



# Logix 5000 Controllers Security

1756 ControlLogix, 1756 GuardLogix, 1769 CompactLogix,  
1769 Compact GuardLogix, 1789 SoftLogix, 5069  
CompactLogix, 5069 Compact GuardLogix, Studio 5000  
Logix Emulate

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## Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

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**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

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**IMPORTANT** Identifies information that is critical for successful application and understanding of the product.

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Labels may also be on or inside the equipment to provide specific precautions.



**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

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**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

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**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

This manual includes new and updated information. Use these reference tables to locate changed information.

Grammatical and editorial style changes are not included in this summary.

Global changes

This table identifies changes that apply to all information about a subject in the manual and the reason for the change. For example, the addition of new supported hardware, a software design change, or additional reference material would result in changes to all of the topics that deal with that subject.

Change	Topic
Updated FactoryTalk Security Actions table.	<a href="#">Product policies and securable actions</a> on <a href="#">page 53</a>

New or enhanced features

None in this release.



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**Appendix A**

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This manual explains how to configure security for the Logix Designer™ application. It also explains how to set up source protection for your logic and projects. This manual is one of a set of related manuals that show common procedures for programming and operating Logix 5000 controllers.

For a complete list of common procedures manuals, refer to the [Logix 5000 Controllers Common Procedures Programming Manual](#), publication [1756-PM001](#).

The term Logix 5000 controller refers to any controller based on the Logix 5000 operating system.

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this publication are not in alignment with the movement toward inclusive language in technology. We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

## Studio 5000 environment

The Studio 5000 Automation Engineering & Design Environment® combines engineering and design elements into a common environment. The first element is the Studio 5000 Logix Designer® application. The Logix Designer application is the rebranding of RSLogix 5000® software and will continue to be the product to program Logix 5000™ controllers for discrete, process, batch, motion, safety, and drive-based solutions.



The Studio 5000® environment is the foundation for the future of Rockwell Automation® engineering design tools and capabilities. The Studio 5000 environment is the one place for design engineers to develop all elements of their control system.



## Additional resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
<a href="#">Industrial Automation Wiring and Grounding Guidelines</a> , publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
<a href="#">FactoryTalk Security System Configuration Guide</a> , publication FTSEC-QS001	Provides additional information on FactoryTalk™ security.
Product Certifications website, <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a>	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley™ distributor or Rockwell Automation™ sales representative.

## Legal notices

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### End User License Agreement (EULA)

You can view the Rockwell Automation End User License Agreement (EULA) by opening the license.rtf file located in your product's install folder on your hard drive.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\license.rtf.

### Open Source Software Licenses

The software included in this product contains copyrighted software that is licensed under one or more open source licenses.

You can view a full list of all open source software used in this product and their corresponding licenses by opening the oss\_licenses.txt file located in your product's OPENSOURCE folder on your hard drive. This file is divided into these sections:

- Components  
Includes the name of the open source component, its version number, and the type of license.
- Copyright Text  
Includes the name of the open source component, its version number, and the copyright declaration.
- Licenses



Includes the name of the license, the list of open source components citing the license, and the terms of the license.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\<*product name*>\Release Notes\OPENSOURCE\oss\_licenses.txt.

You may obtain Corresponding Source code for open source packages included in this product from their respective project web site(s).

Alternatively, you may obtain complete Corresponding Source code by contacting Rockwell Automation via the **Contact** form on the Rockwell Automation website:

<http://www.rockwellautomation.com/global/about-us/contact/contact.page>.

Please include "Open Source" as part of the request text.



## Security overview

### Introduction

This chapter provides an overview of the security features available in the Logix Designer application.

The following features are the main security features that protect controller projects:

- FactoryTalk® Security software, which provides permission-based control.
- Source Protection, which protects the logic in controller projects.

### FactoryTalk Security

FactoryTalk® Security integrates a common security model across all FactoryTalk enabled products. FactoryTalk® Services Platform (FTSP) includes the FactoryTalk Administration Console that provides the interface for configuring your system. FactoryTalk Services Platform (FTSP) software is installed during the installation of the Logix Designer application.

Use FactoryTalk Security to control access to the logic in your projects with centrally managed, role-based policy enforcement.

For more information about FactoryTalk Security, see the [FactoryTalk Security System Configuration Guide](#), publication [FTSEC-QS001](#).

### Permission sets and Logical Names

Permission sets and Logical Names identify a set of actions that are allowed or denied for one or more user groups or computer groups. You use permission sets and Logical Names to define user permissions in the FactoryTalk Administration Console. Use permission sets to apply the same permissions to multiple controllers or project components. Use a Logical Name to associate permissions with a specific controller. When you use a Logical Name, it must match the name of the controller.

When a user opens a project that has been secured with a permission set or a Logical Name and configured to use only the selected security authority, the Logix Designer application checks the ID of the FactoryTalk Directory to see if it matches the ID stored in the project.

- If the ID matches, the Logix Designer application checks the directory and finds the Logical Name (that matches the controller name), or the permission set associated with the project, and gets the permissions for the current user/computer combination.
- If the ID does not match, the project uses the Guest User permissions defined for that permission set or Logical Name.

When a user opens a project that has been secured but has **not** been configured to use only the selected security authority, the Logix Designer application checks the connected FactoryTalk Directory, finds the Logical Name or the permission set associated with the project, and gets the permissions for the current user/computer combination. Rockwell recommends configuring the project to use only the selected security authority to maintain control over the directory that secures the project.

## Permissions for Guest Users

When you configure permission sets and logical names in the FactoryTalk Administration Console, you can also configure permissions for Guest Users. The permissions for Guest Users determine the level of access for users who are not authenticated on the same FactoryTalk directory that the project was secured with.

Permissions for Guest Users are cached in the project file to which they are associated. However, the permissions are only stored in the project file for permission sets that have been applied to objects by a user of the primary FactoryTalk directory.

Refer to the FactoryTalk online help for more information on permissions for Guest Users.

## Source Protection

Source Protection limits users' ability to view and edit routines and Add-On Instructions, including equipment phase state routines, without the associated source key or license. Apply Source Key Protection or License Source Protection to routines and Add-On Instructions. Apply Execution Protection to license-protected components to allow execution only on controllers with a specific execution license.

When protecting a component with License Source Protection, optionally lock the the component. A locked component does not require the source license to open the project or execute the locked component, allowing more secure distribution. A user with the correct license must unlock a component to allow viewing or editing. Rockwell recommends locking unlocked components in projects that are distributed from trusted development environments to unsecured environments to safeguard your intellectual property.



Tip: Routines and Add-On Instructions are currently the only project component types that support Source Protection.



Tip: Execution Protection and component locking is supported only on Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers in versions 30 and 31 of the Logix Designer application.

License Source Protection and Execution Protection Licenses require the use of CmSticks and CmCards:

- On the computer running the Logix Designer application, a CmStick, CmCard, or other compatible Wibu device that contains licenses required for opening a license-protected project and working with project components.



Tip: On CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers, a CmStick, CmCard, or other compatible Wibu device is not required to open a project containing locked components.

- On the controller, a CmCard that contains execution licenses required to run a project that contains components protected with Execution Protection. If a required execution license is missing, the project does not download to the controller. If the project has already been downloaded and the license expires or the CmCard is removed, a major fault occurs when the controller is switched to Run mode.

The following table describes the types of Source Protection available.

Protection option	Supported controllers	Description
Source Key (Password-based) Source Protection	All Logix 5000 controllers	Simple legacy protection, not recommended for hardened intellectual property protection. <ul style="list-style-type: none"> <li>Component source code (logic) is protected with a password.</li> <li>Password must be available to view or edit protected components.</li> <li>Optionally, can be configured to allow logic to be viewed when password is not available.</li> </ul>
License Source Protection	CompactLogix 5370, ControlLogix 5570, Compact GuardLogix 5370, and GuardLogix 5570 controllers	Hardened intellectual property protection for sensitive content: <ul style="list-style-type: none"> <li>Component source code (logic) is protected with a License on a CmStick installed on the computer running the Logix Designer application.</li> <li>License must be present to open or import the file containing the protected components.</li> <li>Licenses can be configured with different access levels to allow viewing or editing protected components..</li> </ul>
License Source Protection (Locked)	CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers	Provides hardened intellectual property protection for sensitive content and allows easy transfer of projects: <ul style="list-style-type: none"> <li>Component source code (logic) is protected with a license on a CmStick installed on the computer running the Logix Designer application.</li> <li>Executable code is protected and stored separately from the source code.</li> </ul>
License Source Protection (Unlocked)	CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers	Provides protection and access control based on permissions in the license: <ul style="list-style-type: none"> <li>Users without a dongle can work with unprotected parts of the project, but users cannot view or edit the protected content. The dongle is required to work with the protected content.</li> <li>To lock or unlock a component, the source license must be present on a CmStick plugged into the computer running the Logix Designer application, and the license must contain the View permission.</li> </ul>

Protection option	Supported controllers	Description
License Source Protection + License Execution Protection	CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers	Limits execution of valuable content to only authorized controllers: <ul style="list-style-type: none"> <li>• Provides same protection as License-based Source Protection.</li> <li>• Additionally, components can be protected with an Execution License.</li> <li>• Protected components can only be downloaded and executed on a controller that contains a CmCard with the correct execution license.</li> </ul>

# Configuring source protection in the Logix Designer application

## Introduction

This chapter describes how to enable and apply source protection for your Logix Designer components, such as routines and Add-On Instructions. You can protect project components using Source Key protection or License protection. You can also apply Execution Protection to source-protected components to allow execution only on controllers with a specific execution license.

Source Key protection:

- Protects components using existing source keys.



Tip: You can optionally allow source-protected components to be available in a read-only format on a system that does not have the source key required for access.

License protection:

- Protects components with specific licenses.



Tip: License Source Protection is not supported on Sequential Function Chart routines in versions 30 and later of the Logix Designer application.

- Execution Protection is an extension of License-Based Source Protection. You can apply Execution Protection to limit the execution of routines and Add-On Instructions, including equipment phase state routines, to controllers that contain a specific execution license.
- When you protect a component with License Source Protection, you can also lock it. When you lock a component, the routine's logic is compiled into executable code and encrypted. It is only decrypted by the controller when it is ready to be executed. As a result, project files containing locked components can be shared with users without licenses to work with the locked components. Those users can work with unprotected parts of the project, upload and download the project file, and even copy and paste locked components into other project files. Rockwell recommends locking unlocked components in projects that are distributed from trusted development environments to unsecured environments in order to safeguard your intellectual property.



Tip: Execution Protection and component locking is supported only on Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers in version 30 of the Logix Designer application.



## Considerations and limitations for License protection and locked components

Keep the following considerations and limitations in mind when using License Source Protection with routines and Add-On Instructions for CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers.

- Sequential Function Chart routines cannot be protected with License Source Protection and execution protection.
- Function Block Diagram routines cannot be protected with License Source Protection and execution protection.
- You cannot overwrite a locked routine with a locked routine of a different language. If a locked routine needs to be replaced with a locked routine of a different language, first unlock the routine in the target file.
- You cannot overwrite a locked routine with an unlocked routine, and vice versa. To replace a locked routine with an unlocked routine, and vice versa, first delete the routine to be replaced.
- If you overwrite a locked ladder logic routine that contains label (LBL) instructions with a locked ladder logic routine that contains similar labels, other workstations can lose correlation with the project. To recover correlation, upload the project on the affected workstations.
- The controller SD card holds a maximum of 63 active or expired licenses, plus the Rockwell activation license for Execution Protection. If the SD card contains more than 64 licenses, downloads with license-protected content fail to the controller. To remove unwanted licenses, use the removal option on the Wibu administration portal.
- When you lock an Add-On Instruction, the data included in tags is protected but not to the extent that the logic is protected. If your tags contain sensitive data, Rockwell recommends putting that data in literals rather than in tags. Literals are protected at the same level as the logic in locked routines and Add-On Instructions. In programmable logic, a literal is a value that is expressed as itself rather than as a variable's value or the result of an expression.

### Limitations for locked components

After a routine or an Add-On Instruction (AOI) is locked, strict limits apply to changes made to the routine or to other components the routine references. This table lists limitations that apply to locked components. An authorized user can run a locked component. To view or edit a component an authorized user must unlock the component.

