

docs

ATOM / Fieldbus / EtherNet/IP / RSLogix Studio 5000

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ATOM / Fieldbus / EtherNet/IP / RSLogix Studio 5000

Overview

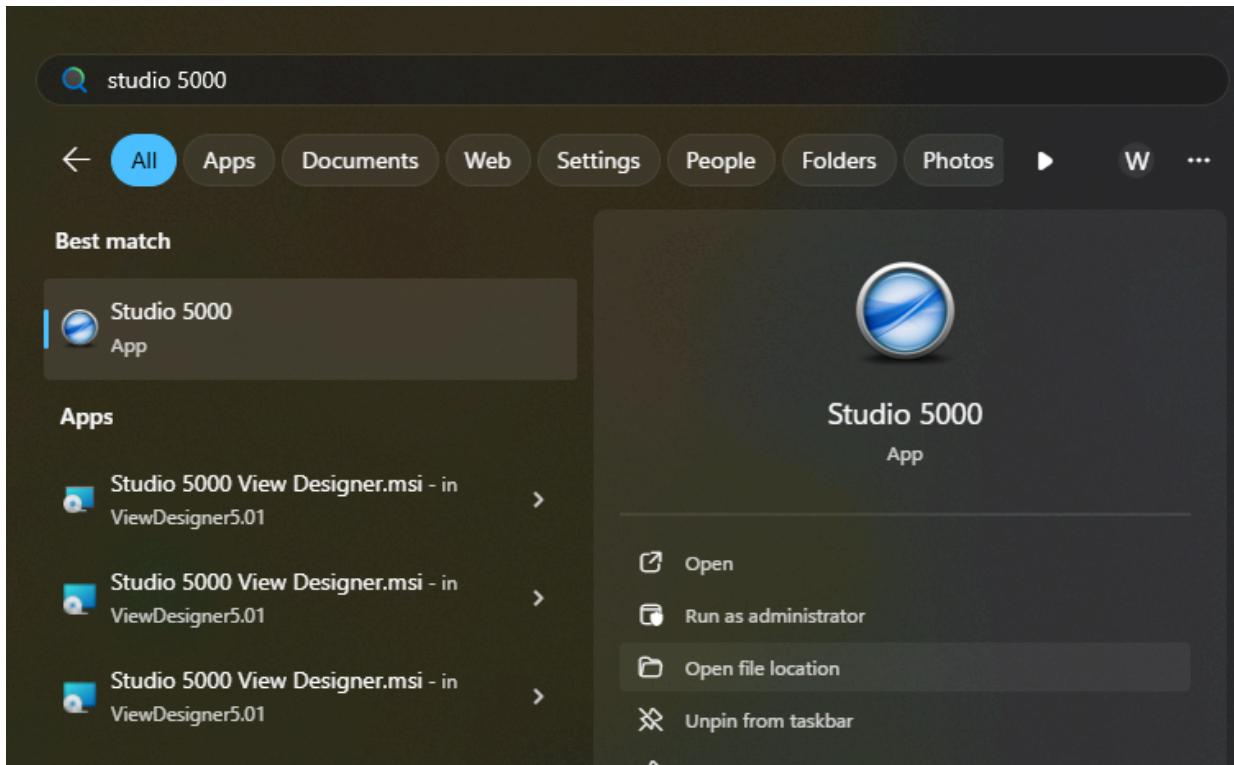
In this tutorial, you'll learn how to control ATOM over EtherNet/IP with RSLogix Studio 5000.

 **NOTE**

If you'd like to skip this tutorial, download the completed example project:
[AtomExampleStudio5000.zip](#).

Prerequisites

1. A PC with RSLogix Studio 5000 installed (See [Installation Troubleshooting](#) for help with installation issues):

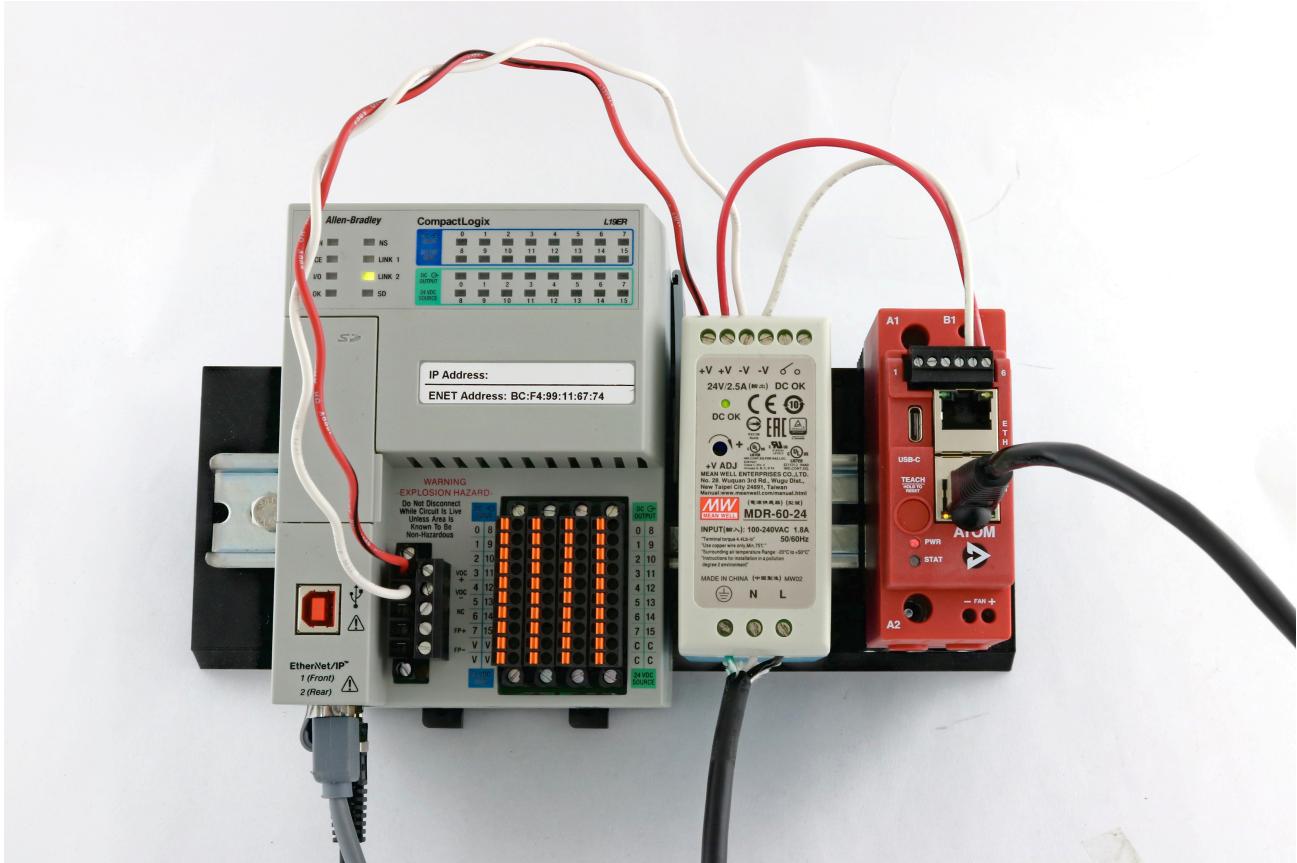


2. A Logix PLC - a CompactLogix 1769-L19ER-BB1B is used in this example, but you can follow along with any Logix PLC that supports EtherNet/IP.
3. Download ATOM's EDS file: [Atom.eds](#)

Hardware Setup

Connections:

- Connect port **1 (Front)** on your PLC to your PC
- Connect port **2 (Rear)** on your PLC to ATOM (either port)
- Connect a 24VDC power supply to ATOM and your PLC

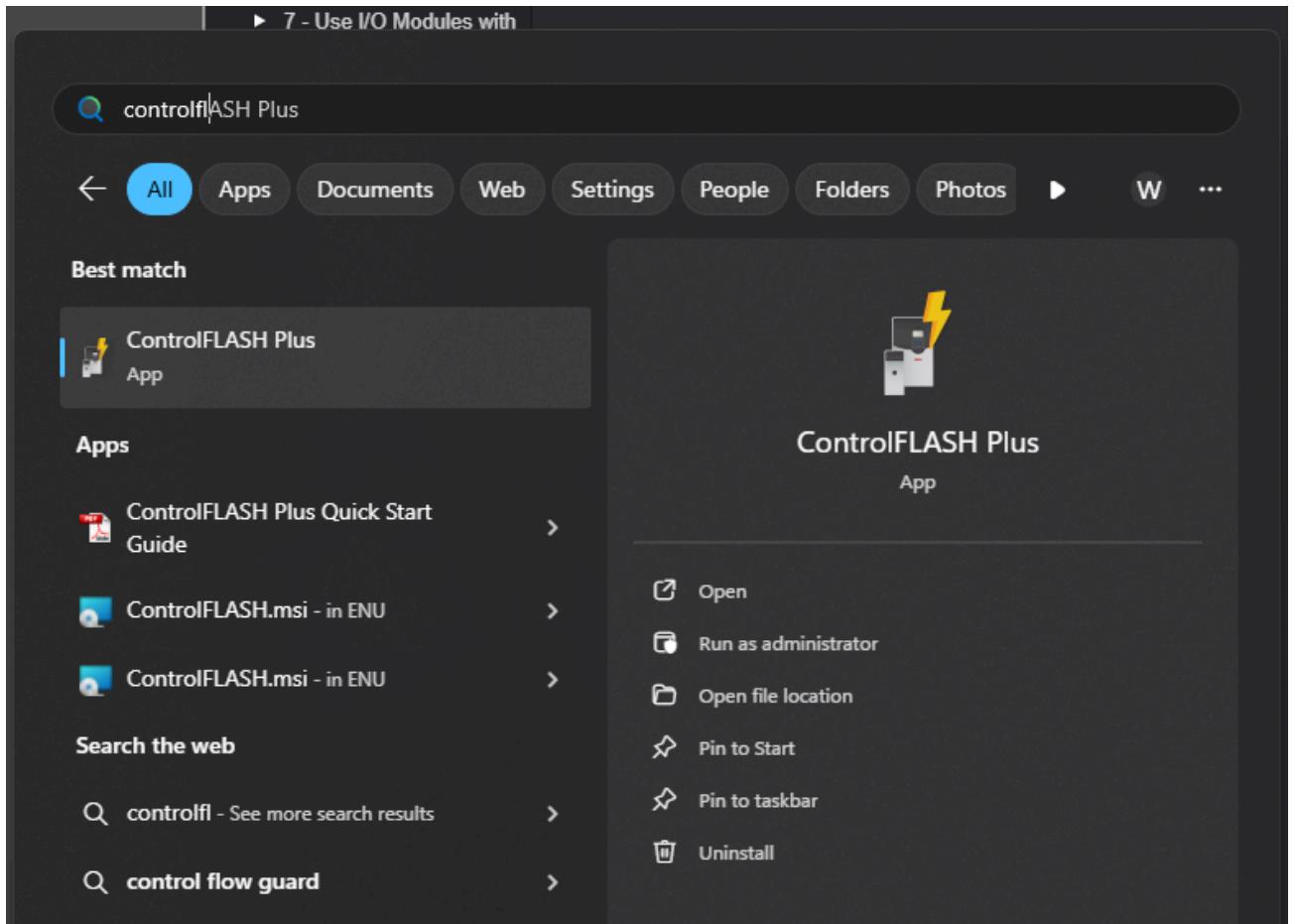


PLC Configuration

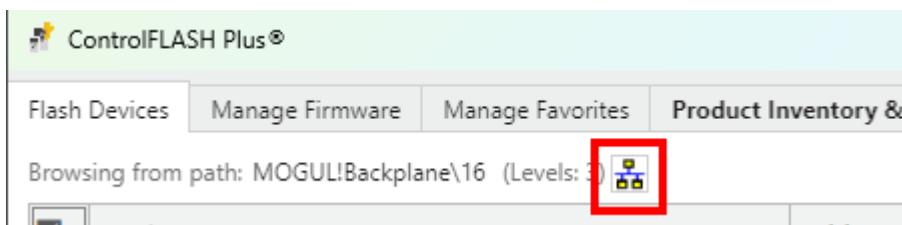
Upgrading firmware

Make sure to upgrade your PLC firmware to the lastest version to ensure compatibility with Studio 5000.

