Logix 5000 Controllers Import/Export
Project Components

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

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| Important: | Identifies information that is critical for successful application and understanding of the product. |

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Summary of 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.

<table>
<thead>
<tr>
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<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updated Logix Designer interface screen shots.</td>
<td>Updates to the Logix Designer interface.</td>
</tr>
</tbody>
</table>

New or enhanced features

This table contains a list of topics changed in this version, the reason for the change, and a link to the topic that contains the changed information.

<table>
<thead>
<tr>
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<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import and export tag-based alarms and alarm definitions on page 63</td>
<td>Added chapter on tag-based alarms and alarm definitions.</td>
</tr>
<tr>
<td>Introduction on page 11</td>
<td>Added modules as a component that can be exported and imported.</td>
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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.

The following documents contain additional information concerning importing and exporting projects and project components.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logix5000 Controllers Import/Export Reference Manual, publication 1756-RM084</td>
<td>Provides detailed reference information and examples for importing and exporting projects and components.</td>
</tr>
<tr>
<td>Logix5000 Controllers Security Programming Manual, publication 1756-PM016</td>
<td>Describes how to configure security for controller projects using the Logix Designer application.</td>
</tr>
</tbody>
</table>

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<tr>
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<th>Copyright</th>
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<th>License Text</th>
</tr>
</thead>
<tbody>
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<td>AngularJS 1.5.9 License</td>
</tr>
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</tbody>
</table>

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Preface

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Chapter 1

Import and Export Logic Components

Introduction

This chapter explains import and export of logic components.

You use the Logix Designer application to perform online edits for the Logix family of controllers.

The import/export functionality provides a greater degree of flexibility during development and deployment of projects. It supports the ability to export a component of a Logix Designer project and then import that component into either the same, or a different project, offline or online (even in Remote Run mode). It lets you import components to create something new in a project, or to update something that exists.

You can export and import these logic components offline and online:

- Rungs
- Routines
- Programs and equipment phases
- User-defined data types (UDT)/user-defined string types
- Add-On Instructions
- Trends
- Modules

Changes or additions to a project that may be impractical to do with online editing can be completed offline and then imported in one operation into a running controller by using the extended import/export feature. Engineering collaboration is also facilitated because many engineers can work on one or more of the project components independently offline and then use import to merge the changes into one project.

With online editing, you modify or create a component and then modify other components referenced by that component in the project sequentially. Importing online differs from online edits in that it provides the ability to create and delete components, as well as update referenced components, in one step.
ATTENTION: All Rockwell Automation XML files are encoded in UTF-8 file format. Users editing XML files must use a text editor like Notepad that supports UTF-8 encoding. If you save the edited file by using a non-UTF-8 compatible editor after making changes, the encoding breaks, resulting in a non-valid XML file.

Export considerations

Keep the following considerations in mind when exporting components.

- You may get more than you expected in an .l5x file. Some components referenced by the exported component are also exported.
- Starting with version 24 of Logix Designer, you can use program parameters to share data directly between programs in addition to Controller-scoped tags. For more information on program parameters, refer to 1756-PM021, Logix5000 Controllers Program Parameters programming guide.

<table>
<thead>
<tr>
<th>When exporting a</th>
<th>The exported component includes the</th>
<th>The exported file also includes referenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set of rungs</td>
<td>Rungs</td>
<td>Controller-scoped tags, program-scoped tags, user-defined data types, user-defined string types, Add-On Instructions</td>
</tr>
<tr>
<td>Routine</td>
<td>Routine</td>
<td>Controller-scoped tags, program-scoped tags, user-defined data types, user-defined string types, Add-On Instructions</td>
</tr>
<tr>
<td>Program</td>
<td>Program, routines, and program-scoped tags</td>
<td>Controller-scoped tags, user-defined data types, user-defined string types, Add-On Instructions</td>
</tr>
<tr>
<td>Equipment Phase</td>
<td>Equipment phase, routines, phase-scoped tags, and controller-scoped PHASE tag</td>
<td>Controller-scoped tags, user-defined data types, user-defined string types, Add-On Instructions</td>
</tr>
<tr>
<td>User-defined data type</td>
<td>User-defined data type</td>
<td>User-defined data types, user-defined string types, Add-On Instructions</td>
</tr>
<tr>
<td>User-defined string type</td>
<td>User-defined string type</td>
<td></td>
</tr>
<tr>
<td>Add-On Instruction</td>
<td>Add-On Instruction, Logic routine and any scan mode routines, and parameter and local tags</td>
<td>User-defined data types, user-defined string types, Add-On Instructions</td>
</tr>
<tr>
<td>Trend</td>
<td>Trend</td>
<td></td>
</tr>
</tbody>
</table>

For example, if you export a rung with an instruction that uses (references) a bit in a tag that is a user-defined type tag, the export content includes the referenced tag and the referenced user-defined
Import and Export Logic Components

Chapter 1

type, along with the rungs. When you import the rung, you can choose whether to also import the referenced tag and user-defined type.

- Only the offline data values of tags are exported to the .15x file, even when the project is online with the controller. When exporting components that include tags while online, the software prompts you to upload tag values before exporting the component.

**Important:** Whether exporting while offline or online with the controller, only offline data values of tags are exported to the .15x file.

- You can export a component that has Test Edits, but the resulting file cannot be imported. If an .15x file with Test Edits is selected for import, then the import aborts.

### Security considerations for exporting components

The following table describes considerations you should keep in mind when exporting secured components.

<table>
<thead>
<tr>
<th>For this security setting</th>
<th>Keep this in mind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permission set</td>
<td>A permission set that restricts viewing an Add-On Instruction or routine in the Logix Designer application does not prevent a user from exporting and viewing the Add-On Instruction or routine in clear text. To prevent exporting the component, configure the permission set to deny the <strong>Routine: Export</strong> or <strong>AOI: Export</strong> permissions. To prevent exporting a component in clear text, configure the permission set to deny the <strong>Add-On Instruction: Export Unencoded</strong> permission for Add-On Instructions and the <strong>Routine: Export Unencoded</strong> permission for routines.</td>
</tr>
<tr>
<td>Source Key Protection</td>
<td>When a component is protected with a Source Key, users without the source key cannot alter the logic of the component, and the protected component is written to the export file in an encoded format.</td>
</tr>
<tr>
<td>License-Based Source Protection</td>
<td>The protected component is written to the export file in an encoded format unless the user's 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 clear the <strong>Encode Protected Content</strong> check box.</td>
</tr>
</tbody>
</table>

For more information on security considerations, see the Logix5000 Controllers Security Programming Manual, publication 1756-PM016.
Export Logic components

You export logic components so you can import the component into another project, or to create a backup copy of a component while you modify the original.

To export logic components:

1. In the Logix Designer Controller Organizer, select the logic component to export.

   Tips: • You can select multiple programs, Add-On Instructions, and user-defined data types for export. See the Import and Export Add-On Instructions chapter for detailed information.
   • You can also export logical components from the Logical Organizer, where you can select multiple programs and include child folders and programs in their hierarchical levels. Refer to the Logix Designer application online help for instructions.

2. Right-click and select Export <logic component>.

3. In the File Name box, enter a file name for the export file.

   Tip: You can export multiple Add-On Instructions to a single file or to multiple files. See Configure Multiple Component Properties on page 25 for detailed information.

4. (Optional) Edit the default description or add a description, if desired.

   A default description is supplied for some component exports.

   Tip: The file description can be viewed in a tooltip during import when selecting which file to import.

5. Click Export.

Import considerations

This section covers general considerations for all component-type imports. See the chapters for specific components (program, routine, rungs, Add-On Instructions, User-Defined data types, and tags) for additional export and import considerations for that component, whether it is imported directly or as a reference during another component import.

Important: When editing online, if the program scan time is large, or the number of modified rungs is large, you might see HMI and Logix Designer communication timeouts when edits are finalized.

The timeout is caused by the (scan time) x (number of changed rungs). You could have a large program with a very fast scan, or a lot of rungs (but you modified only a few), and you do not see a timeout.
**Tip:** Starting with version 24 of the Logix Designer application, you can use program parameters to share data between programs in much the same way that you use controller-scoped tags. Program parameters are imported and exported in the same way as tags in most instances. For more information on program parameters, refer to the Logix5000 Controllers Program Parameters Manual, publication 1756-PM021.

---

**Online import**

The following table describes considerations for importing components while online.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag data values</td>
<td>When overwriting tags while online, data values are not written to the online project. Data values for overwritten tags while online are written only to the offline project. Data values for tags created while online are written to the offline and online project. Select the <strong>Preserve existing tag values in offline project</strong> check box to prevent tag values from being overwritten in the offline project.</td>
</tr>
<tr>
<td>Locking controller edits</td>
<td>When performing an online import, the controller is locked, preventing other workstations connected to the controller from making edits until the import completes. If another workstation has the controller locked, an online import cannot be initiated.</td>
</tr>
<tr>
<td>Tag attributes</td>
<td>Tag attributes (for example, <strong>External Access</strong>, <strong>Constant</strong>, and <strong>Style</strong>) are written to the online project and the offline project. If existing tags are to be overwritten with new attributes that are incompatible with existing user logic, the import is not allowed.</td>
</tr>
</tbody>
</table>
Online options

When importing programs, equipment phases, routines, or rungs online, the logic can be imported as:

- Pending Edits that exist only in the offline project and are not downloaded to the controller.
- Accepted Edits that are downloaded to the controller where they can be tested, accepted, or canceled.
- Finalized Edits that are downloaded to the controller, assembled, and cannot be canceled.