Limitation	Affects routines	Affects AOIs
Cannot resize an array that is referenced by a locked routine.	x	
Cannot change the target of an alias that is referenced by a locked routine.	x	

Limitation	Affects routines	Affects AOIs
Cannot change a BOOL alias that targets the bit of an integer to target a different bit. However, changing the alias to target a different integer is allowed.	x	
Cannot change the target of an alias that is referenced by a locked routine to a tag of a different type.	x	
Cannot change the target of an alias of a member of a UDT or array element to a target at a different offset from the beginning of the tag.	x	
Cannot change an alias referenced by a locked routine to a base tag.	x	
Cannot change a base tag that is referenced by a locked routine to an alias.	x	
Cannot change an InOut program parameter that is referenced by a locked routine to anything other than an InOut program parameter.	x	
Cannot change a Produced tag to anything other than a Produced, Consumed, Module Input tag or Module Output tag when the Produced tag is: <ul style="list-style-type: none"> <li>Referenced by a locked routine, and</li> <li>Used in a COP, CPS, MAOC or as an InOut argument to an AOI in that locked routine.</li> </ul>	x	
Cannot change a Produced tag that is used in an IOT instruction to anything other than a Produced or Module Output tag.	x	
Cannot change a Consumed tag to anything other than a Produced, Consumed, Module Input tag, or Module Output tag when the Consumed tag is: <ul style="list-style-type: none"> <li>Referenced by a locked routine, and</li> <li>Used in a COP, CPS, MAOC or as an InOut argument to an AOI in that locked routine.</li> </ul>	x	
Cannot change a Module Input tag to anything other than a Produced, Consumed, Module Input tag, or Module Output tag when the Module Input tag is: <ul style="list-style-type: none"> <li>Referenced by a locked routine, and</li> <li>Used in a COP, CPS, MAOC or as an InOut argument to an AOI in that locked routine.</li> </ul>	x	
Cannot change a Module Output tag to anything other than a Produced, Consumed, Module Input tag, or Module Output tag when the Module Output tag is: <ul style="list-style-type: none"> <li>Referenced by a locked routine, and</li> <li>Used in a COP, CPS, MAOC or as an InOut argument to an AOI in that locked routine.</li> </ul>	x	
Cannot change a Module Output tag that is used in an IOT instruction to anything other than a Produced or Module Output tag.	x	
Cannot change a standard tag referenced by a locked routine to a Produced, Consumed, Module Input, or Module Output tag, if that tag is used by a COP, CPS, MAOC or used as an AOI InOut argument in that locked routine.	x	
Cannot re-order the members of a User Defined Type of a tag that is referenced by a locked routine or AOI.	x	x
Cannot change the data type of a tag that is referenced by a locked routine.	x	
Cannot update a profile in a way that changes the data type of a Module Defined Tag that is referenced by a locked routine.	x	x
Cannot add, remove, or change the data type of a member of a User Defined Data Type of a tag that is referenced by a locked routine or AOI.	x	x

Limitation	Affects routines	Affects AOIs
Cannot reorder, add, change the data type of, or remove parameters in an AOI referenced by a locked routine or AOI.	x	x
Cannot convert a project containing locked routines or AOIs to a different controller family.	x	x
Cannot move locked routines or AOIs to a project of a different controller family.	x	x
Cannot change the target of an AOI output parameter that aliases a local tag if the AOI is used in a locked AOI.		x
Cannot change the targets of two aliases referenced by a locked routine currently targeting different base tags to the same base tag.	x	
Cannot change the targets of two aliases referenced by a locked routine currently targeting the same base tag to target different base tags.	x	
Cannot change the type of a base tag targeted by an alias that is referenced by a locked routine.	x	
Cannot change an external Output that is referenced by a locked routine to a non-Output.	x	
Cannot change an external Output that is referenced by a locked routine to a local Output.	x	
Cannot change a local tag that is referenced by a locked routine to an external Output.	x	

## Enable source protection

If Source Protection is unavailable and is not listed in the **Tools > Security** menu, enable the Source Protection feature by running the **RS5KSrcPtc.exe** tool on the installation CD. The menu item is also enabled when a CmStick containing a license with protect permissions is inserted into any USB port on the computer.

Follow these steps to enable Logix Designer source protection.

1. Open the **ENU\Tools\Source Protection Tool\Vxx.xx** folder on the Logix Designer installation CD.
2. Run the **RS5KSrcPtc.exe** file.

## Disable the Configure Source Protection menu option

You can disable the ability to configure source protection on a workstation by removing the **Configure Source Protection** option from the **Tools > Security** menu.

---

**IMPORTANT** Write down the source keys or make a copy of the sk.dat file and store in a secure location before deleting the sk.dat file.

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1. Open the protected project in the Logix Designer application.
2. Select **Tools > Security > Configure Source Protection**.
3. In the **Source Protection Configuration** dialog box, select **Source Key Configuration**.
4. In the **Source Key Configuration** dialog box, select **Disable Ability To Configure**.
5. In the dialog box that prompts you to confirm the action, select **Yes**.
6. In the dialog box that asks if you want to delete the source key file (sk.dat), select **Yes** to remove the source key file from the computer, or select **No** to keep the source key file.

**Configure Source Protection** is removed from the **Tools > Security** menu.



Tip: The menu item will not disappear if a CmStick containing a license with the **Protect** permission is connected to the computer.

## Protect components with Source Keys

When Source Key protection is applied to a component, that component is source-protected. Source keys are user-generated, case-sensitive passwords that lock Logix Designer components from being viewed or modified by third parties.

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**IMPORTANT** Source Protection can be applied only on a project file that is offline.

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Tip: For Add-on Instructions, Source Protection settings cannot be modified if the Add-On Instruction is sealed. If you wish to source protect and seal an Add-On Instruction, you must apply the source protection settings before sealing.



Tip: Password source protection is designed to work with a relatively small number of source keys in the sk.dat file. When the number of source keys becomes large, there is a corresponding performance impact when opening source protected projects in the Logix Designer application or opening the **Source Protection** dialog box.

When a component is protected with a Source Key, users without the source key cannot alter the logic of the component. This affects the following features:

- **Editing** - The Language editor does not open, and the edit menus in the **Controller** and **Logical Organizers** are unavailable. The component icon is also unavailable. If the component is protected with the **Viewable** option, users can open the routine editor in read-only mode.
- **Printing** - Routines cannot be printed. Add-On instruction can be printed, but the routines and local tags are not included in the print out. Routine logic and Add-On Instruction local tags can be printed if components are protected with the **Viewable** option.
- **Exporting** - The protected component is written to the export file in an encoded format.
- **Component Properties** - All controls on the dialog boxes of the components are read-only.
- **Search and Replace** - **Find All** is the only available search type source. **Find Next**, **Replace All**, and **Replace Next** skip the protected component. When the protected component is skipped, a message appears on the status bar indicating the source is not available. This message is also logged to the **Search Results** tab when performing a **Replace All** search. If a component is protected with the **Viewable** option, search is permitted but replace is still prevented.

Because users cannot view the logic of a protected routine, the **Find All** search results items do not navigate to the found locations. This affects the following:

- **Navigation** - Users cannot navigate to a protected component.
- **Verification** - Users cannot navigate to an error in a protected component.

- Cross Reference - Cross reference information is displayed for items referenced within a protected component, but users are not allowed to navigate to the location within the protected component. Double-clicking to navigate to a protected component beeps and displays a message on the status bar indicating that users are unable to edit the component and that the source is not available.

The **Go to Location** menu item is unavailable.

- Go To - There is no edit item in the **Go To** dialog box for a protected component.
- Cut, Copy, Paste - Users can copy, paste, and drag and drop protected components from the **Controller and Logical Organizers**.

---

**IMPORTANT** Use caution when copying and pasting components between different versions of the Logix Designer application. The application only supports pasting to the same version or newer version of the application. Pasting to an earlier version of the application is not supported. When pasting to an earlier version, the paste action may succeed, but the results may not be as intended. You cannot paste protected components from later versions of the application into earlier versions of the application. For example, attempting to paste from version 19 into version 18 or from version 20 into version 19 will fail.

---

## About source keys

In version 18 and earlier of RSLogix 5000 software, only IEC-61131 compliant source keys are recognized. Each source key must begin with a lowercase character a-z or underscore character ( \_ ), and contain only characters lowercase a-z, 0-9, and an underscore character ( \_ ). You can enter uppercase A-Z characters in RSLogix 5000 software or in the source key file, but the uppercase characters are converted to lowercase. Source keys are limited to 40 characters in length.

In version 19 and later of the application, source keys are case-sensitive and may contain any printable ASCII character, excluding the space character. This includes uppercase A-Z, lowercase a-z, numbers 0-9, and symbols such as "!@#\$. Source keys are limited to 40 characters in length.

## Source key names

Version 19 and later of the Logix Designer application supports associating names with source keys. Source key names are descriptive text that help identify source keys. Where appropriate, the Logix Designer application will display the source key name in place of the source key itself to provide an additional layer of security for the source key.

Use descriptive names to help identify the purpose of the source. For instance, a source key used to secure components that field engineers require access might be named, Field Engineer.

---

**IMPORTANT** If the same source keys will be used with version 18 and earlier and version 19 and later of the Logix Designer application, begin each source key with a lowercase character a-z, or an underscore character ( \_ ), and use only characters lowercase a-z, 0-9, or an underscore character ( \_ ) within the source keys.

If you use source key names in version 19 and later of the application, and your source keys are IEC61131-3 compliant, your source keys will still work in version 18 and earlier.

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## Source key file

Source keys that are available to the application through an sk.dat file are unencrypted. We recommend that you write down your source keys or back up and store the sk.dat file in a secure location. If necessary, the individual keys can be distributed or provided to the necessary parties.

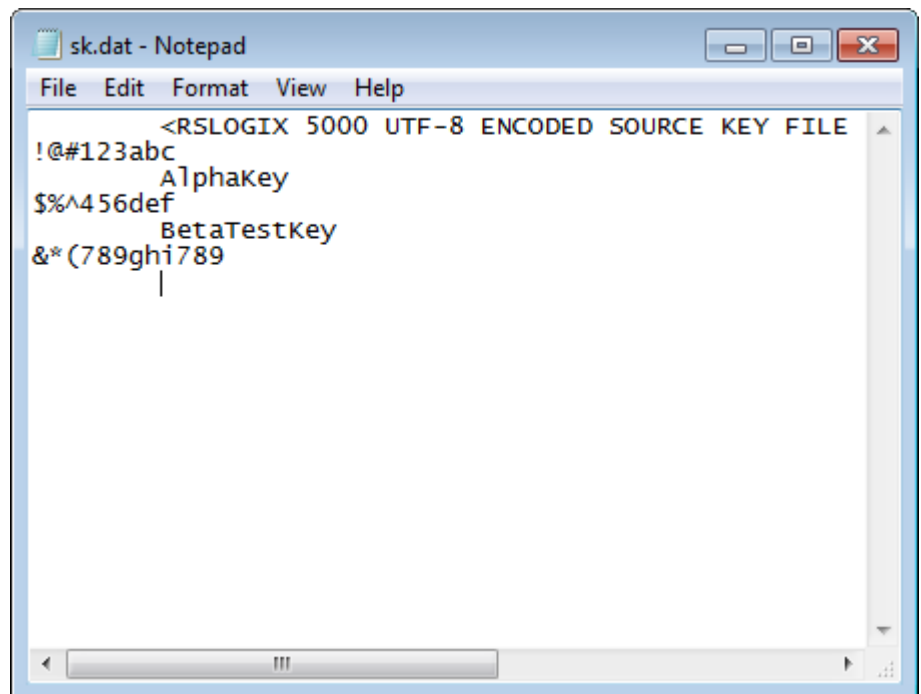
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**IMPORTANT** Source key files are created in an ANSI format in Logix Designer versions 18 and earlier. In versions 19 and later, the Logix Designer application creates UTF-8 formatted sk.dat files, and modified ANSI sk.dat files are converted to UTF-8 sk.dat files. Source keys must not appear on the first line of a UTF-8 formatted sk.dat file. The first line of UTF-8 formatted sk.dat files is ignored in Logix Designer versions 18 and earlier. Versions 19 and later insert a header on the first line of the sk.dat file if one is not already present.

---

Follow these steps to assign a name to an existing source key.

1. Select **Tools > Security > Configure Source Protection**.
2. In the **Source Protection Configuration** dialog box, select **Source Key Configuration**.
3. In the **Source Key Configuration** dialog box, select **View** to open the sk.dat file with a text editor, such as Notepad.



4. Select at the end of an existing, unnamed source key, and press **Enter**. Source keys are case sensitive and may use special characters, such as @#\$%(){}[].
5. Press **Tab**, and type a name for the source key.



Tip: Source keys always begin in the first column of the line in the text editor. A source key name must be on the line immediately following the source key that it is associated with, preceded on the line by at least one space. Subsequent lines after the source key that are preceded with spaces are ignored by the application, and can be used for comments.

6. Save the file. If you used an editor other than Notepad, make sure you save the file as a text file.

## Apply Source Key protection to a component

7. Close the **Source Key Configuration** dialog box and the **Source Protection Configuration** dialog box.
8. Select **Tools > Security > Configure Source Protection** to re-open the **Source Protection Configuration** dialog box. The source key name that you added to the sk.dat file appears as the source key name.

Follow this procedure to apply Source Key protection to a project component.

**IMPORTANT** Source Protection can be applied only on a project file that is offline.

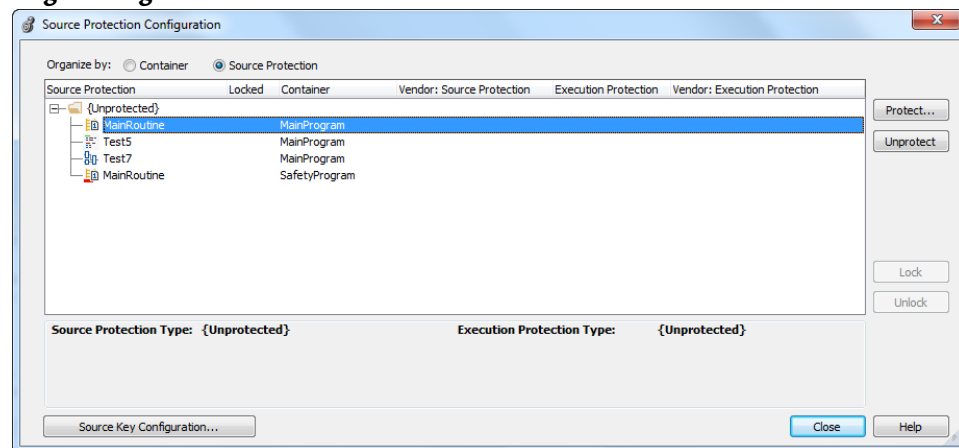


Tip: For Add-on Instructions, Source Protection settings cannot be modified if the Add-On Instruction is sealed. If you wish to source protect and seal an Add-On Instruction, you must apply the source protection settings before sealing.

### To apply source key protection to a component

1. Open an offline project file in the Logix Designer application.
2. On the menu bar, select **Tools > Security > Configure Source Protection**.
3. In the **Source Protection Configuration** dialog box, select one or more components that require protection, and select **Protect**.

By default, the dialog box shows the **Protection** view in which components are organized based on the protection applied to them. When you select the **Container** view, the components are organized based on the folder structure in the **Controller Organizer** and the **Logical Organizer**.