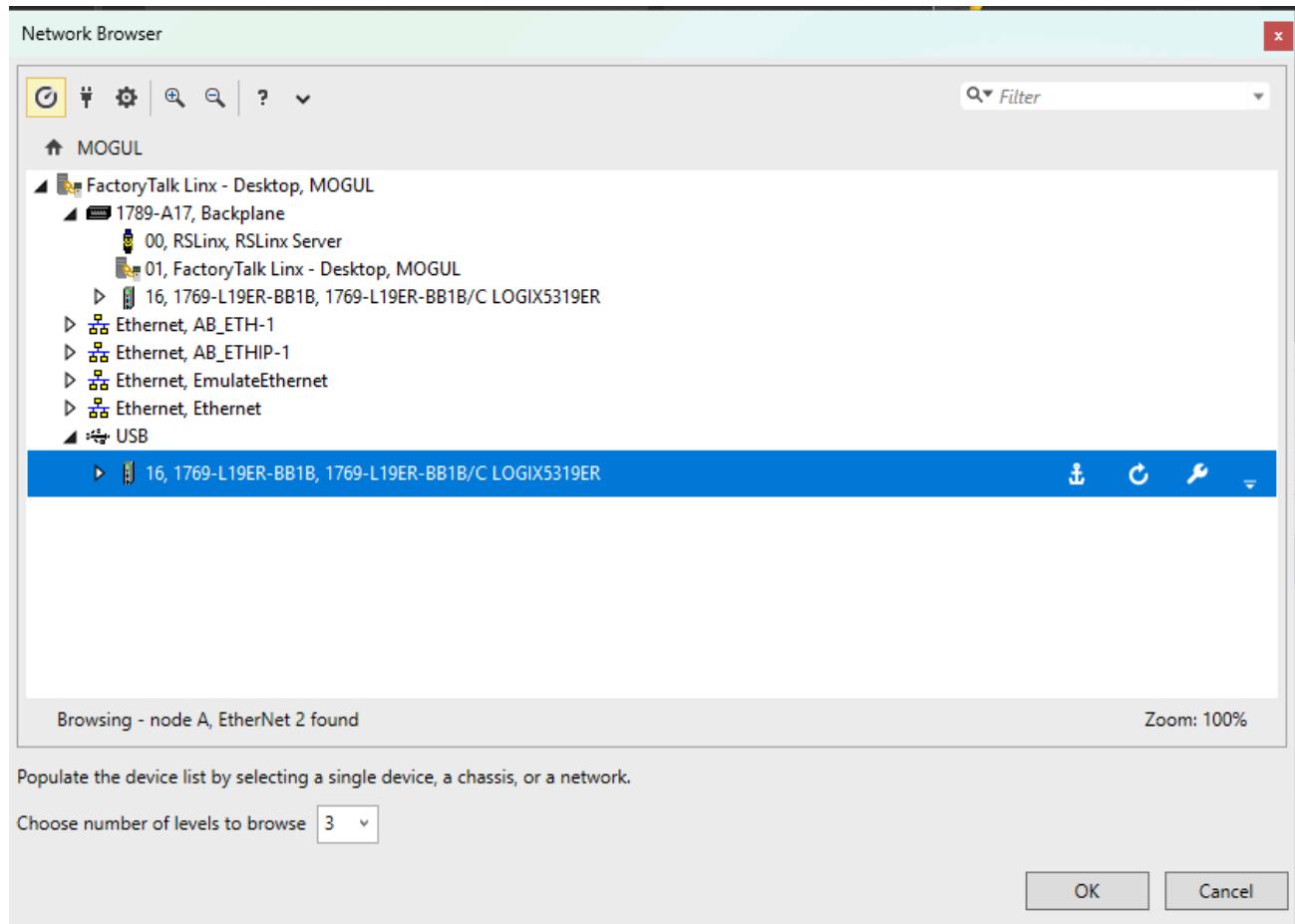
1. Connect your Logix PLC to your PC with a USB cable.
2. Launch **ControlFLASH Plus**:



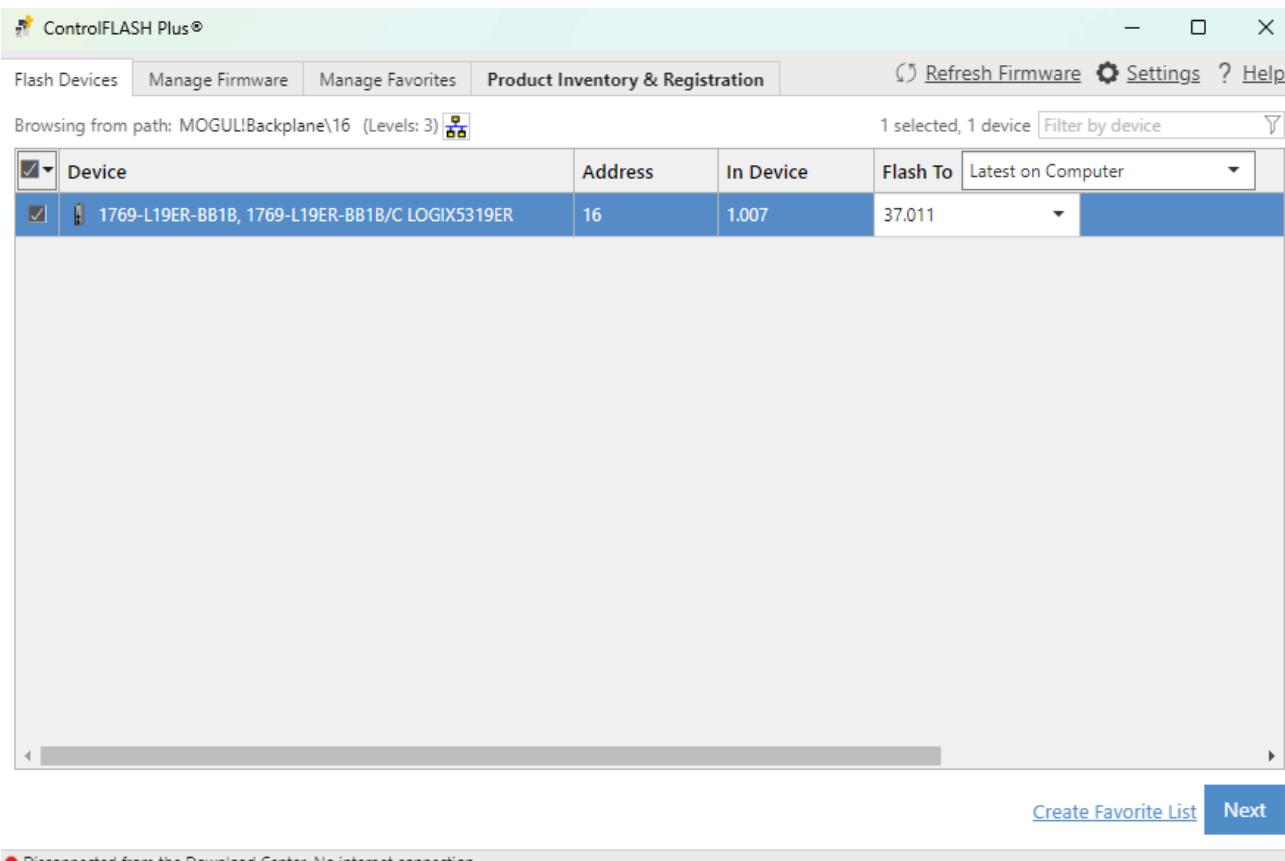
3. Open the network browser:



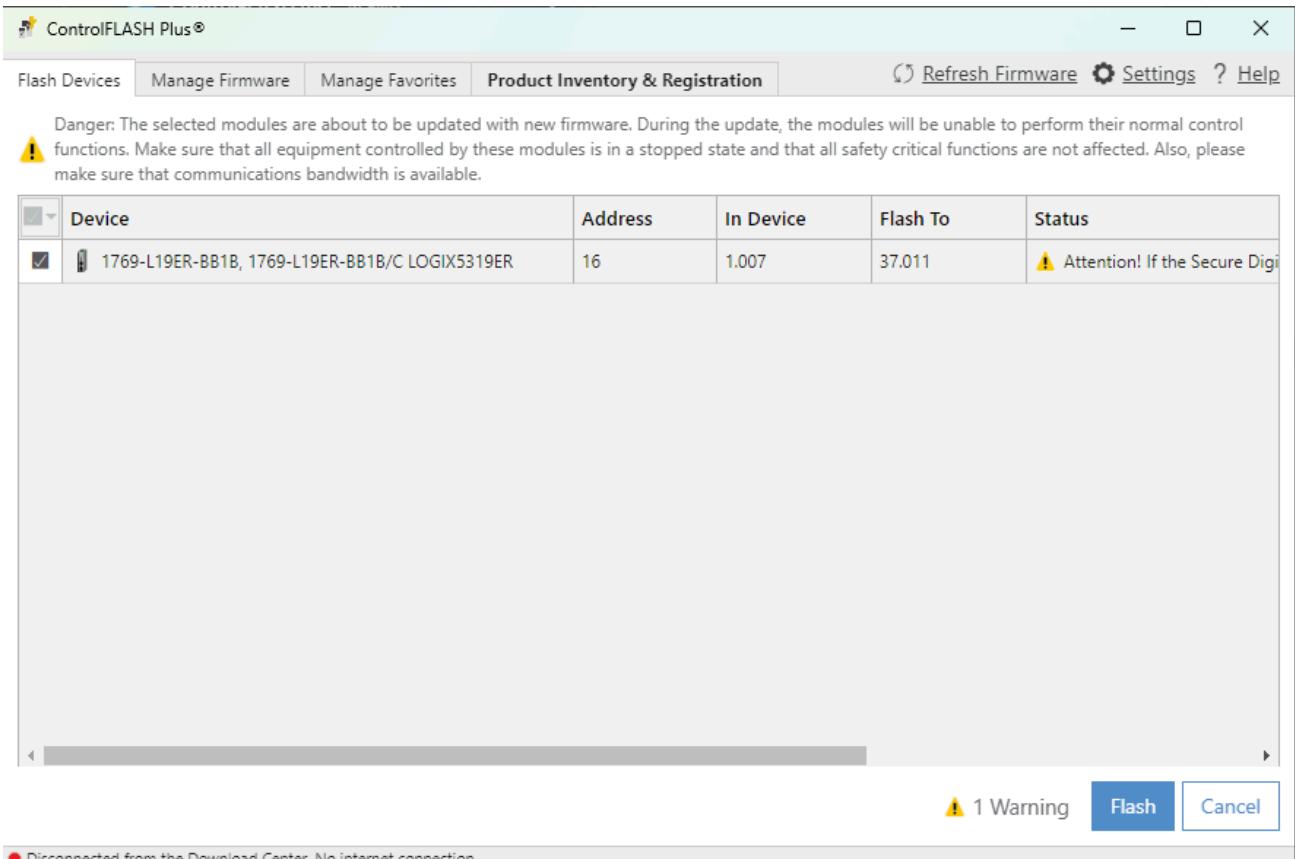
4. Select your PLC under the **USB** category:



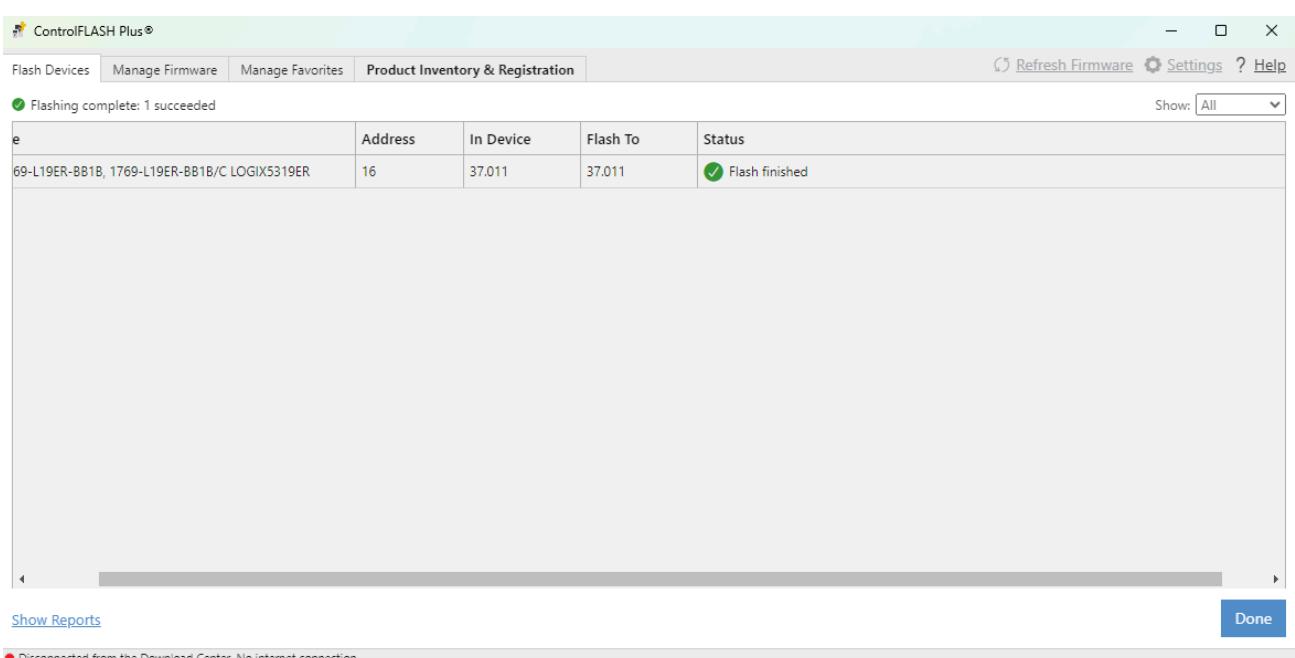
5. Select the device and latest firmware version, then click **Next**:



6. Click **Flash**:

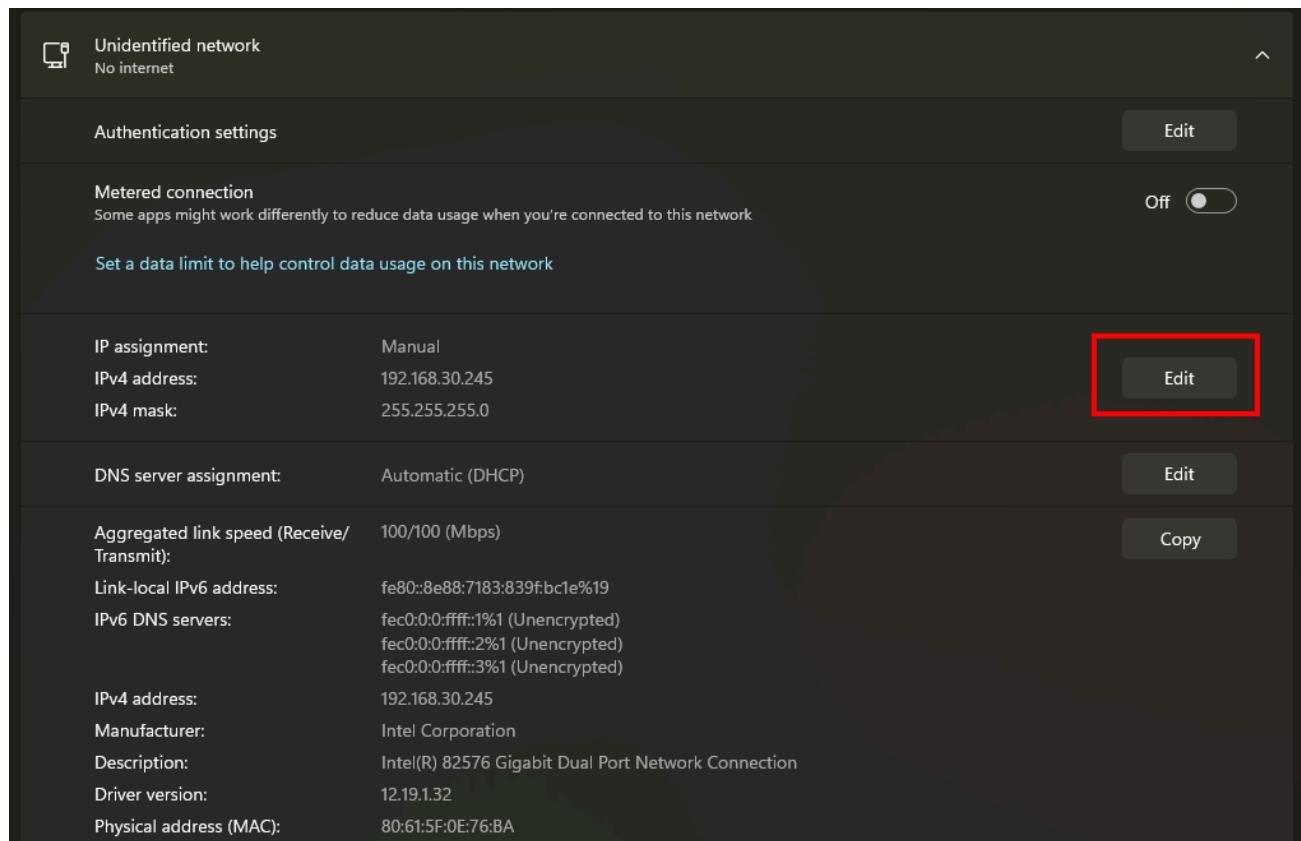


7. After flashing succeeds, reboot your PLC.



Configuring your PC's network settings

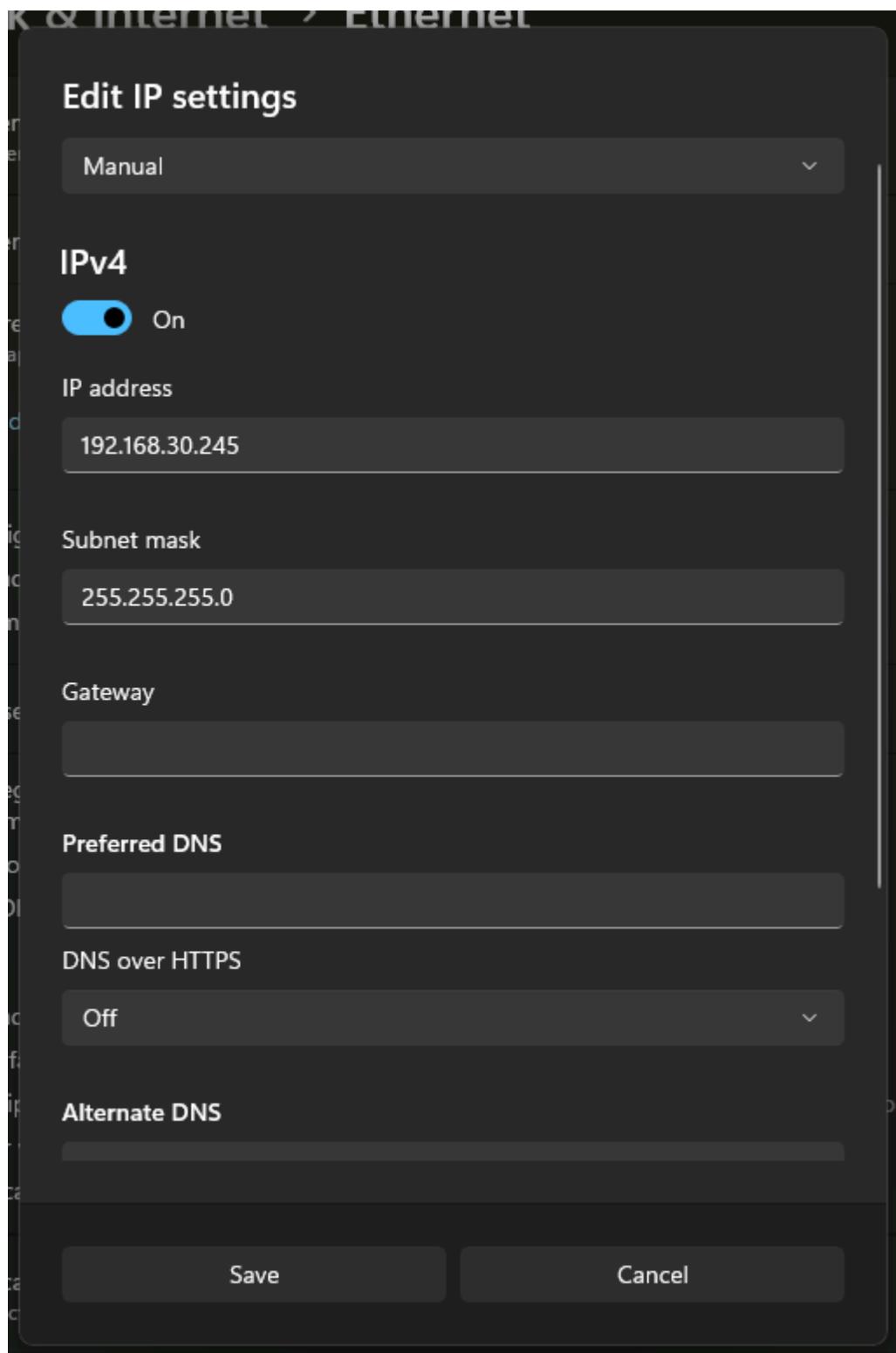
1. Open your PC's network settings and select edit on the Ethernet adapter connected to your PLC:



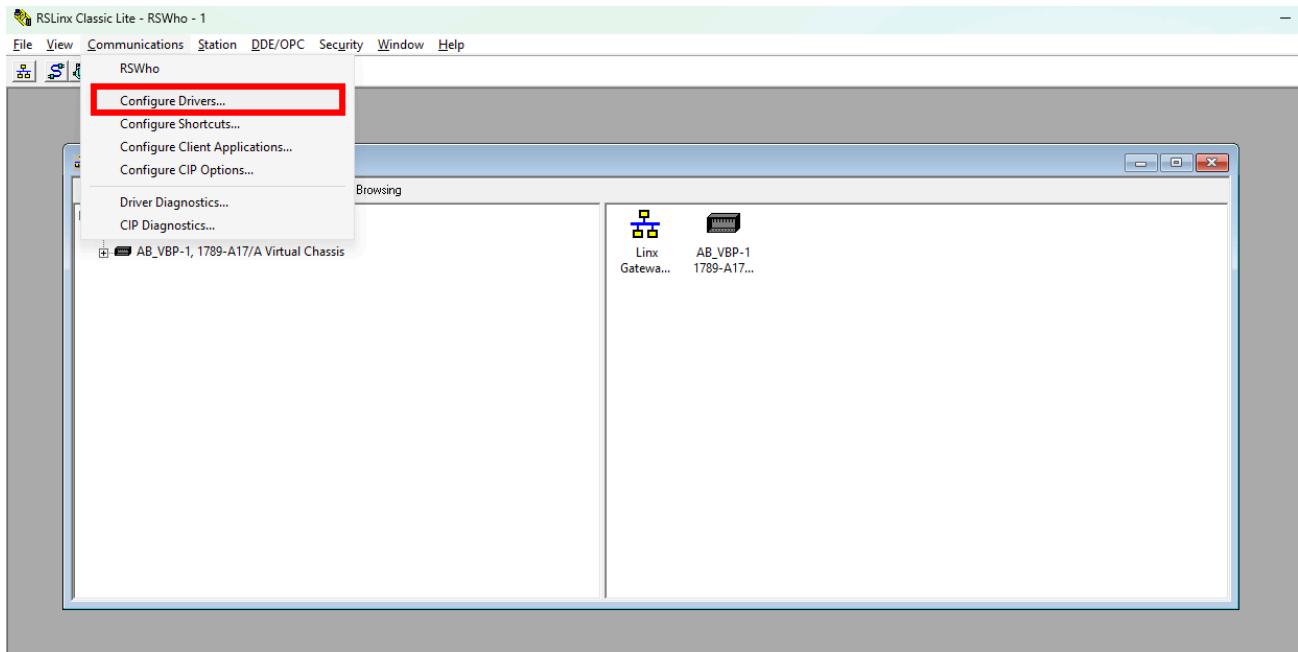
2. In the **Edit IP Settings** dialog, set:

- **IP Address:** 192.168.30.245
- **Subnet Mask:** 255.255.255.0

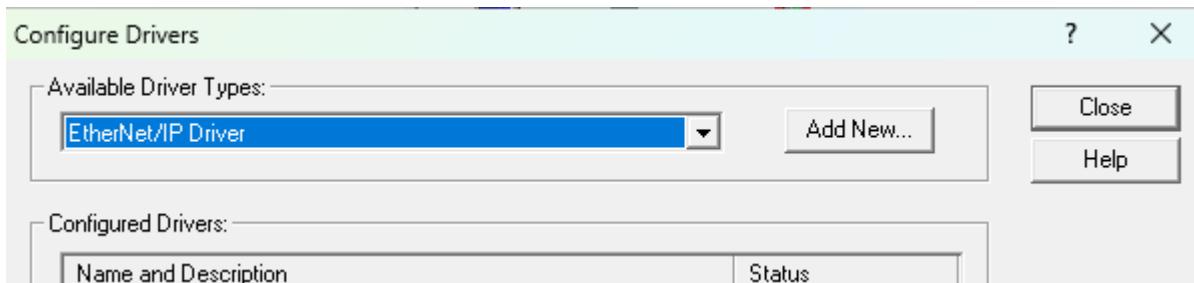
Click **Save** to apply the settings.



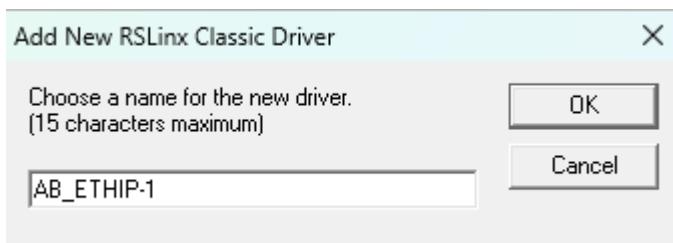
3. Open RSLogix Classic and select **Communications > Configure Drivers:**



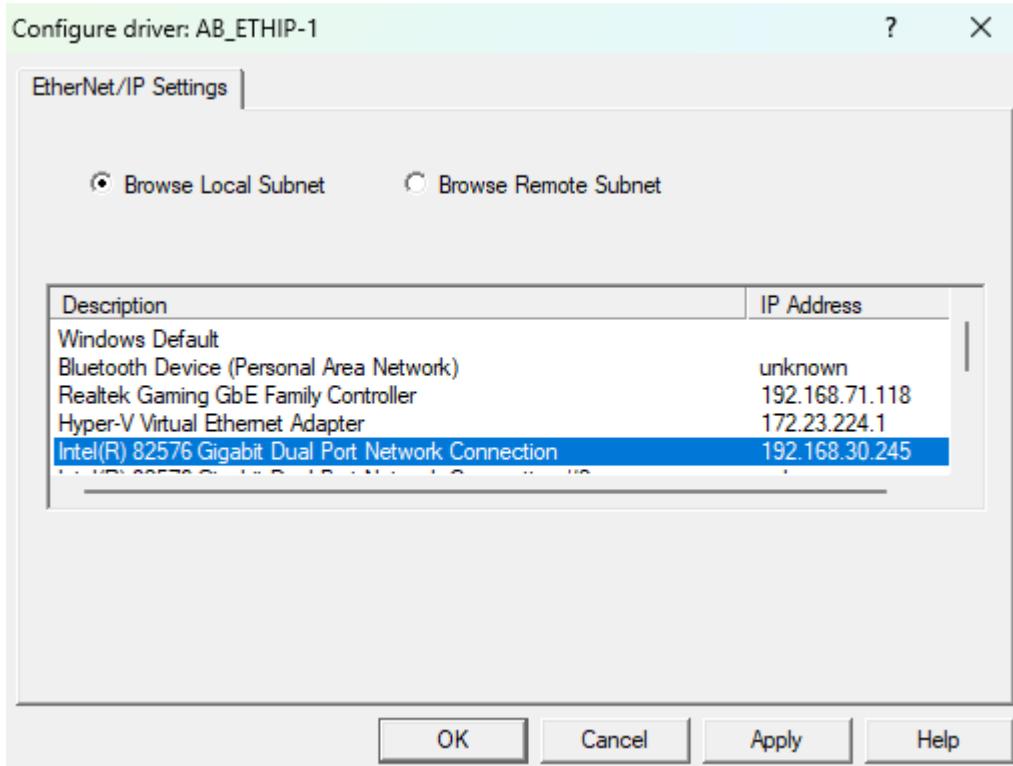
4. Select **EtherNet/IP Driver** and click **Add New**:



5. Click **OK** to add the driver:

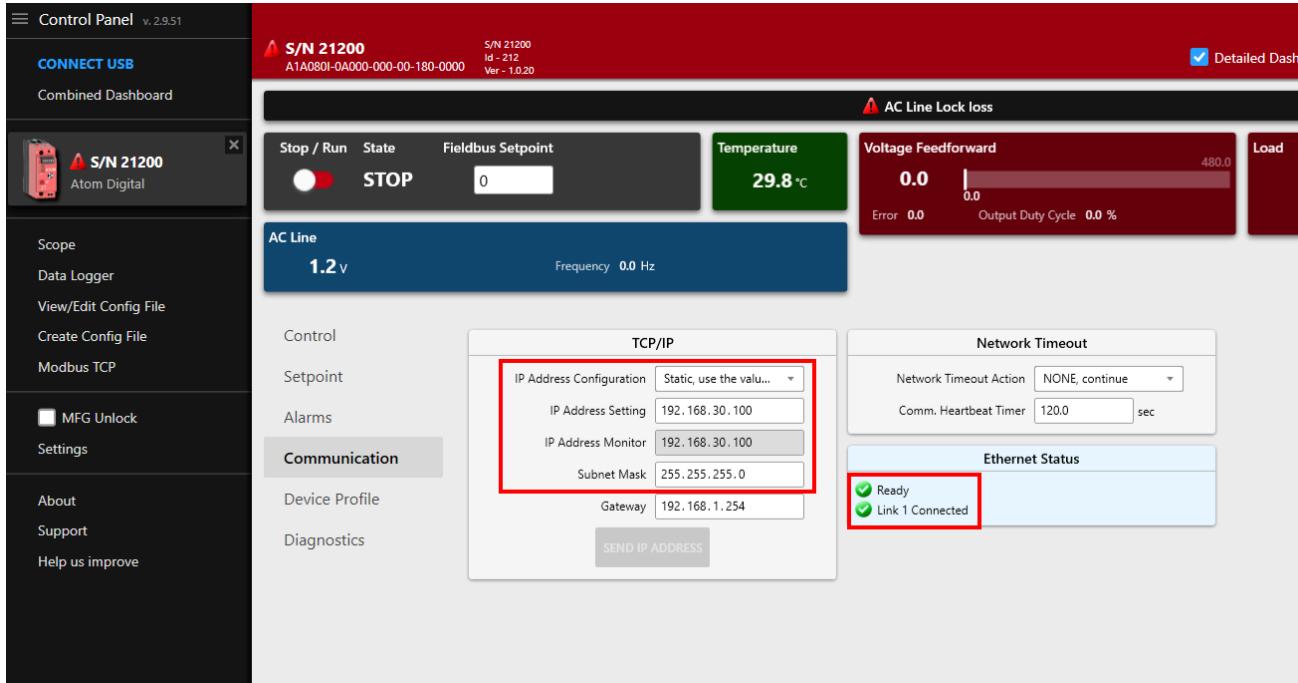


6. Select the adapter with IP address **192.168.30.245**, then hit **Apply** and **OK**:



ATOM Configuration

1. Connect ATOM to your PC using a USB-C cable. Launch **Control Panel** and connect to your ATOM. In the **Network** tab, set the following:
 - **IP Address Configuration:** **Static**
 - **IP Address:** **192.168.30.100**
 - **Subnet Mask:** **255.255.255.0**

