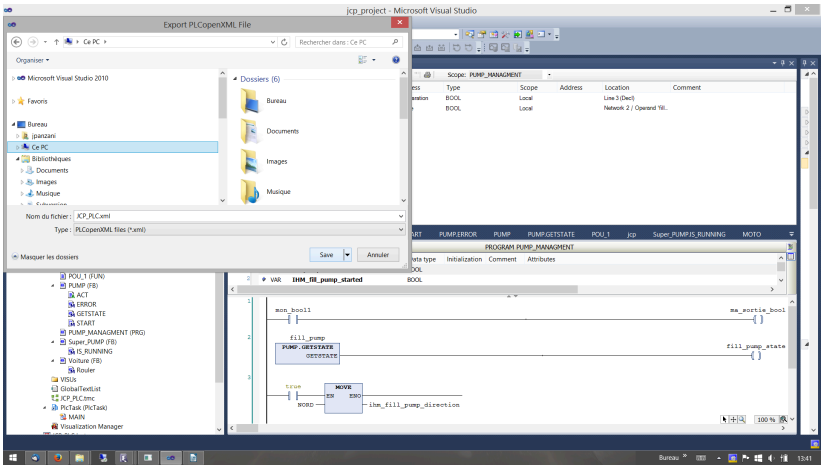
Controller applications for the April Orphee 1000 controller series are developed with April Orphee. The native Orphee application files are contained in the directory C:\ORPHEE\SERVROOT\ of the hard drive. Each subdirectory contains a different controller application. EcoStruxure Control Engineering supports the exported format.

Use the tool ORPHEE-EDI2200 to export the controller application to an FTA text file. The tool is available on the ORPHEE installation disk. Download the corresponding user guide (EDI2200, Manuel de référence) or contact your local Schneider Electric service representative for details.

BECKHOFF TwinCAT V3 (.XML File Export)

Export the Beckhoff TwinCAT controller application to an XML export file (PLCopen) in order to be processed with EcoStruxure Control Engineering tools.

Step	Action
1	In the **Solution Explorer** window, select the project. 
2	Right-click the project and select **Export PLCopenXML…**. 

Step	Action
3	Click **Save**. 

4	Open the XML file in a text editor to verify whether the XML file is valid.
	
	Search for the following:
	`< name="TwinCAT_Configuration" ...>`
	`...`
	`</>`
	
	Modify as follows:
	`<globalVars name="TwinCAT_Configuration" ...>`
	`...`
	`</globalVars>`
	
	If the element name `globalVars` is already available, nothing has to be modified.

GE Fanuc Intelligent Platforms Proficy Machine Edition V9.5 (.SWXCF File Export)

Export the Proficy Machine Edition controller application to a ZIP export file in order to be processed with EcoStruxure Control Engineering - Converter.

Step	Action
1	From the menu, select **File > Save And Back Up ...**.
2	In the **Save And Back Up** dialog box, select the file type: **Zip Files (*.zip)**.
3	If required, modify the storage location.
4	Provide a name for the ZIP file.
5	Click **Save**.
6	After file has been stored, navigate to the storage location.
7	Extract the ZIP file to save the SWXCF file.

Mitsubishi GX Works3 (PLCopen .XML File Export)

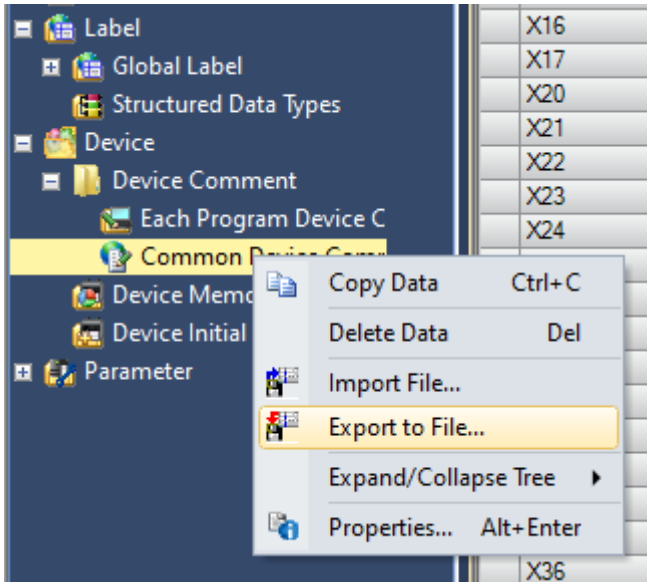
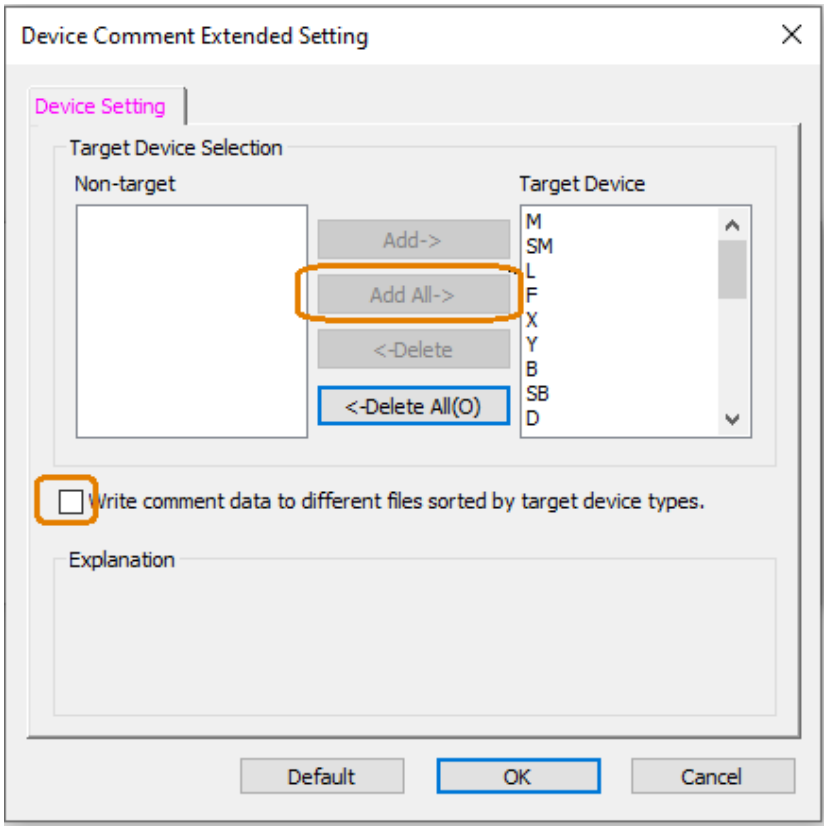
Export the Mitsubishi GX Works3 controller application to an XML export file (PLCopen) in order to be processed with EcoStruxure Control Engineering tools.

