



Connected Components Workbench Software Guide for Studio 5000 Logix Designer Application Users

Terminology and Workflow Comparison

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

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| Updated template | Throughout |
| Updated screen captures | Throughout |
| Updated step 3 in Uploading from an Existing Controller for the First Time | 6 |
| Updated Password Protecting Future Controller Access | 10 |
| Updated step 2 in Online Monitoring of Programs and Tags | 11 |
| Added tip to step 1 in Make Online Edits | 12 |
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| Added tip to Verify Rung Settings for Optimal Viewing | 18 |
| Updated step 1 in Select Logix Theme and View Instruction Mapping | 19 |
| Added topic Add a Branch to the Ladder Instruction | 21 |
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| Updated tips in Copy and Paste a Ladder Rung From Studio 5000 Logix Designer Application | 25, 26 |
| Added tip to Export and Import Tags | 31 |
| Removed topic Data Types | 32 |

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Comparison of Terms in Connected Components Workbench Software and Studio 5000 Logix Designer Application

Connected Components Workbench Software Terms in Studio 5000 Logix Designer Application

| Connected Components Workbench Software | Studio 5000 Logix Designer Application |
|---|--|
| Accept Changes | Accept Edits |
| Build | Verify and Assemble |
| CCWARC File | ACD File |
| Connect | Go Online |
| Connected | Online |
| Connection Browser | RSWho |
| Connection Path | Project Path |
| Discard Changes | Cancel Edits |
| Disconnect | Go Offline |
| Disconnected | Offline |
| Discover | Upload and Go Online |
| Download with Project Values | Download |
| Global Variable | Controller Tag |
| Lock | Force |
| Project Organizer | Controller Organizer |
| Run Mode Change (RMC) | Online Editing |
| Test Changes | Test Edits |
| Toolbox, Instruction Toolbar | Language Element Toolbar |
| Upload with Project Values | Upload |
| User-defined Functions (UDFs) | Subroutine |
| User-defined Function Blocks (UDFBs) | Add-On Instructions (AOI) |
| Variable | Tag |

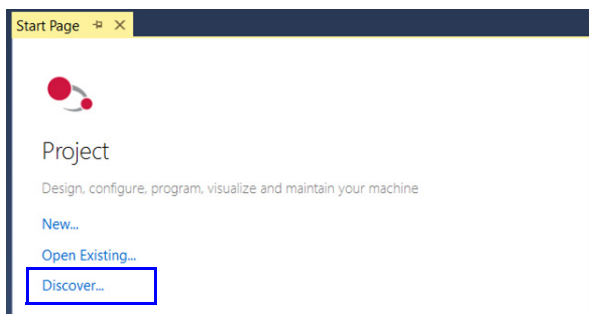
Studio 5000 Logix Designer Application Terms in Connected Components Workbench Software

| Studio 5000 Logix Designer Application | Connected Components Workbench Software |
|--|---|
| Accept Edits | Accept Changes |
| ACD File | CCWARC File |
| Add-On Instructions (AOI) | User-defined Function Blocks (UDFBs) |
| Cancel Edits | Discard Changes |
| Controller Organizer | Project Organizer |
| Controller Tag | Global Variable |
| Download | Download with Project Values |
| Force | Lock |
| Go Offline | Disconnect |
| Go Online | Connect |
| Language Element Toolbar | Toolbox, Instruction Toolbar |
| Offline | Disconnected |
| Online | Connected |
| Online Editing | Run Mode Change (RMC) |
| Project Path | Connection Path |
| RSWho | Connection Browser |
| Subroutine | User-defined Functions (UDFs) |
| Tag | Variable |
| Test Edits | Test Changes |
| Upload | Upload with Project Values |
| Upload and Go Online | Discover |
| Verify and Assemble | Build |

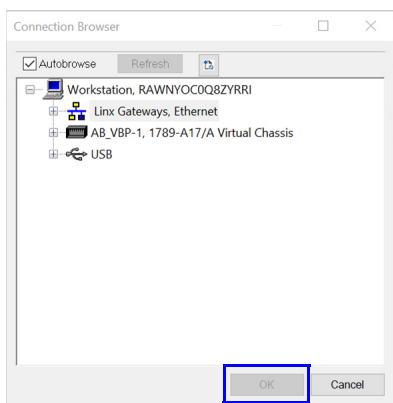
Uploading from an Existing Controller for the First Time

The term Discover in Connected Components Workbench™ software is used for uploading from an existing controller for the first time.

1. Open **Connected Components Workbench** software (under All Programs/Rockwell Automation/CCW).
2. Click **Discover...** on the **Start Page**.



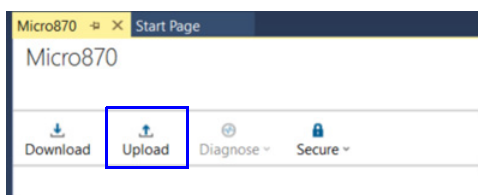
3. Browse to and select the desired Micro800™ controller in the **Connection Browser** window, then click **OK**.



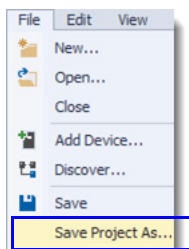
IMPORTANT If you get a Connection Error popup window or if the upload fails because “The imported database version is more recent than the product database version.”, then most likely the controller was programmed with a newer version of Connected Components Workbench software. Update your Connected Components Workbench software to the latest version and try again.

The upload can also fail if you previously did not download the project source code to the controller. The Download Source Code option is available in Connected Components Workbench software version 13 or later, in the Micro800 controller General page.

4. The controller image is uploaded into a new project and includes any plug-ins and expansion I/O modules that are physically connected to the controller. If the project in the controller does not have the physical modules that are configured within the image, then you get the error message, “The current project content does not match the content in the connected controller. The software will not automatically go online (Connect) with the controller.” In this case, the best thing to do is to follow up with an **Upload** from the controller, which syncs up the offline image with the online image. The software then automatically goes online (Connect) with the controller.



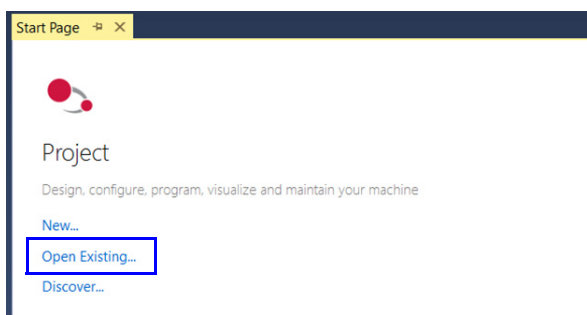
- You can save the offline project under a name of your choosing by selecting **File -> Save Project As...**



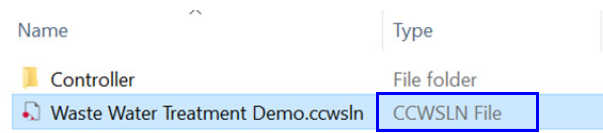
Open an Existing Offline Project

A Connected Components Workbench software project consists of a 'ProjectName' folder that contains a number of subdirectory folders and files. They must all be present to open the ProjectName.ccwsln file.

- Open **Connected Components Workbench** software (under All Programs/Rockwell Automation/CCW).
- Click **Open Existing...** on the **Start Page**.



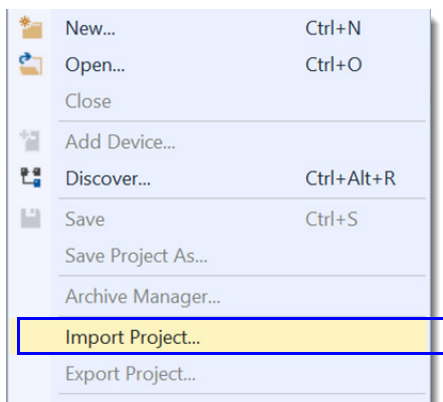
- Browse to and double-click the desired controller project folder, then double-click the CCWSLN file within that folder to open the project.



Open a Saved Offline Project

A Connected Components Workbench software CCWARC archive file is equivalent to a Logix ACD file. One file contains everything that is required to open the Connected Components Workbench software project. To do so, you must first import the file.

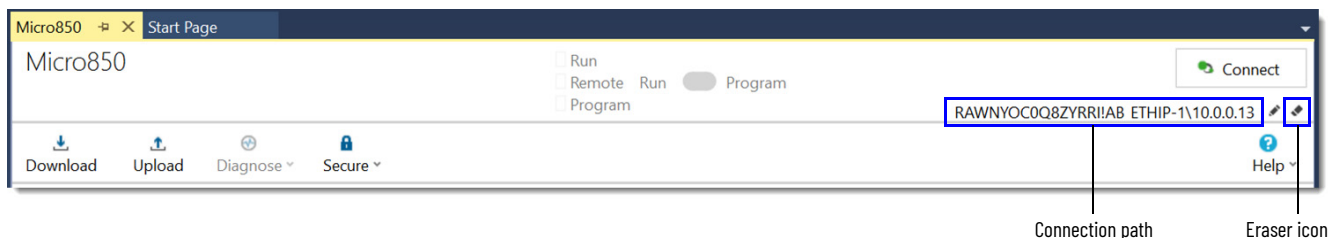
- Open **Connected Components Workbench** software (under All Programs/Rockwell Automation/CCW).
- To import and open the project, select **File -> Import Project...**, then browse to and double-click the desired CCWARC file.



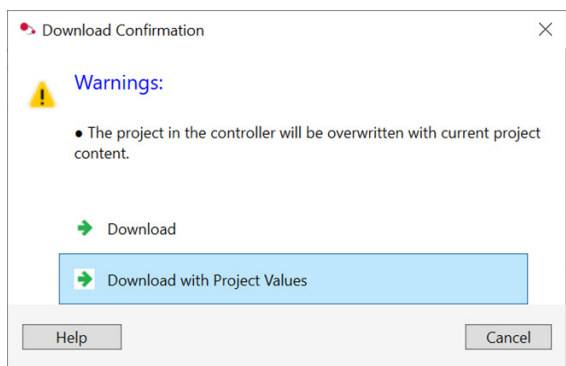
It is recommended to use the single CCWARC archive file for copying and sharing projects, instead of copying the entire folder that contains the CCWSLN file.

Downloading an Offline Project to a Controller

1. With the offline project open and the Micro800 controller window displayed, check if there is a connection (project) path for the controller on the upper right-hand corner of the screen. If present, that path is used to attempt to connect with the controller when you click **Download**. If the path is no longer valid, click the eraser icon to delete it. Once the path is deleted, or no path was displayed to begin with, click **Download**. The **Connection Browser** (RSWho) window opens for you to select the controller to download to. The path automatically updates once you select the controller.

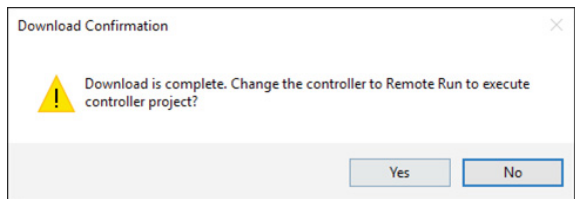


2. Two options are presented for downloading – with Project Values or without Project Values. Project Values are a snapshot of the values of each tag (variable) when the project was last uploaded (assuming the upload used was 'Discover' or 'Upload with Project Values'). Any tag may also be assigned an initial value, in which case the initial value is always used after a download. Any tag that does not have an initial value is set to zero when **Download** (without Project Values) is selected. Unless you intend to zero out every non-initialized tag, click **Download with Project Values**.



- **Download with Project Values** is equivalent to the Studio 5000 Logix Designer® application behavior for downloading tag values, but it takes longer than **Download** (without Project Values) since almost all tags values must be downloaded. Using Initial Values on select tags and downloading without Project Values decrease download time.
- To preserve a tag value in the controller from being overwritten or zeroed during download, use the download Data Protection feature accessible by right-clicking on the controller in the project organizer. Data Protection has precedence over Initial Value and Project Value.
- During download, Data Protection has precedence over Initial Value, which then has precedence over Project Value.

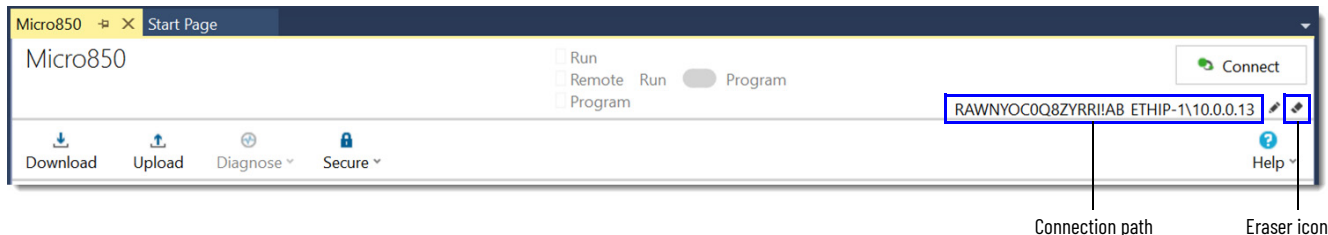
3. When the download is completed, a request to change the controller to run mode pops up (whether the controller was previously in run mode or not). Click Yes or No. The software automatically goes online with the controller at this point.