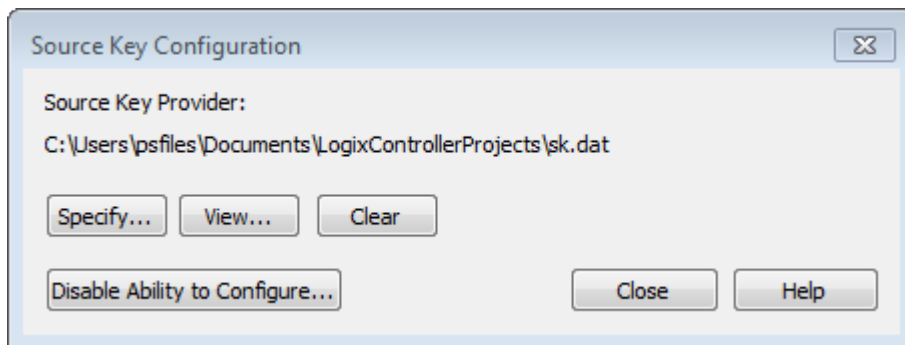




4. In the **Protect** dialog box, on the **Protection Type** list, select **Source Key**.

5. In the **Source Key to Apply Selected Components** list, select the individual source key for the component.
6. If appropriate, retype the new key in **Confirm New Source Key**. To display the source keys in a readable format, select the **Show Source Key** check box.
7. If you want to apply a source key name, type the name in **Source Key Name**. Do not exceed 40 characters.
8. To allow users to view the logic and local tags on a system that does not have the source key required for access, select the **Allow viewing of component(s)** check box.
9. After you enter the applicable information, select **OK**.
10. (optional) In the **Source Protection Configuration** dialog box, select **Source Key Configuration** to open the **Source Key Configuration** dialog box and complete details about the source key file location:
  - Select **Specify** to change the path to the source key file location.
  - Select **View** to view the source key file.
  - Select **Clear** to remove the location of the source key file (sk.dat). You are then given the option to delete the source key file.

- Select **Disable Configuration** to remove the menu item that invokes the **Source Protection Configuration** dialog box. You can then clear the file location, which is the path listed under **Source Key Provider**, or delete the source key file.





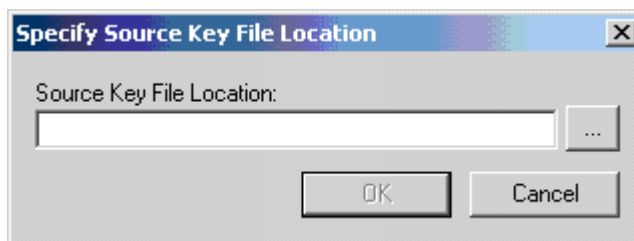
11. Close the **Source Protection Configuration** dialog box and save the project file.

## Specify a Source Key file and location

Follow these steps to configure a source key file location.

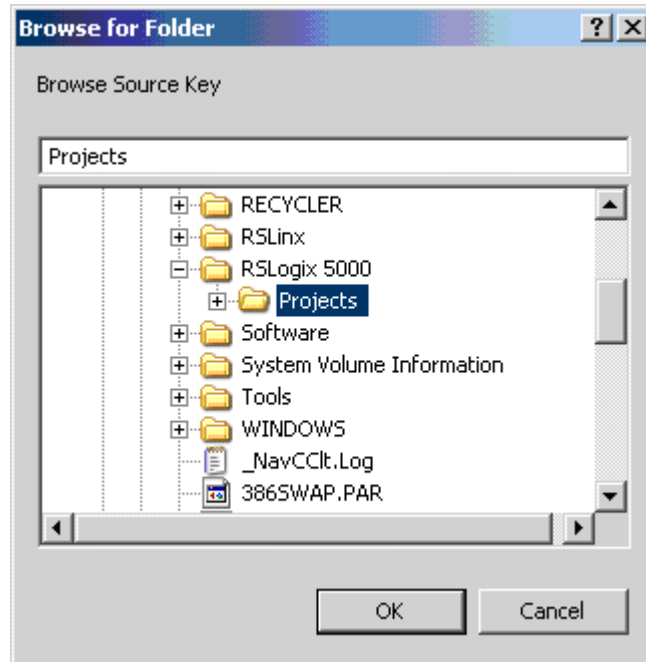
### Specify a source key file and location

1. Open an offline project file in the Logix Designer application.
  2. On the menu bar, select **Tools > Security > Configure Source Protection**.
-  **Tip:** This option is not available until you run **RS5KSrcPtc.exe** on your workstation. See [Enabling source protection](#) on [page 18](#).
3. In the **Logix Designer** dialog box, select **Yes** to specify a file location. Source protection requires that you specify a source key file location on your workstation.
  4. In the **Specify Source Key File Location** dialog box, select **Browse** .

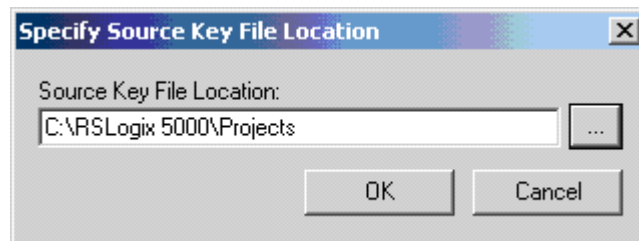


5. In the **Browse for Folder** dialog box, select the folder to store the key file, and select **OK**.

You can save the key file in any accessible folder. In this example the path to the key file folder is C:\RSLogix 5000\Projects folder.



6. In the **Specify Source Key File Location** dialog box, select **OK**.



The location you selected appears in the **Source Protection Configuration** dialog box under **Source Key Provider**.

If the application does not find a key file in the specified location, the application prompts you to create a new key file.



Tip: To check for a specific location, on the **Source Protection Configuration** dialog box, select **Specify**. A window appears with the location if one exists on your workstation.

7. Select **Yes** to create a new key file.

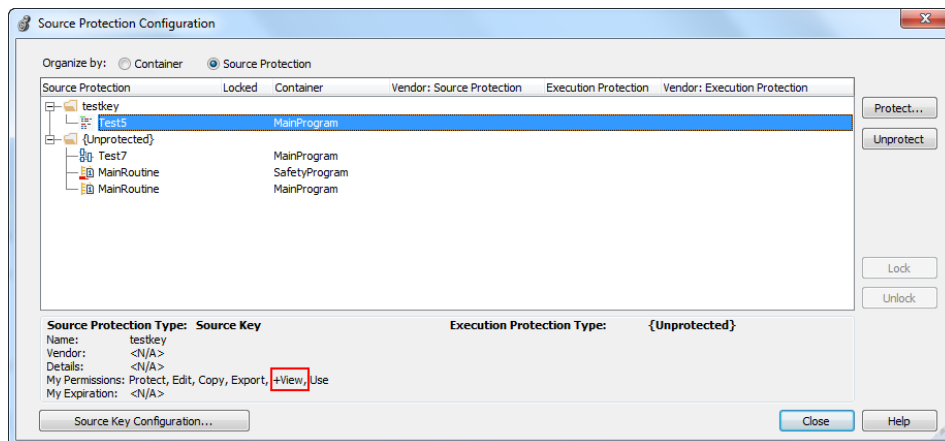
## View components without a key

Follow these steps to allow source-protected components to be viewed in a read-only format on a system that does not have the source keys.

### To view components without a key

1. On the menu bar, select **Tools > Security > Configure Source Protection**.
2. In the **Source Protection Configuration** dialog box, select one or more components that require protection and select **Protect**.
3. Apply a source key to the component.

4. Select the **Allow viewing of components** check box, and select **OK**. In the **Source Protection Configuration** dialog box, **+View** appears for components that are viewable on workstations that do not have the source key.



5. Select **Close**.
6. Save the project file and download it to the controller.

Users can open the routine as read-only on a system that does not contain the source key for the routine, but cannot modify the routine. Routines or Add-On Instructions that are protected, but are not configured as viewable, cannot be opened.



Tip: Source-protected content cannot be copied from Logix Designer versions 19 and later and pasted into earlier software versions. The pasting function is disabled in previous software versions when source-protected content is placed on the clipboard.

## Verify source key protection on a component

After you apply source key protection to a component, you can verify that the source key protection is working. To verify a component is protected, temporarily disable the source key on your workstation.

Follow these steps to verify source key protection by specifying the path to an empty sk.dat file.

1. On the **Source Protection Configuration** dialog box, select **Specify**.
2. On the **Specify Source Key File Location** dialog box, select a directory that does *not* contain an sk.dat file. For example, **C:\RSLogix 5000\Projects\Empty**.
3. When a message appears asking if you want to create a new file, select **Yes**.
4. When the message appears asking if you want to create a new directory, select **Yes**. The software points to an empty sk.dat file, which mimics a user who does not have a source key.
5. Verify that you cannot access the protected component.
6. On the **Specify Source Key File Location** dialog box, switch back to the directory that contains your original sk.dat file.

## Remove access to a protected routine

You can delete a source key file (sk.dat) from a workstation.

---

**IMPORTANT** Write down the source keys or make a copy of the sk.dat file and store it in a secure location before deleting the sk.dat file.

---

### To remove access to a protected routine

1. Open the protected project.
2. Select **Tools > Security > Configure Source Protection** to open the **Source Protection Configuration** dialog box.
3. Select **Source Key Configuration**.
4. On the **Source Key Configuration** dialog box, select **Clear**.
5. When a dialog box asks for confirmation that you want to delete the source key file, select **Yes** to remove the source key file from the workstation.

## License Source Protection for components

License Source Protection limits access to projects to only users with the required license. Users without the required license cannot open the project or import components protected by the license. A CmStick containing the corresponding license must be plugged into a USB port on the computer to open the project containing the component.

License protection uses licenses that you create and administer through a license portal. Refer to your license portal help for details on using the portal.



Tip: License Source Protection is not supported on the following routine types on Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers:

- Sequential Function Chart routines.

Function Block Diagrams, unless the Function Block Diagram is included in an Add-On Instruction.

When using License Protection on CompactLogix 5380, CompactLogix 5480, and ControlLogix 5580 controllers, you can also apply Execution Protection for the component, which allows execution of the component only on a specific controller family, or only on controllers in a specific controller family that contain the execution license.

## Protect components with Licenses

The table lists the permissions provided by licenses.

Permission	Description
Use	<p>This is the minimum permission available for a license. Allows a user to open, import, upload, or download the project.</p> <p><b>Important:</b> A CmStick containing a license with Use permission must be present locally on any USB port on the computer. Use permission cannot be obtained from a network license server. All other license privileges can be contained on the local CmStick, or provided by a license server on the network.</p> <p><b>Tip:</b> On Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers, a Use license is not required to open, import, upload, or download a project containing a License-Protected component when that component has been locked.</p>
View	<p>Allows users to view routine logic for the component, or local tags for an Add-On Instruction. It also enables printing, searching, and cross referencing. Editors and properties dialog boxes for the component are limited to read-only, and changes are prevented.</p> <p><b>Tip:</b> A View license is required to unlock, view, and re-lock a License-Protected component.</p>
Edit	<p>Allows users to edit the routine or Add-On Instruction.</p> <p><b>Tip:</b> A View license is required to unlock, edit, and re-lock a License-Protected component.</p>
Copy	Allows users to copy the logic in the routine or Add-On Instruction.
Export	Allows users to export the routine or Add-On Instruction in a non-encrypted format.
Protect	<p>Allows users to enable or remove license protection from a component.</p> <p><b>Important:</b> A user can add or remove protection from a component only when the Protect permission exists on the license currently protecting that component.</p>

License Source Protection on a component affects the following features:

- **Editing** - If the license does not contain the View permission, the Language editor does not open, the edit menus are unavailable in the Controller Organizer and the Logical Organizer, and the component icon is grayed out. With View permission, the editor opens in read-only mode. If the license contains Edit permission, editing is allowed.
- **Printing** - Routines cannot be printed unless the license contains View permission. Add-On instructions can be printed, but the routines and local tags are not printed without View permission.
- **Exporting** - The protected component is written to the export file in an encoded format unless the license contains Export permission. To export in non-encrypted text, the license must contain the Export permission, and when saving the export file, the user must deselect the **Encode Source Protected Content** option. Locked components are always exported encoded.



Tip: To export protected components in non-encrypted text, you also must uncheck the **Always Encode Protected Content on Export** check box on the **General** tab of the **Workstation Options** dialog box.

- Component Properties - All controls on the dialog boxes of the components are read-only unless the license contains Edit permission.
- Search and Replace - **Find All** is the only available search type. **Find Next**, **Replace All**, and **Replace Next** skip the protected component. When the protected component is skipped, a message appears on the status bar indicating the source is not available. This message is also logged to the search results tab for a **Replace All** search. Edit and View permissions control users' ability to search and replace.

When the license does not contain the View permission, users cannot view the logic of a protected routine, and the **Find All** search result items do not navigate to the found locations. This affects the following features:

- Navigation - Users cannot navigate to a protected component.
- Verification - Users cannot navigate to an error in a protected component.
- Cross Reference - Cross reference information is displayed for items referenced within a protected component, but users are not allowed to navigate to the location within the protected component. Double-clicking to navigate to a protected component displays a message on the status bar indicating that users are unable to edit the component and that the source is not available.



Tip: **Find** does not search locked components even when a View license is present.

The **Go to Location** menu item is unavailable.

- Go To - There is no edit item in the **Go To** dialog box for a protected component.
- Cut, Copy, Paste - Users can copy, paste, and drag and drop source protected components from the Controller Organizer or Logical Organizer. Users cannot copy, paste, or drag and drop logic contained within the source protected component unless the license contains Copy permission.

#### IMPORTANT

Use caution when copying and pasting components between different versions of the Logix Designer application. The application only supports pasting to the same version or newer version of the application. Pasting to an earlier version of the application is not supported. When pasting to an earlier version, the paste action may succeed, but the results may not be as intended. You cannot paste protected components from later versions of the application into earlier versions of the application. For example, attempting to paste from version 19 into version 18 or from version 20 into version 19 will fail.

## Add Execution Protection to License-protected components

Execution Protection is an extension of License-Based Source Protection. You can apply Execution Protection to limit the execution of routines and Add-On Instructions, including equipment phase state routines, to controllers that contain a specific execution license.

When you apply Execution Protection to a component, you first apply License-Based Source Protection. Therefore, a user applying Execution



Protection must have the same credentials that are required to apply License-Based Source Protection:

- A CmStick containing a license with Use permission must be present locally on any USB port on the computer. Use permission cannot be obtained from a network license server. All other license privileges can be contained on the local CmStick, or provided by a license server on the network.
- A license containing the Protect permission, either on a local CmStick or provided by a license server on the network. When components are locked, unauthorized users cannot view or edit the component, but authorized users can run the project without a CmStick.