NOTE: For MELSEC controllers: The programming language Instruction List is not supported.

Procedure for the first file:

Step	Action
1	From the menu, select **Project** > **Save Other Format File** > **XML Format...**.
2	Provide a file name and a folder name as prompted.
3	Click **Save**.

Procedure for the second file:

Step	Action
1	In the navigation tree, right-click **Device** > **Device Comment** > **Common Device Comment** > **Export to File...**. 
2	Set the export options as follows: 
3	Click **OK**.
4	Provide a file name and a folder name as prompted.
5	Click **Save**.

Rockwell Automation® RSLogix 5000® or Studio 5000 (. L5K File Export)

Export the Rockwell Automation® RSLogix 5000® controller application to a L5K export file in order to be processed with EcoStruxure Control Engineering tools.

Step	Action
1	From the menu, select **File** > **Save as…**.
2	In the **Save as…** dialog box, provide a name for the L5K file.
3	If required, modify the storage location.
4	Select the file type: **RSLogix 5000 Import/Export File (*.L5K)**.
5	Click **Save**.

Siemens SIMATIC STEP 5 (.S5D, Z0.INI Native Files)

EcoStruxure Control Engineering - Converter can process controller applications developed with Siemens STEP 5 for SIMATIC controllers. The following files are used as input for EcoStruxure Control Engineering - Converter:

1. S5D: Contains the logic and memory information. This file is required. More than one S5D file can be provided to EcoStruxure Control Engineering - Converter.
2. Z0.INI: Contains mnemonics used in the controller application. This file is optional. If the file is not provided, there are no mnemonics in the analyzed controller application.

   NOTE: Verify that the S5D and Z0.INI files belong to the same application and are synchronized.

Siemens SIMATIC STEP 7 (.ASC, .AWL, .GR7 and .SCL File Export)

Overview

Follow the steps below to process a Siemens SIMATIC STEP 7 controller application with EcoStruxure Control Engineering tools:

These steps are mandatory:

- Set your SIMATIC STEP 7 workshop to German abbreviations (mnemonics).
- Create and export the symbols of the controller application to an **.ASC** file.
- Create and export the contact code (CONT) to an **.AWL** file.

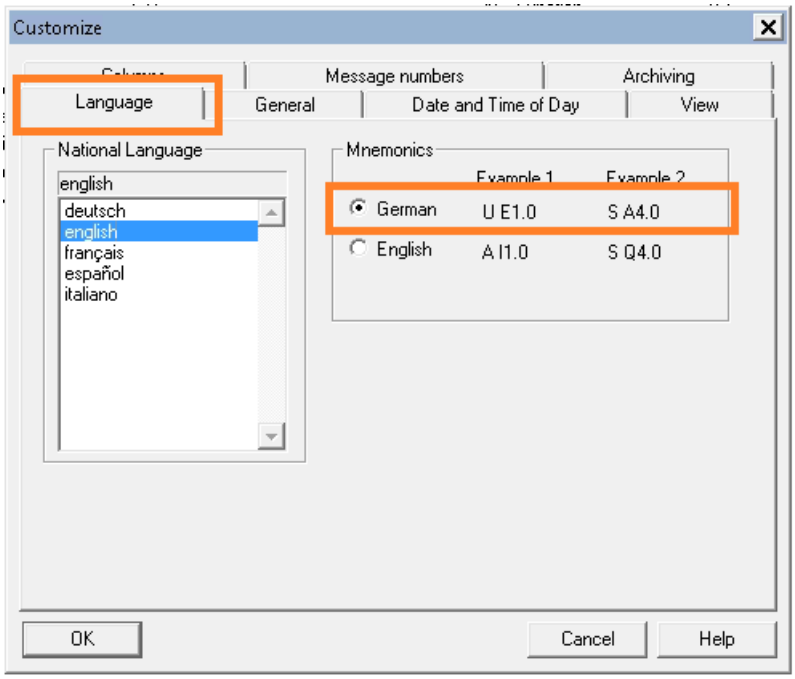
  NOTE: for a safety-related application you must create and export two **.AWL** files.
- For a safety-related application, create and export the data interchange format **.dif** file.

These steps are optional:

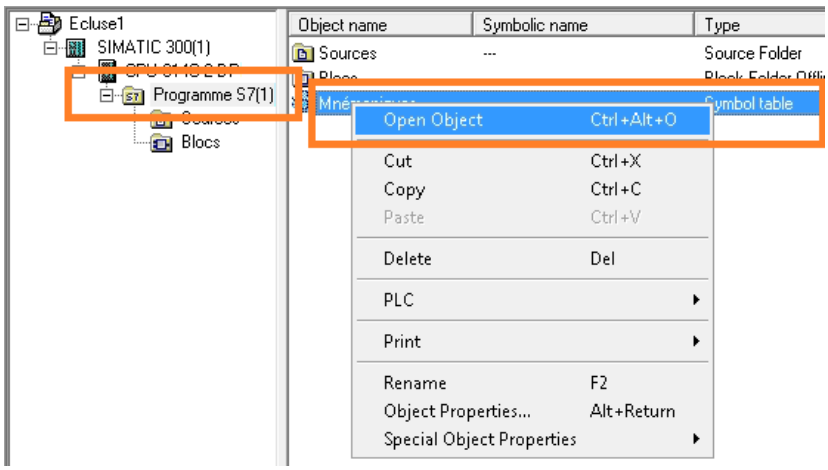
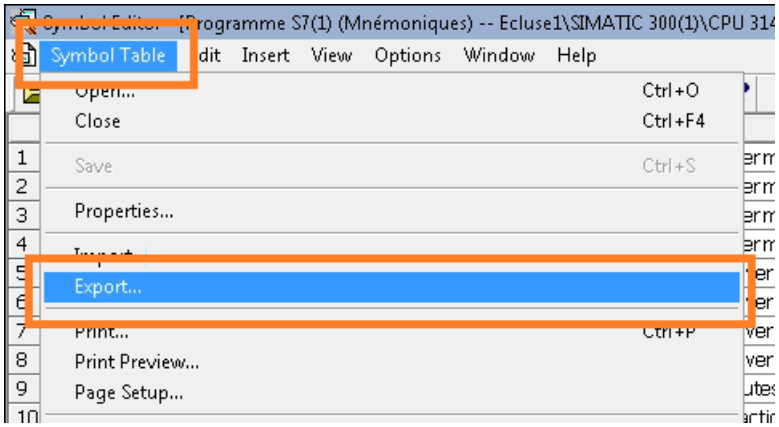
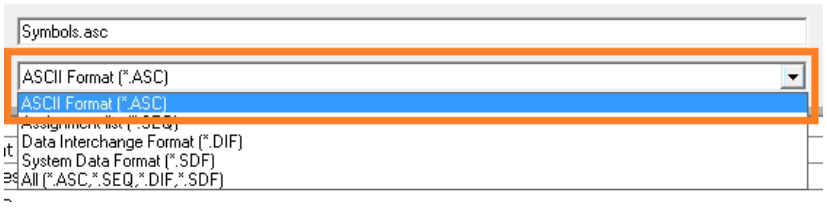
- Create and export the graph blocks (GRAPH) to **.GR7** files.
- Export the CFG configuration file.
- Compile the CFC code (if any) to create the corresponding **SCL** sources.
- Export structural codes (SCL) to **.SCL** files.