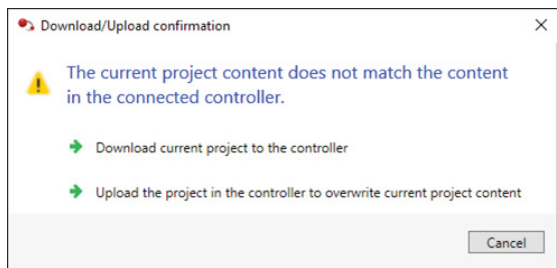
Going Online with a Controller

The Connected Components Workbench software term for going online with a controller is Connect.

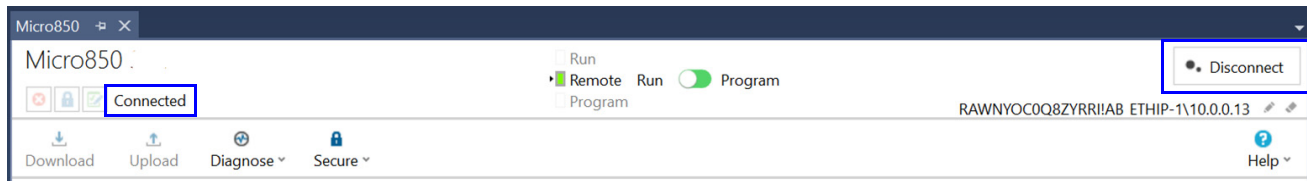
1. With the offline project open and the Micro800 controller window displayed, check if there is a connection (project) path for the controller on the upper right-hand corner of the screen. If present, that path is used to attempt to connect with the controller when you click **Connect**. If the path is no longer valid, click the eraser icon to delete it. Once the path is deleted, or if no path was displayed to begin with, click **Connect**. The **Connection Browser** (RSWho) window opens for you to select the controller to go online with. The path automatically updates once you select the controller.



2. If there are any differences between the offline project and the online project, the **Download/Upload confirmation** window appears. Choose either to download the current offline project to the controller, or upload the online project and save it as the offline project.



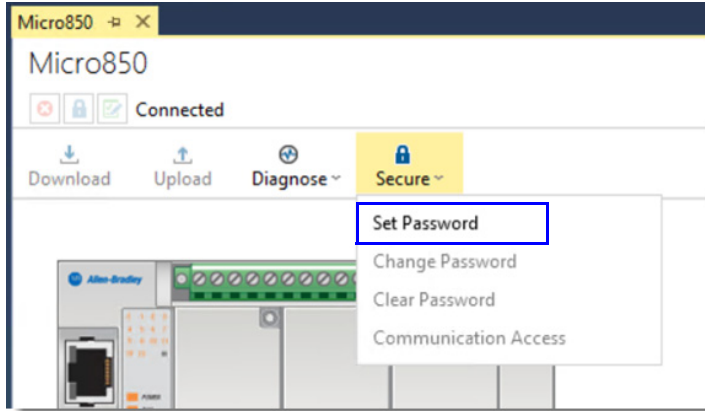
3. When you are online (Connected) with the controller, the word **Connected** appears on the upper left-hand corner of the screen, and the button for Connect is replaced with Disconnect (that is, to return offline).



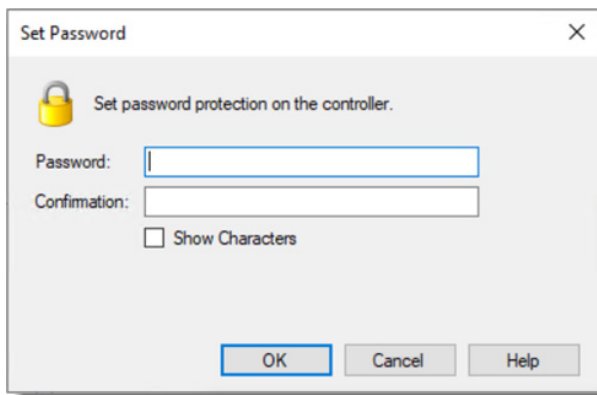
Password Protecting Future Controller Access

Once online (Connected), the controller can be protected with a password. This feature helps prevent unauthorized access to the configuration and programming in the controller. The password is 1...64 characters in length for Connected Components Workbench software version 20 and later (for version 13 and earlier, the password is 8...32 characters in length). Valid characters are uppercase and lowercase letters, numbers, spaces, and symbols found on the keyboard. This password does not protect the offline file from edits or views. For this case, you must apply passwords to the individual programs and/or UDFBs. See [Password Protect Program \(Optional\) on page 27](#).

1. While online with the controller, click **Secure** and select **Set Password**.



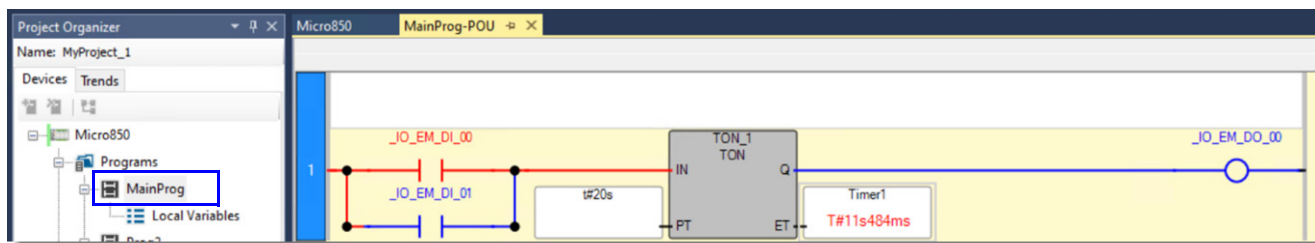
2. Enter the **Password**, then reenter the same password in **Confirmation** and click **OK**.



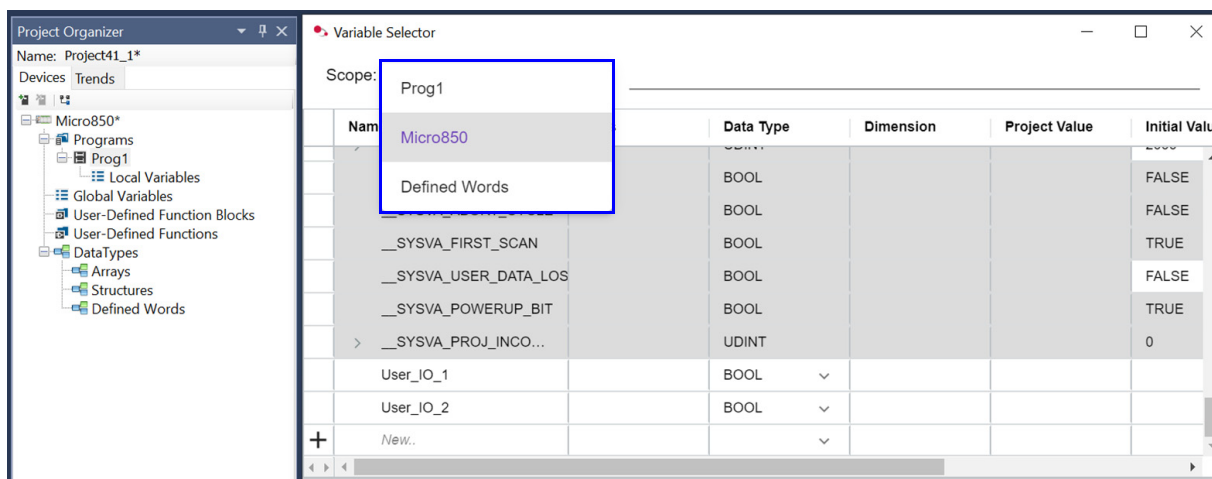
Online Monitoring of Programs and Tags

The Connected Components Workbench software term for Online is Connected.

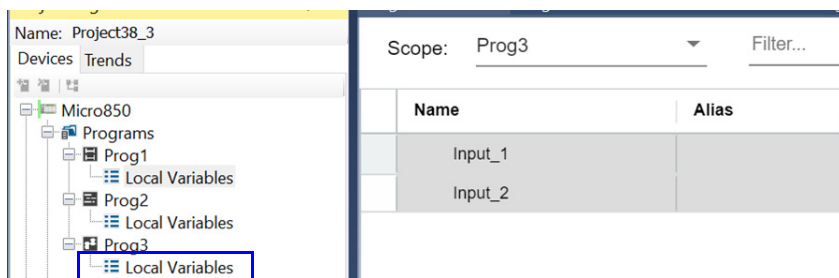
1. Once online with the controller, double-click the program name icon in the **Project Organizer** of the program that you want to monitor. Blue is the rung color that is used to indicate that the rung logic is false and red is the rung color that is used to indicate that the rung logic is true.



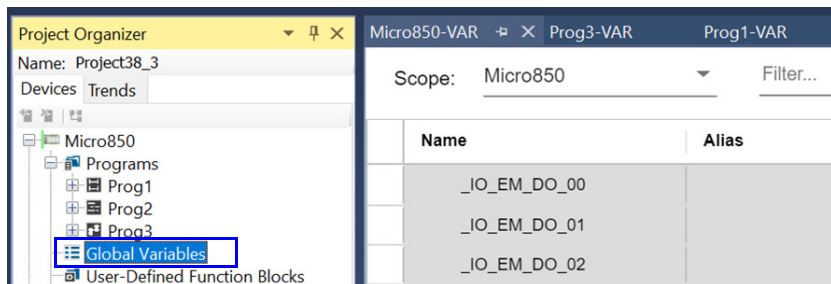
2. To monitor the tag values in list format, double-click any tag name to bring up the **Variable Selector** window. Program tags are listed under **Scope: <Program Name>** and user-created controller tags are listed under **Scope: <controller name>**.



3. To open a separate screen of all local program tags, double-click the **Local Variables** icon under the program name in the **Project Organizer**.



4. To open a separate screen of all global controller tags, double-click the **Global Variables** icon under the program name in the **Project Organizer**.



Forcing I/O

The Connected Components Workbench software term for Force is Lock.

While monitoring the I/O tags under Global Variables, select the **Lock** checkbox for each I/O tag that you want to force on or off. For outputs, select the **Physical Value** checkbox to force on the output and deselect the **Physical Value** checkbox to force off the output. The indicators for forced outputs on the Micro800 controller correspond to the forced value. For inputs, select the **Logical Value** checkbox to force on the input and deselect the **Logical Value** checkbox to force off the input. The indicators for forced inputs on the Micro800 controller correspond to the actual input value, not the forced value.

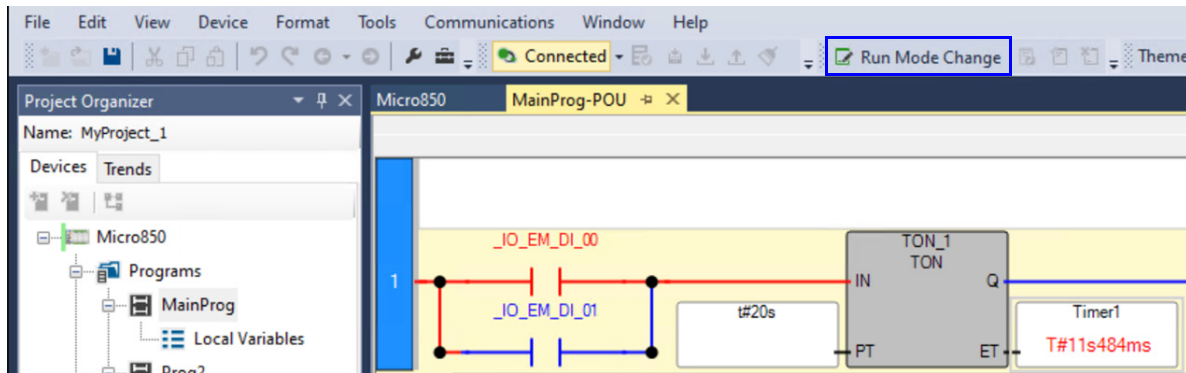
| Scope: Micro850 | | Filter... | | |
|-----------------|-------|--------------------------|--------------------------|-------------------------------------|
| Name | Alias | Logical Value | Physical Value | Lock |
| _IO_EM_DO_00 | | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| _IO_EM_DO_01 | | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| _IO_EM_DO_02 | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The FORCE indicator on the Micro800 controller is on whenever there is at least one I/O point being forced. All forces are cleared after you cycle power to the controller.

Make Online Edits

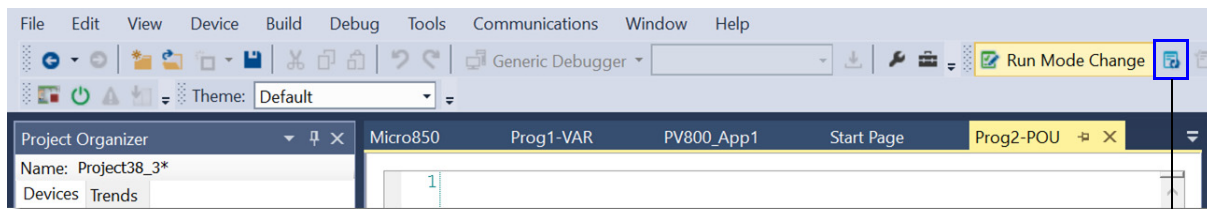
The Connected Components Workbench software term for Online Editing is Run Mode Change (RMC).