The following credentials are required to run a component that is protected by Execution Protection:

- After a component is locked, the controller running the component must be of the same controller family as the controller on which you locked the component. For example, when you apply License-Based Source Protection and Execution Protection to a component on a 5580 controller and lock the component, you can only execute that component on another 5580 controller. A component that was protected on a 5580 controller cannot be executed on a 5380 controller. To execute the component on a controller from a different family, you must unlock the component and re-lock it on the different family controller.
- The controller running the component must contain the following licenses on a CmCard:
  - The required Execution license (if any)
  - A valid FactoryTalk Activation license for Execution Protection

## Apply License Protection to one or more components

Follow these steps to apply License Protection to one or more components.



Tip: In this version of the Logix Designer application, License Source Protection does not support these routine types:

- Safety routines.
- Sequential Function Chart routines.

Function Block Diagrams on Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers, unless the Function Block Diagram is included in an Add-On Instruction. However, License-protected Function Block Diagrams are supported in both routines and Add-On Instructions on CompactLogix 5370, ControlLogix 5570, Compact GuardLogix 5370, and GuardLogix 5570 controllers.



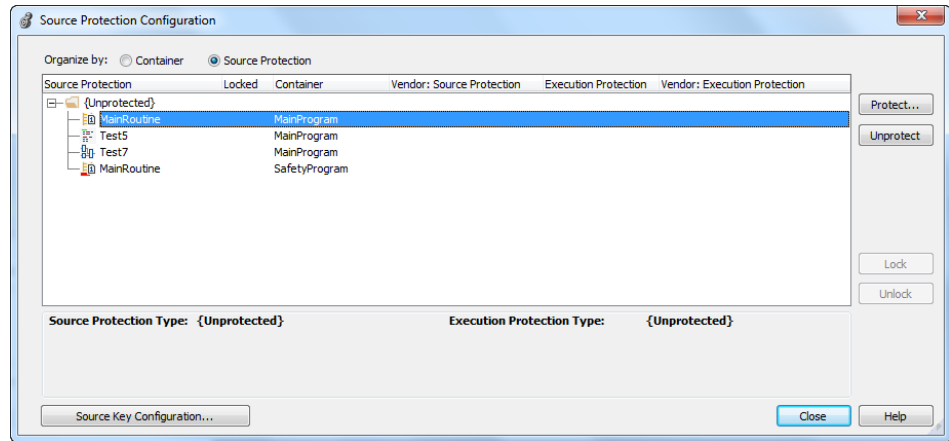
Tip: Cannot modify the Source Protection settings if the Add-On Instruction is sealed. To source protect and seal an Add-On Instruction, apply the source protection settings before sealing.

### IMPORTANT

On CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers, to open a project when a component is license-protected but not locked, insert a CmStick containing the corresponding license into a USB port on the computer. A locked component does not require a corresponding license to open the project or use the component.

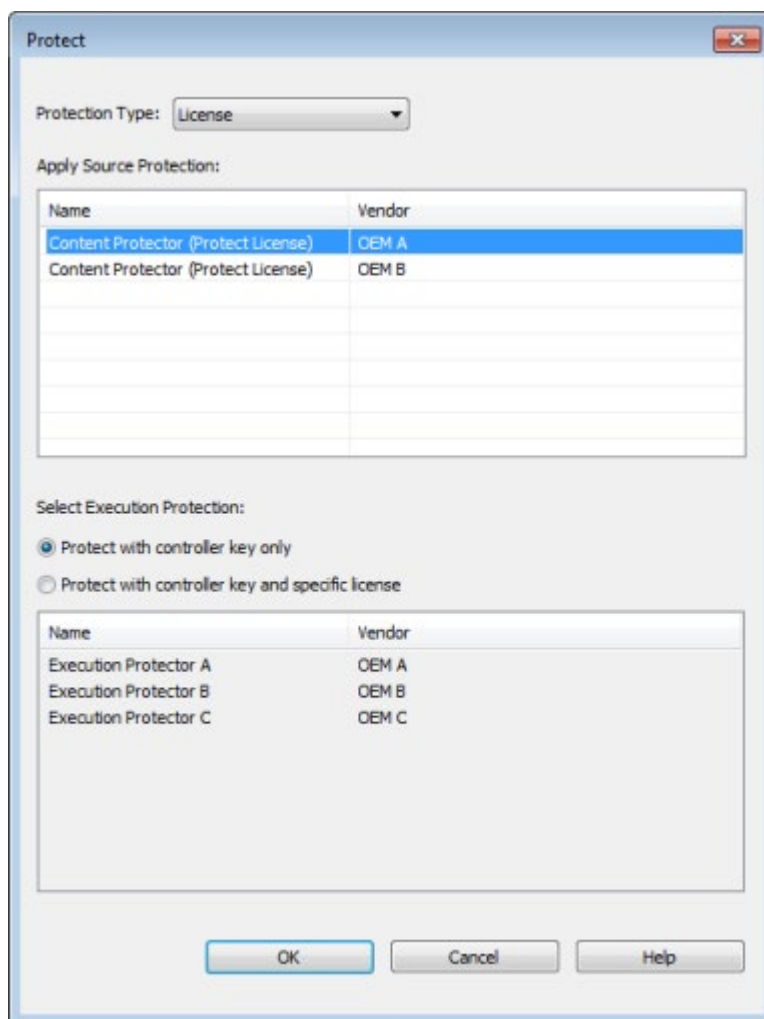
## To apply license protection to one or more components

1. Select **Tools > Security > Configure Source Protection** to open the **Source Protection Configuration** dialog box.



2. Insert the CmStick containing the license that you want to use to protect the component into the USB port on the computer. Note that licenses must contain the **Protect** permission to be used to protect components. If a license does not contain the **Protect** permission, it will not appear in the list of licenses.
3. In the **Source Protection Configuration** dialog box, select the component to be protected and select **Protect**.

4. In the **Protect** dialog box, select the license to apply.



5. On Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers, select the Execution Protection type:
- **Protect with controller key only.** This option is selected by default. With this option selected, the component, when locked, runs only on a controller in the same family as the one specified for the project. For example, if you lock a License-Based Protected component for a project on a 5580 controller, the component can only be executed on another 5580 controller.
  - **Protect with controller key and specific license.** When you select this option, the component runs only on a controller in the same family as the one specified for the project and that contains a CmCard with the execution license that you select.

If you select **Protect with controller key and specific license**, select the execution license from the list of available licenses.

On CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, Compact GuardLogix 5380, and GuardLogix 5580 controllers, after components are protected, they can also be locked. Locking a

component prevents users from viewing or editing the component but allows authorized users to run it.

6. Select **OK** to return to the **Source Protection Configuration** dialog box.



Tip: To save changes to a component that is protected with License-Based Source Protection, a CmStick containing the required license must be plugged into the computer running the Logix Designer application.

Make sure you save your edits to the project or lock the protected components before removing the CmStick containing the required license. If the license is not present, you could lose your edits to the project.

7. Close the **Source Protection Configuration** dialog box and save the project file.

## Lock a component

After you apply License Source Protection to a routine or an Add-On Instruction, you can lock it on Compact GuardLogix 5380, CompactLogix 5380, CompactLogix 5480, ControlLogix 5580, and GuardLogix 5580 controllers.

When locking a component, the routine's logic is compiled into executable code and encrypted. The code is decrypted by the controller when it is ready for execution. As a result, sharing project files containing locked components with users without licenses to use the locked components is possible. Those users can use unprotected parts of the project, upload and download the project file, and copy and paste locked components into other project files. However, if a component is protected using the **Protect with controller key and specific license** option, executing the project requires an SD card with the correct execution license.



Tip: To lock or unlock a component, the source license must be present on a CmStick plugged into the computer running the Logix Designer application, and the license must contain the View permission.

### IMPORTANT

When locking a routine or an Add-On Instruction, the data included in tags is protected, but not to the extent that the logic is protected. If your tags contain sensitive data, Rockwell recommends putting that data in character string literals rather than in tags. Literals are protected at the same level as the logic in locked routines and Add-On Instructions.

## To lock a component.

1. Apply License Source Protection to the component.
2. In the **Source Protection Configuration** dialog box, select the protected component.
3. Select **Lock**.
4. To unlock the component, select it and select **Unlock**.




Tip: When a component is License-Protected, lock and unlock it by selecting it in the **Controller Organizer**, right-clicking, and selecting **Lock** or **Unlock**. Use the **Security** toolbar to lock and unlock a component or to lock all License-Protected components at once.

## Lock all License-Protected content

When a routine or an Add-On Instruction is protected by License Source Protection, it should be locked if it is shared outside a trust boundary, such as being emailed over the internet or sent to an end customer. Projects that contain unlocked components are in a less secure state than locked components and should not be distributed.

To lock all license-protected components in a project at once, use the **Lock All** button on the **Security toolbar**.

### To lock all components in a project

1. Apply License Source Protection to the components that you need to protect.
2. On the **Security toolbar**, select the  **Lock All** button. This button is disabled when there are no components to be locked.

You can also select, on the main menu, **Tools > Security > Lock all unlocked content**.



Tip: If an error prevents a component from locking, an error message appears. The Logix Designer application still locks other components that can be locked without error.

## Add an LV instruction to monitor license status

To monitor license status and verify the license is not expired or removed, insert a **License Validation (LV)** instruction in a Ladder diagram. The LV instruction checks that a non-expired license associated with a routine or an Add-On Instruction is present in the controller. Insert additional logic in the routine to act on the license status.

## Share License privileges with other users on your network

Adjust network settings to provide additional privileges to users on the network or to use License Source Protection when using a remote desktop connection.

When sharing license privileges with users on the network consider:

- Configure the network to allow communication between the devices that need to share license privileges. Set TCP and UDP ports 22350 to open on the computer that provides privileges.
- Enable the license to share for network use. Use the License Portal to configure licenses and optionally enable them for network use.
- The computers that receive permissions from the remote workstation must install a CmStick that contains the same license with **Use** permission. Plug the CmStick into a USB port locally on the computers.

You can share license privileges with other users and provide license privileges to users of remote desktop.

## Provide License privileges to other users

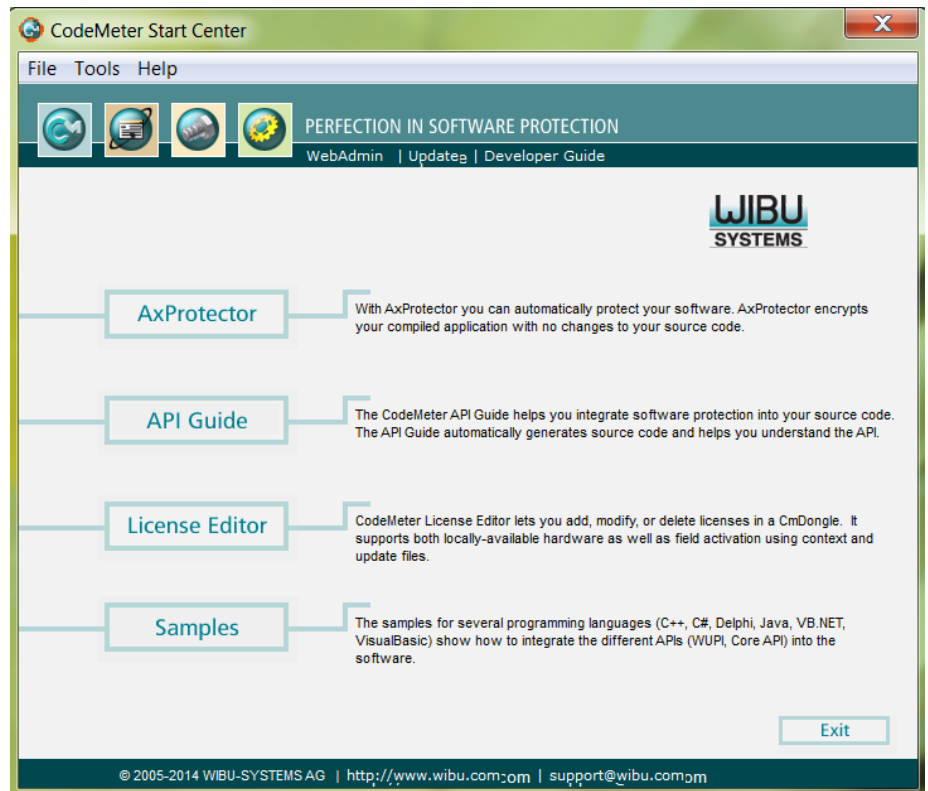
Follow these steps to provide license privileges to users on your network.

1. To open the **CodeMeter Control Center™** application, on the computer that is going to provide additional privileges, navigate to the C:\Program Files (x86)\CodeMeter\Runtime\bin folder and run the **CodeMeter.exe** file.

---

**IMPORTANT** Your computer should have a CmStick installed that contains a license with all the privileges that you want to share. The CmStick should be plugged into a USB port on your computer.

---



2. Select **WebAdmin** to open the **CodeMeter WebAdmin** window in your default web browser.

3. Select **Configuration > Server**, select **Run network server**, and select **Apply**.

The screenshot shows the 'CodeMeter WebAdmin' interface. The top navigation bar includes 'Home', 'Content', 'Server', 'Configuration', 'Diagnosis', 'Info', and 'Help'. Below this, a sub-navigation bar lists 'Network', 'Server', 'Proxy', 'Access Control', 'Certified Time', 'WebAdmin', 'Backup', and 'Borrowing'. The main content area is titled 'Server' and contains the following settings:

- Bind Address:** All (Default)
- Run Network Server:** ☒
- Network Port \*:** 22350
- Run CmWAN Server:** ☐
- CmWAN Port \*:** 22351

At the bottom of the settings are 'Apply' and 'Default' buttons. A note at the very bottom states: '(\*) Changes only take effect after restarting CodeMeter'.

4. Select **Configuration > Access Control** and select **Advanced**.

The screenshot shows the 'CodeMeter WebAdmin' interface with the 'Access Control' section selected. The top navigation bar is the same as the previous screenshot. The sub-navigation bar now highlights 'Access Control'. The main content area is titled 'Access Control Mode:' and shows two radio buttons: 'Basic' (selected) and 'Advanced'. Below this, it says 'CodeMeter Server is running in Basic Access Mode.'.

On the left side, there is a sidebar with links: 'Global access rules', 'Specific access rules', and 'Add new Firm Code...'. The main content area is titled 'Global access rules' and contains the following text:

The global access rules control access to licenses for all CmContainer.  
If you define specific access rules, for these items the global access rules will be ignored.