As with normal online editing, with any online option chosen, any tags, data types, or Add-On Instructions that are created or modified are downloaded immediately. In addition, any task, program, or routine properties that are modified are downloaded immediately. These changes remain in the controller, even if logic edits are later canceled. Pending Edits and Accepted Edits options do not apply to Add-On Instructions and user-defined types, so Online Options are not presented during an Add-On Instruction or user-defined type import.

Under the following conditions, only the **Finalize All Edits in Program** option is available.

- When you are online with the controller and you import a program that contains connections to InOut parameters and:
  - You change the final connection of an InOut parameter online.
- When the connections are different than what is currently downloaded to the controller. **Finalize All Edits in Program** is your only option because you chose to overwrite the program on Import. You must configure the InOut connections such that the InOut parameter connection is taken not from the destination controller but from the Import file, or from a new final name for the connection entered by the user.
- When you import a program or programs with connections online and in Remote Run mode, and:
  - A connection is changed from connect to disconnect.
  - A connection is changed from disconnect to connect.
  - The final name of a connection is changed.
  - A connection is added and its operation is set to connect.
- When you import program hierarchies or multiple programs online and in Remote Run mode.

External access

If the External Access is changed, it may change the behavior of your running HMI.

Changed External Access attributes for overwritten tags can cause changes to HMI behavior, regardless of whether logic changes are tested, accepted, or finalized.
### Asynchronous import

Import operations are not synchronized with the Program Scan (just as online editing operations are not synchronized). For most objects, this does not matter because:

- Existing online tag data values are never overwritten.
- New tags and their initial data values are written to the controller before the new logic runs.
- The switch-over to the new logic is synchronized with the program scan (just like online editing).

In general, although online tag data values are not overwritten, some object attributes can change asynchronously to the Program Scan. Some examples:

- Changed attributes of existing programs or equipment phases (such as changing the Initial Step Index of an equipment phase) are written to the controller before switch-over, so old logic can run with the new configuration.
- An existing program without a main routine could become configured with a main routine as part of import, and that main routine runs immediately even though the new logic for that routine has not yet been accepted.
- Changing Logix-based alarm tag configuration (such as alarm messages or associated tag definitions) can go into effect while the old alarm trigger logic is still active, resulting in alarm messages that do not match the condition.

### Communication timeouts

Communication timeouts may occur when rungs are deleted online in Run mode if the program scan time is long or the number of rungs being deleted is large.

If you use Partial Import Online and choose Pending or Accept edits, when you later Finalize those edits, a timeout can occur. This timeout can occur as HMI or Logix Designer communication timeouts. Keep the following timing considerations in mind.

- Finalizing online edits while in Run mode causes brief interruptions to communication, which are usually unnoticeable.
- The length of the communication interruption is related to the product of the (task scan time) x (the number of changed rungs).
- When very long program scans or large quantities of changed rungs occur, the communication interruption can be long enough to cause timeouts.
- The timeout of a Rockwell Automation HMI is typically 8 seconds, while a Logix Designer online session typically has a 30-second timeout.
- It does not matter whether the edits came from individual online edits or from a Partial Import Online (choosing Pending or Accepted edits).
- Partial Import Online (choosing Finalize Edits) does not cause the communication timeout, due to the use of asynchronous transaction commit processing.
### Motion

The following table describes considerations for importing motion components while online.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion components limitations while online</td>
<td>Motion tags (Axis, Coordinate System, and Motion Group) cannot be created, modified or deleted during an online import, however, existing motion tags can be referenced. When doing an offline import, motion tags can be created and modified.</td>
</tr>
</tbody>
</table>

### Safety

The following table describes considerations for importing safety components.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety components limitations while online</td>
<td>Safety components cannot be created, modified or deleted during an online import.</td>
</tr>
<tr>
<td>Safety components limitations while offline</td>
<td>Safety components cannot be created, modified or deleted during an offline import. If a Safety Signature exists, the project is Safety locked. A non-recoverable safety fault is present if the Safety Partnership status between the primary controller and the safety partner is any value other than ‘OK’, or if Safety modify permissions are denied.</td>
</tr>
<tr>
<td>Scheduled location</td>
<td>In a Safety project, Safety programs cannot be imported into a Standard task and vice versa.</td>
</tr>
<tr>
<td>Safety programs imported into a standard project</td>
<td>Safety programs imported into a Standard project are converted to Standard programs during the import processing and a warning appears in the Errors/Results Pane during initial parsing of the .l5x file. In this case, imported logic does not verify after import if it contains instructions that are only valid in a Safety routine.</td>
</tr>
<tr>
<td>Controller Fault Handler and Power-Up Handler</td>
<td>A Safety program cannot be scheduled in the Controller Fault Handler or Power-Up Handler folders.</td>
</tr>
</tbody>
</table>

### Security

The following table describes considerations for importing a secured project or component.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project or components are secured by a permission set</td>
<td>If the project or components in it are secured by a permission set, the import process may not be able to create, delete, or modify some components, depending on the security actions that have been granted or denied for those components.</td>
</tr>
<tr>
<td>Project or components are secured by License-Based Source Protection</td>
<td>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.</td>
</tr>
</tbody>
</table>
Multiple components

The following table describes considerations for importing multiple User-defined types and Add-On Instructions and multiple target programs.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importing multiple User-defined types</td>
<td>When User-defined types (UDTs) and Add-On Instructions (AOIs) are imported using the Multiple Components option, all UDTs and AOIs are treated as references. Unlike child components, referenced components can be configured independently from the import target.</td>
</tr>
<tr>
<td>Controller Fault Handler and Power-Up Handler disabled</td>
<td>When you import multiple target programs, the Controller Fault Handler and Power-Up Handler are unavailable in the Schedule In list.</td>
</tr>
</tbody>
</table>

Import Logic components

Follow these steps to import logic components. You can import components from the Controller Organizer and from the Logical Organizer.

Importing components into a controller while online can affect controller operation. Use caution when modifying logic while online in Remote Run or Run mode.

1. Right-click the item and choose the import component menu item as described in the following table.

<table>
<thead>
<tr>
<th>To import a</th>
<th>Right-click</th>
<th>And choose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set of rungs</td>
<td>A rung or set of rungs within a Ladder routine editor</td>
<td>Import Rungs</td>
</tr>
<tr>
<td>Routine</td>
<td>A program</td>
<td>Import Routine</td>
</tr>
<tr>
<td>Program</td>
<td>A task, the Controller Fault Handler folder, the Power-Up Handler folder, or the Unscheduled Programs folder</td>
<td>Import Program</td>
</tr>
<tr>
<td>Equipment Phase</td>
<td>A task or the Unscheduled Programs folder</td>
<td>Import Equipment Phase</td>
</tr>
<tr>
<td>User-defined data type</td>
<td>User-Defined folder</td>
<td>Import Data Type</td>
</tr>
<tr>
<td>User-defined string type</td>
<td>Strings folder</td>
<td>Import String Type</td>
</tr>
<tr>
<td>Add-On Instruction</td>
<td>Add-On Instructions folder</td>
<td>Import Add-On Instruction</td>
</tr>
</tbody>
</table>
To import a Trend

<table>
<thead>
<tr>
<th>Right-click</th>
<th>And choose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trends folder</td>
<td>Import Trend</td>
</tr>
</tbody>
</table>

2. Select the file to import.

You can select multiple components for import. See Configure Multiple Component Properties on page 25 for information.

3. Click Import.

4. Continue by selecting the configuration options described in the section below, Configuration Properties for Import.

**Configuration properties for import**

This section describes configuration options for importing components.

**Tip:** Trends do not require any import configuration, so the Import Configuration dialog box does not appear and the trend is imported immediately.

**Properties for imported components**

When you import components, the previously exported information is brought into the project based on the import configuration you select. You determine how the imported component (a program, for example) connects to the existing project either by overwriting an existing component of the same type, or by creating a new one.
The following screen capture shows a typical **Import Configuration** dialog box. (Your dialog box might contain options different than those shown here, depending on the component you import.)

An import component collides with an existing component if a component of the same type, scope, and with the same name exists in the project. By configuring the Final Name of the imported component, you determine whether the imported component collides with an existing component, or it does not (if a component of the same type, scope and with the same name does not exist in the project). For a collision, you can use the existing project component or you can overwrite it. For a non-collision, you can create a project component or you can discard, and not import, the component from the import file. In any case, any imported logic references are updated to be the same as the Final Name.

By configuring the Operation for the component, you determine whether it is imported from the file or an existing component is used. Incompatibility of a collision or other situations, for example, project security privileges, may affect what Operations are permitted for a component.
The following table describes the configuration options.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import Name</td>
<td>The Import Name is read-only and shows the name of the component as read from the import file.</td>
</tr>
<tr>
<td>Operation</td>
<td>The Operation determines whether the component from the import file is imported. Not all operations are applicable to a given component in all situations. Sometimes there is only one possible operation permitted in a particular situation. Choose from these options:</td>
</tr>
<tr>
<td></td>
<td>• Use Existing (collisions) to use the existing component in the project. The component definition in the import file is not imported. If the component collides and there is no definition for the component in the import file, then this is the only Operation available.</td>
</tr>
<tr>
<td></td>
<td>• Overwrite (collisions) to import the component definition from the import file and overwrite the existing component definition in the project. Important: If you select Overwrite for a reference tag, the tag data that is different is written to the offline project only, even if you are online with the controller.</td>
</tr>
<tr>
<td></td>
<td>• Create (non-collisions) to import the component from the import file creating a new component in the project.</td>
</tr>
<tr>
<td></td>
<td>• Discard (non-collisions) to discard the component and abort import. If the main component from the import file (the program during a program import, for example) is discarded, the references can still be imported. If a referenced component is discarded, any imported logic references are not defined in the project and might not verify after import.</td>
</tr>
<tr>
<td></td>
<td>• Undefined (non-collision) is the only Operation available if the component does not collide and there is no definition for the component in the import file. The imported logic is not verified after import.</td>
</tr>
<tr>
<td></td>
<td>• Delete (non-collision) indicates that this component will be deleted from the project on import.</td>
</tr>
<tr>
<td>Final Name</td>
<td>The Final Name determines the name of the component that shows in the project after the import (except in the case of a Delete Operation). You can create or avoid collisions by changing the Final Name. If you change the Final Name to differ from the Import Name, all logic references in the import content are updated. If you change the Final Name of a component during configuration so that it collides with a different existing component after it was colliding with another, any changes you made to the Operation are preserved.</td>
</tr>
</tbody>
</table>
## Configuration Description

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
</table>
| Description                 | The Description that is shown depends on the Operation. If the Operation is:  

- Overwrite or Create, the description is initially the description from the import file. You can edit it during import configuration.  
- Discard, the description is initially the description from the import file. It is read-only and may not be edited.  
- Use Existing or Delete, the description is the existing component description. It is read-only and may not be edited.  
- Undefined, no description is shown.  