1. While monitoring the ladder program, click the **Run Mode Change** icon. The ladder program changes to appear as if it is offline, even though the software is still online (Connected).



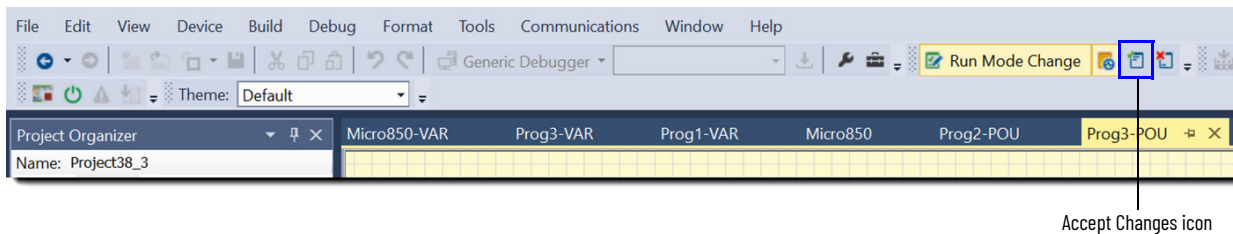
In Connected Components Workbench software version 13 or later, you can make online edits faster if the project source code is not downloaded to the controller. However, remember to download the project source code to the controller after all changes have been made.

2. Make your desired changes to the logic and/or tags, then click the **Test Changes** icon to the right of **Run Mode Change** to test your edits.



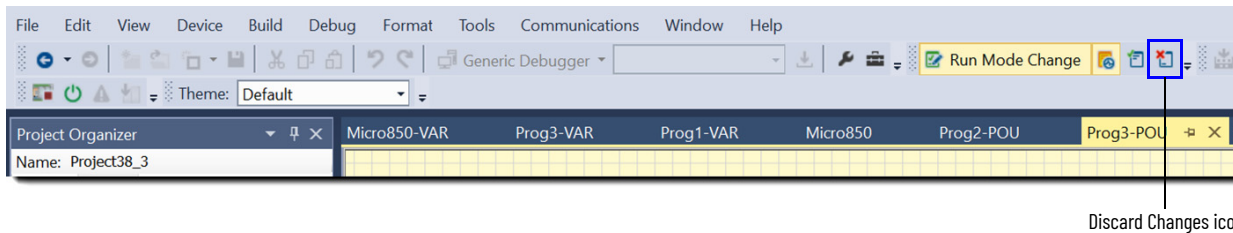
Test Changes icon

- To assemble the online edits to make the change permanent, click the **Accept Changes** icon to the right of **Test Changes**.



Accept Changes icon

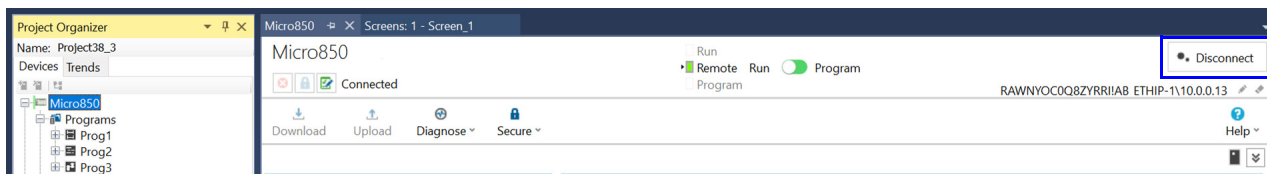
- To cancel the online edits to undo the changes, click the **Discard Changes** icon to the far right of **Run Mode Change**.



Discard Changes icon

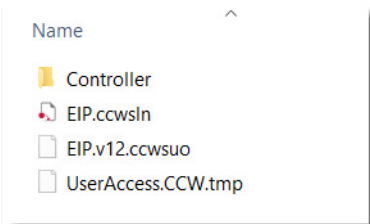
Going Offline from a Controller

Double-click the Micro800 controller icon in the **Project Organizer** to bring up the **Micro800** window. Click the **Disconnect** button on the upper right-hand corner of the screen to go offline.

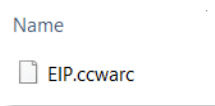


Save an Offline Project

In Connected Components Workbench software, when you save a project, a folder is created that contains all the files used in that project. Alternatively, you can export a project. This method creates a CCWARC archive file that is equivalent to a Logix ACD file in that one file encapsulates the entire Connected Components Workbench software project. If you want to share projects, we recommend to use the export project option.

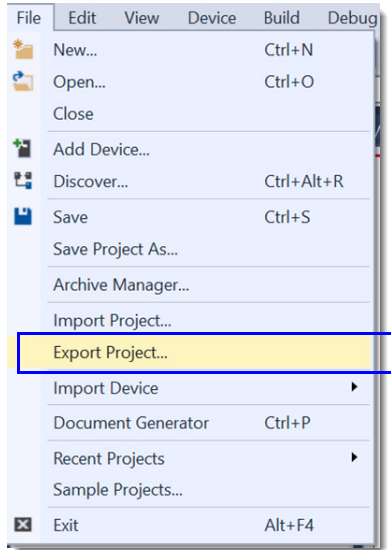


Files created when project is saved



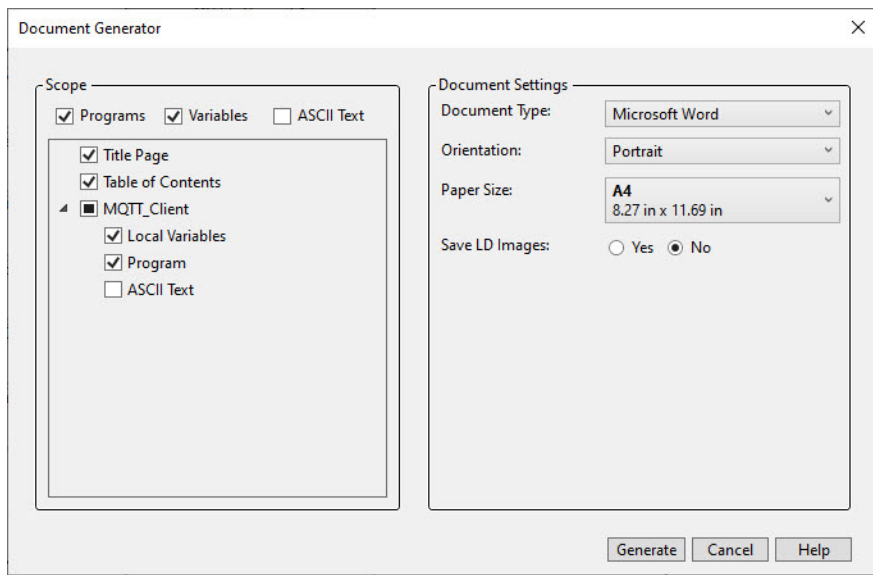
Archive file created when project is exported

- To export a project, select **File -> Export Project...**, browse to the desired directory, and enter a filename (which is given a .ccwar extension) to save (archive) the project to.



Generate a Project Printout

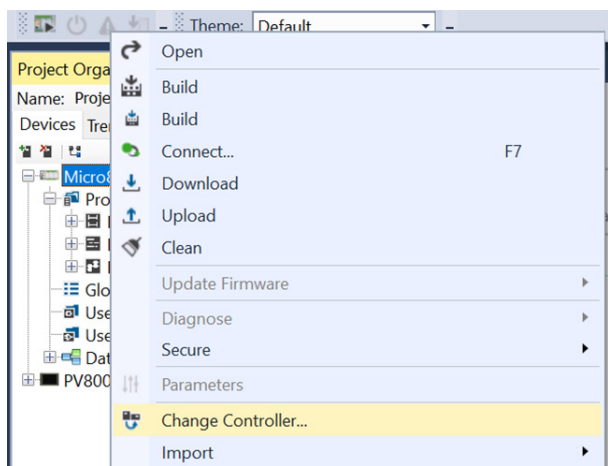
- To generate a printout of your project, select **File -> Document Generator**. The Document Generator configuration window appears.



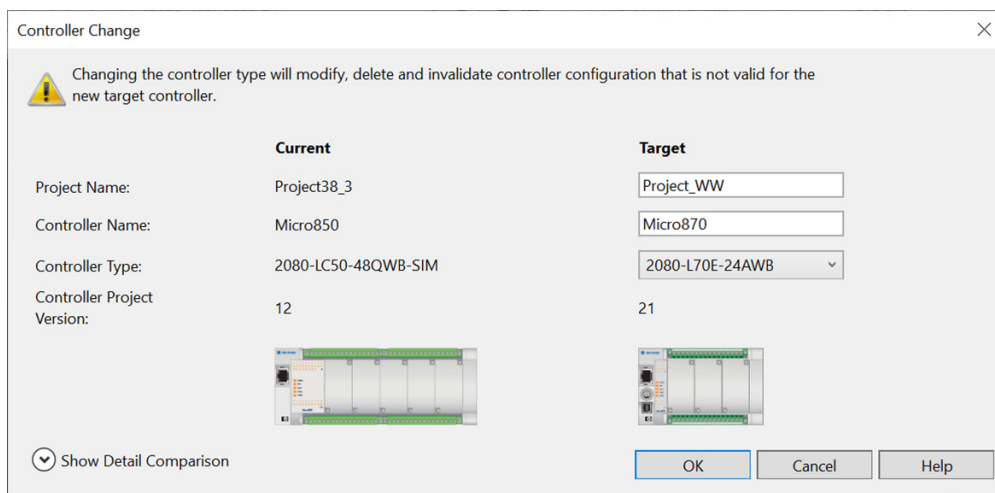
Change the Offline File Control Catalog Number and/or Version

You can upgrade the controller project version for the existing controller catalog number to match the installed version of Connected Components Workbench software. Alternatively, you can change to another controller catalog number at the same controller project version as the installed version of Connected Components Workbench software. Unlike Logix, the controller firmware revision does not need to match the controller project version, but it does have to be greater than or equal to it.

1. Open **Connected Components Workbench** software (under All Programs/Rockwell Automation/CCW).
2. Open an existing project.
3. Right-click the Micro800 controller icon in the **Project Organizer** and select **Change Controller...**



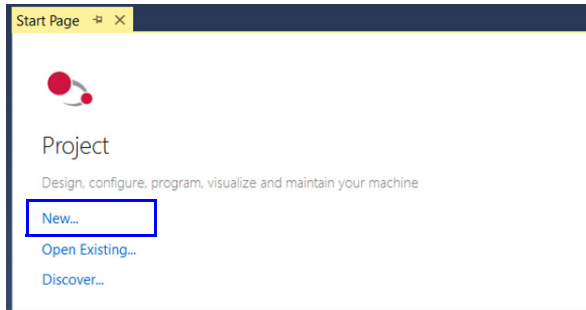
4. Enter another **Target Project Name** and/or **Controller Name** from the defaults provided. Select your preferred **Controller Type** (catalog number) and click **OK**.



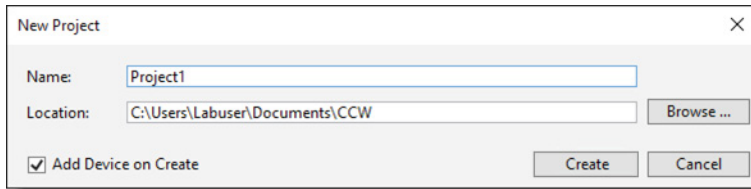
Create a New Controller Project

Select the Controller Catalog Number and Version

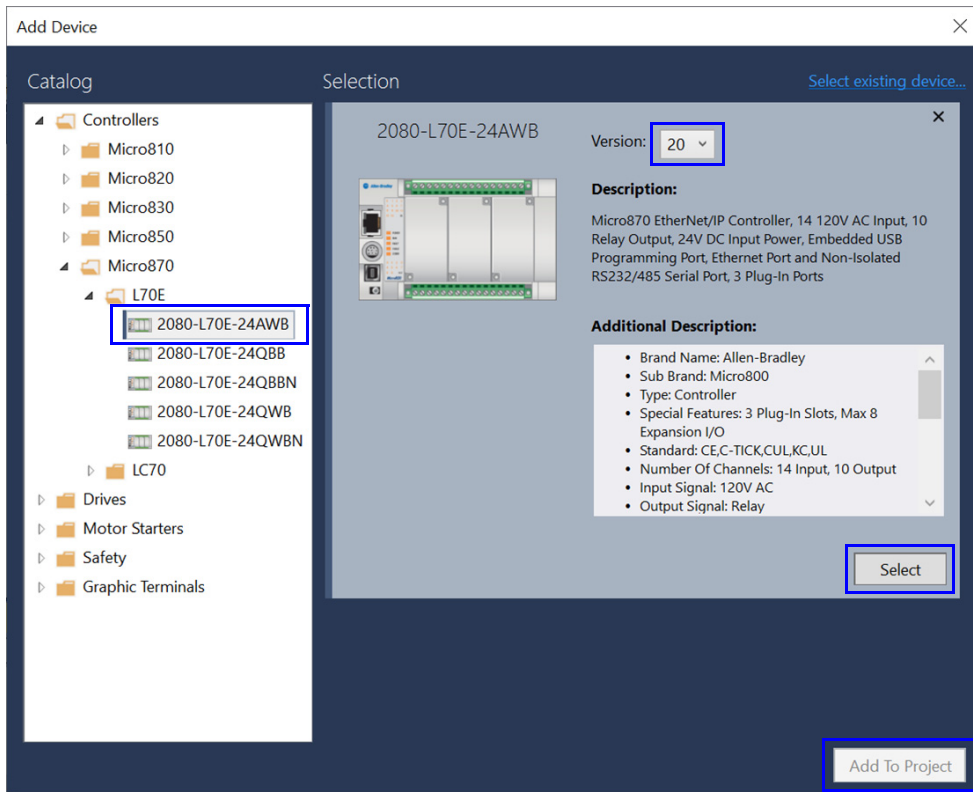
1. Open **Connected Components Workbench** software (under All Programs/Rockwell Automation/CCW).
2. Click **New...** on the **Start Page**.