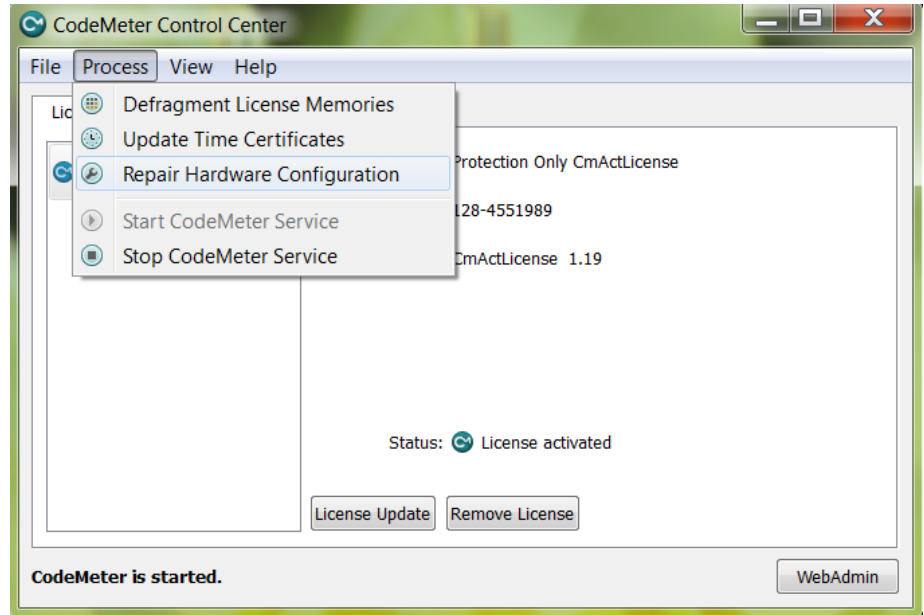
Below the text are two buttons: 'Add new access rule' and 'Default action'. The 'Default action' section shows two radio buttons: 'Allow' (selected) and 'Deny'.

At the bottom of the page are 'Apply', 'Undo changes', and 'Default' buttons. A note at the very bottom states: 'Changes only take effect after restarting CodeMeter.'

5. Under **Default action**, select **Deny** and select **Apply**.
6. Under **Access Control Mode**, select **Basic**.
7. Select **Add** and enter the list of users (user names, IP addresses, user groups, or subnets) who can access your shared license. Select **Apply**.



8. On the **CodeMeter Control Center**, navigate to the **Process** tab to stop and restart **CodeMeter**.



9. On the computers that need to receive the shared license privileges, open the **CodeMeter Control Center** application.

**IMPORTANT** A CmStick containing a license with **Use** permission must be present locally on any USB port on the computer that receives shared permissions. **Use** permission cannot be obtained from a shared license.

10. Click **WebAdmin** to open the **CodeMeter WebAdmin** window.
11. On the **Configuration** tab, in the server list, add the **name or IP address** of the computer that you configured as a license server.



12. Restart **CodeMeter**.



Tip: When the **Server Search List** is blank in the **CodeMeter WebAdmin** tool, CodeMeter searches all servers that it finds on your subnet. When a user has a license that is also on a license server, the user's permissions might be upgraded to match the license on the server. To prevent accidental granting of privileges and to prevent CodeMeter from searching unnecessarily, add **127.0.0.1** (the localhost IP address) to the **Server Search List**.

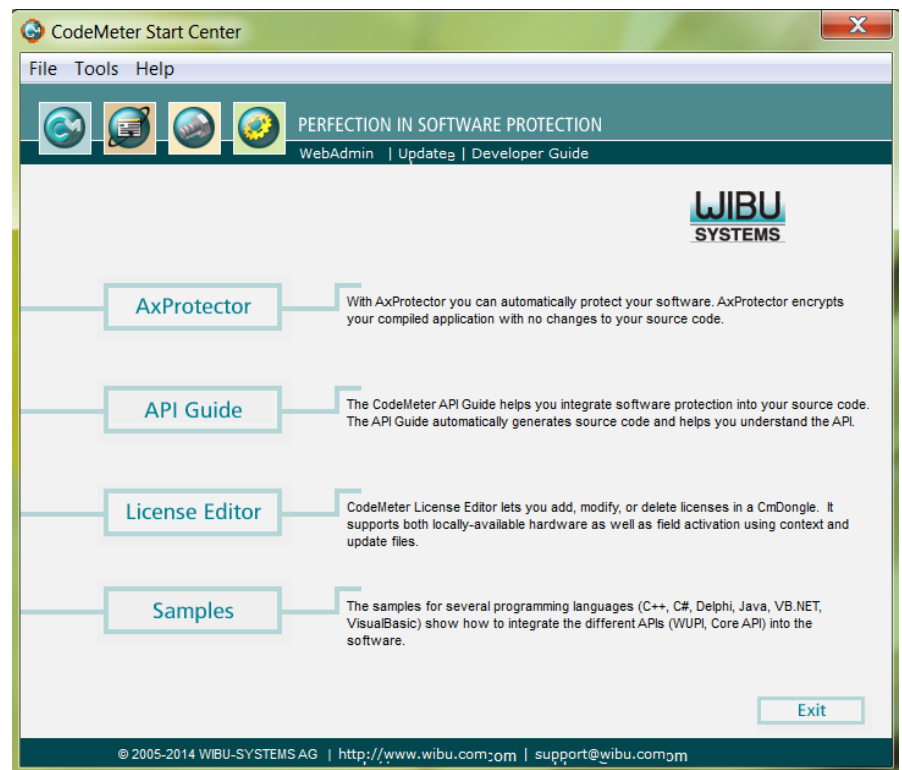
## Provide license privileges for remote desktop users

Follow these steps to provide license privileges for remote desktop users on your network.

### To provide license privileges for remote desktop users

1. On the remote desktop client computer, open the **CodeMeter Control Center** application. To open the application, navigate to the C:\Program Files (x86)\CodeMeter\Runtime\bin folder, and run the **CodeMeter.exe** file.

**IMPORTANT** Your computer should have a CmStick installed that contains a license with all the privileges that you want to use remotely. The CmStick should be plugged into a USB port on your computer.



2. Select **WebAdmin** to open the **CodeMeter WebAdmin** window in your default web browser.

3. Select **Configuration > Server**, select **Run network server**, and select **Apply**.

The screenshot shows the 'CodeMeter WebAdmin' interface. The top navigation bar includes 'Home', 'Content', 'Server', 'Configuration', 'Diagnosis', 'Info', and 'Help'. Below this, a sub-navigation bar lists 'Network', 'Server', 'Proxy', 'Access Control', 'Certified Time', 'WebAdmin', 'Backup', and 'Borrowing'. The main content area is titled 'Server' and contains the following settings:

- Bind Address:** All (Default)
- Run Network Server:** ☒
- Network Port \*:** 22350
- Run CmWAN Server:** ☐
- CmWAN Port \*:** 22351

At the bottom of the settings are 'Apply' and 'Default' buttons. A note at the bottom states: '(\*) Changes only take effect after restarting CodeMeter'.

4. Select **Configuration > Access Control** and select **Advanced**.

The screenshot shows the 'CodeMeter WebAdmin' interface with the 'Access Control' section selected. The top navigation bar is the same as the previous screenshot. The sub-navigation bar highlights 'Access Control'. The main content area is titled 'Access Control Mode' and shows two radio buttons: 'Basic' and 'Advanced'. The 'Advanced' radio button is selected. Below the radio buttons, it says 'CodeMeter Server is running in Basic Access Mode.'.

On the left side, there is a sidebar with the following links:

- Global access rules
- Specific access rules
- Add new Firm Code...

The main content area is titled 'Global access rules' and contains the following text:

The global access rules control access to licenses for all CmContainer.

If you define specific access rules, for these items the global access rules will be ignored.

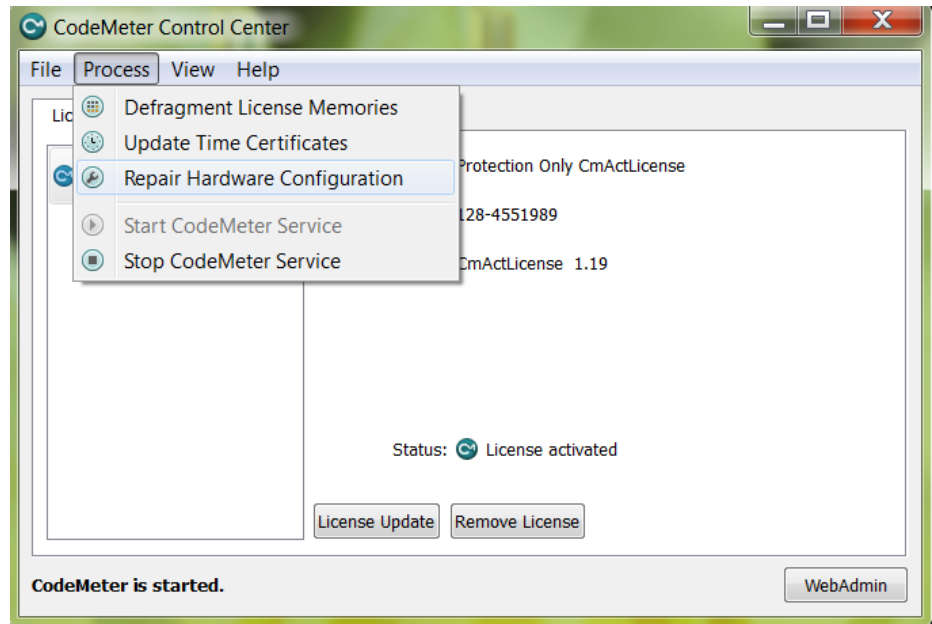
Below the text is a button labeled 'Add new access rule'.

At the bottom of the main content area, there is a section for 'Default action' with two radio buttons: 'Allow' and 'Deny'. The 'Allow' radio button is selected.

At the bottom of the page are 'Apply', 'Undo changes', and 'Default' buttons. A note at the bottom states: 'Changes only take effect after restarting CodeMeter.'

5. Under **Default action**, select **Deny** and select **Apply**.
6. Under **Access Control Mode**, select **Basic**.
7. Select **Add** and enter the list of users (user names, IP addresses, user groups, or subnets) who can access your shared license. Select **Apply**.

8. On the **CodeMeter Control Center**, navigate to the **Process** tab to stop and restart **CodeMeter**.



9. Log onto the remote computer with remote desktop.
10. On the remote computer, open the **CodeMeter Control Center** application.

**IMPORTANT** A CmStick containing a corresponding license with **Use** permission must be present locally on any USB port on the remote desktop server. **Use** permission cannot be obtained from a remote computer.

11. On the **Configuration** tab, in the server list, add the name or IP address of the computer that contains the needed permissions.



12. Navigate to the **Process** tab on the **CodeMeter Control Center** to stop and then restart **CodeMeter**.



Tip: When the **Server Search List** is blank in the **CodeMeter WebAdmin** tool, CodeMeter searches all servers that it finds on your subnet. When a user has a license that is also on a license server, the user's permissions might be upgraded to match the license on the server. To prevent accidental granting of privileges and to prevent CodeMeter from searching unnecessarily, add **127.0.0.1** (the localhost IP address) to the **Server Search List**.

## Securing a ControlLogix controller with the Logix CPU Security Tool

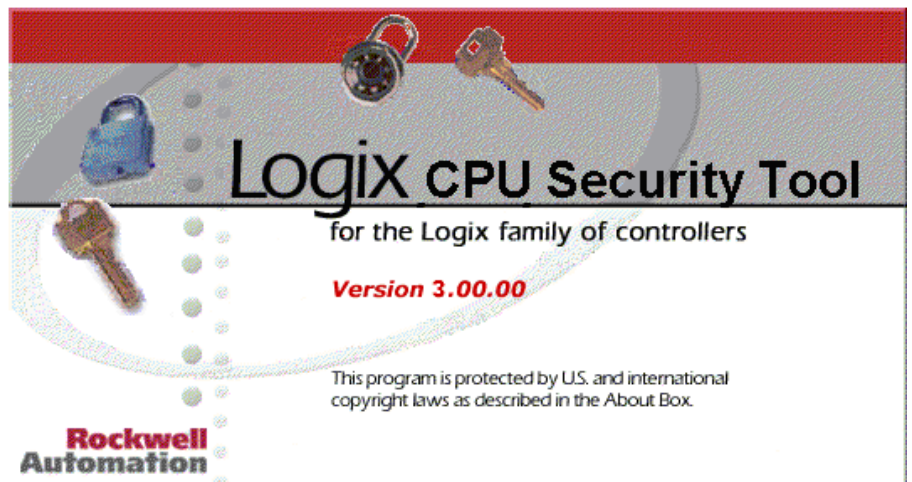
You can secure a controller with the Logix CPU Security Tool. The Logix CPU Security Tool is automatically installed when you install Logix Designer version 17, 18, or 19. The tool is installed under the Logix Designer menu bar on the **Tools** menu.

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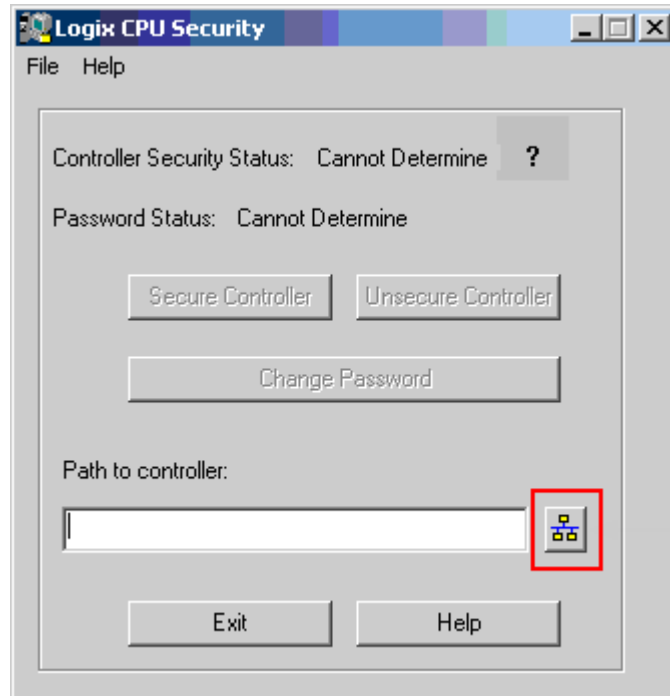
**IMPORTANT** The Logix CPU Security Tool is supported only in Logix Designer application versions 17, 18, and 19. It is not supported in versions 20 and later.