The description for members of an expanded tag follow the same rule the tag follows. Only members of the tag that have descriptions are shown when the tag is expanded. |

| Schedule In                 | The Schedule In setting determines the task in which the imported component is scheduled.  

The default setting for Schedule In depends on the Operation setting and whether you import the component into the Controller Organizer or the Logical Organizer.  

If you import the component into the Controller Organizer:  

- When you select a task or handler and Operation is set to Overwrite, Schedule In is set to the selected task or handler.  
- When you select a task or handler and Operation is set to Use Existing, Schedule In is set to the task or handler where the program is scheduled in the destination project.  
- When the selection in Controller Organizer is not a task or handler, Schedule In is set to Unscheduled Programs/Phases.  

If you import the component into the Logical Organizer:  

- When you set Operation to Create or Discard, Schedule In is set to Unscheduled Programs/Phases.  
- When you set Operation to Use Existing or Overwrite, Schedule In is set to the Task or Handler for which the program is scheduled in the destination project.  

You can adjust the Schedule In setting when:  

- Operation is set to Create (the target component is being created).  
- Operation is set to Overwrite and you are not online in Remote Run mode.  

You cannot change the Schedule In setting when:  

- You import a program folder.  
- Operation is set to any setting other than Create or Overwrite. |

| Preserve scheduling for child programs that already exist | When you select this setting, any child programs that exist in the destination project remain scheduled as configured in the project. When you clear this setting, all imported programs are scheduled in the task specified by the Schedule In setting.  

This setting is available when Operation is set to Create or Overwrite; otherwise it is read-only. When enabled, this setting is selected by default. The setting is not preserved between import sessions. |
### Configuration Description

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>Determines where the imported component is organized. The default setting for Parent depends on whether you exported the component from the Controller Organizer or the Logical Organizer, whether you are importing it to the Controller Organizer or the Logical Organizer, and on the Operation setting.</td>
</tr>
<tr>
<td></td>
<td>• If you exported the program from the Controller Organizer and you are importing it to either the Controller Organizer or the Logical Organizer:</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to the selected program in the Logical Organizer if the operation is Create or Discard.</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to the parent configured in the destination project if Operation is set to Use Existing or Overwrite.</td>
</tr>
<tr>
<td></td>
<td>• If you exported the program from the Logical Organizer and you are importing it to the Logical Organizer:</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to the selected program in the Logical Organizer if Operation is set to Create or Discard.</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to the parent configured in the destination project if Operation is set to Use Existing.</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to the selected item in the Logical Organizer if Operation is set to Overwrite.</td>
</tr>
<tr>
<td></td>
<td>• If you exported the program from the Logical Organizer and you are importing it to the Controller Organizer:</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to &lt;none&gt; if Operation is set to Create, Discard, or Overwrite.</td>
</tr>
<tr>
<td></td>
<td>• Parent is set to the parent configured in the destination project if Operation is set to Use Existing.</td>
</tr>
</tbody>
</table>

When there is a collision, the components colliding may be identical, or they may be different. If they are the same, the Operation defaults to Use Existing. If they are different, imported components default to Overwrite while referenced components default to Use Existing. Choose Overwrite to use the component definition from the import file, or Use Existing to use the component in the project. Icons on the Import Configuration dialog box (next to the Operation control) show whether colliding components are identical or different.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Icon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component shows only in the import file (non-collision)</td>
<td>![Icon]</td>
</tr>
<tr>
<td>Component shows only in the project (non-collision)</td>
<td>![Icon]</td>
</tr>
<tr>
<td>Component collides with a component in the project and differences exist</td>
<td>![Icon]</td>
</tr>
<tr>
<td>Component collides with a component in the project and they are identical</td>
<td>No icon</td>
</tr>
</tbody>
</table>

To see the differences between the import component and the colliding project component, click Collision Details and a dialog box opens. Use the
information in the dialog box to determine whether to overwrite or to use the existing component.

For components that do not collide, click Properties for more information on the component.

**Important:** A component you select for import that collides with an existing component defaults to overwriting the project component unless the components are identical, in which case, the project component is used. If the project component is used, references may still be imported.

---

**Configure multiple component properties**

This section describes the settings you use to import and configure multiple components.

You carry out multiple steps when you import components.

- First, you select components for export from a project.
- You export those components.
- You select those components and import them into another project.

Use one of the following methods to import multiple components.

- Select **Import Component** from the File menu and choose the component type that you want to import.
- Copy the programs, AOIs, or UDTs, right-click a task in the organizer, and click **Paste With configuration** on the menu.
Tip: The **Paste With Configuration** menu option works when copying from the Controller Organizer to the Logical Organizer, and vice versa.

The following screen capture shows a typical **Import Configuration** dialog box for multiple components. (Your dialog box might contain options different than those shown here, depending on the components you import.)

Imported items are listed in the **Import Content** pane. The following items are listed in the **Import Content** pane based on the items that are part of the import content.

- Programs -- If you are importing multiple programs, the grid shows the programs that are being imported into the project. If you are importing multiple hierarchies, the grid shows the programs and the children of the programs that are being imported into the project.
- Tags, Add-On Instructions, Data Types and Other Components -- References include any tags directly referenced by any imported logic or tags (using Alias For).
• Connections -- Lists the connections, from programs that are external to the programs in the import content, that are also connected to programs in the existing project.

The following table describes the multiple-import configuration parameters.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Programs</td>
<td>The Import Content pane shows the number of programs that are being imported into the project. The value shown in the parenthesis excludes children of the programs. If differences occur among the programs, the difference icon appears in the Differences column of the Programs grid.</td>
</tr>
<tr>
<td>Imported Programs</td>
<td>Shows the number of parent and child programs (if applicable) that are being imported into the project.</td>
</tr>
<tr>
<td>Operation</td>
<td>Identifies what is done with the programs upon import.</td>
</tr>
<tr>
<td></td>
<td>• If Import is selected, all programs are imported into the project.</td>
</tr>
<tr>
<td></td>
<td>• If Discard is selected, the programs are not imported into the project.</td>
</tr>
<tr>
<td></td>
<td>The field is set to Import by default. However, you can choose Discard from the menu.</td>
</tr>
<tr>
<td></td>
<td><strong>Tip:</strong> To see the Operation value for a specific program, check the Programs grid of the program's child program.</td>
</tr>
<tr>
<td>Schedule In</td>
<td>Shows the task in which the imported programs are scheduled.</td>
</tr>
<tr>
<td></td>
<td>The default value for the Schedule In value is either the selected task or Unscheduled Programs/Phases based on which method you use to import the content, and from which organizer you initiate the import.</td>
</tr>
<tr>
<td></td>
<td>• If you use Paste Special&gt;With Configuration in the Controller Organizer, the default value is the selected task.</td>
</tr>
<tr>
<td></td>
<td>• If you use the Paste Special&gt;With Configuration option or the File&gt;Import Component option in the Logical Organizer, the default value is Unscheduled Programs/Phases.</td>
</tr>
<tr>
<td></td>
<td>The Operation field must be set to Import to modify the Scheduled In value.</td>
</tr>
<tr>
<td>Do not change scheduling of existing programs</td>
<td>When selected, programs that exist in the project remain scheduled as they are configured in the project. The check box is selected by default. When cleared, upon import, programs are scheduled in the task specified in the Schedule In field. To modify this option:</td>
</tr>
<tr>
<td></td>
<td>• The Operation field must be set to Import.</td>
</tr>
<tr>
<td></td>
<td>• The controller cannot be in Remote Run mode.</td>
</tr>
</tbody>
</table>
Chapter 1  Import and Export Logic Components

Configuration Description

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>Specifies how the programs are organized upon import.</td>
</tr>
<tr>
<td></td>
<td>• When you import a program into the Logical Organizer, the default is the Parent in the selected program in the Logical Organizer.</td>
</tr>
<tr>
<td></td>
<td>• The default is &lt;none&gt; when a Parent is not specified in the selected program in the Logical Organizer, or when you are importing programs into the Controller Organizer. If a Parent is not specified, the programs remain organized as they are configured in the project.</td>
</tr>
<tr>
<td></td>
<td>The Operation field must be set to Import to modify the Parent option.</td>
</tr>
<tr>
<td>Do not change parent of existing programs</td>
<td>Select this check box and programs that exist in the project remain organized as they are configured in the project. The check box is selected by default. Clear this check box and upon import, programs are organized in the program that is specified in the Parent field. All child programs are imported as organized in the import content regardless if the check box is selected or cleared. The Operation field must be set to Import to modify this option.</td>
</tr>
</tbody>
</table>

**Configure program connections**

When you import a program, you might need to configure connections to program parameters or controller scope tags that exist in the project. You can configure connections when you select the target program on the Import Configuration dialog box and Operation is set to Overwrite or Create. If Operation is set to Use Existing or Discard, the Connections grid does not appear.