Setting German Mnemonics

Before creating the export files, set your SIMATIC STEP 7 workshop to German abbreviations (mnemonics):

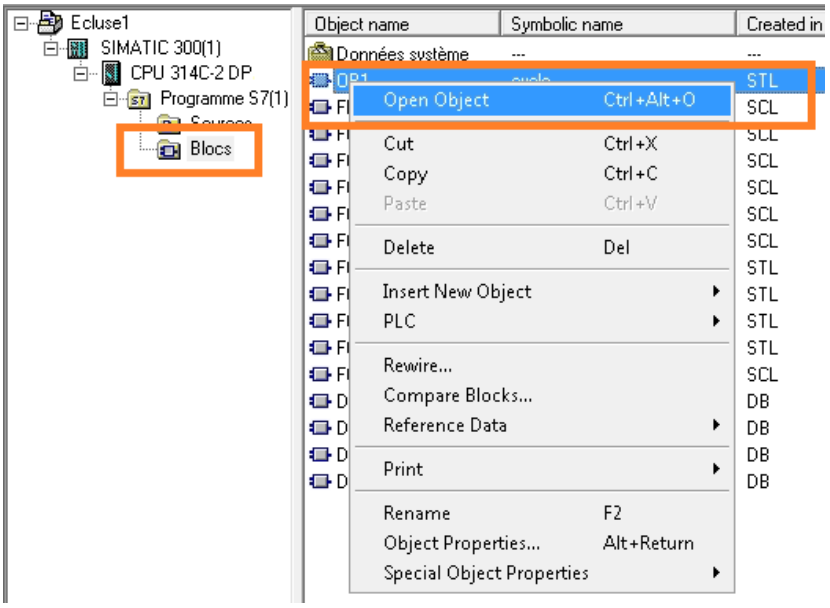
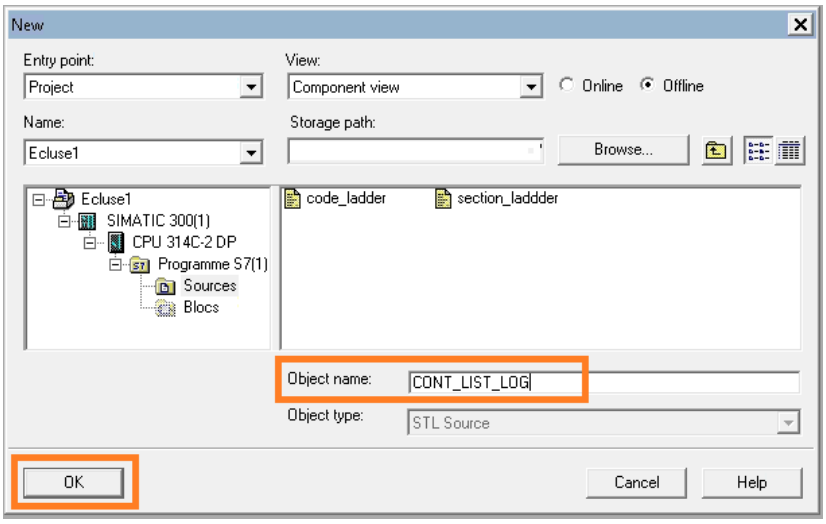
Step	Action
1	From the menu, select **Options** > **Customize…**.
2	Display the **Language** tab. 
3	Select **German** mnemonics.
4	Click **OK**.