3. Enter your desired project name or accept the default name and click **Create**.

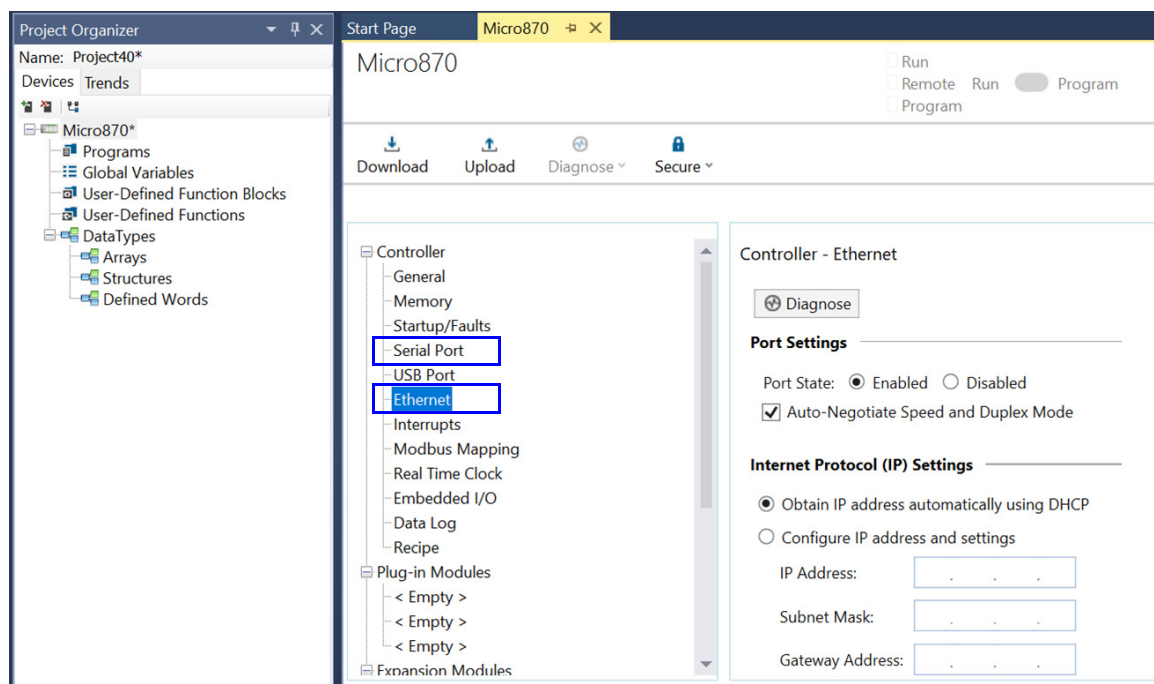


4. Select the catalog number for your controller, choose the desired project **Version** (typically the latest, but does not have to be. Both the latest software version and controller firmware revision support all earlier versions of projects), then click **Select** and click **Add To Project**.



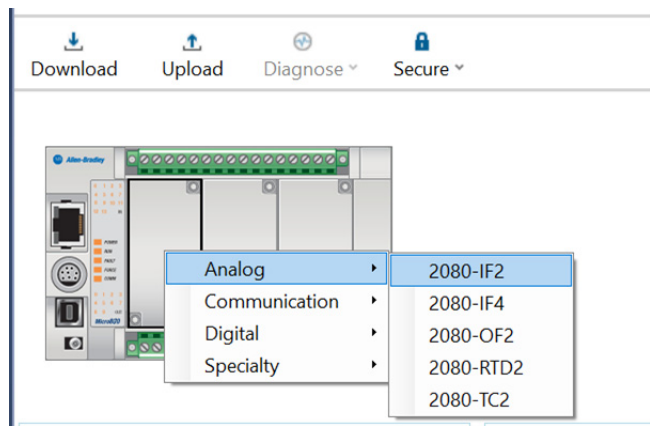
Configure the Communication Parameters

On the Micro800 controller page, click **Ethernet** and/or **Serial Port** to configure the desired communication settings.

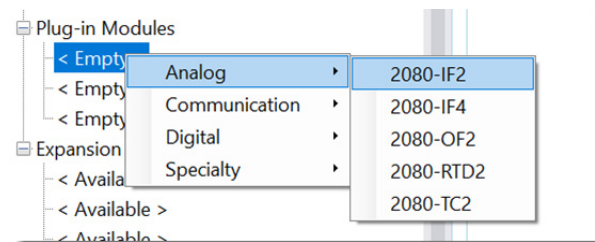


Add and Configure any Plug-in and/or Expansion I/O Modules

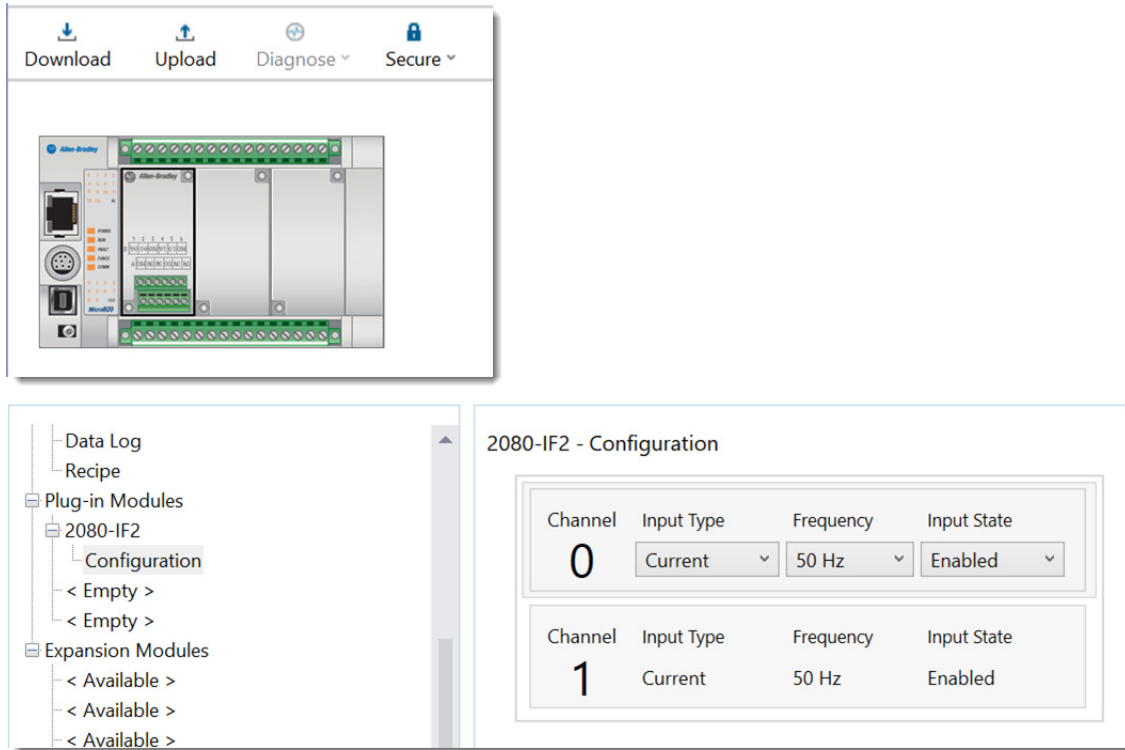
1. Right-click the blank plug-in or expansion module slot on the controller graphic and select the module to add.



2. Alternatively, from the menu you can right-click either an **< Empty >** slot under **Plug-in Modules** or an **< Available >** slot under **Expansion Modules** (Micro850® or Micro870® controller) and select the module to add.

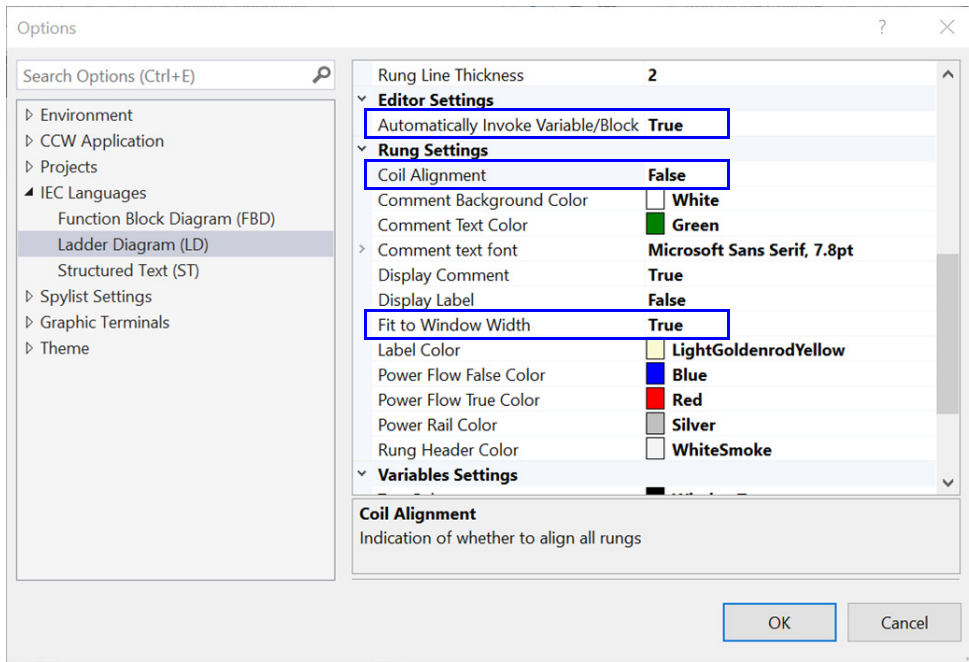


- Once you have added the module, the module configuration page appears.



Verify Rung Settings for Optimal Viewing

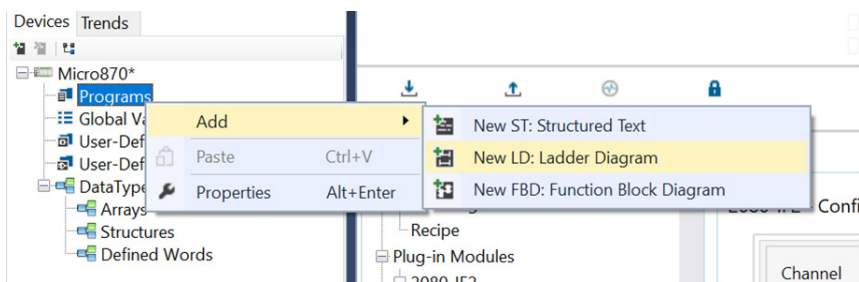
Under **Tools -> Options**, verify that the Ladder Diagram (LD) Rung Settings for **Coil Alignment** is set to False and for **Fit to Window Width** is set to True.



If you do not want the Variable Selector window to appear automatically when you add an instruction, under Editor Setting, set **Automatically Invoke Variable/Block** to False.

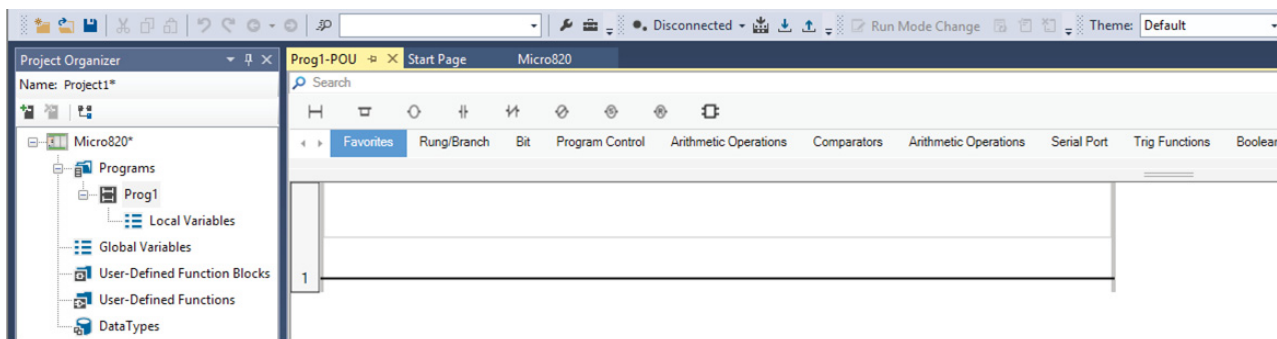
Add a New Ladder Program

In the **Project Organizer**, right-click **Programs** and select **Add -> New LD: Ladder Diagram**.