When you import multiple programs, any connections between the programs you are importing cannot be configured, and do not appear in the Connections grid. However, any connections with endpoints outside these programs do appear and may be configured.

The Logix Designer application imports the connection endpoints, and they remain what they were in the original project. If the endpoints exist in the destination project, they bind automatically. If the endpoints don’t exist, they are flagged as errors and you must change the Final Connection name to bind them to the correct connections, or remove the connections.

The following diagrams describe how imported connections are established.
In My Original Project, the parameters in Program1 are connected to parameters in Program2.

When you import the original Program1 into My New Project, the parameters in Program1 connect automatically to matching parameters in Program2. Parameters that don’t match are flagged as errors. You need to change the Final Connector for those parameters.

If the endpoint names are different in My New Project (for example, Program3) you can either open the Connections grid and change the Final Connection name on the endpoints from Program2 to Program3, or you can go to the References grid and change the final name on Program2 to Program3 in one place, and all the connections change automatically.
To open the Connections grid, click **Connections** on the **Import Configuration** dialog box.

![Connections grid](image1)

The following screen capture shows the Connections grid as it would appear when you import Program1 into My New Project, as described earlier in this section. To fix the connection errors, you can select **Disconnect** in the **Operation** field, or you can select a different connection in the **Final Connection** field.

![Configure Connections](image2)

The indicator column at the far left of the Connections grid shows the condition of the connection. The following table describes the connection conditions.
### Indicator | Connection Condition
--- | ---
* | Indicates a row in which content has changed and the change has not been saved.
| Images indicating issues with connection endpoints are invalid due to syntax errors. If you click OK to begin the import, you receive an error message and must fix or remove the connection before you can proceed.
| Indicates that the connection being imported will contain an error at completion of the import. You can proceed with the import, and the connection is created, but you must fix the error before you can download the project to the controller.
| Indicates a row in which you can create a connection.

The following table describes the Connections grid columns and settings:

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
<td>The parameter identified in this field is the parameter in the import content that is to be connected to another parameter on a program that exists in the project. \nA New Connection option is available on the last row of the grid if the import content contains only one program. You can create connections that are not part of the import content by connecting a program parameter in the import content to an endpoint connection on a program that is in the project. You then have a new connection that did not exist in the import content nor in the program that exists in the project. See Create a New Connection on page 33 for more information.</td>
</tr>
<tr>
<td>Data Type</td>
<td>Shows the data type of the parameter. A parameter can only be connected to a member or bit of a tag or parameter with the same data type or an error occurs when you verify the program.</td>
</tr>
<tr>
<td>Usage</td>
<td>Shows the usage type of the parameter as Input, Output, InOut, or Public.</td>
</tr>
<tr>
<td>Import Connection</td>
<td>Shows the name of the connection endpoint for the parameter as read from the import file. The Import Connection field is blank if the connection is only defined in the program that exists in the project.</td>
</tr>
<tr>
<td>Differences</td>
<td>Indicates if there are differences between the connections in the import content and the connections in the target project. Also identifies if a connection exists in the import content, or if it exists in the program that is in the project. Click the Browse button in the Details column to see more extensive component properties. \nTwo icons show how the imported content matches the content of the program that exists in the project: \n</td>
</tr>
</tbody>
</table>
Chapter 1 Import and Export Logic Components

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
</table>
| Operation       | Identifies whether the connection is made upon import of the program into the project. You can select Connect or Disconnect to change the connection status for the connection.  
• Connect - Upon import of the program, this connection that is defined in the import content will be created in the project. This is the default value when a connection between the parameter and the final connection is valid.  
• Disconnect - Upon import of the project, the connection that is defined in the import content will not be created in the project. This is the default value when the connection between the parameter and the final connection is not valid.  
See the example later in this section for more information on the Operation field. |
| Details         | Click the Browse button to open the Connection Properties dialog box. On the Connection Properties dialog box, click Connect or Disconnect to change the connection status for the connection. |
| Final Connection| The parameter or tag in the existing project that the import parameter will be connected to.  
You have the option to change the value in the Final Connection field based on the value in the Operation field. You can type the final connection name or click the down arrow to make a selection from the tag browser. If the parameter is a MODULE InOut parameter, the module browser appears instead of the tag browser. For more information about the tag browser and module browser, see the online help topics Using the Tag Browser and Using the Module Browser.  
If you enter an invalid final connection, the error indicator displays in the leftmost column. Hover the cursor over the error indicator to see a description for the cause of the error.  
See the example later in this section for more information on the Final Connection field. |

Using the Operation and Final Connection fields to establish connections

This is an example on using the Operation and Final Connection fields to establish connections.  

<table>
<thead>
<tr>
<th>Parameter in Imported File</th>
<th>Connection in Imported File</th>
<th>Operation Value</th>
<th>Final Connection field</th>
<th>What happened in this case</th>
</tr>
</thead>
<tbody>
<tr>
<td>\Prog1.InA</td>
<td>\Prog2.OutA</td>
<td>Connect</td>
<td>\Prog2.OutA</td>
<td>This connection exists in both the import content and in the program in the project, so the connection is the same.</td>
</tr>
</tbody>
</table>
| \Prog1.InB                 | \Prog2.OutB                 | Connect         | \Prog2.OutB            | The endpoint parameter does not exist in the target project file.  
  ⚠️ If you are importing the program offline, the error flag appears. You can continue the import, but you must resolve the error before you can download the project to the controller.  
  ⚠️ If you are importing the program online, the red-x error appears, and you must resolve the error before continuing the import.  
  To resolve the error, you can either:  
  • Set the Operation Value to Disconnect (see Example Row 3 in this table).  
  • Select an existing parameter in the Final Connection field to reassign the connection (see Example Row 4 in this table). |
When you import one program you can create a new connection on the last row of the Connections grid. The new connection connects a program parameter in the import content to an endpoint connection in a program that is in the project. Your new connection did not previously exist in the import content nor in the project. The New Connection row is not available when you import multiple programs with existing connections between the programs you are importing.

When both the parameter and final connection have been specified, the connection is made (added) to the connection grid after you move off the New Connection row or after you press Enter. If you enter an invalid parameter or final connection, the connection is not created and the error indicator displays in the leftmost column. Hover the cursor over the error indicator to see a description for the cause of the error.

In addition to determining how the component is imported, you must configure how references are imported. The references are all other components used by the exported component at the time it was exported. For example, a program .l5x file contains the definition of all controller-scoped tags, user-defined data types, user-defined string types, and Add-On Instructions referenced by the program at the time the program was exported. During import configuration, you determine what the references from the imported component connect to after import. You can connect a reference to an existing component in the project and not import the referenced component from the import file. Or, you can use the referenced component in the import file either by creating a new component in the project from the
definition in the import file or by overwriting an existing component of the same type in the project.

As with imported components, if the Final Name of a referenced component (such as a tag) matches a component of the same type and scope in the project, these components collide. If there is no collision, the component is identified as needing to be created (Operation is Create).

Icons in the Differences column ( ) on the Import Configuration dialog box show whether components collide with differences, or the component only exists in the import file or the project.

Click the icon in the Details column ( ) and a Collision dialog box opens showing the differences between the import component and the colliding project component. Use the information in the Collision dialog box to determine whether to overwrite or use the existing component.

For components that do not collide, click the same icon for more information on the component.
Tip: A referenced component that collides with an existing component defaults to using the project component (Operation is Use Existing), even if the definitions of the components are different. To import the referenced component definition from the import file, Overwrite must be selected.

Connecting a referenced component to a component of the same type, but with another name in the project, causes any reference to the component in the imported logic to be updated to the new name. For example, if you connect a Boolean reference tag A to B[3].ACCUM.4 (where B is an existing tag in the project that is an array of structures), then all references in the imported logic that used to say A now say B[3].ACCUM.4. Another way to connect reference tags to existing tags in the project is to modify their Alias field. This is permitted when the reference tag is being created or the reference tag is overwriting an existing tag (offline only), regardless of whether it was originally an alias tag. The Import Configuration dialog box lets you configure the references that you must connect during the import process.

Important: It is important to note that even if a component has an Operation of Discard, Use Existing, or Undefined, if the Final Name differs from the Import Name, then the imported logic references to that component are updated to reflect the Final Name. For example, if you enter an invalid name as the Final Name for a tag reference, the Operation is set to Discard but the imported logic references to that tag are still updated to the invalid Final Name.

References configuration example

The following example shows how an imported routine plugs into the components in a project after you configure it.

For example, if you import a routine, the routine itself is the main import component. References that should be connected during the import could include program-scope tags, controller-scope tags, user-defined data types,
any routines called by JSR instructions, and any Add-On Instructions in the routine logic.

In this example, a routine export file contains the definitions of Tag_A, Tag_B, AOI_1, and UDT_1. The routine also contains a reference to Routine_A, but excludes the logic in Routine_A.

During import configuration, connect each:

- Reference tag in the import routine to a program or controller-scoped tag in the project.
- Reference routine in the import routine to a routine in the project.
- User-defined data type defining a reference tag in the import routine to a user-defined data type in the project.
- Add-On Instruction in the import routine to an Add-On Instruction in the project.

These tags, user-defined data types, and Add-On Instructions might exist in the project, or they can be created when you import the routine.