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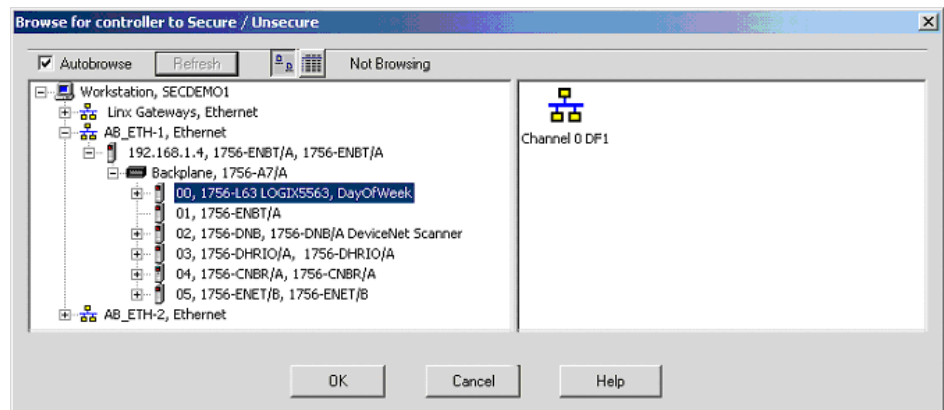
1. Select the **Start** button, then select **All Programs**, then select **Rockwell Software**, then select **RSLogix 5000**, and then select **Logix CPU Security Tool**.



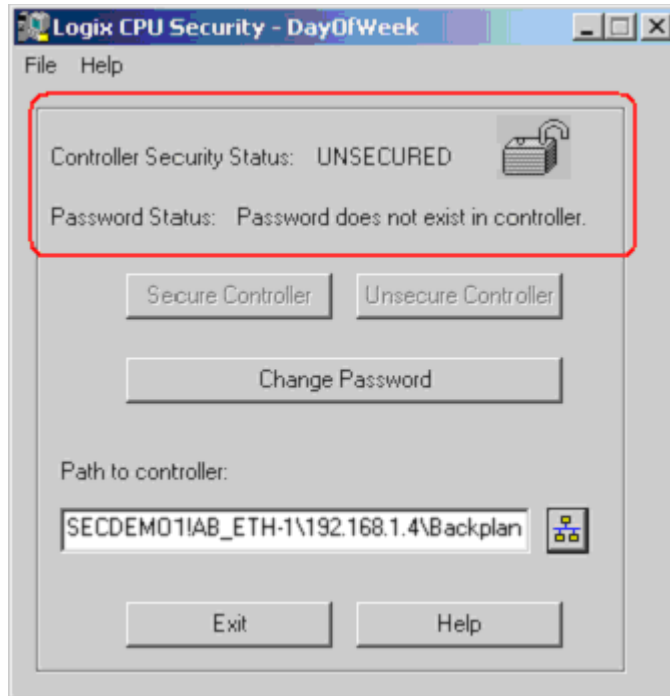
2. In the **Logix CPU Security** dialog box, select the **RSWho** button to specify a path to the controller.



3. Select the controller that you want to secure and select **OK**.



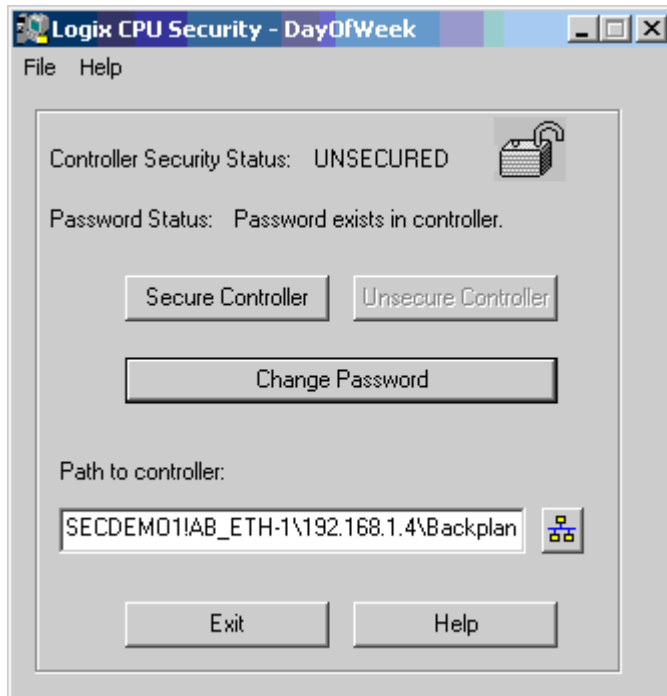
The Logix CPU Security Tool displays the current status of the controller. Notice that the controller in the following image is currently unsecured and there is no password set in the controller.



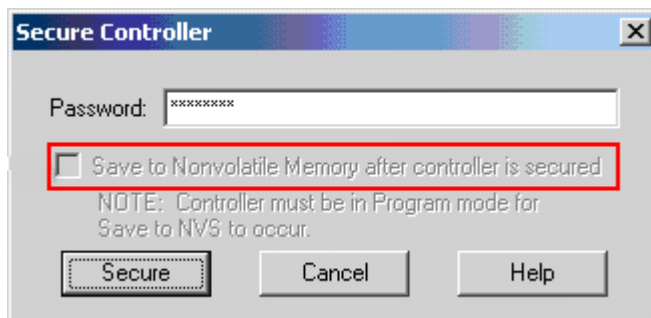
4. Select **Change Password**.
5. In the **Change Password** dialog box, in the **New Password** box type a password, and then in the **Confirm New Password** box, retype the password. Select **OK**.



The **Password Status** for the controller changes to indicate a Password exists in the controller, but the controller is not secured yet.

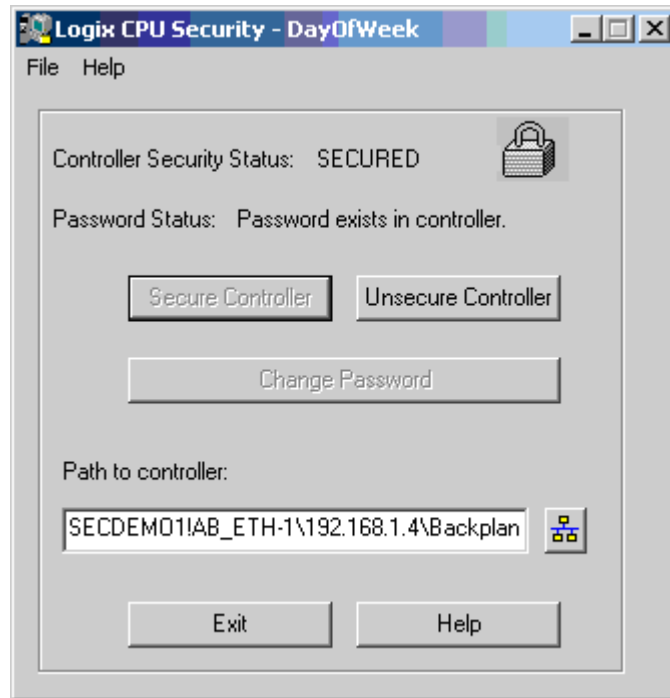


6. Select **Secure Controller**.
7. In the **Secure Controller** dialog box, in the **Password** box, type the password for the controller and then select **Secure**.
8. If the controller has nonvolatile memory installed, you can select the **Save to Nonvolatile Memory after controller is secured** check box to save the security state of the controller to nonvolatile memory. Refer to the Logix Designer application help for additional information on using nonvolatile memory.





The **Controller Security Status** for the controller changes to indicate that it is secured.

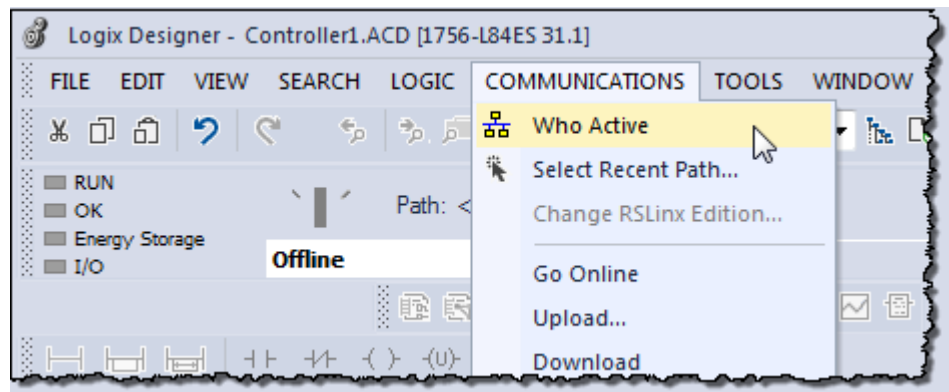


## Accessing a secured controller

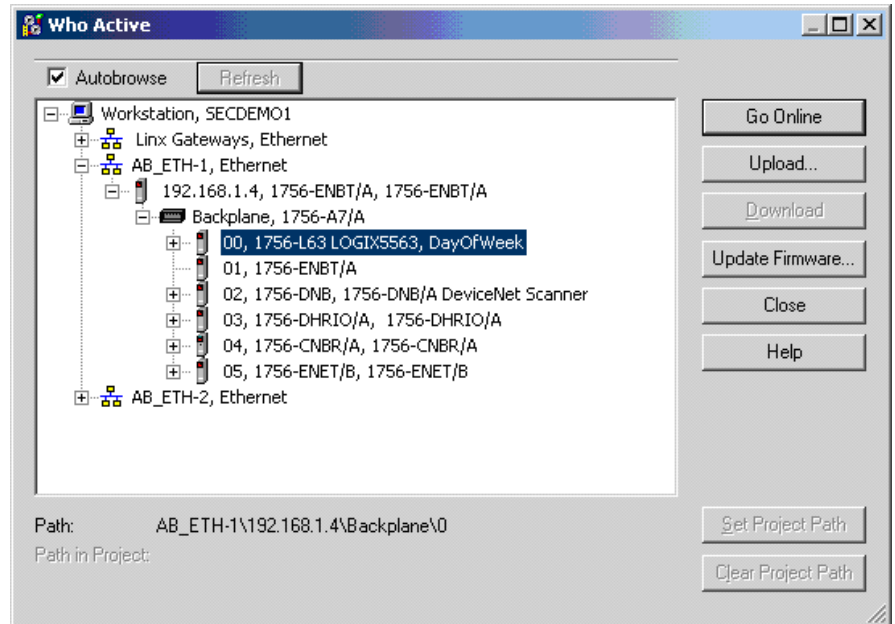
When you try to access a controller that has been secured with the Logix 5000 CPU Security Tool and you do not have a local copy of the project file on your computer, the application prompts you to select the proper file.

### To access a secured controller

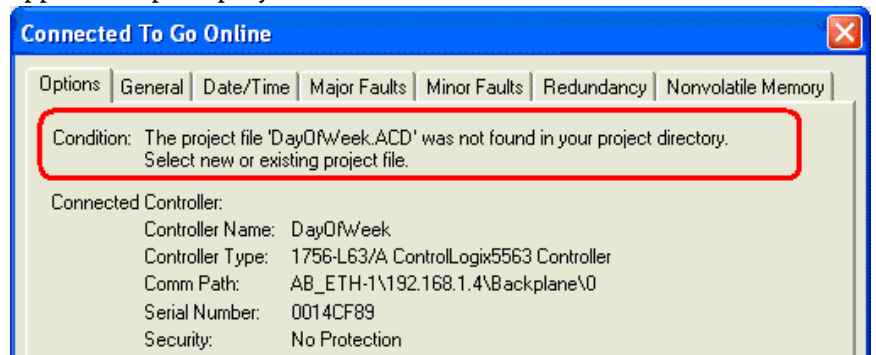
1. On the menu bar, select **Communications**, and then select **Who Active**.



2. In the **Who Active** dialog box, select the secured controller and select **Go Online**.

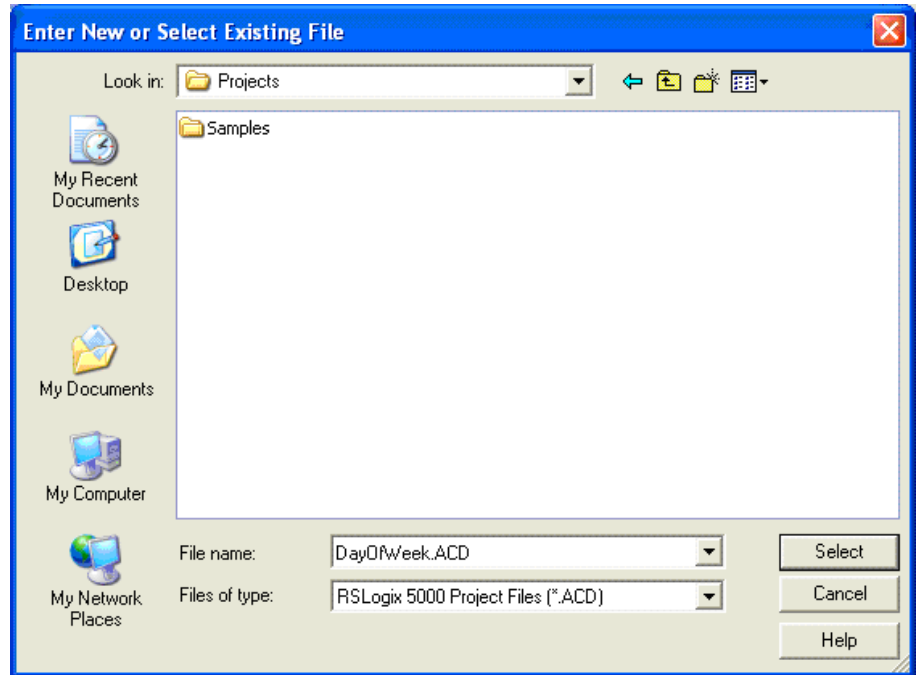


If you do not have a local copy of the project file on your computer, the application prompts you to select a file.