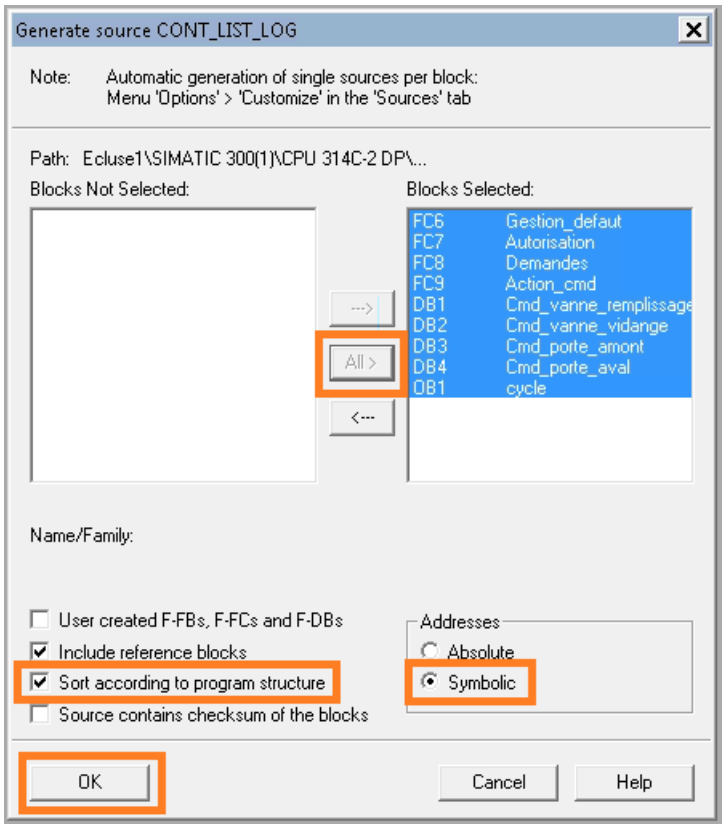
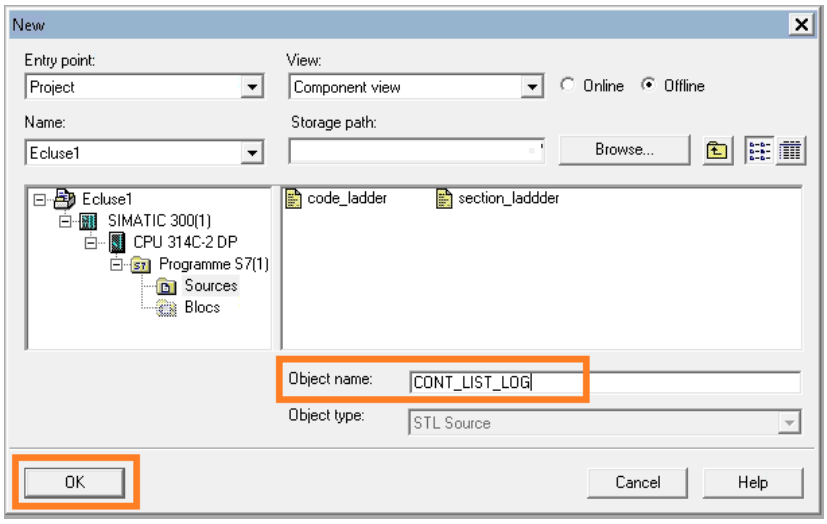
Creating an ASC File

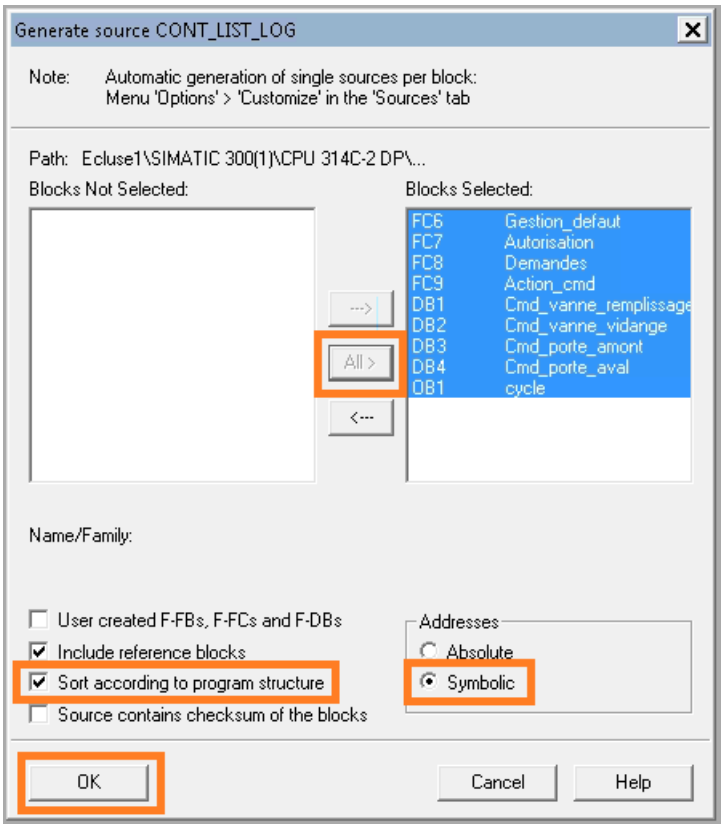
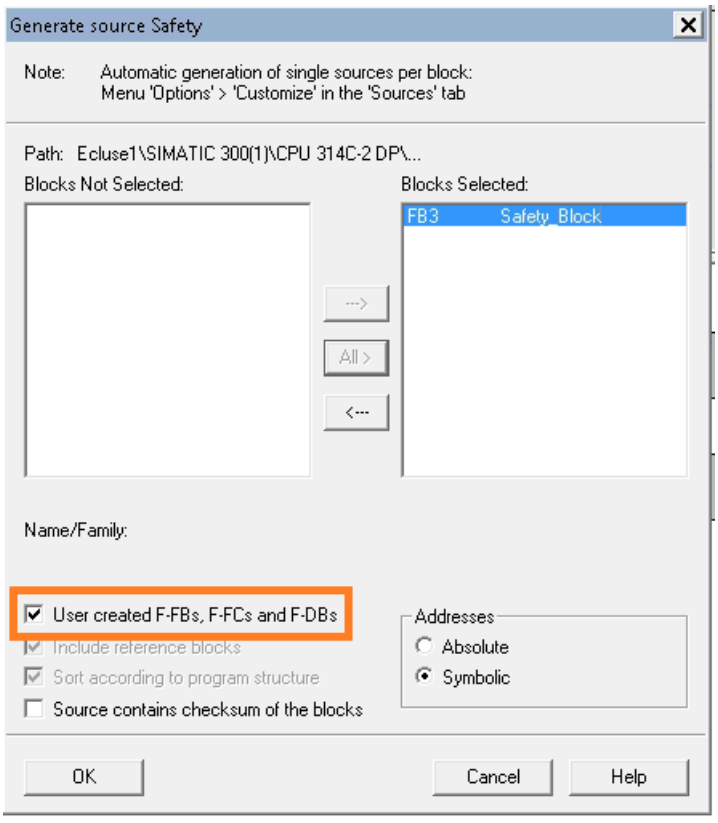
Step	Action
1	Right-click the **Symbol Table** in your program folder and select **Open object**. 
2	From the menu of the **Symbol Editor**, select **Symbol Table** > **Export…**. 
3	Select **ASCII Format (*.ASC)**. 
4	Provide a name and select a directory for the **.ASC** export file.
5	Click **Save**.

Creating an AWL File

To create an **.AWL** file, first generate the LIST source for the code blocks developed in the languages CONT, LIST and LOG.

Step	Action
1	Right-click a CONT, LIST or LOG source and select **Open Object** to open the CONT/LIST/LOG code editor. 
2	From the menu, select **File > Close** to close all open objects.
3	From the menu, select **File > Generate source…** to generate the program source.
4	Provide an object name and click **OK**. 