- Tag_A is set to Create, so the imported logic referencing Tag_A references the newly created Tag_A in the project.
- Tag_B has its Final Name changed to Tag_D and is set to Use Existing, so it is not created, and imported logic referencing Tag_B instead references existing Tag_D.
- Routine_A has its Final Name changed to Routine_B, so imported JSRs to Routine_A uses the existing Routine_B.
- AOI_1 is set to Overwrite an existing Add-On Instruction called AOI_1, so not only do imported logic and tags use AOI_1, but also any existing references to AOI_1 in the project now uses the new definition of AOI_1 from the imported routine.
- UDT_1 is set to Overwrite an existing user-defined data type called UDT_2, so imported logic and tags use UDT_2 and the existing UDT_2 is overwritten (except for the name) with the definition from UDT_1. Logic and tags from the project now use the new definition of UDT_2.

**Undefined references**

In the Logix Designer editor, it is possible to create logic that references tag, user-defined data type, or Add-On Instruction components that do not yet exist. These are considered undefined references. If you export that logic, there is no component definition to export for that undefined reference. On import, these tags, user-defined data types, or Add-On Instructions appear with an Operation of Undefined during Import Configuration unless the component exists in the project (in which case the Operation is Use Existing). Similarly, when logic references any type of component other than a tag, user-defined data type, user-defined string type, or Add-On Instruction (for example, a routine that is referenced by a JSR instruction), the definition
for these referenced components are excluded from the import file and they
also appear with an Operation of Undefined if the component does not exist
in the project.

During import configuration, these undefined references can be configured as
well. Since there is no definition for these components in the .15x file, you
cannot overwrite a project component or create a component during the
import process, but you can use an existing component for that reference.
You configure which component in the project you want to connect the
reference to, or leave the reference undefined. An undefined reference that
collides with an existing component defaults to using the project component.

Attention flags

Attention (red) flags alert you to import situations that may be unintended or
may lead to a project that does not verify successfully after import. What
they describe may or may not prevent the import from proceeding. If online,
and the project does not verify successfully when accepting or finalizing
events, the import fails. Not all attention flags cause a project to fail
verification. The red flag indicates the potential problem and you must
decide what you want to do. You can ignore the attention message or try to
change the Final Name or Operation of the component to resolve the issue.

Tip: Hover the cursor over the attention flag to open a tooltip that explains the issue.

Errors and warnings on import

When an import fails or is canceled, all changes caused by the import are
discarded, leaving the project in the same state it was in before the import,
even if the project is online with the controller. If the import fails, the
Import Configuration dialog box opens with Errors/Warnings selected. To
attempt to import again, inspect the Errors and Warnings, reconfigure the
import, and click OK.

Project documentation

The Logix Designer application provides the option to set the display
language for project documentation, such as tag descriptions and rung
comments, using any of the supported localized languages. You can store
project documentation for multiple languages in one project file rather than
in language-specific project files. You define the localized languages that the
project supports and set the current, default, and optional custom localized
language. The software uses the default language if the current language's
content is blank for a particular component of the project. You can use a
custom language to tailor documentation to a specific type of project file
user. When you configure project documentation in the Logix Designer
application for a project, you can dynamically switch between languages in
that project as you use the software.

The following project documentation items support multiple languages.

- Component descriptions in tags, routines, programs, equipment phases,
  User-Defined data types, and Add-On Instructions
The export and import features of the Logix Designer application support project documentation. You can transfer project components between projects that have different project documentation settings.

If a component was exported to an .l5x file from a project with project documentation turned off and is then imported into a project with project documentation turned on, all project documentation brought in by the import is associated with the project’s current language.

If a component was exported to an .l5x file from a project with project documentation turned on, all language switched comments are exported with the component. When you import an .l5x file that includes language switched comments, the Import Configuration dialog box includes a Current Import Documentation Language selection.

If the project has project documentation turned on, all language-switched comments from the .l5x file are imported into the project. This may result in additional languages being available in the project after import. Selecting a language in Current Import Documentation Language allows you to edit that language’s comments from the import file during the import configuration process.

If the project does not have project documentation turned on, you can import only one set of localized comments from the import file. In this case, selecting a language in Documentation to Import determines which language’s comments are imported with components from the import file. You can edit the language’s comments during the import configuration process, but only the final language selected when import proceeds is imported with components.
Important: Only comments associated with imported components are brought in from the import file. If an existing component is used, import file comments for that component are not imported.

Important: Multiple localized alarm messages can be stored (in configuration of ALARM_ANALOG or ALARM_DIGITAL tags) even if the project does not have project documentation turned on. Therefore, all alarm messages are imported, regardless of the Documentation Language to Import selection on the Import Configuration dialog box.

Important: The Documentation Language to Import selection does not affect the setting of the language defined in the project after import.

Find and replace

Use the Find controls in the Import Configuration dialog box control bar to search for text within the dialog box. Use the Find/Replace dialog box to configure whether the Find searches through the Import Name, Final Name, Description, Alias For, and the Data Type fields. As the search progresses, the Import Configuration dialog box automatically switches to different panes within the dialog as needed.

You can replace text fields during the search. Replacing text fields facilitates development of a component template that you can import repeatedly, replacing template text during each import. When designing a program template, keep in mind that during a program import, the program tag names and descriptions cannot be edited or replaced. However, during import you may edit the names and descriptions of controller-scoped tags referenced from the program. Similarly, when importing an equipment phase, you cannot edit the names and descriptions of tags in the equipment phase, and when importing an Add-On Instruction, you cannot edit the names and descriptions of the parameters and local tags.

Follow these steps to find and replace text during the import configuration process.

1. On the Import Configuration dialog box, click Find/Replace.

2. In the Find What box, enter text that you are searching for. You can enter a search string or select text from a previous search.

3. To replace text that is found, in the Replace With box, enter the replacement text.

To use wildcards in your search string and in the replacement text, select Use Wildcards. Use asterisks (*) as wildcard characters. The following table provides examples of Find-Replace operations using wildcards.
4. To limit search and replace to the currently selected pane, select **Search current view only**. You can change the selected pane without closing the **Find/Replace** dialog box.

5. Use the **Find Within** check boxes to configure which fields to search.

6. Click **Find** to search for the next matching item.

7. Click **Replace** to replace the text in a text field. Click **Replace All** to replace all instances of the search text specified in the Find What field with the text in the Replace With field.

### Compatibility

The import/export feature supports backward compatibility for import operations and forward compatibility for export operations.

Backward compatibility means that the Logix Designer application can import .l5k or .l5x files that were generated by a previous version of the application. In some cases, an older .l5k file might not correctly import into a later version of the application. In these cases, attributes on components may be set to default values during import.

The import/export feature supports forward compatibility for export operations. It does not support backward compatibility for export operations. This means that earlier versions of the Logix Designer application cannot read .l5k or .l5x files that were created with later versions of the application. In some cases, an .l5k or .l5x file created with a later version of the Logix Designer application may import with warnings into an earlier version of the application. In these cases, attributes on components may be set to default values during import.

Each version of the Logix Designer application exports .l5k files with a specific import/export Logix Designer application version number. The Logix Designer application imports any .l5k file with the same major version number.
revision number and the same or lower minor revision number. The major Logix Designer application version number increments when file properties prevent the application from supporting backward compatibility for import operations. The minor version number increments whenever there is a change in the file (a new module, an attribute is added, the set of options for an attribute is changed) that does not affect backward compatibility for Logix Designer application import operations.

**Important:** Use caution when copying and pasting components between different versions of Logix Designer application. Logix Designer application supports pasting to only the same or later version. Pasting to an earlier version of Logix Designer application is not supported. When pasting to an earlier version, the paste action might succeed but the results might not be as intended.
Chapter 2

Additional Considerations for Rungs

Introduction

This chapter explains import and export of rungs.

Export considerations

One rung or a contiguous set of selected rungs may be exported to an .15x file.

The export file may also include any program-scoped tags, controller-scoped tags, Add-On Instructions, User-Defined data types, and user-defined string types that are referenced by the rungs. The definitions for the referenced tags, Add-On Instructions, and User-Defined data types are exported to the .15x file if they exist in the project. In the case of rungs exported from an Add-On Instruction routine, any parameters and local tags referenced are exported if they exist at the time of export.

Import considerations

When importing rungs, you configure how the referenced components are imported during import configuration. By default, referenced components that collide with project components are not imported.

The following table lists considerations when importing rungs.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pending Edits exist</td>
<td>If rungs are imported into a program or equipment phase that contains Pending Edits, all Pending Edits in the program are accepted if Accept Program Edits is selected during import of the rungs. Similarly, all Pending Edits in the program are finalized if Finalize All Edits In Program is selected during import of the rungs.</td>
</tr>
<tr>
<td>Accepted Edits exist</td>
<td>Rungs cannot be imported into a program or equipment phase that contains routines with Accepted Edits or Test Edits. Existing edits must first either be assembled or canceled.</td>
</tr>
<tr>
<td>First scan</td>
<td>When importing rungs into an existing program, the S:FS bit is not set during the program’s next scan. This applies when importing rungs into an existing equipment phase as well.</td>
</tr>
<tr>
<td>Collision handling</td>
<td>If you select <strong>Overwrite Selected Rungs</strong> in the Import Rungs dialog box, the imported rungs overwrite the rungs selected in the project. If <strong>Overwrite Selected Rungs</strong> is cleared, the imported rungs are inserted before the selected rungs in the project if the ladder editor is in Insert mode, they are inserted after the selected rungs if the ladder editor is in Append mode.</td>
</tr>
<tr>
<td>Topic</td>
<td>Consideration</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Tag scope</td>
<td>When you export rungs from a program or equipment phase and import them into an Add-On Instruction routine, any referenced controller-scoped or program-scoped tags are converted on import. The tag is converted to a local tag unless local scoped is not allowed (for example, a Motion Group tag cannot be a local tag), in which case the tag is converted to an InOut parameter. When you export rungs from an Add-On Instruction routine and import them into a routine in a program or equipment phase, the referenced parameters and local tags are converted on import. The parameter or local tag are converted to a program-scoped or phase-scoped tag unless it is not allowed (for example, a Motion Group tag cannot be a program-scoped tag), in which case it is converted to a controller-scoped tag.</td>
</tr>
</tbody>
</table>

For considerations for referenced user-defined types, Add-On Instructions, and tags that may be imported with the rungs, see:

- Chapter 5, *Import and Export User-defined Types* on page 51
- Chapter 6, *Import and Export Add-On Instructions* on page 53
- Chapter 7, *Import and Export Tags* on page 67
Chapter 3

Additional Considerations for Routines

Introduction

This chapter explains the import and export of routines.