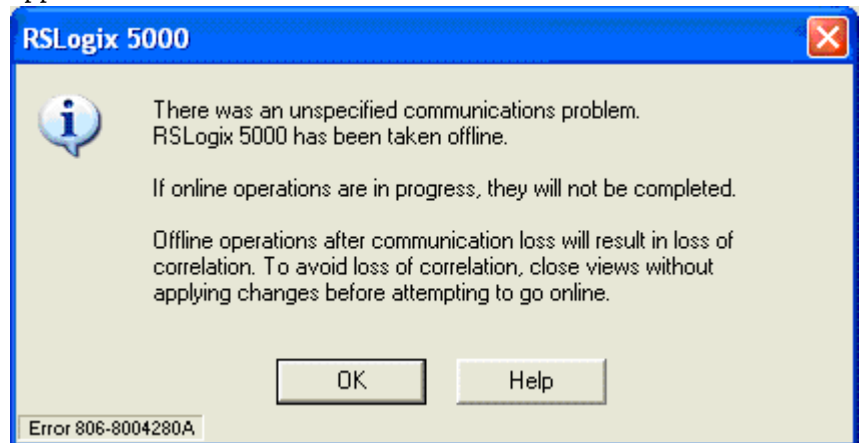
3. Select **Select file** to find the project file.

4. In the **Enter New or Select Existing File** dialog box, select the project file and then select **Select**.



5. Select **Yes** to create and upload the project.

An unspecified communications dialog box appears indicating that the application is now offline.



6. Select **OK** to continue.

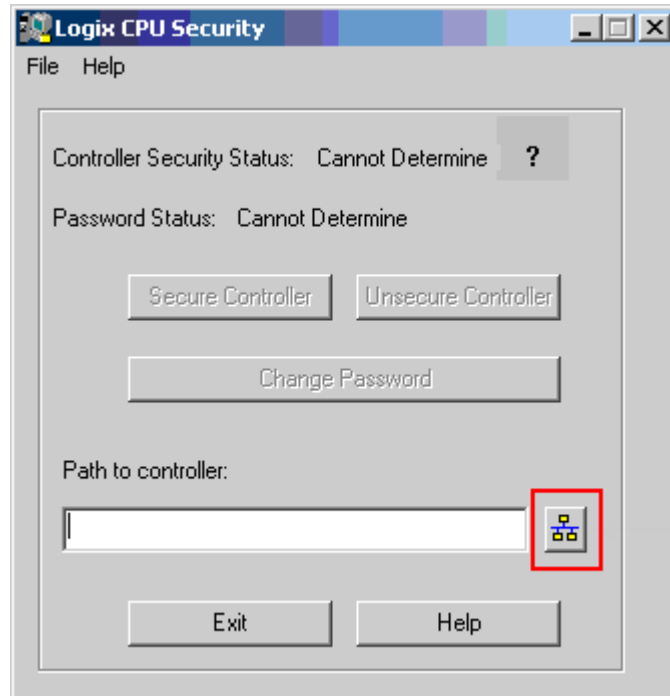
If the project file already exists on your system, an error message appears that indicates that the controller is secured and you cannot go online.

## Removing security from a controller with the CPU Security Tool

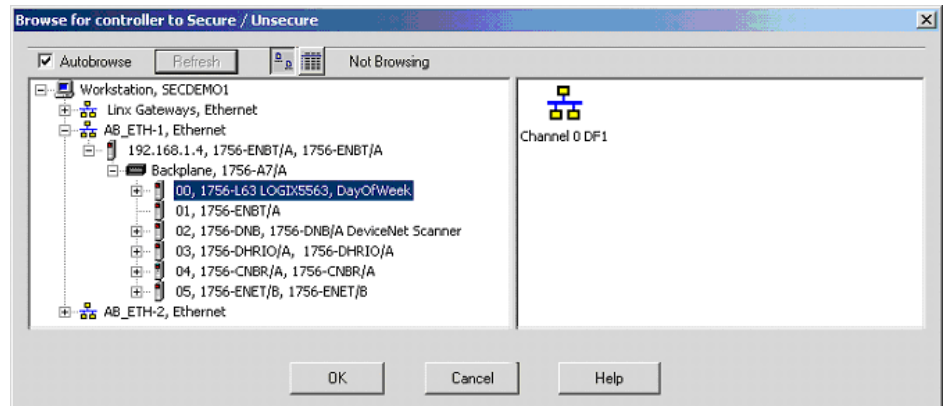
To remove security from a controller

1. Start the **Logix CPU Security Tool**. Select the **Start** button, then select **All Programs**, then select **Rockwell Software**, and then select **Logix CPU Security Tool**.

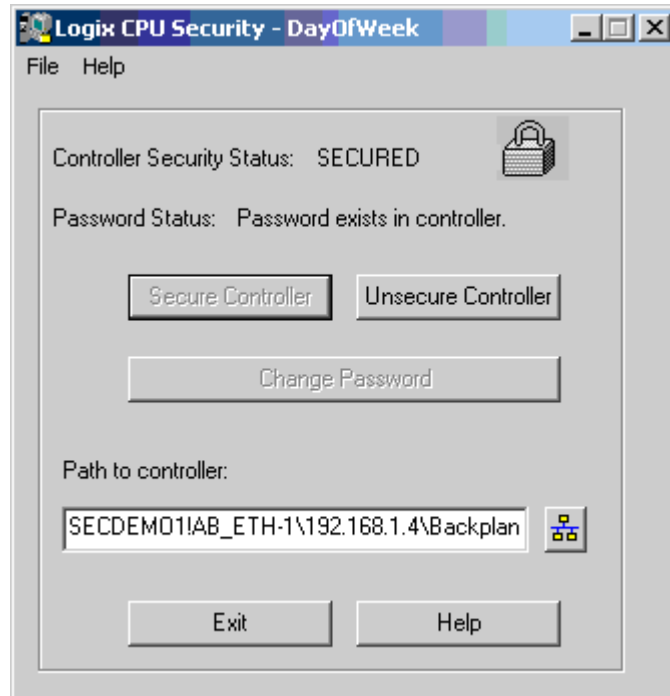
2. In the **Logix CPU Security** dialog box, select the **RSWho** button to specify a path to the controller.



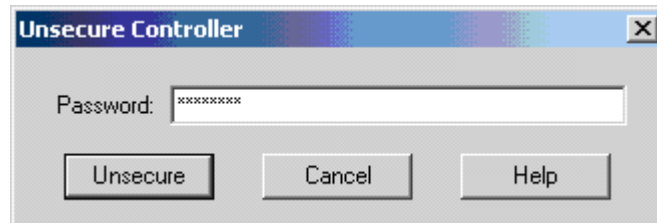
3. In the **Browse for controllers to Secure/Unsecure** dialog box, select the controller that you want to be unsecured and then select **OK**.



4. In the **Logix CPU Security - *project\_name*** dialog box, select **Unsecure Controller**.

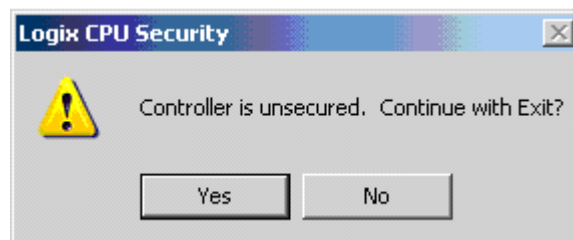


5. In the **Unsecure Controller** dialog box, in the **Password** box, type the password for the controller and then select **Unsecure**.



The controller is now unsecured, but the controller still recognizes the password.

6. Select **Exit**.
7. Select **Yes**. A message appears.

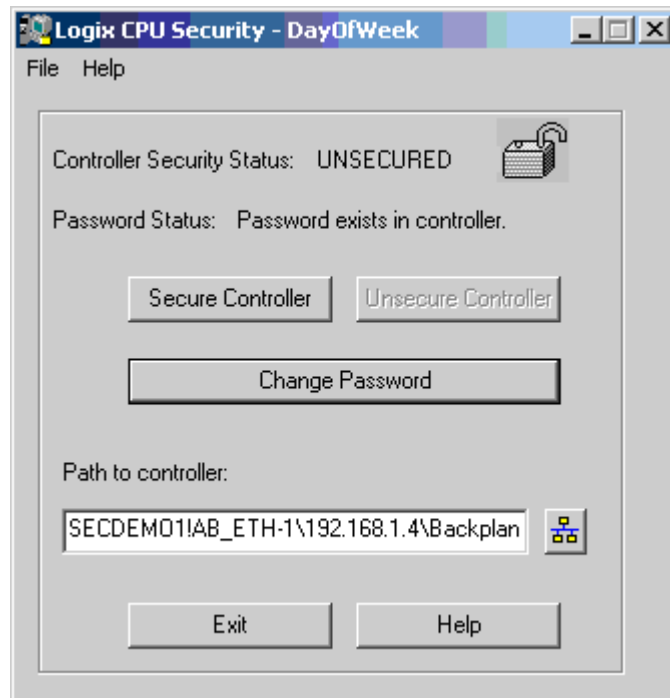


Select **Yes** to save the change. You can now go online with the controller.

## Removing a password

Follow these steps to remove a password.

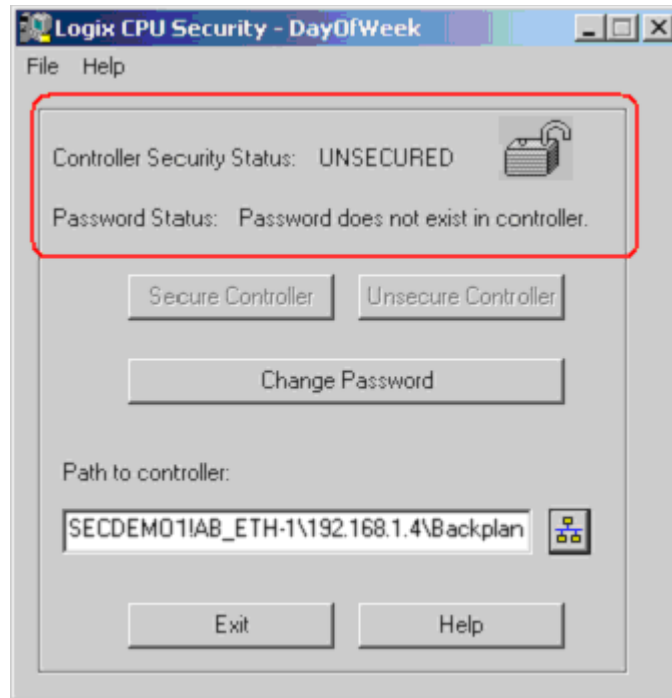
1. In the **Logix CPU Security - DayOfWeek** dialog box, select **Change Password**.



2. In the **Change Password** dialog box, remove the '\*\*\*\*' empty string and select **OK**.



The controller status is now UNSECURED.







## Product policies and securable actions supported by FactoryTalk Security

When used with the Logix Designer application, FactoryTalk Security supports Product Policies and Securable Actions. You configure these FactoryTalk Security settings in the FactoryTalk Administration Console.

Product Policies are not tied to a specific project, and may include the following.

- Securing the controller
- Creating a new project (either through the New Controller dialog box, or through the Translator Tool utility)
- Updating your firmware

Securable Actions let you perform specific tasks on a specific project or group of projects, and may include the following.

- Viewing a project
- Going online
- Creating tags
- Creating modules

In a safety controller project, you can specify additional protection to safety components. For example, to create a safety program, you need to have access granted for both of the following securable actions.

- Safety: Modify Component
- Program: Create

Keep the following considerations in mind when configuring security settings for the Logix Designer application.

- Security settings are obtained from the FactoryTalk Network Directory.
- FactoryTalk Security Emulator is not used by the Logix Designer application, but may be required by other software.
- FactoryTalk Local directory is not supported.

FactoryTalk Services Platform version 2.50 (SR5) or later supports associating the project with a specific FactoryTalk Directory.

### Product policies and securable actions

### Product Policies and Securable Actions

The Product Policies and Securable Actions listed here are configured in the

Network Directory using the FactoryTalk Administration Console. For details see the *FactoryTalk Security System Configuration Guide*. That document is available in the Rockwell Automation Literature Library. Click the following link to open the Literature Library in a browser window:

[Rockwell Automation Literature Library](#)

This table lists FactoryTalk Security Product Policies.

Grant access to these actions	To allow a user to
Controller: Secure	Secure a project or controller.
Firmware: Update	Update controller firmware. <b>Tip:</b> If the project is secured, the Securable Action (Firmware:Update) is also required to perform firmware updates. Firmware updates can be initiated within the Logix Designer application WhoActive dialog box if a project is open but not when the controller is online.
Print: Modify Options	Modify print options.
Project: New	Create a new project, import a project or translate PLC-5/SLC.
Toolbar: Configure	Move, resize, hide or show toolbars.
Workstation: Modify Options	Modify workstation options.

This table lists FactoryTalk Security Securable Actions.

Grant access to these actions	To allow a user to
Add-On Instruction: Create	Create an Add-On Instruction.
Add-On Instruction: Delete	Delete an Add-On Instruction.
Add-On Instruction: Export	Export an Add-On Instruction.
Add-On Instruction: Export Unencoded	Export an Add-On Instruction in clear text. <b>Tip:</b> Users must also be granted the <b>Add-On Instruction: Export</b> permission to export an AOI, or granted the <b>Project: Export</b> permission to export the entire project. <b>Tip:</b> To export in clear text, you must clear the <b>Encode Protected Content</b> checkbox on the Export dialog box. You must also have the required source key or license if the component is protected with Source Protection.
Add-On Instruction: Modify	Edit Add-On Instruction properties, tags, logic or whether a user can configure source protection.
Add-On Instruction: View Logic	View the internal information in an Add-On Instruction.
Alarm Definition: Create	Create new alarm definitions. An alarm definition is associated with an Add-On Instruction (AOI) or a defined data type. When a tag is created using a data type or an AOI that has alarm definitions, alarms are created automatically based on the alarm definitions.
Alarm Definition: Delete	Delete alarm definitions. When a user who is granted the <b>Alarm Definition: Delete</b> permission deletes an alarm definition for a data type or an Add-On Instruction (AOI), the corresponding alarms based on the alarm definition are deleted, even if the user has not been granted the <b>Alarm: Delete</b> permission. When a user deletes a data type or an AOI, all alarm definitions associated with that data type or AOI are deleted, even if the user has not been granted the <b>Alarm Definition: Delete</b> permission.
Alarm Definition: Modify Properties	Modify the properties of a tag-based alarm. When a user who is denied the <b>Alarm Definition: Modify Properties</b> permission imports a project or a project component that requires changes to existing tag-based alarm definitions, the import fails.