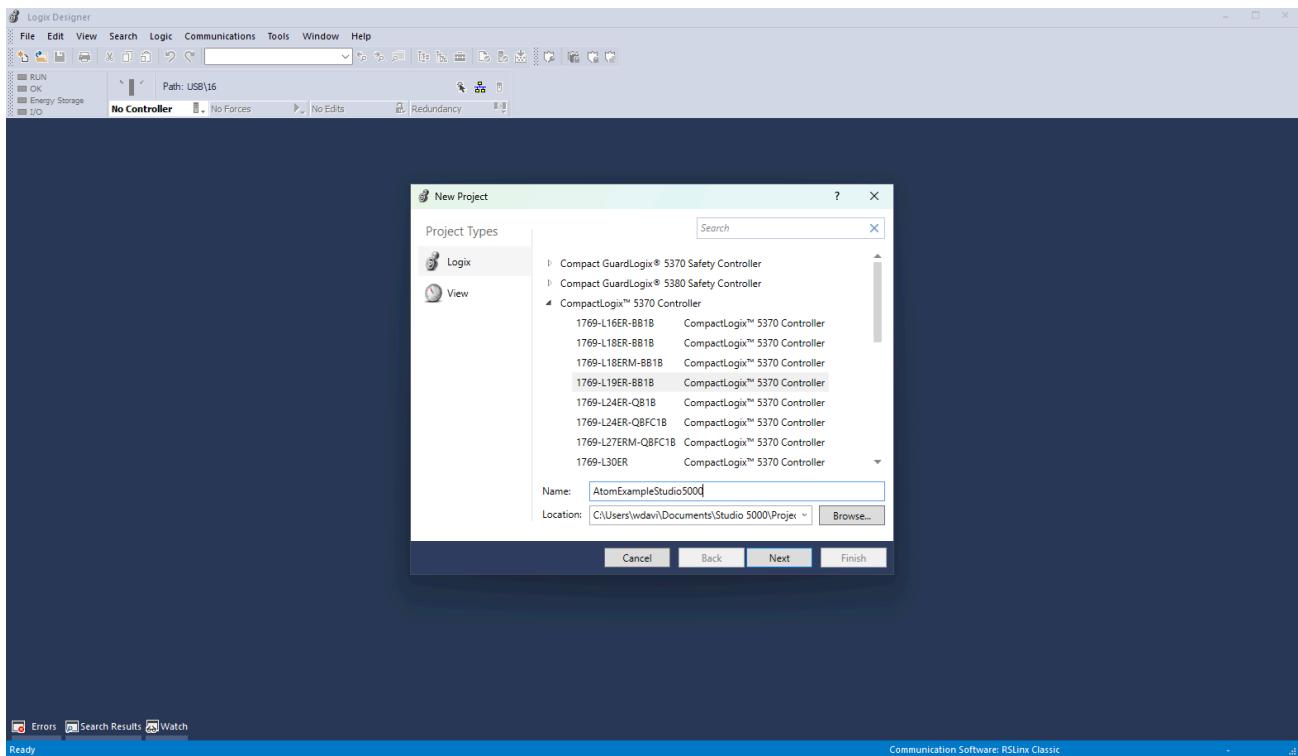


Create a Studio 5000 project and connect to your PLC

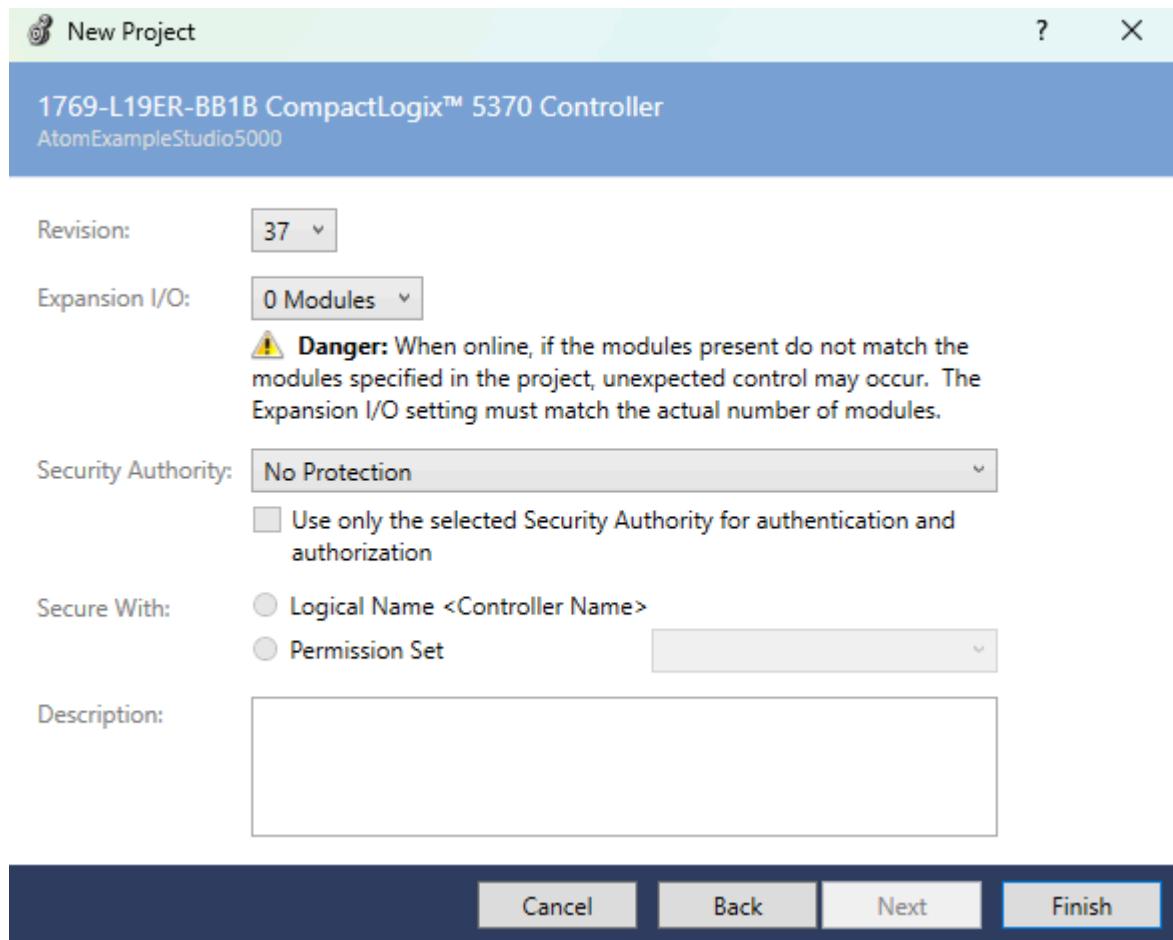
1. Launch Studio 5000, select **File > New Project**. Name the project

AtomExampleStudio5000 and select **1769-L19ER-BB1B** (CompactLogix 5370). Click

OK:

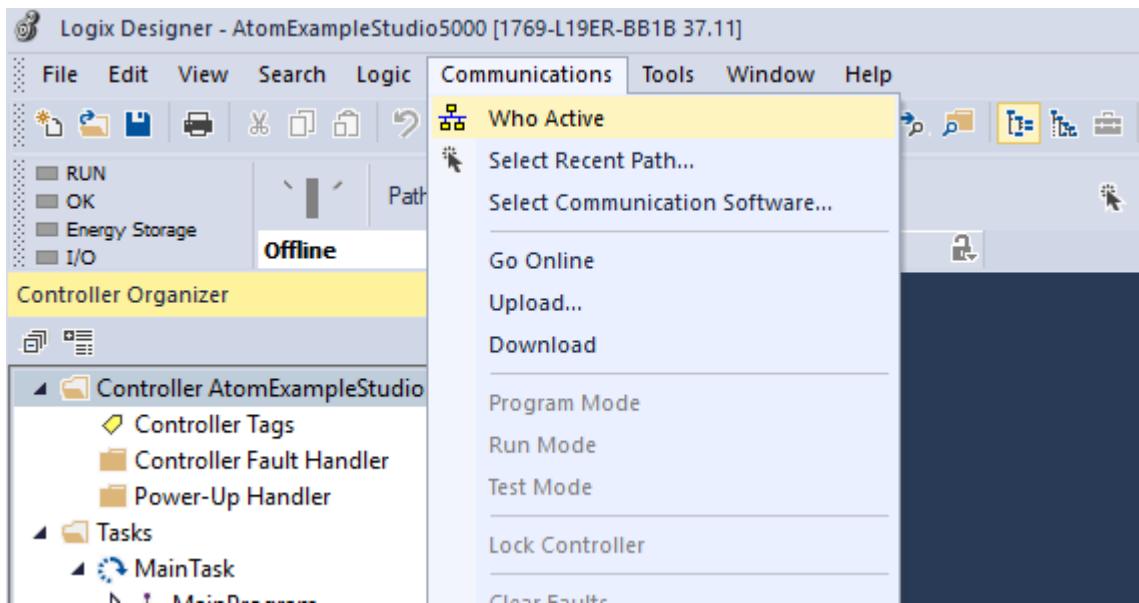


2. Select **0 Modules** under Expansion I/O, then click **Finish**:

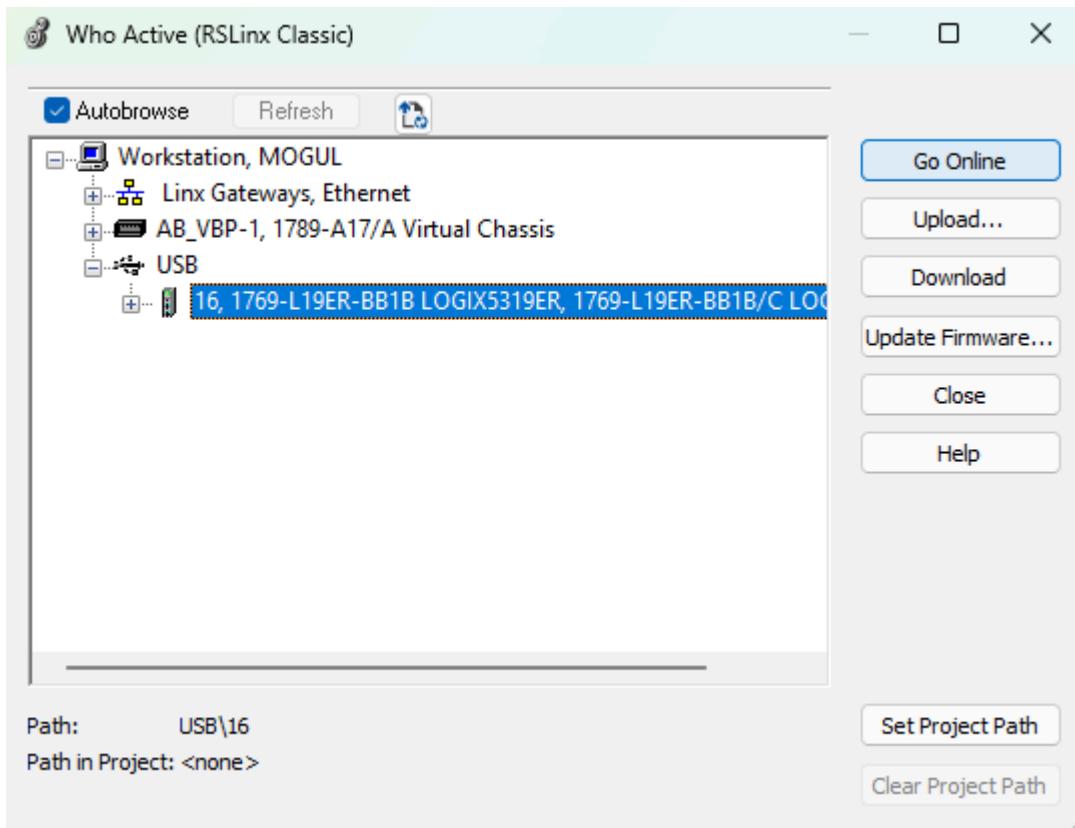


3. Connect your PLC to your PC with a USB-B cable. In Studio 5000, select

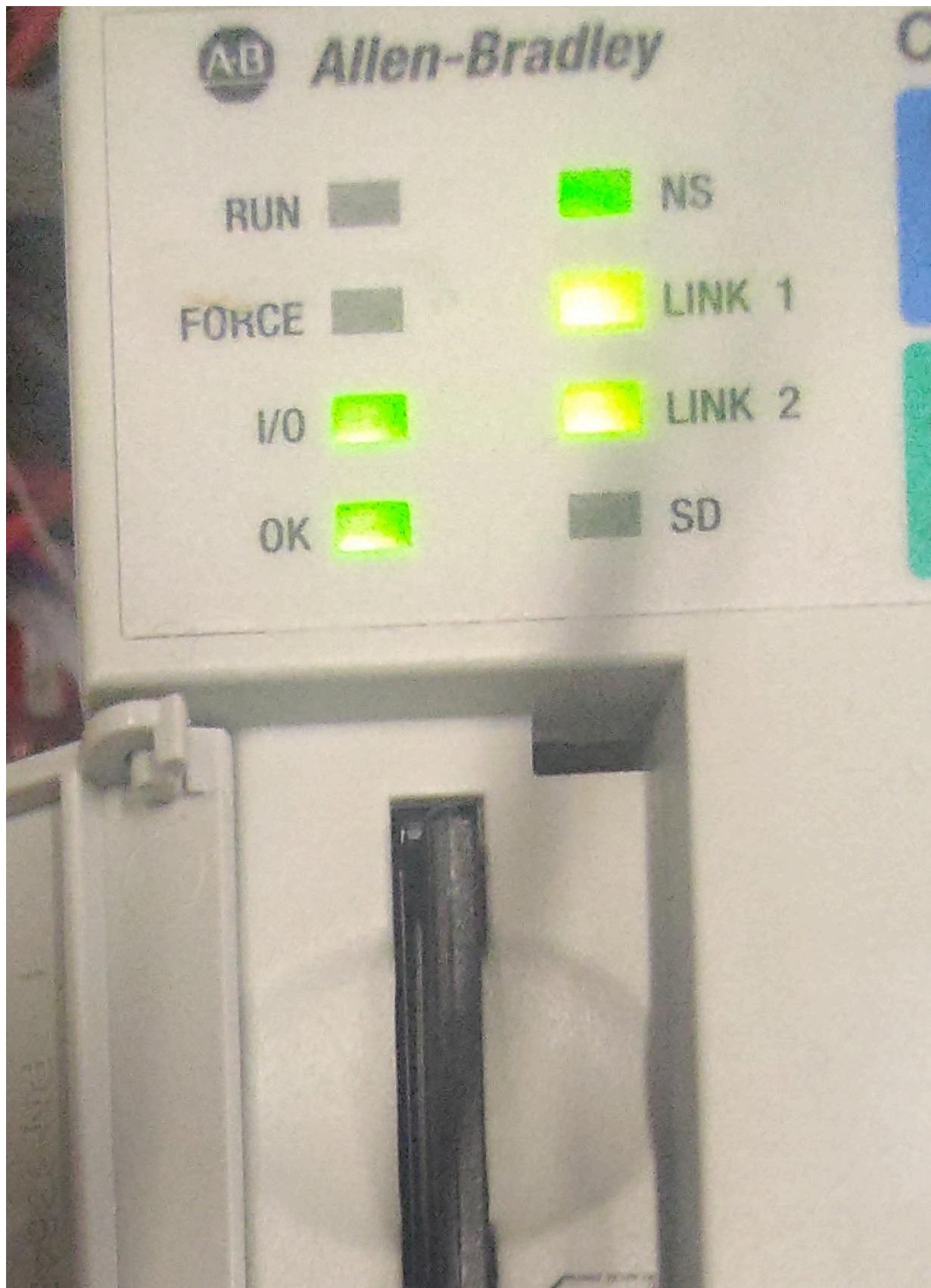
Communications > Who Active:



4. Select your PLC under the USB category and click **Go Online**:

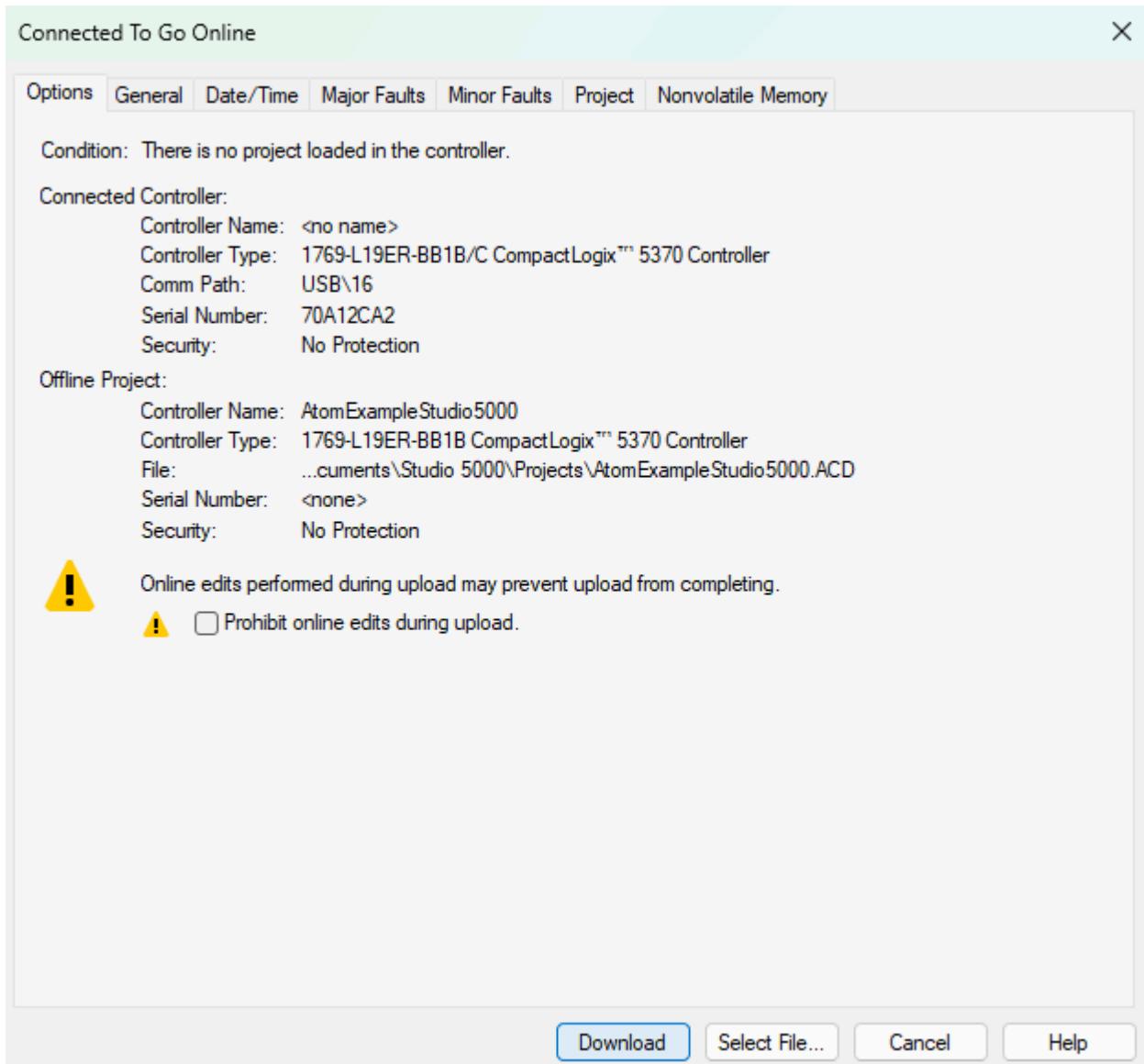


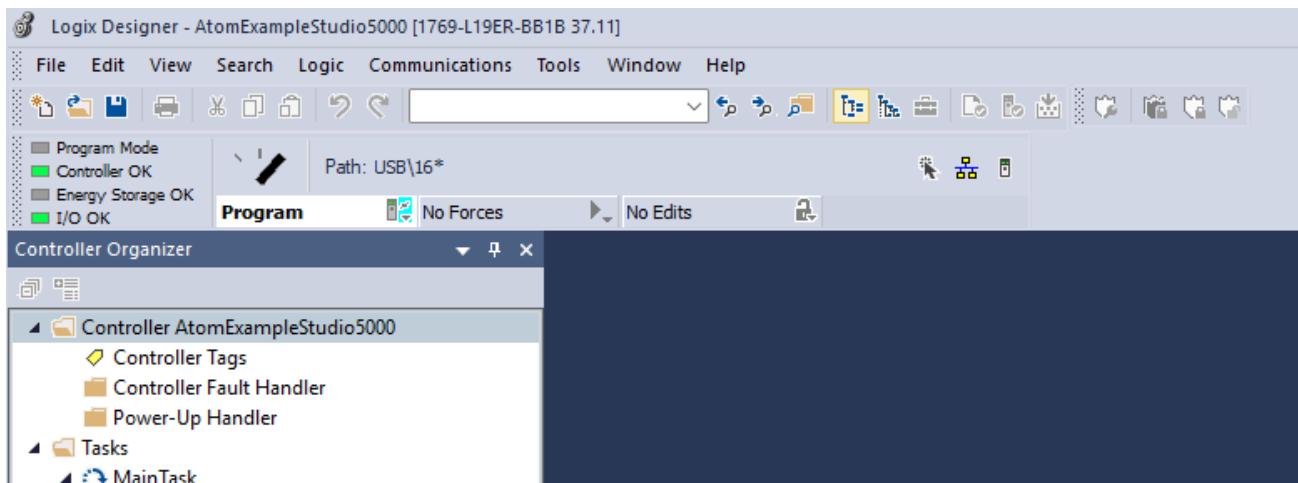
Ensure the switch on your PLC is set to **PROG** mode before downloading.