Export considerations

A routine can be exported to an .l5x file. Routines of all language types, Function Block Diagram, Sequential Function Chart, Ladder Diagram and Structured Text, may be exported. However, routines may not be exported from an Add-On Instruction container and SoftLogix external routines may not be exported.

The export file may also include any program-scoped tags, controller-scoped tags, Add-On Instructions, User-Defined data types, and user-defined string types that are referenced by the routine. The definitions for the referenced tags, Add-On Instructions, and User-Defined data types are exported to the .l5x file if they exist in the project.

Import considerations

When importing a routine, you configure how the referenced components are imported during import configuration. By default, referenced components that collide with project components are not imported.

The following are considerations when importing a routine.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pending Edits exist</td>
<td>If a routine is imported into a program or equipment phase that contains other routines with Pending Edits, all Pending Edits in the program are accepted if Accept Program Edits is selected during import of the routine. Similarly, all Pending Edits in the program are finalized if Finalize All Edits In Program is selected during import of the routine.</td>
</tr>
</tbody>
</table>
### SFC routine execution configuration

SFC execution settings are configured on a controller project, not per SFC routine. If you export an SFC routine and import it into another project with different SFC execution settings, the functionality of the routine could change. For example, a change in the Last Scan of Active Steps setting could leave physical outputs in an undesired state.

### Equipment Phase state routines

When state routines are created while online with the controller and logic edits are accepted but not tested, the routine will behave as if it was not implemented.

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For considerations for referenced user-defined types, Add-On Instructions, and tags that may be imported with the rungs see:

- Chapter 5, [Import and Export User-defined Types](#) on page 51
- Chapter 6, [Import and Export Add-On Instructions](#) on page 53
- Chapter 7, [Import and Export Tags](#) on page 67
Chapter 4

Additional Considerations for Programs and Equipment Phases

Introduction

This chapter explains import and export of programs. All topics apply to equipment phases as well; any exceptions are noted.

Export considerations

A program can be exported to an .l5x file. The exported program includes all of its program tags and routines, which are imported with the program automatically.

The export file may also include any controller-scoped tags, Add-On Instructions, User-Defined data types, and user-defined string types referenced by the program. The definitions for the referenced tags, Add-On Instructions, and User-Defined data types are exported to the .l5x file if they exist in the project.

As with other export types, I/O module data type definitions are not exported.

I/O module data types are created within a project when the associated I/O module is created in the project. On import, program-scoped tags may not be modified. As a result, if a program-scoped tag aliases an I/O module type tag, the I/O module must first exist in the project in order to import the program.

To export the program so that it can be imported into a project with another module type, first alias the program-scoped tag to a controller-scoped tag of a non-I/O module type, and then alias the controller-scoped tag to the I/O module. These program-scoped tags can then be created during the import of the program if necessary.

Import considerations

When you import a program, the program-scoped tags and routines are imported as part of the program. The Operation, Final Name, Description, and any other settings of the program-scoped tags and routines cannot be modified; instead, the Operations are based on the Operation selected for the program.

Programs cannot overwrite equipment phases, and vice-versa. Programs and equipment phases must have unique names.

You configure how the referenced components are imported during import configuration. By default, referenced components that collide with project components are not imported.
The following are considerations when importing a program.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted or Test Edits exist</td>
<td>A program with Accepted Edits or Test Edits may not be overwritten.</td>
</tr>
<tr>
<td>Deletes of program-scoped tags and routines during program overwrite</td>
<td>When importing a program to replace an existing program, any tags or routines in the existing program that are not in the new program are deleted during import. However, if you are online and Import Logic Edits as Pending or Accept Program Edits is selected in the Online Options dialog, then these tags and routines cannot be deleted because they are referenced by existing logic until edits are finalized. In this situation, although they were identified during import configuration with an Operation of Delete, these tags and routines are not deleted as part of the import. You can delete them in the Logix Designer editor after you finalize edits.</td>
</tr>
<tr>
<td>Safety program scheduled location</td>
<td>A Safety program cannot be scheduled in the Controller Fault Handler or Power-Up Handler folders.</td>
</tr>
<tr>
<td>Configuration of Equipment Phase state routines</td>
<td>In the configuration for an equipment phase state routine, when the Complete State Immediately if not Implemented option is selected in version 17 and later of the application, an implemented, but empty (no logic), phase state routine behaves the same as an unimplemented phase state routine. The state immediately completes and execution of the phase continues. The phase then enters the next state in the state machine.</td>
</tr>
<tr>
<td></td>
<td>In version 16 or later of the application, if an equipment phase enters a state for which a state routine exists, but contains no logic, execution of the phase stops regardless of whether the Complete State Immediately if not Implemented option is selected. The routine does complete, but there is no logic to run.</td>
</tr>
<tr>
<td></td>
<td>If you import a new state routine and, in the Online Options dialog, you select:</td>
</tr>
<tr>
<td></td>
<td>• Import Logic Edits as Pending, an empty routine is created in the controller and the pending edits only exist in the offline project.</td>
</tr>
<tr>
<td></td>
<td>• Accepts Program Edits, an empty routine is created in the controller and the logic is placed in a test edits container in the routine. If you are not actively testing edits, the routine is empty when running.</td>
</tr>
<tr>
<td></td>
<td>• Finalize All Edits in Program, the routine is created with the new logic and is not empty.</td>
</tr>
<tr>
<td></td>
<td>In the first two cases, if the Complete State Immediately if not Implemented option is checked, the empty routine completes immediately and allows phase execution to continue.</td>
</tr>
<tr>
<td>First scan</td>
<td>If a new program or equipment phase is created in a controller in Remote Run mode, logic in that program/equipment phase receives a value of 1 for the S:FS system flag (First Scan flag) until the main routine has run once. Any other logic imports (that is overwriting an existing program or equipment phase, or any routine or rung imports) does not result in a value of 1 for S:FS system flag.</td>
</tr>
<tr>
<td>Pre-scan</td>
<td>Logic imported while online with the controller in Remote Run mode is not be pre-scanned before it begins to run.</td>
</tr>
<tr>
<td>Program scheduled location while online</td>
<td>An imported program that is configured to overwrite an existing program cannot be scheduled into a location that differs from the existing program while online with the controller in Remote Run mode; the existing scheduled location is used.</td>
</tr>
<tr>
<td>Renamed tags</td>
<td>When overwriting an existing program and the imported program is modified such that a program-scoped tag has been renamed, during import, the existing tag is deleted and a tag with the new name is created. All logic references are updated to reference the new tag. Therefore, the online tag values are not preserved and the tag values from the imported tag are downloaded to the controller. To preserve the data values of the renamed tag and minimize the logic changes, rename the program tag in the online project to the new name before importing the modified program.</td>
</tr>
</tbody>
</table>
## Topic Consideration

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importing multiple programs</td>
<td>Controller Fault Handler and Power-Up Handler Disabled: When you import multiple target programs, the Controller Fault Handler and Power-Up Handler are unavailable in the Schedule In list.</td>
</tr>
</tbody>
</table>

For considerations for referenced user-defined types, Add-On Instructions, and program tags, and referenced tags that may be imported with a program see:

- Chapter 5, [Importing and Exporting User-defined Types](#) on page 51
- Chapter 6, [Importing and Exporting Add-On Instructions](#) on page 53
- Chapter 7, [Importing and Exporting Tags](#) on page 67
Chapter 5

Additional Considerations for User-defined Types

Introduction

This chapter explains import and export of user-defined data types and user-defined string types.

Export considerations

A user-defined type (either User-Defined data type or user-defined string type) can be exported to an .l5x file.

The export file may also include any Add-On Instructions, User-Defined data types, and user-defined string types referenced by the exported user-defined type. The definitions for the referenced Add-On Instructions and data types are exported to the .l5x file if they exist in the project and if Include all referenced Add-On Instructions and User-Defined Types is selected during export.

You can also export User-Defined data type references when a program, routine, set of rungs, or Add-On Instruction is exported.

Import considerations

When importing a user-defined type, you configure how the referenced components are imported during import configuration. By default, referenced components that collide with project components are not imported.

User-defined types cannot overwrite Add-On Instructions. User-defined types and Add-On Instructions must have unique names.

The following are considerations when importing a user-defined type.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag data</td>
<td>Imported tags that reference a User-Defined data type in the import file may be affected if the User-Defined data type is not imported as well. In this case, the imported tag’s data may be converted if the existing data structure is different and tag data may be lost. If an existing User-Defined data type is overwritten, project tag data may be converted if the data structure is different and tag data may be lost.</td>
</tr>
<tr>
<td>Data type modification while online</td>
<td>A User-Defined data type that is referenced in the project may not be overwritten. If the existing User-Defined data type is not referenced, it may be overwritten while online.</td>
</tr>
</tbody>
</table>
Final Name change

If the Final Name of a user-defined type reference is modified during import configuration, all logic, tags, Add-On Instructions, and other user-defined types in the import that reference the user-defined type are updated to reference the new name. As a result, the edit date of any Add-On Instructions that references the user-defined type is updated.