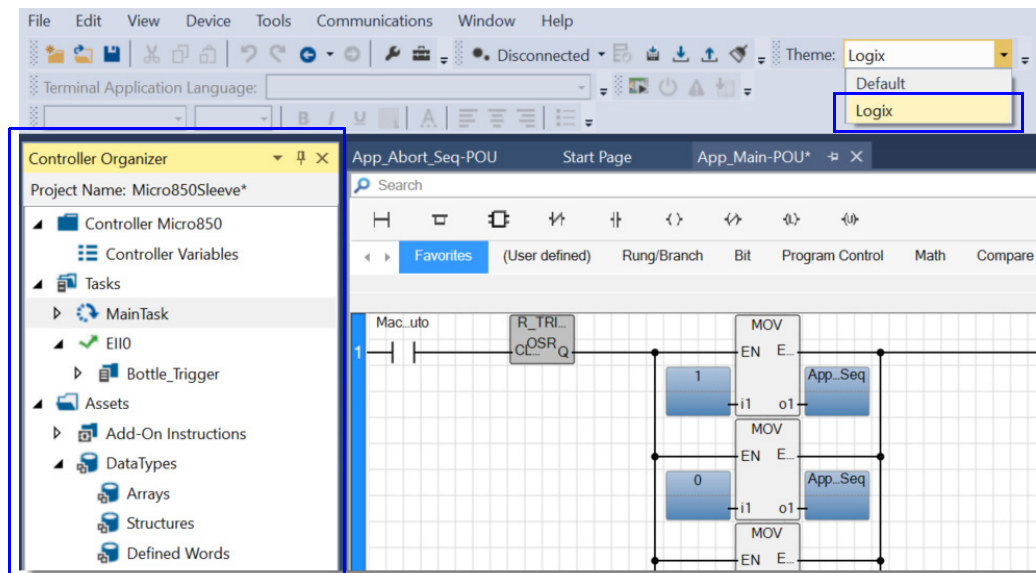
Open a Ladder Program

Double-click the ladder program name, for example **Prog1** (default name, which can be renamed), and the ladder program opens up with one blank rung.

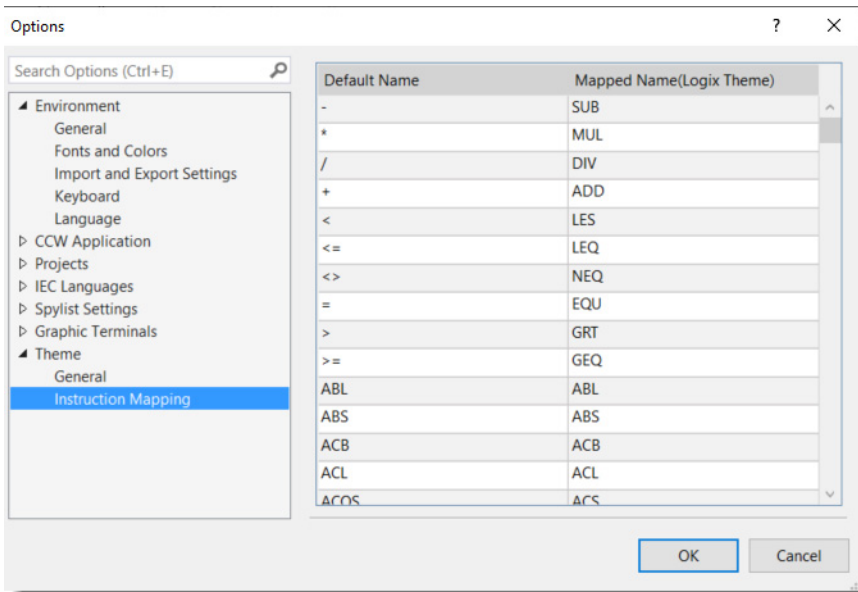
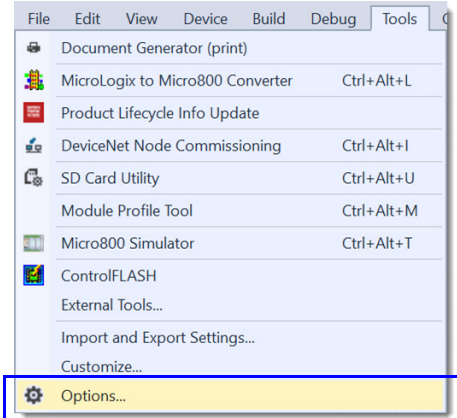


Select Logix Theme and View Instruction Mapping

1. Use the **Theme** pull-down menu to change the theme from **Default** to **Logix**. The **Logix** theme provides the Controller Organizer view and uses Logix names and symbols for all ladder instructions that have the same functionality as Logix instructions.

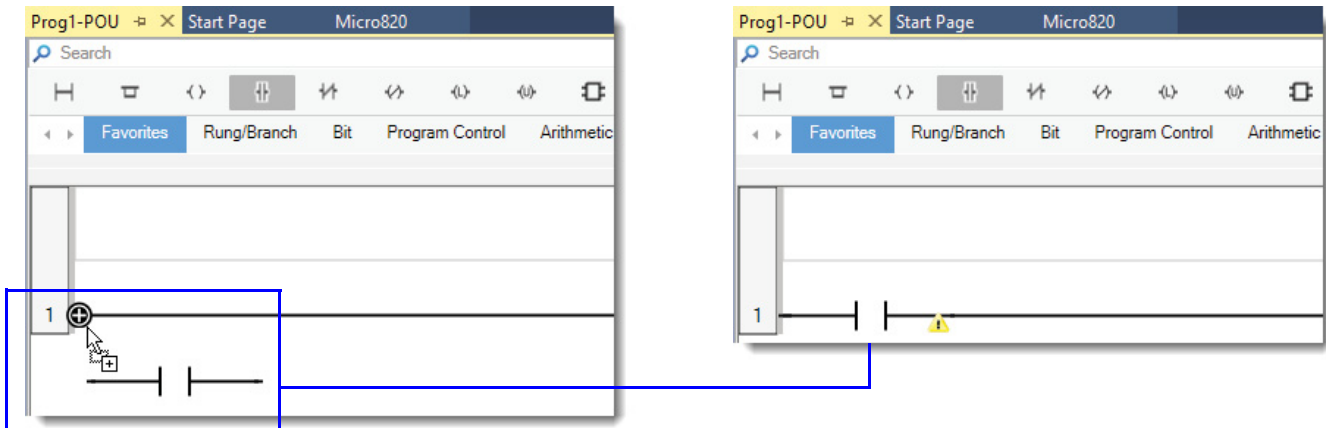


- An instruction-mapping table of Default Names to Logix Theme Names can be found under **Tools -> Options -> Theme -> Instruction Mapping**.



Add a Ladder Instruction on a Rung

From the **Instruction Library** directly above the ladder rung, click-and-drag a ladder instruction (like **Direct Contact** in the Favorites group) to the rung until a '+' icon appears where the instruction is to be placed, then release the mouse button.

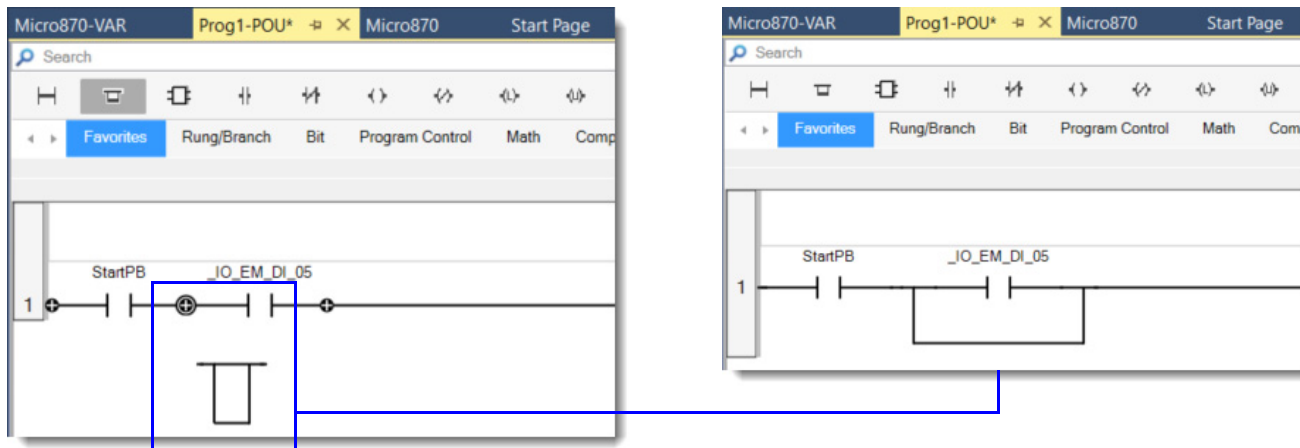


Add a Branch to the Ladder Instruction

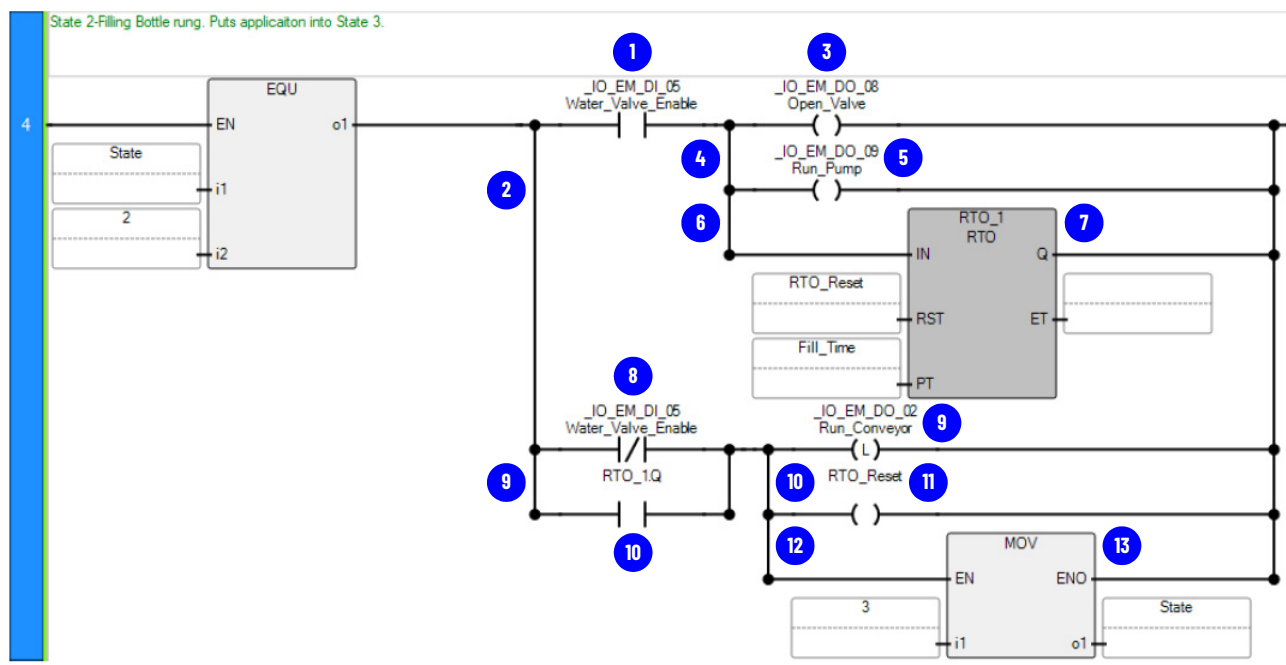
Branching is performed differently in Connected Components Workbench software. To expand a branch, you must add instructions to it. You cannot drag a branch to expand it.

From the **Instruction Library** directly above the ladder rung, click-and-drag a branch in the Favorites group to the rung until a '+' icon appears where the branch is to be placed, then release the mouse button.

Alternatively, you can select an instruction on the rung and press **Ctrl+7** to add a branch.



To create complex branches in Connected Components Workbench software, instructions must be created in the branch to expand the branch. Follow the steps shown in the example to create the nested branches.



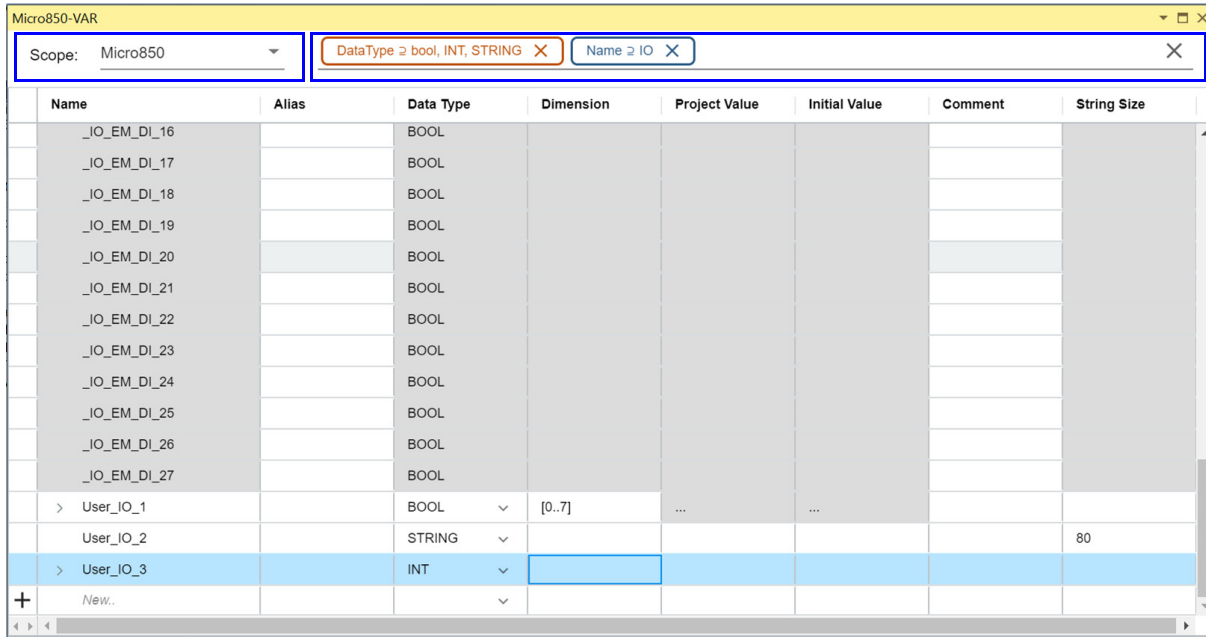
Assign a Tag to a Ladder Instruction

The Connected Components Workbench software term for Tag is Variable.