Alarm Definition: Modify Required Use	<p>Modify Required to be used and evaluated for all alarm instances.</p> <p>When a user is denied this permission, the user will be unable to modify the <b>Required to be used and evaluated for all alarm instances</b> in the Logix Designer application and Logix Services.</p>
Alarm: Clear Alarm Log	Clear the contents of the alarm log from the controller.
Alarm: Configure Direct Commands	Respond to a tag-based alarm using the <b>Acknowledge</b> , <b>Shelve</b> , <b>Disable</b> , and <b>Reset</b> buttons on the <b>Alarm Properties</b> dialog box - <b>Status</b> tab.
Alarm: Create	<p>Create new tag-based alarms.</p> <p>When a user who is denied the <b>Alarm: Create</b> permission imports a project or a project component that requires new alarms to complete the import, those alarms are created.</p>
Alarm: Delete	<p>Delete tag-based alarms.</p> <p>When a user who is granted the <b>Tag: Delete</b> permission deletes a tag that has alarms associated with it, those alarms are deleted.</p>
Alarm: Modify Properties	<p>Modify the properties of a tag-based alarm.</p> <p><b>Tip:</b> When a user who is denied the <b>Alarm: Modify Properties</b> permission imports a project or a project component that requires changes to existing tag-based alarms, the import fails.</p>
Alarm: Modify Use	<p>Modify Use and evaluate alarm.</p> <p>Marks all alarm instances as active and ready for evaluation. This check box is cleared by default.</p> <p>Enable or disable a tag-based alarm using the <b>Use and evaluate alarm</b> check box on the <b>Alarm Properties</b> dialog box - <b>Advanced</b> tab.</p>
Component: Modify Permission Set	Change which permission set is associated with a component.
Controller: Clear Faults	Edit the fault log, including clearing faults.
Controller: Lock/Unlock	Lock or unlock the controller for online edits.
Controller: Modify Mode	Change controller modes.
Controller: Modify Properties	Edit controller properties.
Controller: Modify Revision	Convert the .acd file to a higher revision.
Controller: Modify Type	<p>Change controller types.</p> <p>If a user is granted <b>Controller: Modify Revision</b> privilege, but is denied <b>Controller: Modify Type</b>, in most situations the user will be unable to change the type of controller.</p>
Controller: Unsecure	Unsecure a secured controller.
Data Log: Create	Create a data log.
Data Log: Modify	Modify a data log.
Data Log: Delete	Delete a data log.
Data Log: Enable/Disable	Enable or disable data logging.
Data Log: Read Log Data Value	Read a data log value.
Data Log: Clear Log Data Value	Clear a data log value.
Firmware: Update	<p>Use the Logix Designer application to update controller firmware.</p> <p>The Product Policy (Firmware:Update) is also required to perform firmware updates. Firmware updates can be initiated within the Logix Designer application <b>WhoActive</b> dialog box if a project is open, but not when the controller is online.</p>
Language: Modify Properties	Associate project documentation with a language, set default language, add or delete a language.
Language: Switch Language	Select a different language for product documentation.

Module: Create	<p>Create modules in the Controller Organizer.</p> <ul style="list-style-type: none"> <li>• If <b>Module: Create</b> is denied, the <b>New module</b> and <b>Paste</b> options are not enabled on the I/O tree menu. The <b>Import Module</b> option is enabled.</li> </ul> <p>A message displays that states that <b>Module: Create</b> must be granted. Selecting <b>OK</b> to import a module is not successful, and the dialog box closes.</p> <ul style="list-style-type: none"> <li>• If the <b>Select Module Type</b> dialog box is open and <b>Module: Create</b> is denied, the <b>Create</b> option is enabled unless you select a different module in the dialog box.</li> </ul> <p>If you select <b>Create</b>, the create wizard launches.</p> <p>If the create wizard is open and <b>Module: Create</b> is denied, you can perform all the steps to configure the module. When the you select <b>OK</b> to create the module, you receive the error <b>Module: Create</b> needs to be granted.</p>
Module: Create and Safety: Modify Component	<p>Create safety I/O configuration.</p> <ul style="list-style-type: none"> <li>• Denying <b>Safety: Module Component</b> does not affect the ability to create a safety module.</li> <li>• If <b>Module: Create</b> is granted, but <b>Safety: Module Component</b> is denied, you can create safety modules.</li> </ul>
Module: Delete	<p>Delete modules in the Controller Organizer.</p> <ul style="list-style-type: none"> <li>• If <b>Module: Delete</b> is denied, the <b>Cut</b> and <b>Delete</b> options are not enabled on the I/O tree menu.</li> <li>• If you select the <b>Cut</b> or <b>Delete</b> option, you receive a confirmation message, then a <b>Module: Delete</b> is denied message. When you select <b>OK</b>, your receive the error <b>Module: Delete</b> needs to be granted.</li> </ul>
Module: Delete and Safety: Modify Component	<p>Delete safety I/O configuration.</p> <ul style="list-style-type: none"> <li>• Denying <b>Safety: Module Component</b> does not affect the ability to delete a safety module, or a sub-tree that contains safety modules.</li> <li>• If <b>Module: Delete</b> is granted, but <b>Safety: Module Component</b> is denied, you can delete a safety module, or a sub-tree that contains safety modules.</li> </ul>
Module: Maintenance High	Perform high impact operations such as module reset and calibration.
Module: Maintenance Low	Perform low impact operations such as resetting electronic fuses.
Module: Modify Properties	<p>Edit module properties.</p> <p>If <b>Module: Module Properties</b> is denied, edit the configuration in the profile, including the Module Definition in an Add-On Profile.</p> <p>When you select <b>OK</b> or <b>Apply</b>, you receive the error <b>Module: Modify Properties</b> needs to be granted.</p>

Module: Modify Properties and Safety: Modify Component	<p>Modify safety I/O configuration.</p> <ul style="list-style-type: none"> <li>• <b>Safety: Module Component</b> affects only safety-related areas of profiles.</li> <li>• If <b>Safety: Module Component</b> is denied, the <b>Safety Network Number</b> dialog box on the <b>General</b> page of either a Classic or Add-On Profile cannot be opened.</li> <li>• If the <b>Safety Network Number</b> dialog box is already open when <b>Safety: Module Component</b> is changed from granted to denied, then you can complete the operation to change the <b>Safety Network Number</b> and successfully apply the updates.</li> <li>• If <b>Safety: Module Component</b> is denied, all controls that modify safety-related configuration are disabled when you select a different page, or select a different menu option. Some controls such as the <b>Safety Input RPI</b> on the <b>Safety</b> page, remain enabled, but only if the <b>Safety</b> page is current when <b>Safety: Module Component</b> changed from granted to denied.</li> <li>• If <b>Safety: Module Component</b> is denied, the <b>Advanced Connection Reaction Time Limit Configuration</b> dialog box on the <b>Safety</b> page cannot be open. If the <b>Advanced Connection Reaction Time Limit Configuration</b> is already open when <b>Safety: Module Component</b> is changed from granted to denied, then you can complete the operation to change and accept the updates and they are successfully applied. If there are pending edits to any safety-related control when <b>Safety: Module Component</b> is changed from granted to denied, then you can accept the updates and they are successfully applied.</li> </ul>
Module: View Properties	<p>View module properties.</p> <p>Users with this permission can open device profiles and, when online with the controller, use the profile to directly interact with modules and carry out actions such as changing IP addresses.</p> <p>When this permission is denied, users cannot open device profiles.</p>
Motion: Command Axis	Perform axis direct commands.
Motion: Modify Configuration	Modify axis, coordinate system, or motion group properties.
Nonvolatile Memory: Load	Load from non-volatile memory.
Nonvolatile Memory: Store	Store to non-volatile memory.
Phase: Create	Create equipment phases.
Phase: Delete	Delete equipment phases.
Phase: Manual Control	Manually control equipment phases.
Phase: Modify Properties	Edit equipment phases.
PLC/SLC: Modify Tag Mappings	Map PLC or SLC messages.
Plug-In: Display	Display plug-ins.
Print: Report	Print reports.
Program: Create	Create programs.
Program: Create and Safety: Modify Component	Create a safety program.
Program: Delete	Delete programs.
Program: Delete and Safety: Modify Component	Delete a safety program.
Program: Modify Properties	Edit program properties.
Program: Modify Properties and Safety: Modify Component <sup>1</sup>	Modify properties of a safety program.
Program: Modify Properties and Safety: Modify Component	Change class property of a standard program to safety.
Project: Compact	Compact a project file.
Project: Download	Download a project to a controller.
Project: Export	Save a project in .L5K or .L5X format.
Project: Go Online	Go online with a project.

Project: Modify Path	Set, clear, or modify the controller path associated with a given project.
Project: Open	Open a (read-only) version of the project. If users do not have the ability to open and view the project, they do not have the ability to do anything else with it.
Project: Save	Save a project.
Project: Save As	Save a project to a new .acd file.
Project: Upload	Upload a project from a controller.
Routine: Create	Create a routine.
Routine: Create and Safety: Modify Component	Create a safety routine.
Routine: Delete	Delete a routine.
Routine: Delete and Safety: Modify Component	Delete a safety routine.
Routine: Export	Export a routine.
Routine: Export Unencoded	Export a routine in clear text.
Routine: Manual Control	Manually control routine logic.
Routine: Modify Logic	Edit routine logic.
Routine: Modify Logic and Safety: Modify Component	Edit safety routine logic.
Routine: Modify Properties	Edit routine properties, configure routine source protection.
Routine: Modify Properties and Safety: Modify Component	Edit safety routine properties.
Routine: View Logic	View the logic in a routine.
Safety: Generate/Delete Signature	Generate or delete a Safety Signature.
Safety: Lock/Unlock	Lock or unlock edits on safety application.
Safety: Lock/Unlock	Modify safety lock or unlock passwords.
Safety: Modify Component	Create, delete, or modify safety components. <b>Tip:</b> The standard component privileges are required in addition to this privilege. For example, to create safety tags, the <b>Tag: Create</b> privilege is required in addition to the <b>Safety: Modify Components</b> privilege. <ul style="list-style-type: none"> <li>If <b>Module: Create</b> is denied, the <b>New module</b> and <b>Paste</b> options are not enabled on the I/O tree menu. The <b>Import Module</b> option is enabled. A message displays that states that <b>Module: Create</b> must be granted. Selecting <b>OK</b> to import a module is not successful, and the dialog box closes.</li> <li>If the <b>Select Module Type</b> dialog box is open and <b>Module: Create</b> is denied, the <b>Create</b> option is enabled unless you select a different module in the dialog box. If you select <b>Create</b>, the create wizard launches. If the create wizard is open and <b>Module: Create</b> is denied, you can perform all the steps to configure the module. When the you select <b>OK</b> to create the module, you receive the error <b>Module: Create</b> needs to be granted.</li> </ul>
Safety: Modify Properties	Modify the controller's safety configuration.
Safety: Modify Tag Mappings	Create safety tag mapping.
Safety: Modify Tag Mappings	Delete safety tag mapping.
Safety: Modify Tag Mappings	Modify safety tags mapped to standard tags.
Sequence: Create	Create an equipment sequence.
Sequence: Delete	Delete an equipment sequence.
Sequence: Manual Control	Take manual control of an equipment sequence.
Sequence: Modify Properties	Modify the properties of an equipment sequence.
Tag: Create	Create tags.
Tag: Create and Safety: Modify Component	Create a safety tag.
Tag: Delete	Delete tags.
Tag: Delete and Safety: Modify Component	Delete a safety tag.

Tag: Delete, Safety: Modify Tag Mappings, and Safety: Modify	Delete standard tag that is mapped to a safety tag.
Tag: Force	Force tags and enable or disable existing forces.
Tag: Force and Safety: Modify Component	Force safety tags.
Tag: Modify Constant Property	Change Constant property of a tag.
Tag: Modify Constant Tag Values	Change values of a Constant Tag.
Tag: Modify Properties	Edit tag properties.
Tag: Modify Properties and Safety: Modify Component	Edit safety tag properties.
Tag: Modify Properties and Safety: Modify Component	Change class property of a standard tag to safety.
Tag: Modify Properties and Safety: Modify Tag Mappings	Modify safety or standard tag properties of a tag contained in a safety mapping.
Tag: Modify Values	Change tag values.
Tag: Modify Values and Safety: Modify Component	Change safety tag values.
Task: Create	Create tasks.
Task: Delete	Delete tasks.
Task: Modify Properties	Edit task properties, including program scheduling.
Task: Modify Properties and Safety: Modify Component <sup>2</sup>	Modify safety task properties.
Trend: Create	Create trends.
Trend: Delete	Delete trends.
Trend: Modify Properties	Modify trend properties.
Trend: Run	Run trends.
User Defined Type: Create	Create user-defined data types or string types.
User Defined Type: Delete	Delete user-defined data types or string types.
User Defined Type: Modify	Edit user-defined data types or string types.

<sup>1</sup> A safety program's max scan time can be reset, regardless of the protection.

<sup>2</sup> The safety task max scan time and max/min interval scan timers can be reset, regardless of the protection.





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## Rockwell Automation support

Use these resources to access support information.

<b>Technical Support Center</b>	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	<a href="http://rok.auto/support">rok.auto/support</a>
<b>Knowledgebase</b>	Access Knowledgebase articles.	<a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a>
<b>Local Technical Support Phone Numbers</b>	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
<b>Literature Library</b>	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Get help determining how products interact, check features and capabilities, and find associated firmware.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

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## Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.





Rockwell Automation maintains current product environmental information on its website at [rok.auto/pec](http://rok.auto/pec).

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