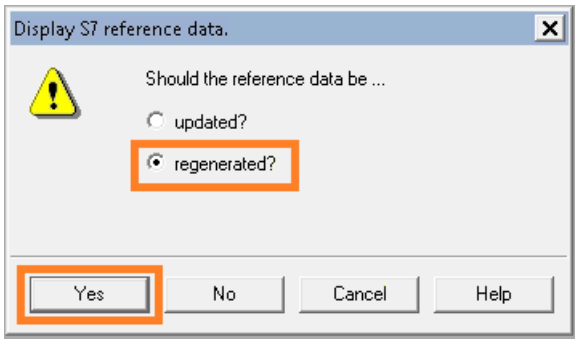
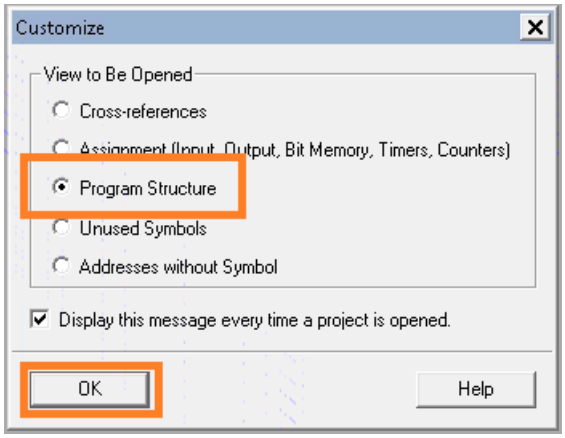
Step	Action
5	Click **All** to select all program blocks and select the options **Sort according to program structure** and **Symbolic** addresses. 
6	Click **OK** to confirm.
7	Optional: If your controller application contains safety-related blocks, export those blocks in a separate **AWL** file. Follow the below steps: From the menu, select **File > Generate source…** to generate the program source.
8	Provide an object name and click **OK**. 

Step	Action
9	Click **All** to select all program blocks and select the options **Sort according to program structure** and **Symbolic** addresses. 
10	Select the option **User-created F-FBs, F-FCs and F-DBs** and click **OK** to confirm. 

NOTE: When all the source files have been generated, export the files. Refer to Exporting Files, page 59.

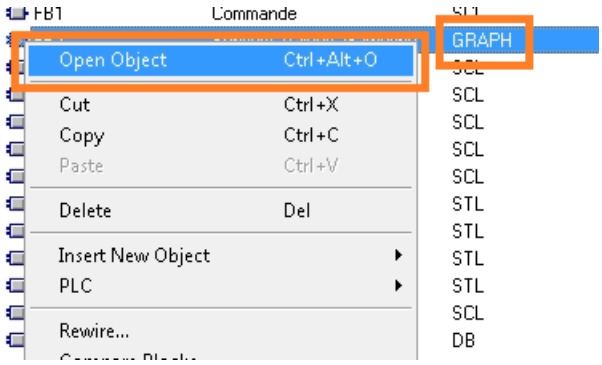
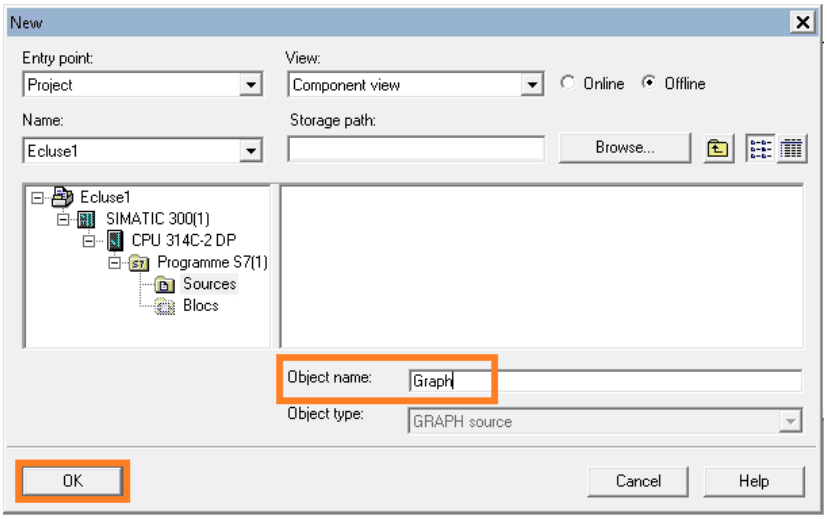
Creating a dif File

A **.dif** file is created in the SIMATIC Manager of SIMATIC STEP 7 in the following way:

Step	Action
1	From the menu, select **Options** > **Reference Data** > **Display**.
2	In the **Display S7 reference data** dialog box, select the option **regenerated?** and click **Yes**. 
3	In the **Customize** dialog box, select the option **Program Structure** and click **OK** to display the program structure. 
4	From the menu, select **View** > **Export** to open the **Save** dialog box.
5	Provide a name for the **.dif** and click **Save**.

Creating GR7 Files

The **.GR7** sources must be created for each GRAPH blocks separately. Repeat the following procedure for each GRAPH block to be exported.

Step	Action
1	Right-click a GRAPH object and select **Open Object**. 
2	From the menu, select **File > Generate Source File**.
3	Provide a name for the GRAPH object. 
4	Click **OK** to confirm.
5	Repeat the procedure for each GRAPH object to be exported.
6	When all the source files have been generated, export the files. Refer to Exporting Files, page 59.