See Importing and Exporting Add-On Instructions on page 53 for considerations for referenced Add-On Instructions that may be imported with the user-defined type.
This chapter explains import and export of Add-On Instructions.

When you export an Add-On Instruction, the exported Add-On Instruction includes all of its parameters, local tags, and routines. These are imported with the Add-On Instruction automatically.

Optionally, you can include any nested Add-On Instructions or User-Defined Data Types that are referenced by the exported Add-On Instruction. Referenced Add-On Instructions and data types are exported to the .l5x file if you select the Include all referenced Add-On Instructions and User-Defined Types check box during the export.

Add-On Instruction definition references may also be exported when a program, routine, set of rungs, or User-Defined Data Type is exported.

**Tip:** If an Add-On Instruction uses Message (MSG) instruction and InOut parameters of type MESSAGE, you may want to export a rung containing the Add-On Instruction to include the MESSAGE tags. This captures the message configuration data, such as type and path.

In deciding how to manage your Add-On Instruction definitions in export files, consider your goals in storing the definitions.

<table>
<thead>
<tr>
<th>If</th>
<th>Then</th>
</tr>
</thead>
<tbody>
<tr>
<td>You want to store many Add-On Instructions that share a set of common Add-On Instructions or User-Defined Data Types in a common location</td>
<td>See Export to separate files on page 54.</td>
</tr>
<tr>
<td>You want to distribute an Add-On Instruction as one file</td>
<td>See Export to one file on page 55.</td>
</tr>
<tr>
<td>You want to manage each Add-On Instruction as a standalone instruction</td>
<td></td>
</tr>
<tr>
<td>You want to preserve the instruction signature on your Add-On Instruction</td>
<td></td>
</tr>
</tbody>
</table>

**Tip:** Add-On Instructions with instruction signatures are encrypted upon export to prevent modifications to the export file.
Export to separate files  If you want to store many Add-On Instructions that share a set of common Add-On Instructions or User-Defined Data Types in a common location, you can export each Add-On Instruction and User-Defined Data Types to separate files without including references.

Follow these steps to export to separate files.

1. Right-click the Add-On Instruction in the Controller Organizer, and choose Export Add-On Instruction.

2. Select the common location to store the .l5x file.

3. Type a name for the file.

4. Clear the Include all referenced Add-On Instructions and User-Defined Types check box.

5. Click Export.

6. Repeat the previous steps to individually export the other shared Add-On Instructions and User-Defined Data Types.

By using export in this way, you manage the shared Add-On Instruction and User-Defined Data Types independently of the Add-On Instructions that reference them. Using this approach, you can update the shared component without regenerating all the export files for the instructions that reference it. That is, it is stored in only one file instead of in every file whose instruction references it. This approach makes it easier to maintain the instructions because you have to update only one export file.
To use Add-On Instructions that were exported in a separate file without references, you must first import any User-Defined Data Types of Add-On Instructions that the exported instruction references before the import of the referencing instruction can be successful. (This assumes that the referenced User-Defined Data Types of Add-On Instructions do not exist in your project.) To do this, work from the bottom up. Import the lowest-level User-Defined Data Types and any User-Defined Data Types that reference them. Then, import the lowest-level Add-On Instructions, followed by any Add-On Instructions that reference those low-level Add-On Instructions. Once all items referenced by the AOI are in place, the import of the AOI succeeds.

Export to one file

If you manage each Add-On Instruction as a standalone, you can export the instruction and any referenced Add-On Instructions or User-Defined Data Types into one export file. By including any referenced Add-On Instructions or User-Defined Data Types, you also make it easier to preserve the instruction signature of an Add-On Instruction.

Follow these steps to export to one file and include any referenced items.

1. Right-click the Add-On Instruction in the Controller Organizer and choose Export Add-On Instruction.

2. Choose the location to store the .l5x file.

3. Type a name for the file.

4. Select the Include all referenced Add-On Instructions and User-Defined Types check box.

5. Click Export.
Import an Add-On Instruction

Import considerations

Editing an .l5k or .l5x File

The EditedDate attribute of an Add-On Instruction must be updated if the Add-On Instruction is modified by editing an .l5k or .l5x file. If the Logix Designer application detects edits to the Add-On Instruction, but the Edited Date attribute is the same, the Add-On Instruction is not imported.

When importing Add-On Instructions directly or as references, consider these guidelines.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag Data</td>
<td>Imported tags that reference an Add-On Instruction in the import file may be affected if the Add-On Instruction is not imported as well. In this case, the imported tag's data may be converted if the existing Add-On Instruction's data structure is different. Tag data may be lost. If an existing Add-On Instruction is overwritten, project tag data may be converted if the Add-On Instruction's data structure is different. Tag data may be lost. See Import Configuration on page 57 for more information.</td>
</tr>
<tr>
<td>Logic</td>
<td>Imported logic that references the Add-On Instruction in the import file may be affected if the Add-On Instruction is not imported. If an existing Add-On Instruction is used for the imported logic reference and the parameter list of the Add-On Instruction in the project is different, the project may not verify or it may verify but not work as expected. If an existing Add-On Instruction is overwritten, logic in the project that references the Add-On Instruction may be affected. The project may not verify or may verify but not work as expected. See Import Configuration on page 57 for more information.</td>
</tr>
<tr>
<td>Add-On Instructions While Online</td>
<td>An Add-On Instruction cannot be overwritten during import while online with the controller, though a new Add-On Instruction may be created while online.</td>
</tr>
<tr>
<td>Final Name Change</td>
<td>If the Final Name of an Add-On Instruction is modified during import configuration, the edit date of the imported Add-On Instruction is updated. In addition, all logic, tags, User-Defined data types, and other Add-On Instructions in the import file that reference the Add-On Instruction are updated to reference the new name. As a result, the edit date of any Add-On Instruction that references the Add-On Instruction is updated. Add-On Instructions that are sealed with an instruction signature cannot be renamed during import.</td>
</tr>
</tbody>
</table>

This procedure exports the selected Add-On Instruction and all referenced instructions into the same export file. This file can be used to distribute an Add-On Instruction. When the exported Add-On Instruction is imported into the project, the referenced instructions are also imported in one step.

You can import an Add-On Instruction that was exported from another Logix Designer project. When importing an Add-On Instruction, the parameters, local tags, and routines are imported as part of the Add-On Instruction. Once the project has the Add-On Instruction, you can use it in your programs.
### Import and Export Add-On Instructions

#### Important

<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>User-Defined data types</td>
<td>Add-On Instructions cannot overwrite User-Defined data types. Add-On Instructions and User-Defined data types require unique names.</td>
</tr>
<tr>
<td>Instruction Signature</td>
<td>If you import an Add-On Instruction with an instruction signature into a project where referenced Add-On Instructions or User-Defined data types are not available, you may need to remove the signature. You can overwrite an Add-On Instruction that has an instruction signature by importing another Add-On Instruction with the same name into an existing routine. Add-On Instructions that are sealed with an instruction signature cannot be renamed during import.</td>
</tr>
<tr>
<td>Safety Add-On Instructions</td>
<td>You cannot import a safety Add-On Instruction into a standard project. You cannot import a safety Add-On Instruction into a safety project that has been safety-locked or one that has a safety task signature. You cannot import a safety Add-On Instruction while online. Class, instruction signature, signature history, and safety instruction signature, if it exists, remain intact when an Add-On Instruction with an instruction signature is imported.</td>
</tr>
</tbody>
</table>

**Important:** Importing an Add-On Instruction created in version 18 or later of the application, into an earlier project that does not support Add-On Instruction signatures causes the Add-On Instruction to lose attribute data and the instruction may no longer verify.

**Import configuration**

When you select a file to import, you use the **Import Configuration** dialog box to choose how the Add-On Instruction and referenced components are imported.

If no issues exist, you can click **OK** to complete the import.

If your Add-On Instruction collides with an AOI in the project, you can:

- Rename it by typing a new, unique name in the **Final Name** field.
- Choose **Overwrite** from the **Operation** menu.
• Choose Use Existing from the Operation menu.

Tip: You can rename an Add-On Instruction only if it has not been sealed with an instruction signature. To rename an Add-On Instruction that has been source-protected, you need the source key.

The Collision Details button lets you view the Property Compare tab, which shows the differences between the two instructions, and the Project References tab, which shows where the existing Add-On Instruction is used and how the arguments are updated to locations where the existing Add-On Instruction is called.

Update an Add-On Instruction to a later revision using import

When you must update an instruction to a later revision, you can import it from an .l5x file or copy it from an existing project. You must be offline to update an Add-On Instruction.

Follow these steps to update an Add-On Instruction to a later revision by importing it.

1. Right-click the Add-On Instruction folder and choose Import Add-On Instruction.

2. Select the file with the Add-On Instruction and click Open.

3. From the Operation list on the Import Configuration dialog box, choose Overwrite.
4. Click **Collision Details** to see any differences in the Add-On Instruction definition, and to see any changes that will be made to the logic where the Add-On Instruction is called.

Differences listed in the **Property Compare** tab are shown in bold in the Name column.
Tip: The Compare dialog box compares metadata for each instruction definition, such as description, revision, or edited date. For effective revision control, enter a detailed revision note in the Add-On Instructions Definition dialog box. To open the dialog box, right-click an Add-On Instruction and click Open Definition.

The Project References tab shows a list of locations where the Add-On Instruction is called, and for each location, shows how the arguments in the AOI instruction will be updated to adapt to the new parameters.