After placing the instruction, the **Variable Selector** window opens to let you assign a tag (variable) or to create one. The **Scope: <controller name>** screen contain the default system and I/O controller tags. The **Scope: <program name>** screen contains user-created tags that are scoped to this program. The **Scope: <controller name>** screen also contains user-created tags that are controller-scoped.

To assign a tag, click the appropriate scope, select the desired tag, and click **OK**. Use the **Filter** function to narrow down the search of tags.

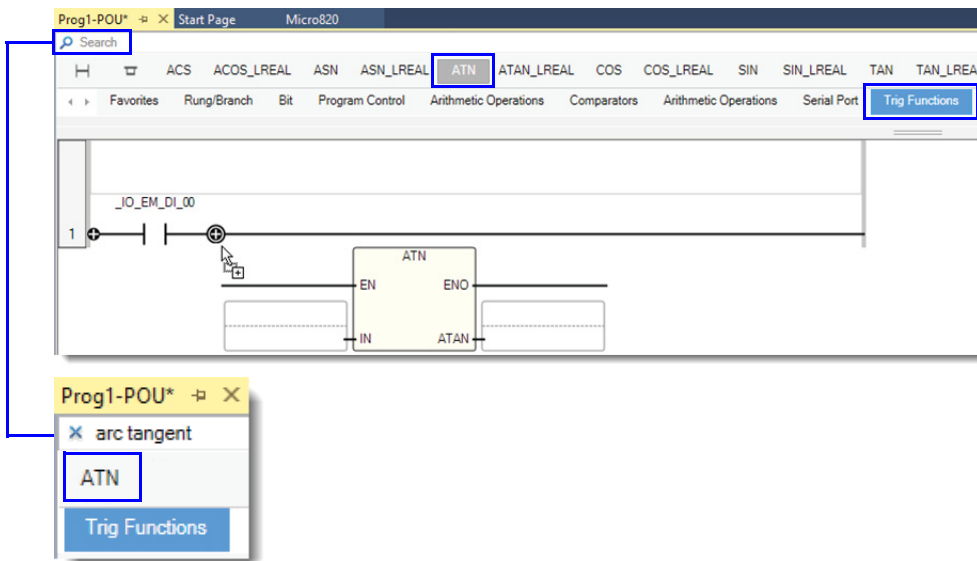
To create a tag, choose either **<controller name>** or **<program name>** under "Scope" to determine whether the new tag is scoped globally or locally. Enter a name for the new tag in the **Name** box and click **OK**.



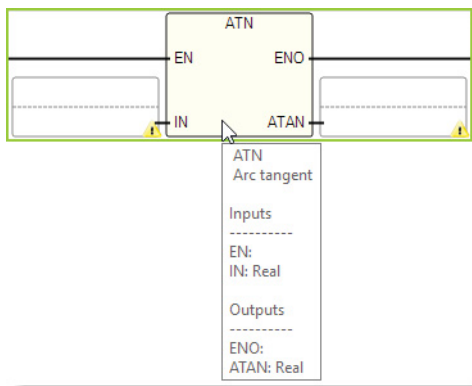
Add an Instruction Block on a Rung and Assign its Input and Output Parameters

1. Select the program group in the **Instruction Library** that contains the desired instruction. Click-and-drag the instruction to the rung until a '+' icon appears where the instruction is to be placed, then release the mouse button.

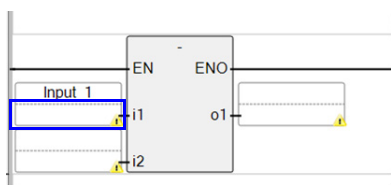
Alternatively, you can double-click the name of the instruction in the **Instruction Library** to place it on the rung after the last instruction. If you are unsure in which program group the instruction is located, use the **Search** box to find the instruction.



2. Hover the mouse cursor over the instruction to identify the data types of the input and output parameters. For ATN (Arc Tangent), both parameters must be of data type REAL.



3. Double-click the lower half of the input parameter box to bring up the **Variable Selector** screen. From here, you can select an existing REAL tag (variable) or create one and press **Enter**.

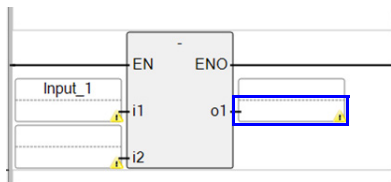


Variable Selector

Scope: Prog1 Filter...

| Name | Alias | Initial Value | Data Type | Dimension | Project Valu |
|----------------------|-------|---------------|-----------|-----------|--------------|
| Input_1 | | TRUE | BOOL | | |
| Input_2 | | FALSE | BOOL | | |
| <input type="text"/> | | | BOOL | | |

4. Similarly, double-click the lower half of the output parameter box to bring up the **Variable Selector** screen. From here, you can select an existing REAL tag (variable) or create one and press **Enter**.



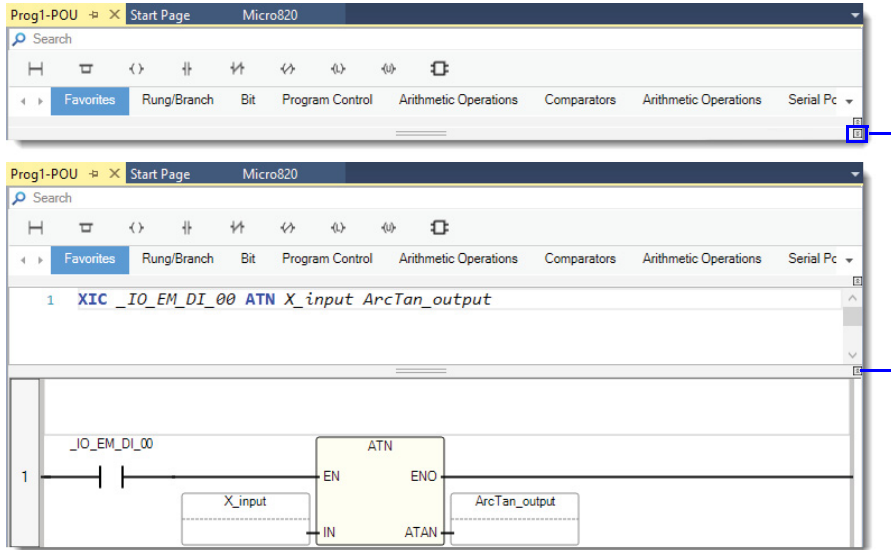
Variable Selector

Scope: Prog1 Filter...

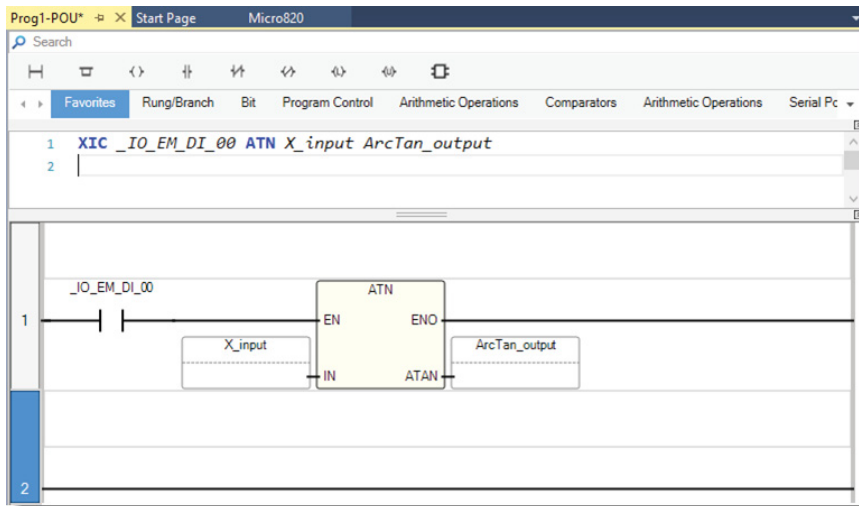
| Name | Alias | Initial Value | Data Type | Dimension | Project Valu |
|---------------------------------------|-------|---------------|-----------|-----------|--------------|
| Input_1 | | TRUE | BOOL | | |
| Input_2 | | FALSE | BOOL | | |
| <input type="text" value="Output_1"/> | | | BOOL | | |

Add a Rung and Ladder Instructions Using LD Text Input

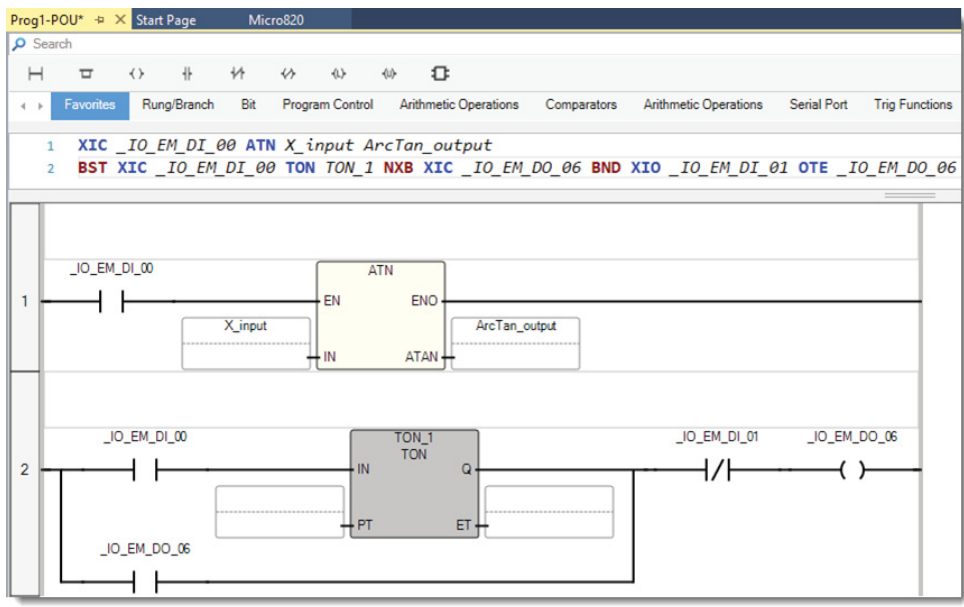
1. Click the LD Text Input toggle to expand the LD Text Input window. The instruction text for rung 1 is displayed.



2. Place your cursor at the end of the rung 1 text and press **Enter** to create rung 2.



- In the blank text box for rung 2, type in: "BST XIC _IO_EM_DI_00 TON TON_1 NXB XIC _IO_EM_DO_06 BND XIO _IO_EM_DI_01 OTE _IO_EM_DO_06" to program the rung.

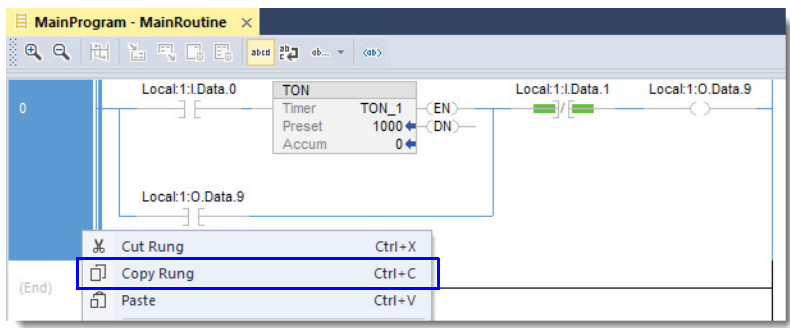


BST = Branch Start
 XIC = Examine If Closed (Direct Contact)
 TON = On-delay Timer
 NXB = Next Branch
 BND = Branch End
 OTE = Output Energize (Direct Coil)

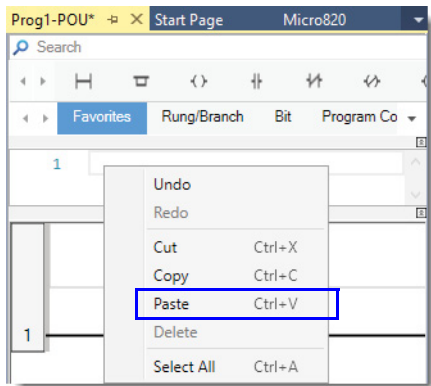
To make it easier to enter the correct syntax for a branch, auto-completion is available if the TAB key is pressed after typing "BST". Auto-completion for a branch inserts a "BST NXB BND".