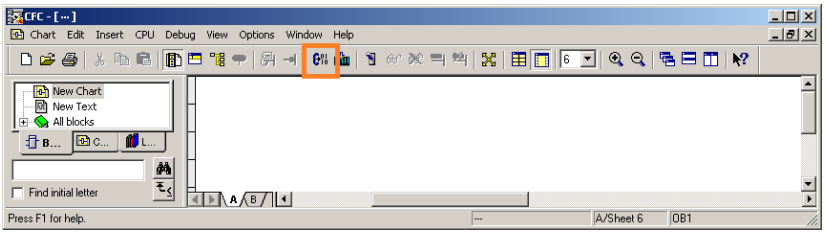
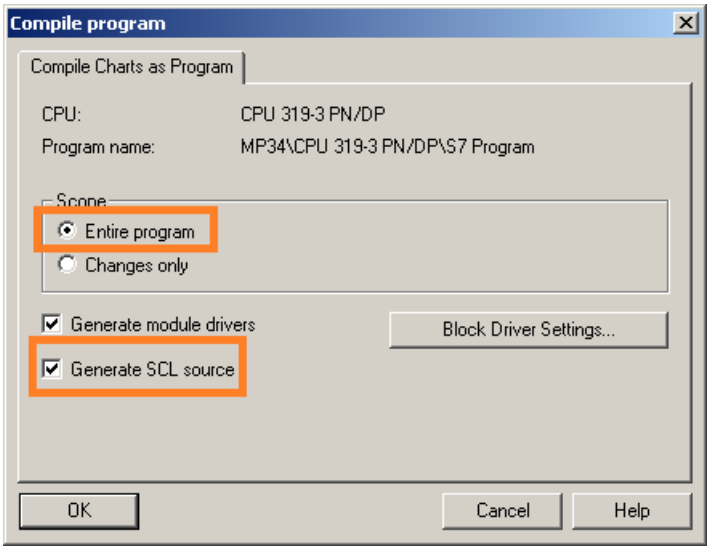
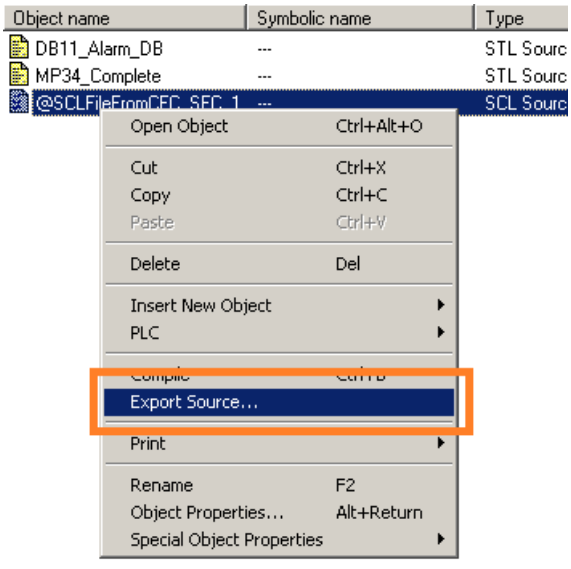
Creating a CFG File

The CFG file is required for analyzing the communication and the hardware configuration of the station.

Step	Action
1	Double-click your controller links in the main window to open NetPro.
2	In the NetPro window, double-click the controller of the station to be exported open the HW Config utility.
3	From the **Station** menu, select **Export…** to export your station configuration (leave the default settings in the dialog box).

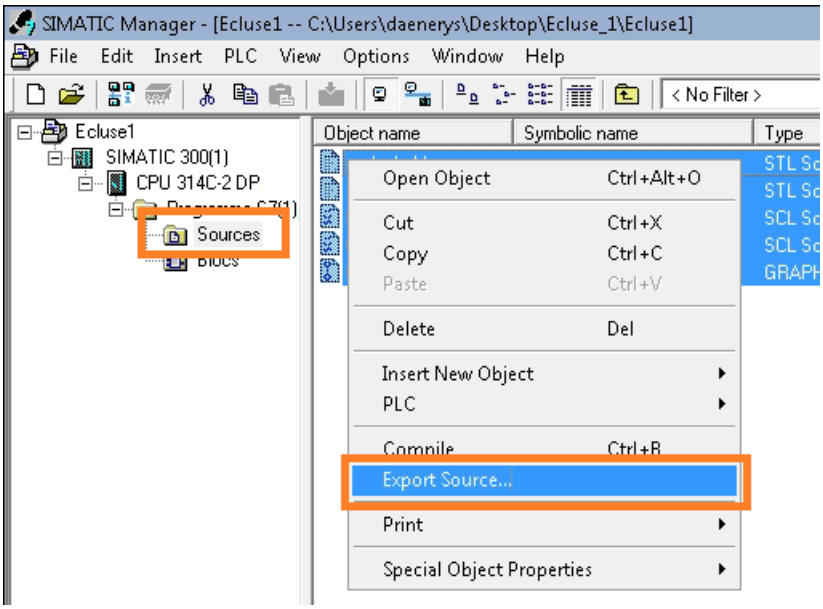
Creating a SCL File for CFC Codes

If the controller application contains CFC code, compile the code to generate the corresponding SCL source file which is the file to be processed with EcoStruxure Control Engineering tools.

Step	Action
1	Open the CFC code editor by clicking its icon in the toolbar of the main window. 
2	Compile the code with the options **Entire program** and **Generate SCL sources** and click **OK**. 
3	The generated SCL source file can then be exported like other source files (refer to Exporting Files, page 59). 

Exporting Files

After you have created the sources, export them from SIMATIC STEP 7:

Step	Action
1	Select the LIST, GRAPH (or **.AWL** and **.GR7** files) and SCL sources that you have generated.
2	Right-click the sources and select **Export source…**. 
3	Select a file name and a storage location and click **Save**.

Telemecanique TSX 7 Series (.BIN, .CDB Native Files)

To work with controller applications of the Telemecanique TSX 7 series developed with XTEL versions 4 and 5, three types of files are required:

1. BIN

   This file is mandatory. It contains the controller application with the hardware configuration, the database, the code, comments and further items.

   The file is available in the subdirectory ...\XPROPJ\PL7_3/APPLI\ (“appli” being the name of the controller application directory). The file name is PL7_3.BIN or appli.BIN (“appli” being the name of the controller application directory).

   If the BIN file has the same name as the TSX task, rename the BIN file before uploading it.

2. CDB

   This file is optional. It contains the names of the variables, comments and topological addresses of variables in the controller application.

   The file is available in the subdirectory ...\XPROPJ\SDBASE\APP\. The file name is PL7_3.CBD or appli.CBD (“appli” being the name of the controller application directory).

   If the file is not provided, the generated code does not have mnemonics and comments.

3. CNIORACK.BIN

   This file is optional. It contains a more detailed hardware configuration than that contained in the file BIN file. The file is only available in versions higher than V4 of XTEL.