Important: Beginning with version 18, when you change the parameters of an Add-On Instruction (when you add, delete, or move), each location where the Add-On Instruction is called is modified so that the existing arguments continue to match their previous parameters. Importing and Overwriting an existing Add-On Instruction may cause changes to the existing logic that uses the Add-On Instruction.
Important: If the logic calling the Add-On Instruction is within a source-protected routine, and the key is not available, the arguments are not shown or updated. Instead, the Location will be identified as Source Not Editable.

For more information on updates to arguments, see Logix5000 Controllers Add-On Instructions.
Chapter 7

Import and export tag-based alarms and alarm definitions

Introduction

This chapter explains export and import of tag-based alarms and alarm definitions.

Create export files

Tag-based alarms and alarm definitions can be exported to an XML file for offline editing, and they are exported to the .l5x file as part of a program, routine, user-defined data type, or Add-On Instruction export.

To export alarms or alarm definitions to an XML file:

1. On the main menu, select Tools > Export > Alarms or Tools > Export > Alarm Definitions to open the Export Alarms and Alarm Definitions dialog box.

2. Select a destination for the file and adjust the file name if necessary.

3. Click Save.

Tip: To open an XML file in an Excel spreadsheet, open it as an XML table. After editing, select XML data as the file type in the Save as dialog box.

Keep these considerations in mind when editing alarms and alarm definitions in an XML file or in a spreadsheet:

- One message is exported for each alarm or alarm definition.

You can delete alarms and alarm definitions from the XML file, but those items are not removed from the Logix Designer project when you import the modified XML file.

Import alarms and alarm definitions

After you export alarms or alarm definitions to an XML file, you can import the file into a project.

Keep the following consideration in mind when importing alarms and alarm definitions from an XML file:

- If alarms and alarm definitions are deleted from the XML file, those items are not removed from the Logix Designer project when you import the modified XML file.
To import alarms and alarm definitions from an XML file:

1. On the main menu, select Tools > Import > Alarms or Tools > Import > Alarm Definitions to open the Import Alarms and Alarm Definitions dialog box.

2. In the Import dialog box, select the file and click Open to open the Collision Handling dialog box.

3. On the Collision Handling dialog box, select the method the Logix Designer application should use in case of differences or duplication between the imported alarms and alarms that exist in the project.

The following table describes the handling options.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create New Alarms &amp; Overwrite Existing Alarms</td>
<td>New alarms in the XML file are created in the project, and existing alarms in the project are overwritten with the same alarms in the XML file. This is the default option.</td>
</tr>
<tr>
<td>Create New Alarms &amp; Preserve Existing Alarms</td>
<td>New alarms in the XML file are created in the project, but existing alarms in the project are not overwritten with the same alarms in the XML file.</td>
</tr>
<tr>
<td>Skip New Alarms &amp; Overwrite Existing Alarms</td>
<td>New alarms in the XML file are not created in the project, and existing alarms in the project are overwritten with the same alarms in the XML file.</td>
</tr>
</tbody>
</table>

**Import considerations**

Keep the following considerations in mind when importing an XML file containing alarms or alarm definitions:

- The import file must be an XML file. If your import file is not an XML file, try opening the file in Excel and, in the Open XML dialog box, select As an XML table. Then save the file as an XML file by selecting XML data as the file type in the Save as dialog box.

- The XML file must be in the same alarm format as the exported file. If it was corrupted somehow or incorrectly edited after it was exported, try exporting the alarm list again and import the resulting XML file.

- The XML file must contain only the attributes that are recognized as attributes of an alarm or an alarm definition, such as AckRequired, Latched, and Severity. If an XML file is edited incorrectly after export, an attribute might be altered to make it unrecognizable, or an unknown attribute might be added. Remove or correct any unrecognized attributes in the XML file.

- The XML file must contain only the elements that are recognized as elements of an alarm or an alarm definition. If an XML file is edited incorrectly after export, an attribute might be altered to make it unrecognizable, or an unknown element might be added. In the alarm import XML file, elements appear in angle brackets, such as

Keep the following consideration in mind when copying and pasting an Add-On Instruction in a project:

- When an Add-On Instruction (AOI) tag is copied and pasted in a project, alarm definitions associated with the tag are not included. After you copy and paste an AOI tag, open the Alarm Definition list and copy and paste the alarm definition for the tag. Follow these steps:

  1. In the Controller Organizer, right-click Alarms and select Edit Alarm Definitions.
  2. Right-click the alarm definition for the AOI tag and select Copy.
  3. Right-click again and select Paste. The alarm definition is pasted into the list with _000 added to the alarm name.
  4. Double-click the copy of the alarm definition to open the Alarm Definition Properties dialog box.
  5. In the Input box, change the input tag to the AOI tag that you copied and pasted.
Additional Considerations for Tags

Introduction

This chapter explains import and export of referenced tags.

Tip: Starting with version 24 of Logix Designer application, you can use program parameters to share data between programs in much the same way that you use controller-scoped tags. Program parameters are imported and exported in the same way as tags in most instances. For more information on program parameters, refer to 1756-PM021, Logix5000 Controllers Program Parameters programming guide.

Export considerations

Tags are not exported to an .l5x file themselves, but they are exported to the .l5x file as part of a program, equipment phase, or Add-On Instruction export (program-scoped tags with a program export, equipment phase-scoped tags with an equipment phase export, and parameters and local tags with an Add-On Instruction export).

Tags may also be exported to an .l5x file as references from another component being exported (controller-scoped tag references with a program or equipment phase export or program-scoped and controller-scoped tag references with a rung or routine export). The definitions for the referenced tags are exported to the .l5x file by default if they exist in the project.

When exporting logic, especially if it is intended for general use, be aware that logic that references a bit member of a tag or member of a user-defined data type tag cannot be replaced during import to reference another bit or user-defined data type member. If you expect to connect the logic reference to another bit or member of a tag, consider editing the logic before export so the reference is to a full tag name (and alias if need be) so that the reference can be connected to the desired tag on import.

Import considerations

When you import a program, the program-scoped tags are imported with the program automatically (the same as they are for equipment phase). When you import an Add-On Instruction, the parameters and local tags are imported with the Add-On Instruction automatically.

During program or equipment phase imports, referenced controller-scoped tags may also be imported. For routine and rung imports, referenced tags may be imported as well. You configure how referenced tags are imported during import configuration. By default, referenced tags that collide with project components are not imported.

Keep the following considerations in mind when importing tags.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tag data</td>
<td>Imported tags that reference an Add-On Instruction or user-defined data type in the import file may be affected if the Add-On Instruction or user-defined data type is not imported as well. In this case, the imported tag’s data may be converted if the existing data structure is different and tag data may be lost. If an existing Add-On Instruction or user-defined data type is overwritten, project tag data may be converted if the data structure is different and tag data may be lost. If the data is not convertible, it is overwritten with the default values for the type. When array dimensions are changed, existing array members retain their values and descriptions and new members have the default values and description (usually 0 and no description).</td>
</tr>
<tr>
<td>Consumed tags</td>
<td>Consumed tags cannot be imported from an .l5x file. They are converted to base tags and a warning appears in the Errors/Results Pane during initial parsing of the .l5x file.</td>
</tr>
<tr>
<td>Tag values while online</td>
<td>When importing into a controller while online, if existing tags are being overwritten by imported tags, the tag values are not written to the controller. Tag values are written only to the offline project. The tag values in the controller maintain their current values but other tag attributes are written to the controller. Values for tags that are created during import are written to the controller. However, existing tag values are never overwritten in the online controller. You can prevent tag values from being overwritten in the offline project by selecting <strong>Preserve existing tag values in offline project</strong> on the <strong>Import Configuration</strong> dialog box.</td>
</tr>
<tr>
<td>Tag values while offline</td>
<td>You can prevent tag values from being overwritten in the offline project by selecting <strong>Preserve existing tag values in offline project</strong> on the <strong>Import Configuration</strong> dialog box.</td>
</tr>
<tr>
<td>Tag attributes while online</td>
<td>Tag attributes (for example, External Access, Constant, and Style) are written to the online project and the offline project. If existing tags are to be overwritten with new attributes that are incompatible with existing user logic, the import is not allowed.</td>
</tr>
<tr>
<td>Tag scope</td>
<td>An import tag maintains the scope of the tag as it was when exported if the tag initially collides with another scoped tag in the project. In that case, an attention (red) flag appears on the tag indicating the scope collision. However, If you change the Final Name of a tag so that it subsequently collides with a tag of another scope in the project, the imported tag is changed to the scope of the existing tag. You can resolve the attention flag that appears on initial collision due to a scope issue by changing the Final Name to avoid the collision with that tag or, if the import component is routine or rungs, you can change the scope of the import tag by right-clicking on the tag row and selecting <strong>Toggle Tag Scope</strong>.</td>
</tr>
</tbody>
</table>
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Rockwell Automation support

Rockwell Automation provides technical information on the web to assist you in using its products. At http://www.rockwellautomation.com/support you can find technical and application notes, sample code, and links to software service packs. You can also visit our Support Center at https://rockwellautomation.custhelp.com for software updates, support chats and forums, technical information, FAQs, and to sign up for product notification updates.

In addition, we offer multiple support programs for installation, configuration, and troubleshooting. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/services/online-phone.

Installation assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

<table>
<thead>
<tr>
<th>United States or Canada</th>
<th>1.440.646.3434</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside United States or Canada</td>
<td>Use the Worldwide Locator available at <a href="http://www.rockwellautomation.com/locations">http://www.rockwellautomation.com/locations</a>, or contact your local Rockwell Automation representative.</td>
</tr>
</tbody>
</table>

New product satisfaction return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

| United States | Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process. |
|Outside United States | Please contact your local Rockwell Automation representative for the return procedure. |

Documentation feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the feedback form, publication RA-DU002.

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