Copy and Paste a Ladder Rung From Studio 5000 Logix Designer Application

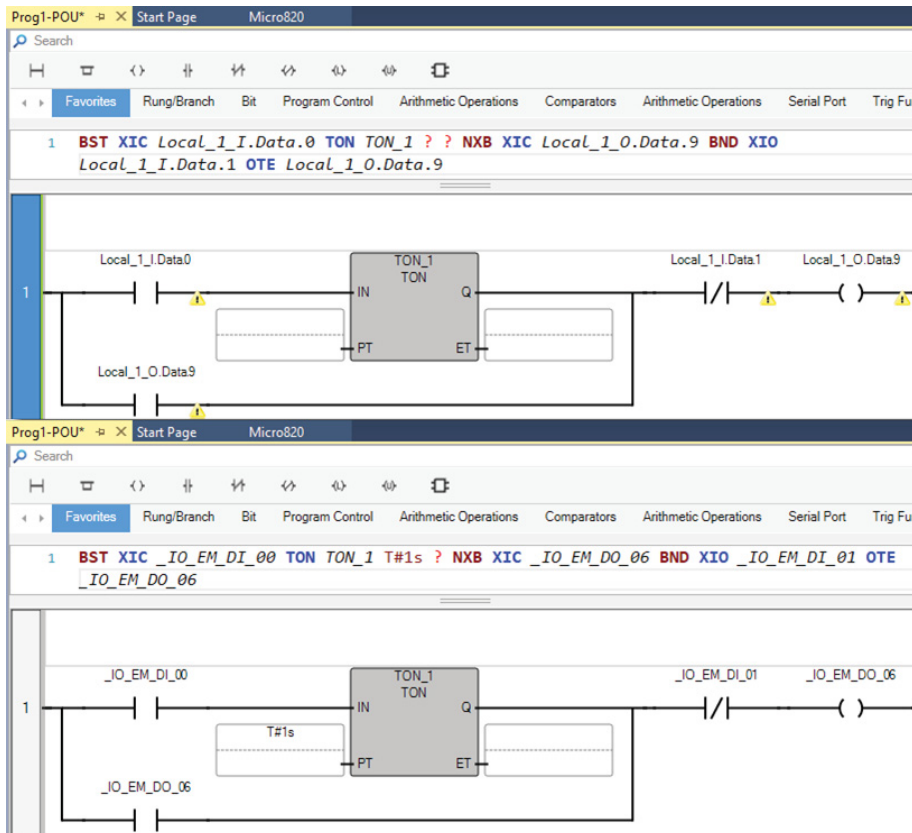
- Right-click the desired rung within Studio 5000 Logix Designer application and select **Copy Rung**.



- With the LD Text Input window expanded, right-click within the box to the right of rung 1 and select **Paste**.



Logix instructions such as NOP, SBR, INT, JSR, and AFI are not supported. These instructions appear as undeclared variables and are assigned as the input or output of an instruction. For more information, see Knowledgebase article *CCW: Logix Theme does not Support NOP, SBR, INT, JSR and AFI instructions*, QA44972 available at rok.auto/knowledgebase.



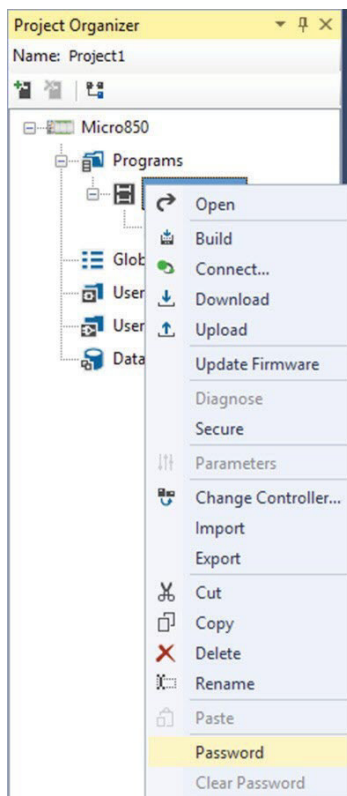
- You can select multiple rungs of ladder logic to copy and paste.
- When you paste the ladder logic, if you have identical variables in your project, these variables are automatically populated in the instruction. To simplify this process, import the variables into your project before you copy and paste the ladder logic. For more information on how to import variables, see [Export and Import Tags on page 30](#).
- ASCII text input allows multiple output coils in series to be entered, which cannot be entered using the graphical editor. Although Studio 5000 Logix Designer application supports this behavior, Connected Components Workbench software currently does not, and the output of the coil is always TRUE.



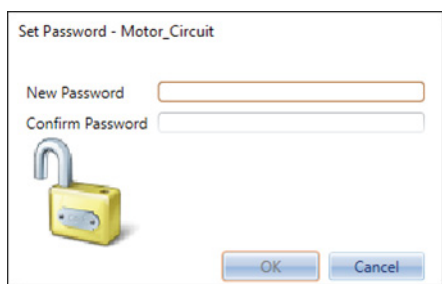
Password Protect Program (Optional)

To help prevent unauthorized views and edits of the program, both offline and online, you can assign a password to it. Passwords must contain 1...8 alphanumeric characters - no spaces or special characters are allowed. To assign, change, and clear program passwords, Connected Components Workbench Developer Edition software is required.

1. Right-click the program name and select **Password**.



2. Enter **New Password**, then reenter the same password in **Confirm Password** and click **OK**.



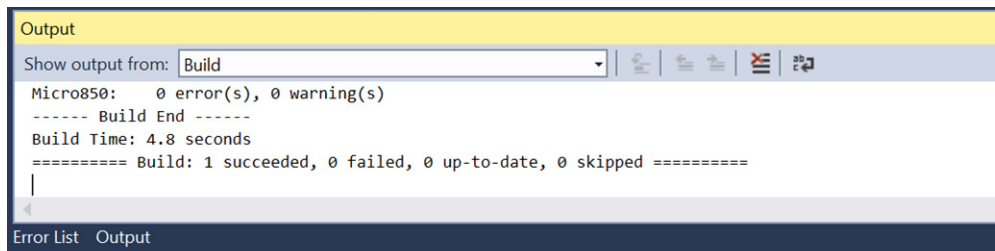
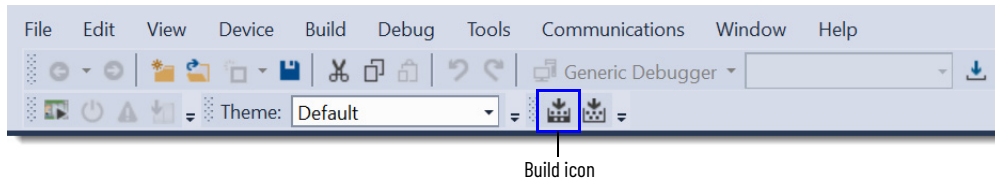
3. Now, whenever the program is opened, whether offline or online, you are prompted to enter the **Password**. Enter the password and click **OK** to proceed.



Verify Controller Before Download

The Connected Components Workbench software term for Verify Controller is Build.

1. To verify the controller project, click the **Build** icon. The Build result is displayed in the **Output** window at the bottom of the screen. Only a successfully built project can be downloaded to a controller.

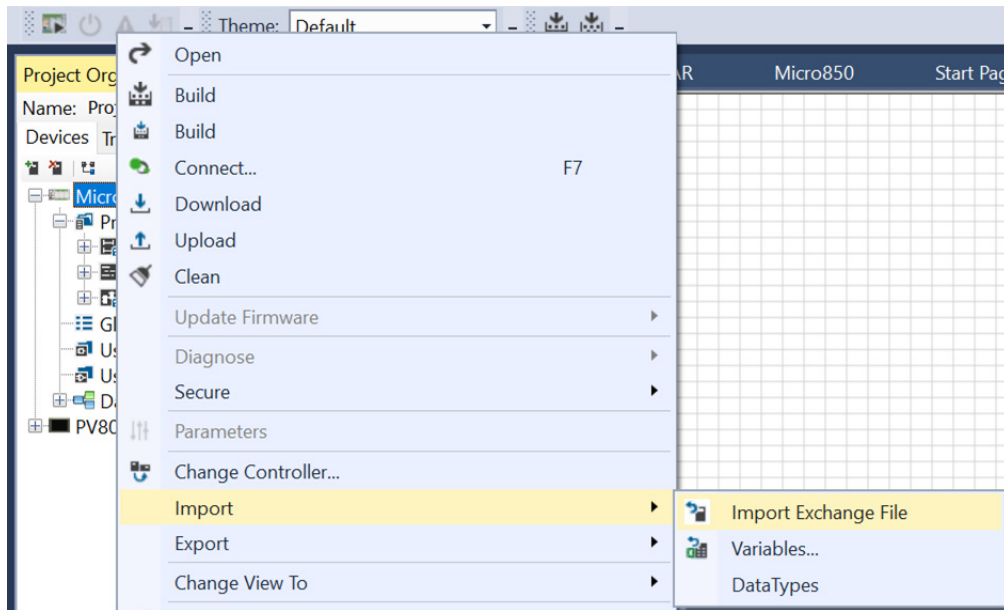


2. If the Build fails, review the error list to determine what must be corrected. Fix the errors and rebuild the project. Repeat this process until the Build succeeds.

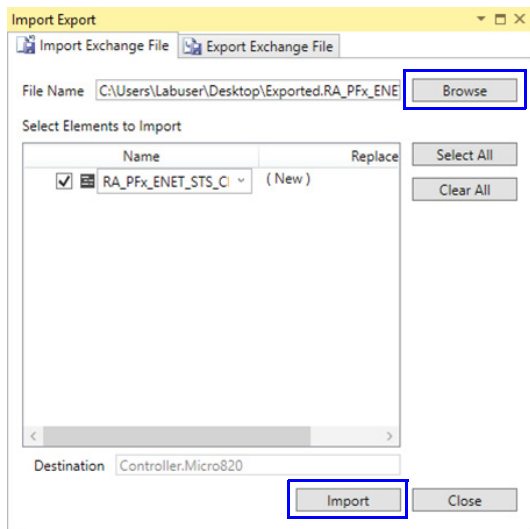
Import an Add-On Instruction or Subroutine to a Project

The Connected Components Workbench software term for an Add-On Instruction is UDFB and for a subroutine is UDF.

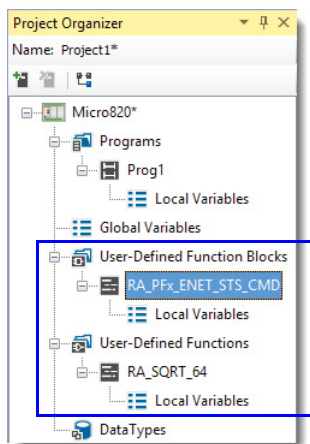
1. Right-click the Micro800 controller icon in the **Project Organizer** and select **Import -> Import Exchange File**.



- Click **Browse**, browse to and select the desired UDFB file, then click **Import**.



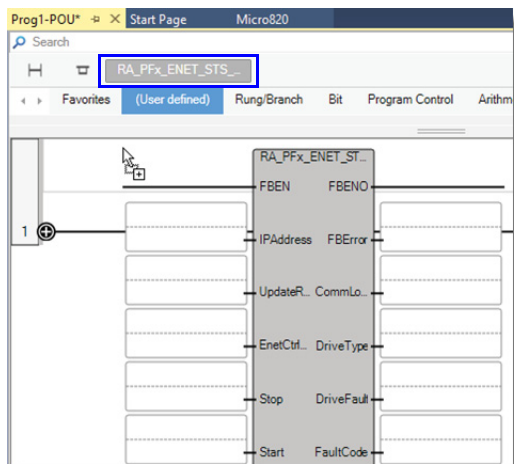
- Imported Add-On Instructions and subroutines are listed in the **Project Organizer** under **User-Defined Function Blocks** for Add-On Instructions and **User-Defined Functions** for subroutines.



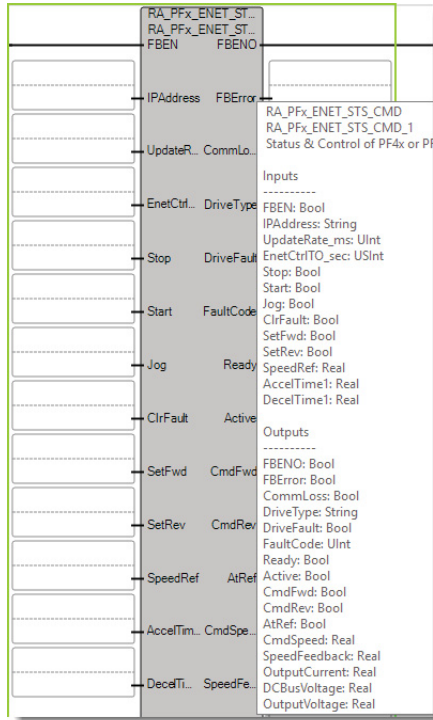
Use an Add-On Instruction or Subroutine in a Program

The Connected Components Workbench software term for an Add-On Instruction is UDFB and for a subroutine is UDF.