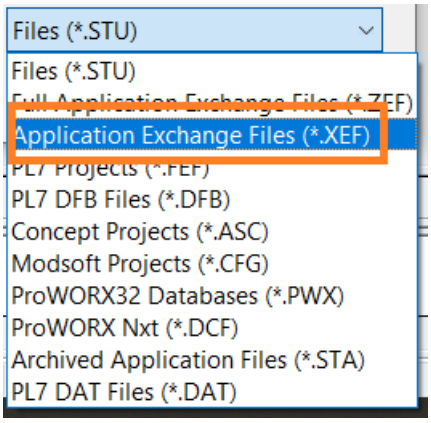
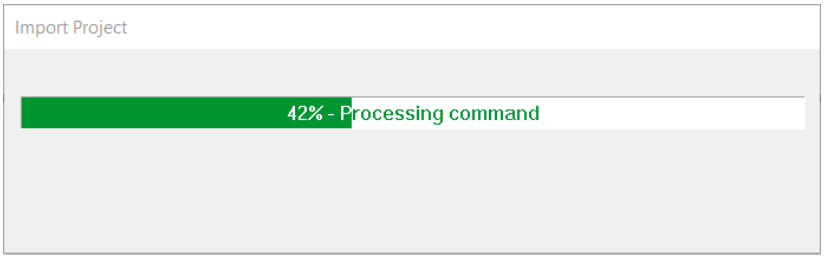
   The file is available in the subdirectory ...\\/CONF\IORACK\ CONFIO.

   If the file is not provided, the generated code does not have mnemonics and comments.

Manufacturer-Specific File Import Procedures

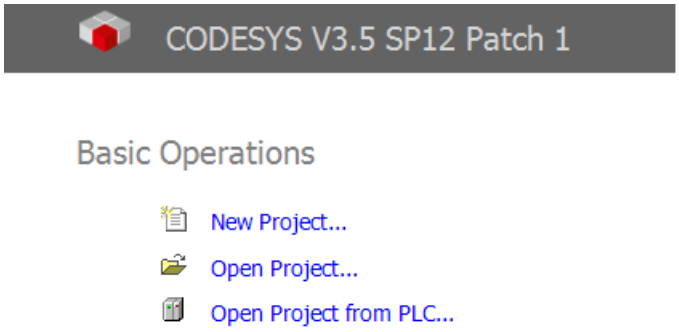
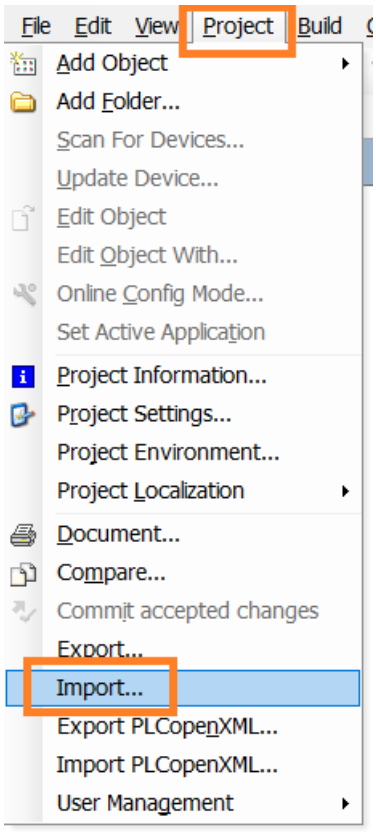
Unity Pro (XEF Import Format)

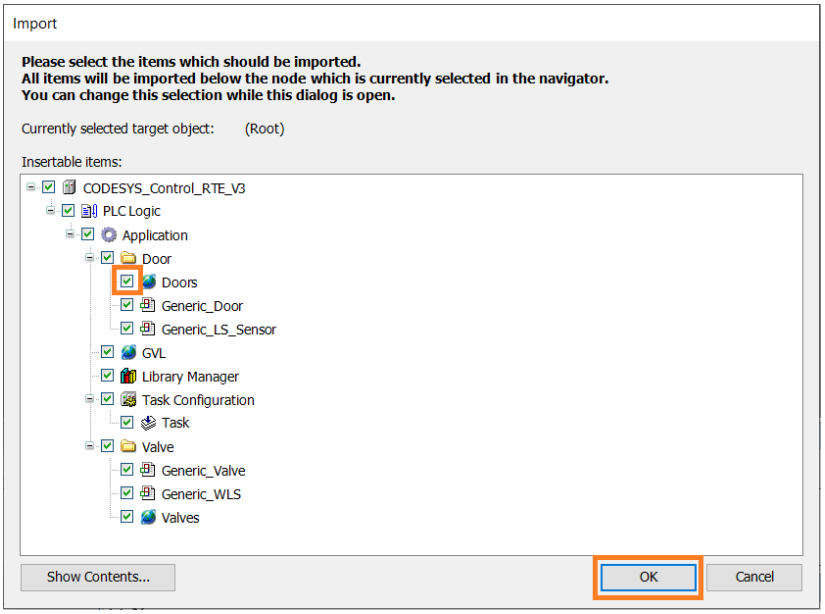
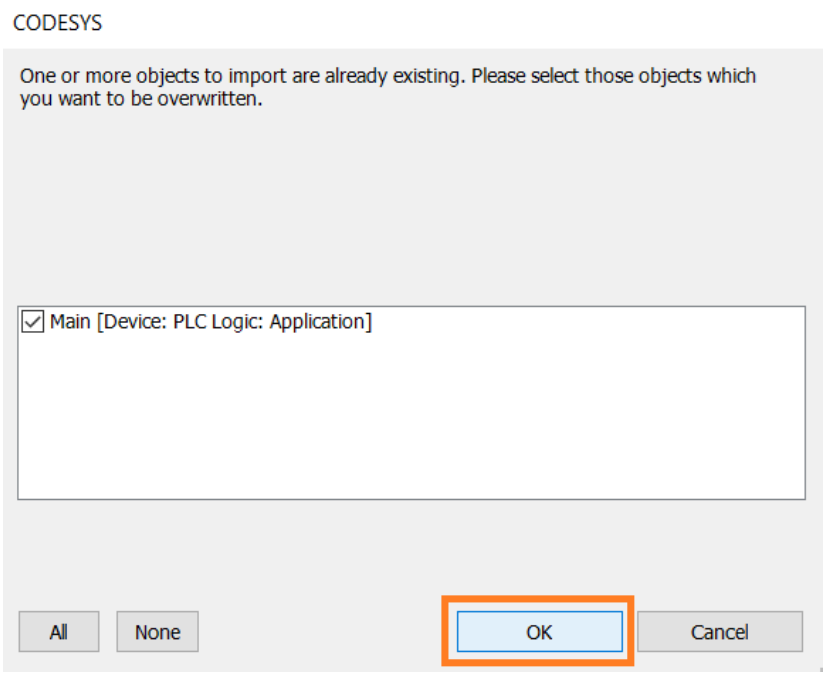
EcoStruxure Control Engineering - Converter provides an export of a Unity Pro project in XEF format that can be imported into Unity Pro.

Step	Action
1	From the menu, select **File** > **Open**.
2	Select **Application Exchange File (*.XEF)**. 
3	Select the XEF file in the appropriate folder and click **Open**. **Result**: The import process starts and progress information is displayed. When the import is finished, the project is available in Unity Pro. 

3S CODESYS V3 (EXPORT Import Format)

EcoStruxure Control Engineering - Converter provides an export of a CODESYS project that can be imported into CODESYS.

Step	Action
1	In CODESYS, create a project by selecting **Start page** > **Basic Operations** > **New project...**. 
2	Select **Empty project** and provide a name and storage location for the new project. **Result**: CODESYS opens the new project. 
3	Select the root of the new project under **Devices**.
4	Select **Project** > **Import...**. 

Step	Action
5	Select the EXPORT file in the appropriate folder and click **Open**. **Result**: CODESYS reads the file and provides a tree of the insertable items. By default, all items are selected. 
6	Select the required items and click **OK** to import the items.
7	CODESYS may notify you that a device contained in the project needs to be removed. This can occur because the code export contains another device. To continue, confirm with **OK** to overwrite the existing device.  **Result**: CODESYS notifies you when the import is complete.

By default, the EXPORT file generated by EcoStruxure Control Engineering - Converter is compatible with version 3.5 SP10, patch 10 of CODESYS. If you want to use the files with a different CODESYS version, import it into CODESYS version 3.5 SP10, patch 10 to create a project, and then open the project with the CODESYS version that you want to use. Contact your local Schneider Electric service representative for additional information.

SCADAPack RemoteConnect (.XEF Import Format)

EcoStruxure Control Engineering - Converter provides an export of a SCADAPack RemoteConnect project in XEF format that can be imported into SCADAPack RemoteConnect.

Step	Action
1	Open SCADAPack RemoteConnect and click **Create Project**.
2	From the **SCADAPack Device Type** drop-down list, select the required device, and then select any required optional features such as communication options.
3	Click **Next**, **Next**, and **Finish** to create the application.
4	In the **My Network** area of SCADAPack RemoteConnect, right-click the **SCADAPack x70 Controller Settings -DeviceDTM** and select **Additional Functions > Import Logic Project**.
5	Navigate to the location of the .xef file created by the converter.
6	Select the .xef file, click **Open** and then **OK** to import the file.
7	Save the SCADAPack RemoteConnect application after the import has completed.

You must separately import the object database of the Workbench project. It is contained in the .csv file provided in the converted download zip file. To begin, a spreadsheet containing the default object database will be created. The Workbench database will be added to the Objects tab of this spreadsheet, then imported into SCADAPack RemoteConnect.

Step	Action
1	In the **My Network** area of SCADAPack RemoteConnect, right-click **SCADAPack x70 Controller Settings -DeviceDTM** and select **Additional Functions > Export to Excel File**.
2	Specify a filename and location, then save this temporary file.

This Excel file includes multiple tabs with the default project's configuration of physical I/Os, communication and project settings. The process documented replaces the existing (default) Objects list with the converted variables of the project, as stored in the .csv file. Do not edit the parameters on any tab other than the **Objects** tab.

Step	Action
1	Open the .csv file generated as part of the conversion process. The file was created in tab-delimited format, with all source columns stored in column **A**. This format needs to be modified so that each category is in a separate column.
2	In Excel, click the column header of column **A** to select the column.
3	From the **Data** menu, select **Text to Columns**.
4	Click **Finish**. Excel arranges the values into separate columns based on the original tab separation.
5	Save this modified .csv file.
6	Click the top-left most cell in the table (directly above row **1** and to the left of column **A**) to select all columns and rows and copy the selection.
7	Navigate to the Excel (.xls) database file just exported from SCADAPack RemoteConnect and open it.
8	Display the tab **(2) Objects**.
9	Click the top-left most cell in the table (directly above row **1** and to the left of column **A**) of the tab **(2) Objects** to select all columns and rows and paste the copied information from the .csv file.
10	Save the .xls file and close it.
11	In SCADAPack RemoteConnect, right-click **SCADAPack x70 Controller Settings -DeviceDTM** and select **Additional Functions > Import from Excel File**.

Step	Action
12	Navigate to and select the Excel database file exported earlier on, which now contains a modified **Objects** tab.
13	Click **OK** and wait for the file to be imported, overwriting the defaults.
14	When the import has completed, save the SCADAPack RemoteConnect application.
15	In SCADAPack RemoteConnect, display the **Objects** tab and verify that all of the objects from the original project have been correctly imported.
16	For each object imported from the Workbench Target 5 project which was tied to physical I/O, you must connect these objects to SCADAPack RemoteConnect physical I/O objects. 1. On the **Configuration** tab, expand **Physical I/O** and select **Local**. 2. Select the configured SCADAPack x70 device, for example, SCADAPack 474. 3. In the **Channel Configuration** area to the right, double-click each physical I/O object in turn, for example, DI1, to open its **Object Associations** dialog box. 4. Select **Associate with existing object** and choose the imported object that is to be associated with this physical I/O point. 5. Continue until all objects which were tied to physical I/Os in the Workbench application have been associated with SCADAPack RemoteConnect physical I/Os.
17	If any additional physical I/O hardware is required to provide equivalent I/O to the original RTU: 1. On the **Configuration** tab, expand **Physical I/O** and select **Local**. 2. Click **Add I/O** and select an appropriate module. 3. Enter a module name if required, and an address, which begins at 0 for each type. 4. Select **Manually connect existing objects to the I/O channels**. 5. Select the new module and, in the **Channel Configuration** list, double-click each channel and **Associate** it with an existing (imported) object.
18	Save the SCADAPack RemoteConnect project.

Siemens TIA Portal SIMATIC STEP 7 (.ZIP Import Format)

EcoStruxure Control Engineering - Converter provides the generated code for Siemens TIA Portal SIMATIC STEP 7 in a ZIP file to be imported into a Siemens TIA Portal SIMATIC STEP 7 project.

The file can be imported automatically with the EcoStruxure Control Engineering Import/Export tool. Select **SUPPORT > DOWNLOADS**.

Refer to the user guide of the EcoStruxure Control Engineering Import/Export tool for details.

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