- Once an Add-On Instruction or subroutine is imported into a project, its name is listed in the **(User defined)** group. Select the **(User defined)** group, click the Add-On Instruction or subroutine name, then drag-and-drop the Add-On Instruction or subroutine onto the rung. There is no separate Jump to Subroutine (JSR) instruction needed for UDFs.



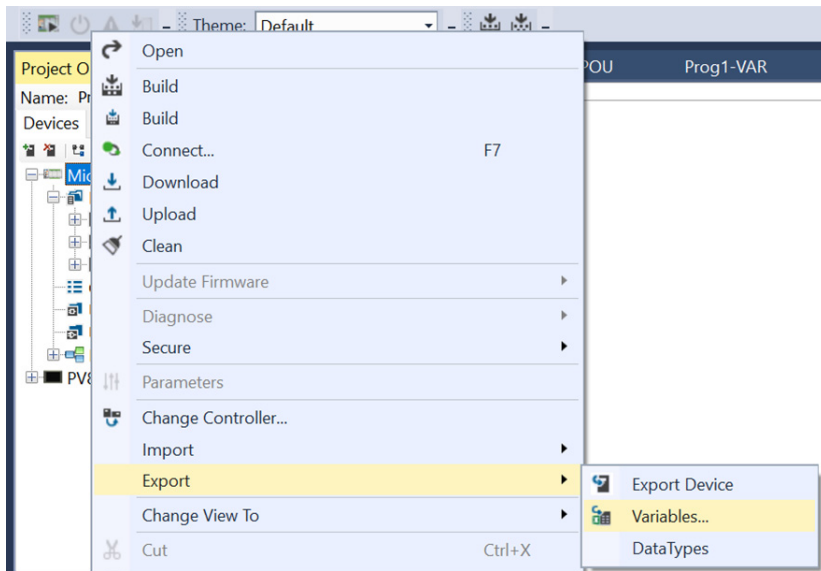
- Assign tags (variables) to the instruction input and output parameters.



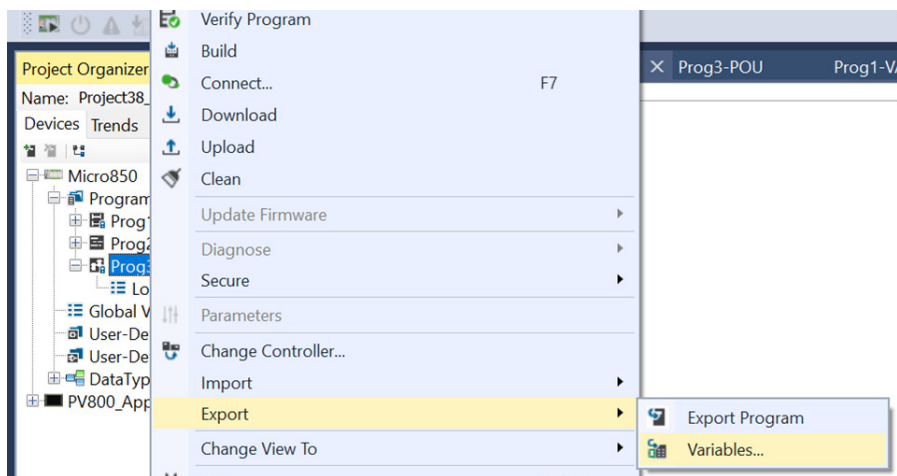
Export and Import Tags

The Connected Components Workbench software terms for Controller Tags are Global Variables and Local Tags are called Local Variables.

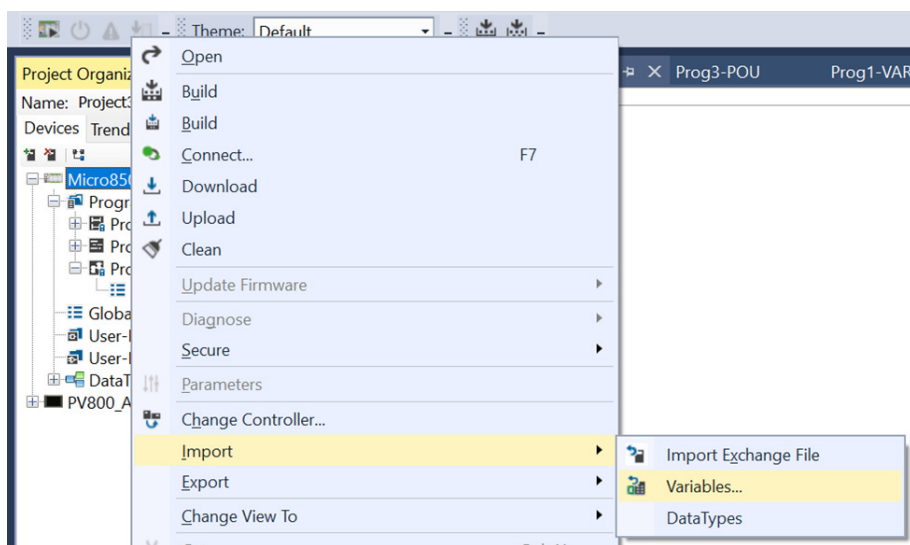
- To export Controller Tags, right-click the Micro800 controller icon in the **Project Organizer** and select **Export -> Variables**. Browse to the desired directory, enter a filename, and click **Save**. The file is saved in the Microsoft® Excel® format.



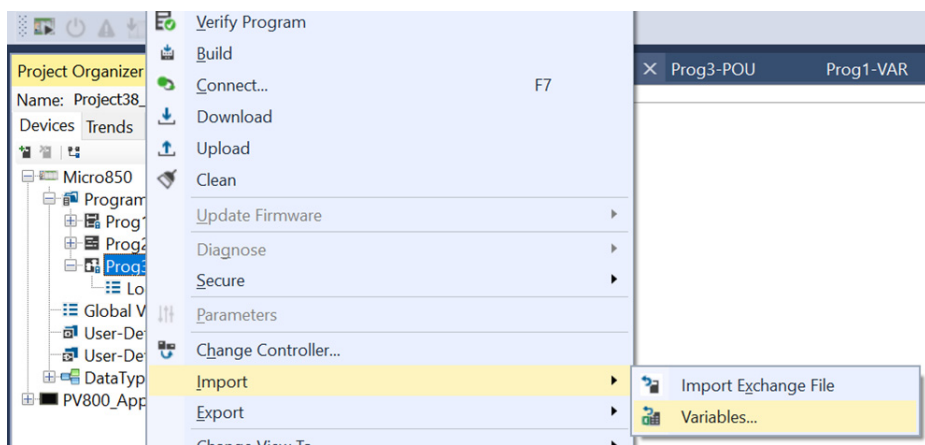
- To export Local Tags, right-click the desired Program icon in the **Project Organizer** and select **Export -> Variables**. Browse to the desired directory, enter a filename, and click **Save**. The file is saved in the Microsoft Excel format.



- To import Controller Tags, right-click the Micro800 controller icon in the **Project Organizer** and select **Import -> Variables**. Browse to the desired directory, select the file (in Microsoft Excel format), and click **Open**.



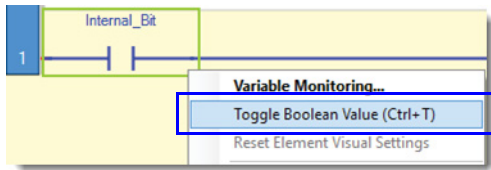
- To import Local Tags, right-click the desired Program icon in the **Project Organizer** and select **Import -> Variables**. Browse to the desired directory, select the file (in Microsoft Excel format), and click **Open**.



To help confirm that variables are imported correctly into your project, edit the data in the file so that it matches the format that is used by Connected Components Workbench software, before you perform the import.

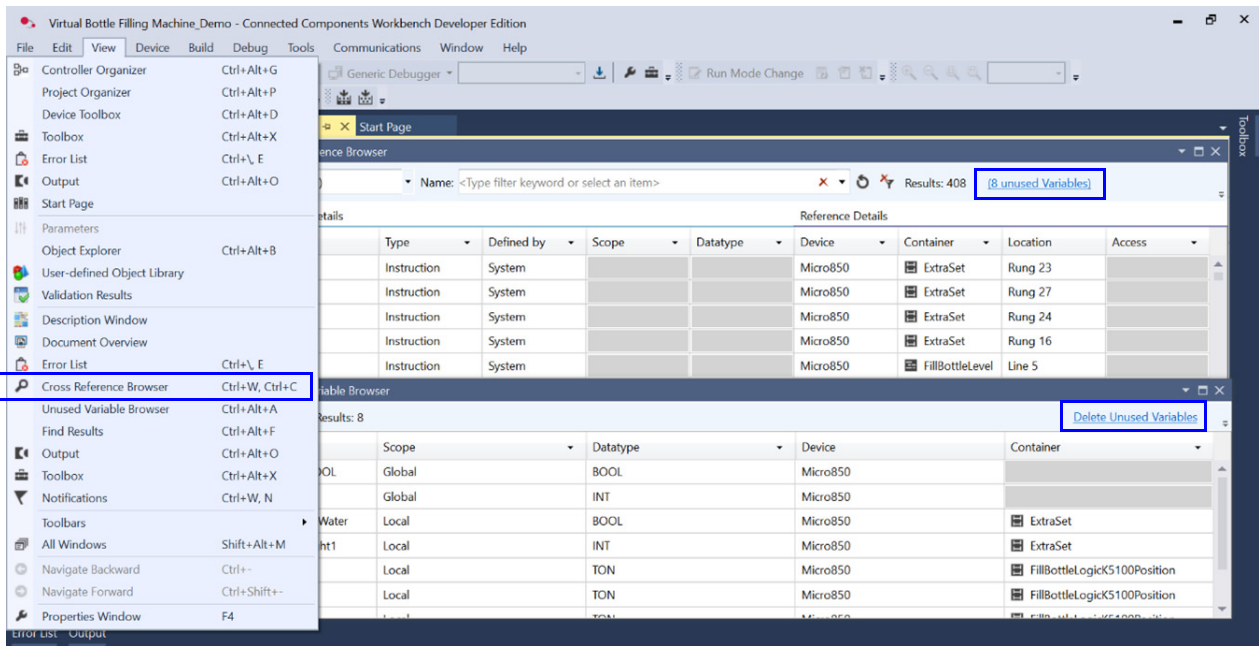
Keyboard Toggle Bit Shortcut

While online with the controller and with a bit instruction selected (indicated by the bright green box around the instruction), use **Ctrl+T** to toggle the instruction bit between off and on (and through the **Toggle Boolean Value** menu selection).



Cross Reference Tags

Select **View -> Cross Reference Browser** to find where tags (variables) are used. Click (**x unused Variables**) to open the **Unused Variable Browser**, which includes a one-click **Delete Unused Variables** selection.



Rename Tags

Existing tags (variables) that are renamed are automatically updated everywhere the tag is assigned within the logic.

| | Name | Alias | Data Type | Dimension | Project Value | Initial Value |
|---|-----------------|-------|-----------|-----------|---------------|---------------|
| > | FillBottleState | | DINT | | | 0 |
| > | TON_2 | | TON | | ... | ... |
| > | RA_BLINK_1 | | RA_BLINK | | ... | ... |
| ↓ | BlinkGreen | | BOOL | | | |
| > | TON_1 | | TON | | ... | ... |
| + | New.. | | | | | |

Additional Resources

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

| Resource | Description |
|--|---|
| Micro800 Programmable Controllers General Instructions Reference Manual, publication 2080-RM001 | Provides reference information about the instruction set available for developing programs for use in Micro800 control systems. |
| MicroLogix Controllers to Micro800 Controllers Migration Guide, publication 2080-RM002 | Provides information on how to convert MicroLogix™ programs to work with Micro800 controllers. |
| Connected Components Workbench Software Quick Tips, publication 9328-SP002 | Provides a quick overview on how to navigate the Connected Components Workbench software interface. |
| EtherNet/IP Network Devices User Manual, publication ENET-UM006 | Describes how to configure and use EtherNet/IP™ devices to communicate on the EtherNet/IP network. |
| Ethernet Reference Manual, publication ENET-RM002 | Describes basic Ethernet concepts, infrastructure components, and infrastructure features. |
| System Security Design Guidelines Reference Manual, publication SECURE-RM001 | Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment. |
| UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002 | Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories. |
| American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001 | Provides an overview of American motor circuit design based on methods that are outlined in the NEC. |
| Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002 | Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies. |
| Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1 | Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components. |
| Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 | Provides general guidelines for installing a Rockwell Automation industrial system. |
| Product Certifications website, rok.auto/certifications . | Provides declarations of conformity, certificates, and other certification details. |

You can view or download publications at rok.auto/literature.

Rockwell Automation Support

Use these resources to access support information.

| | | |
|---|--|--|
| Technical Support Center | Find help with how-to videos, FAQs, chat, user forums, and product notification updates. | rok.auto/support |
| Knowledgebase | Access Knowledgebase articles. | rok.auto/knowledgebase |
| Local Technical Support Phone Numbers | Locate the telephone number for your country. | rok.auto/phonesupport |
| Literature Library | Find installation instructions, manuals, brochures, and technical data publications. | rok.auto/literature |
| Product Compatibility and Download Center (PCDC) | Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes. | rok.auto/pcdc |

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