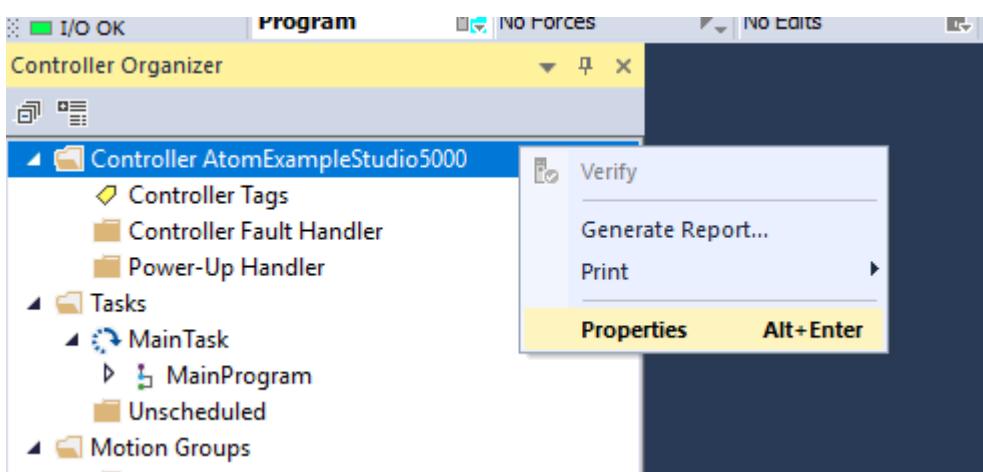


5. Select **Download** and double check that the **Controller OK** indicator light turns green:



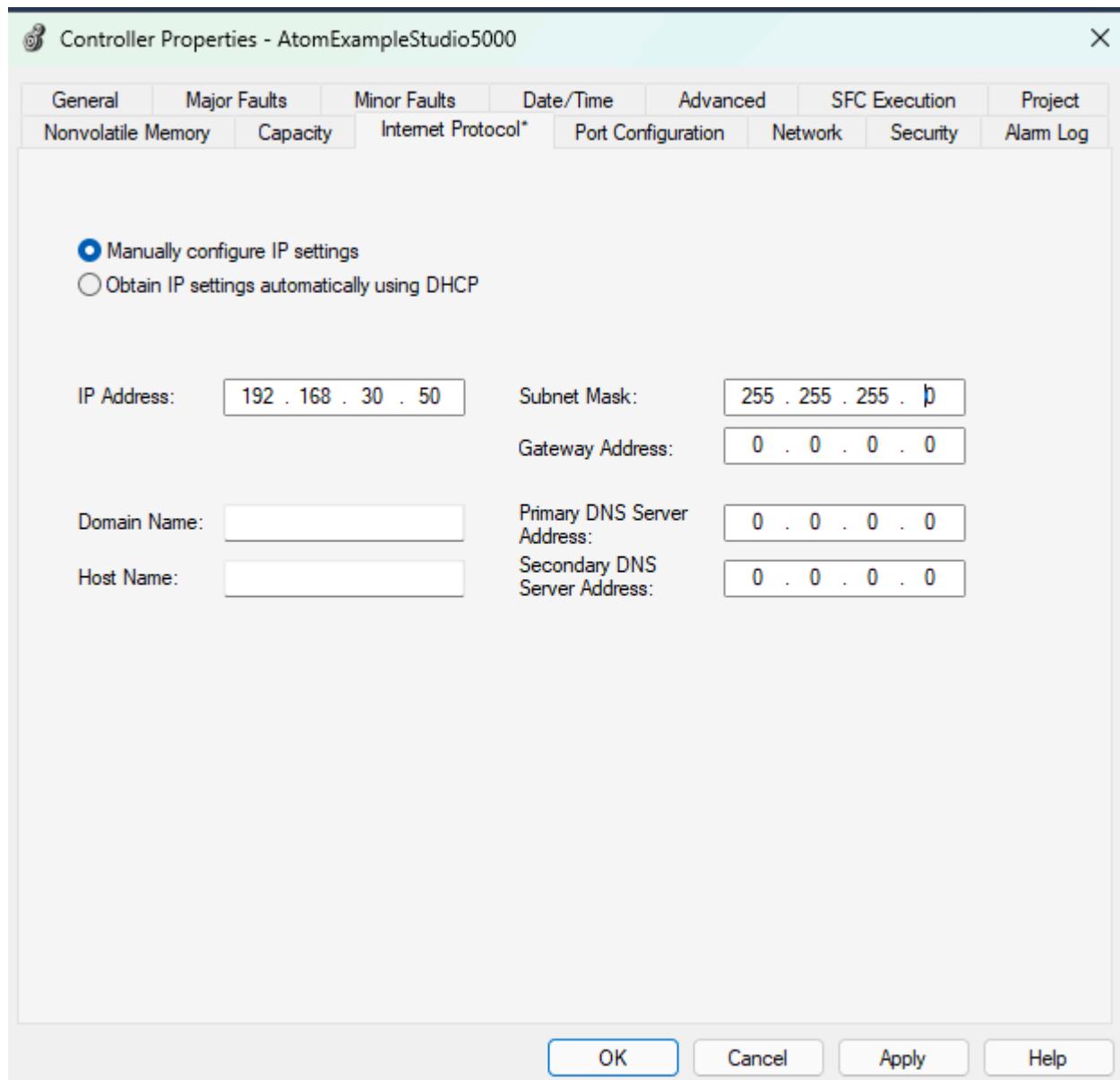


6. Right click **Controller AtomExampleStudio5000** and select **Properties**:

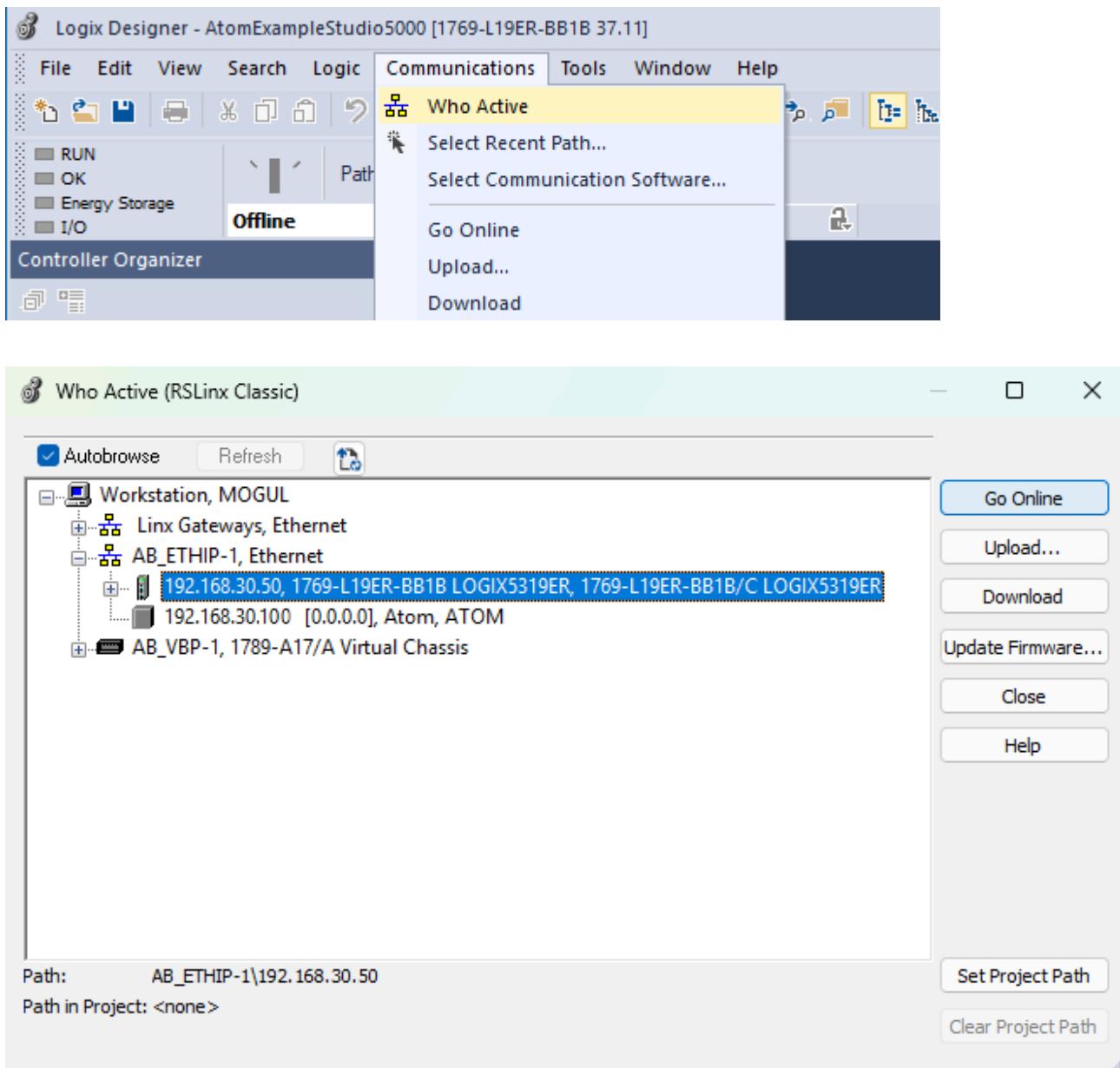


7. In the **Internet Protocol** tab, set the following and hit **Apply** and **OK**:

- Manually configure IP settings checked
- **IP Address:** 192.168.30.50
- **Subnet Mask:** 255.255.255.0



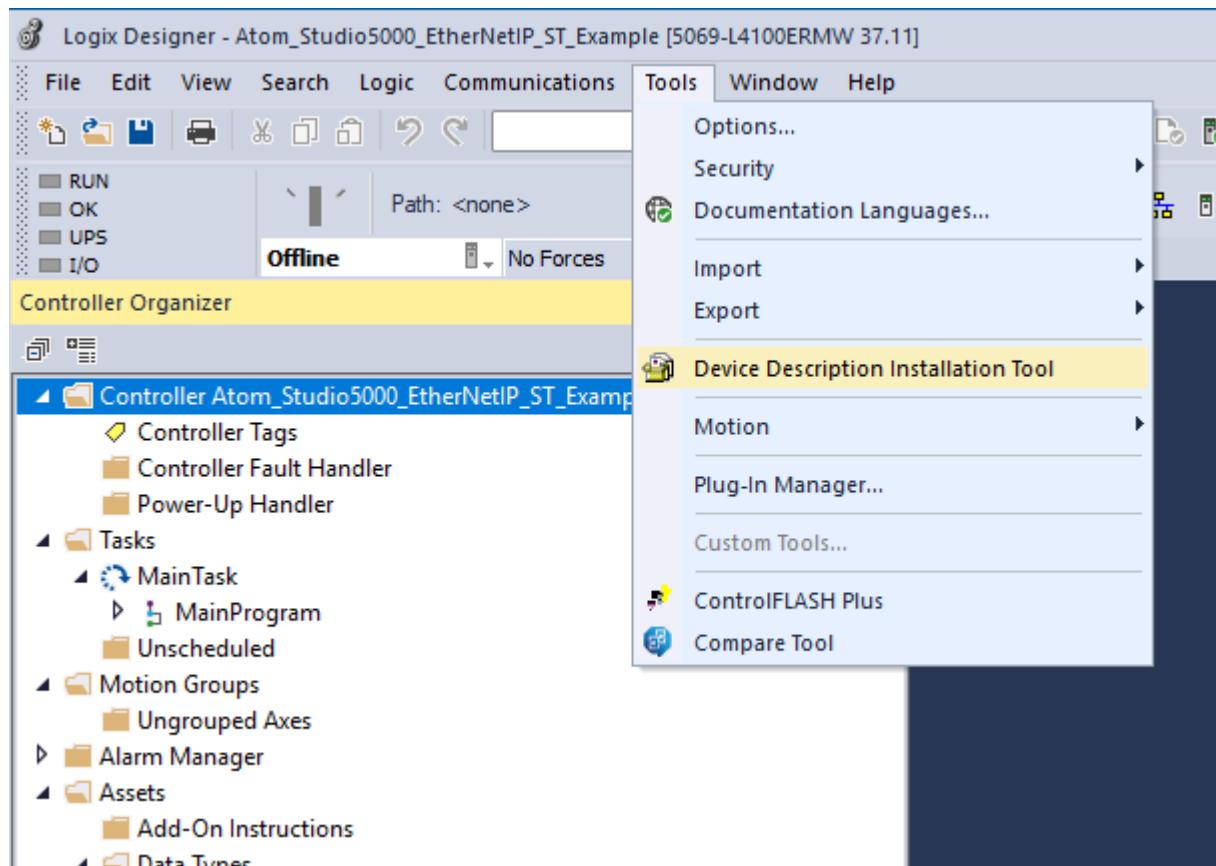
8. Disconnect the USB cable from your PLC. In Studio 5000, select **Communications > Who Active** again, then select your PLC under the Ethernet category and click **Go Online**:

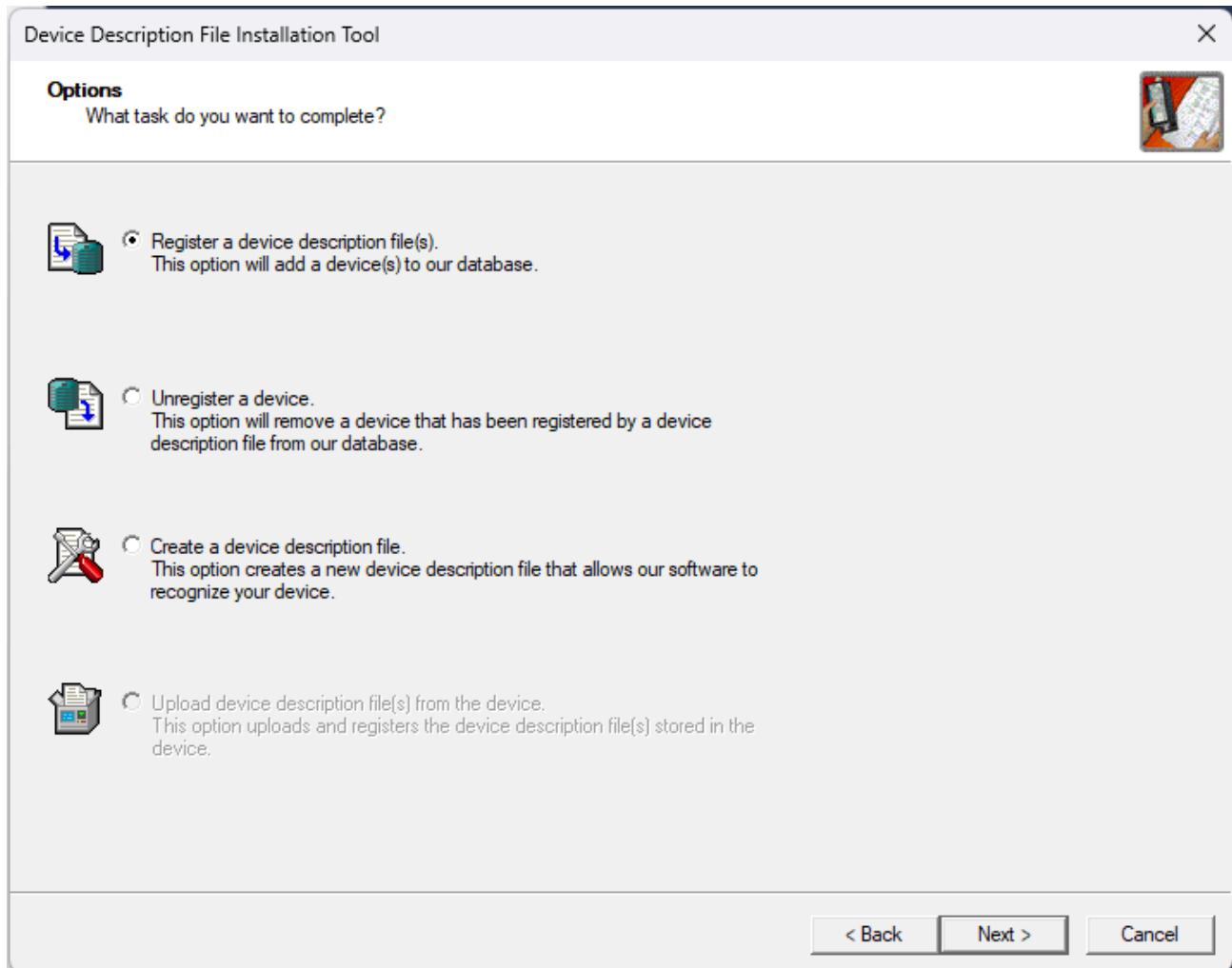


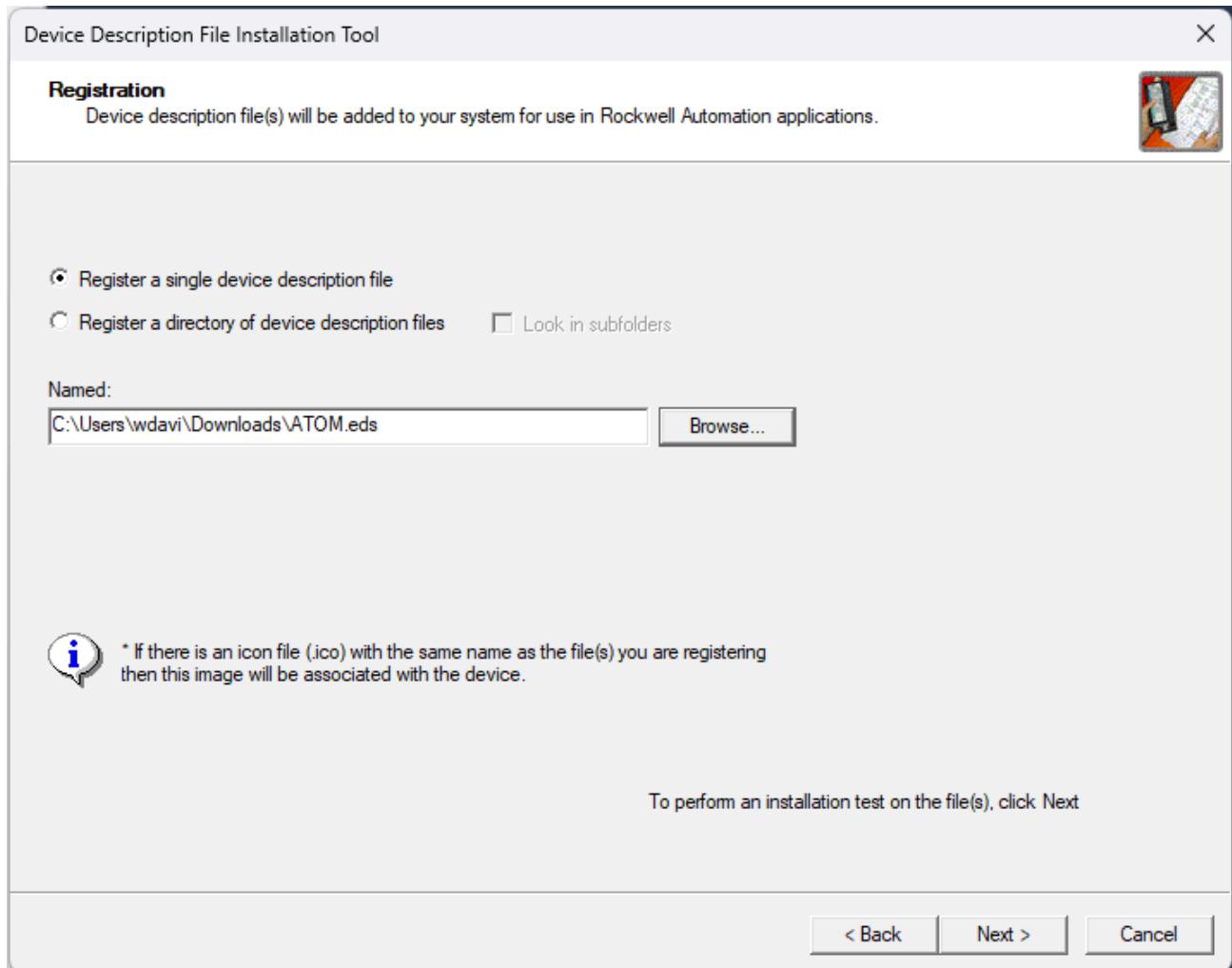
You should also see ATOM (with IP address 192.168.30.100) under the AB_ETHIP-1 category.

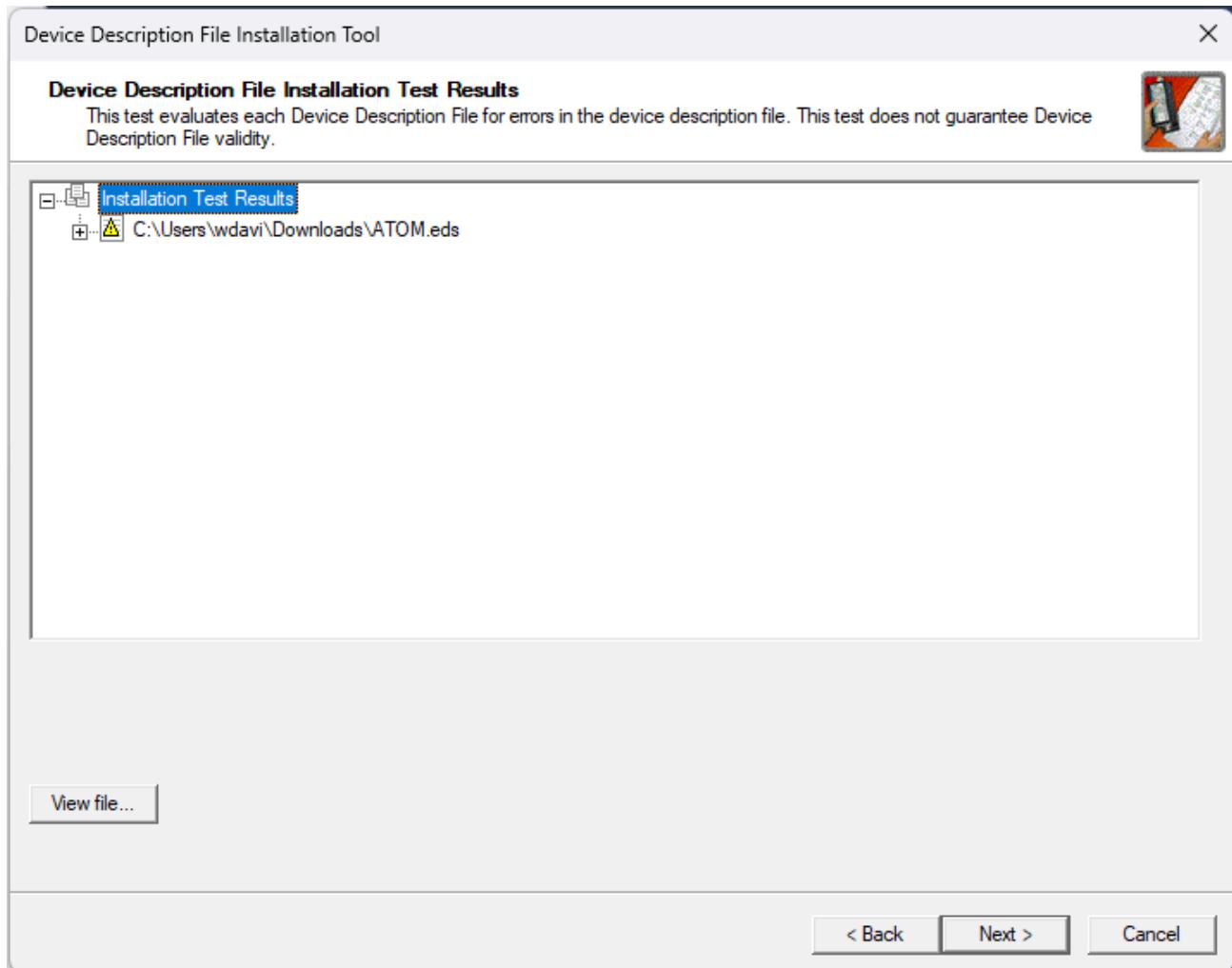
Import EDS file

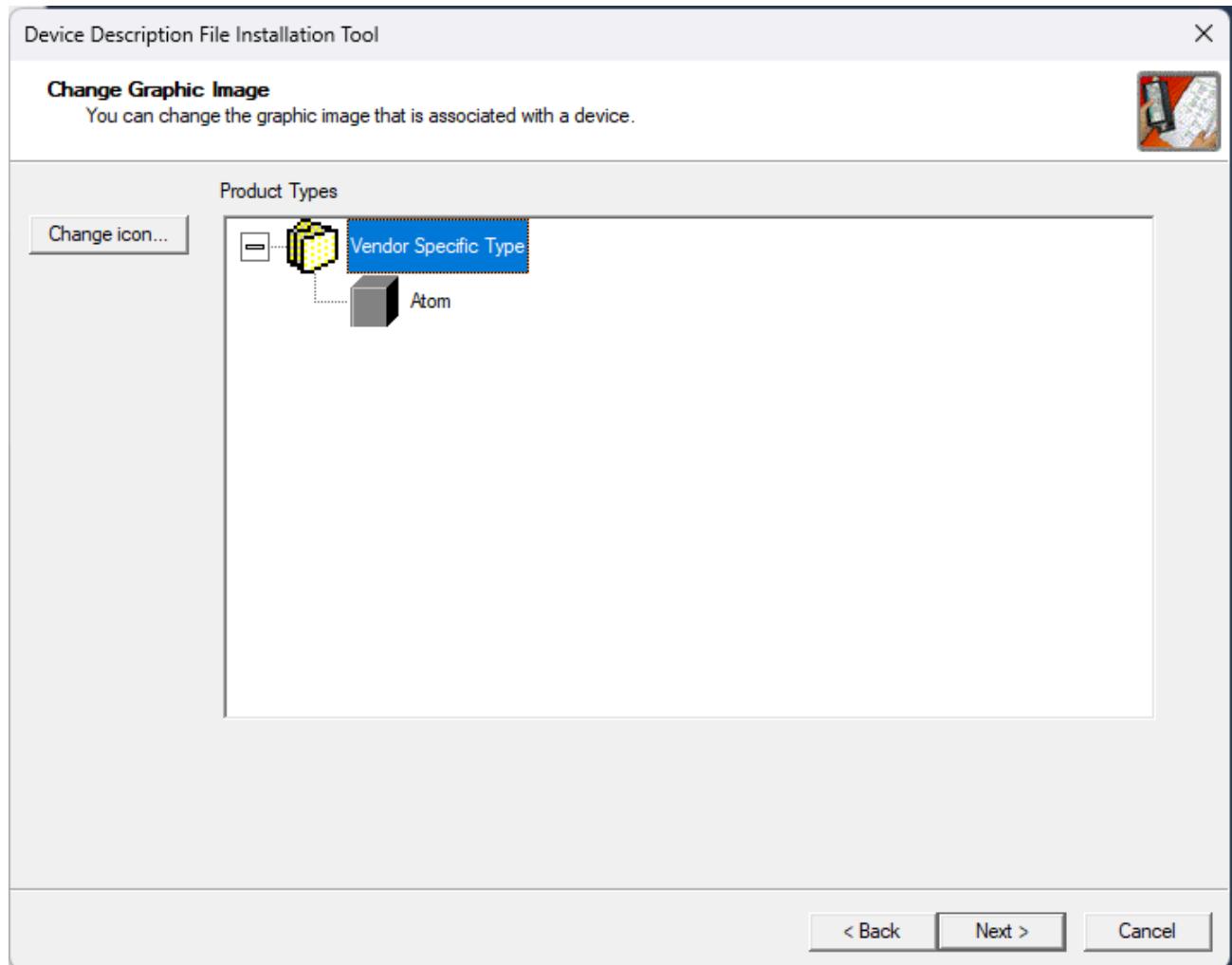
Select **Tools > Device Description Installation Tool** (some versions call it **EDS Hardware Installation Tool**)

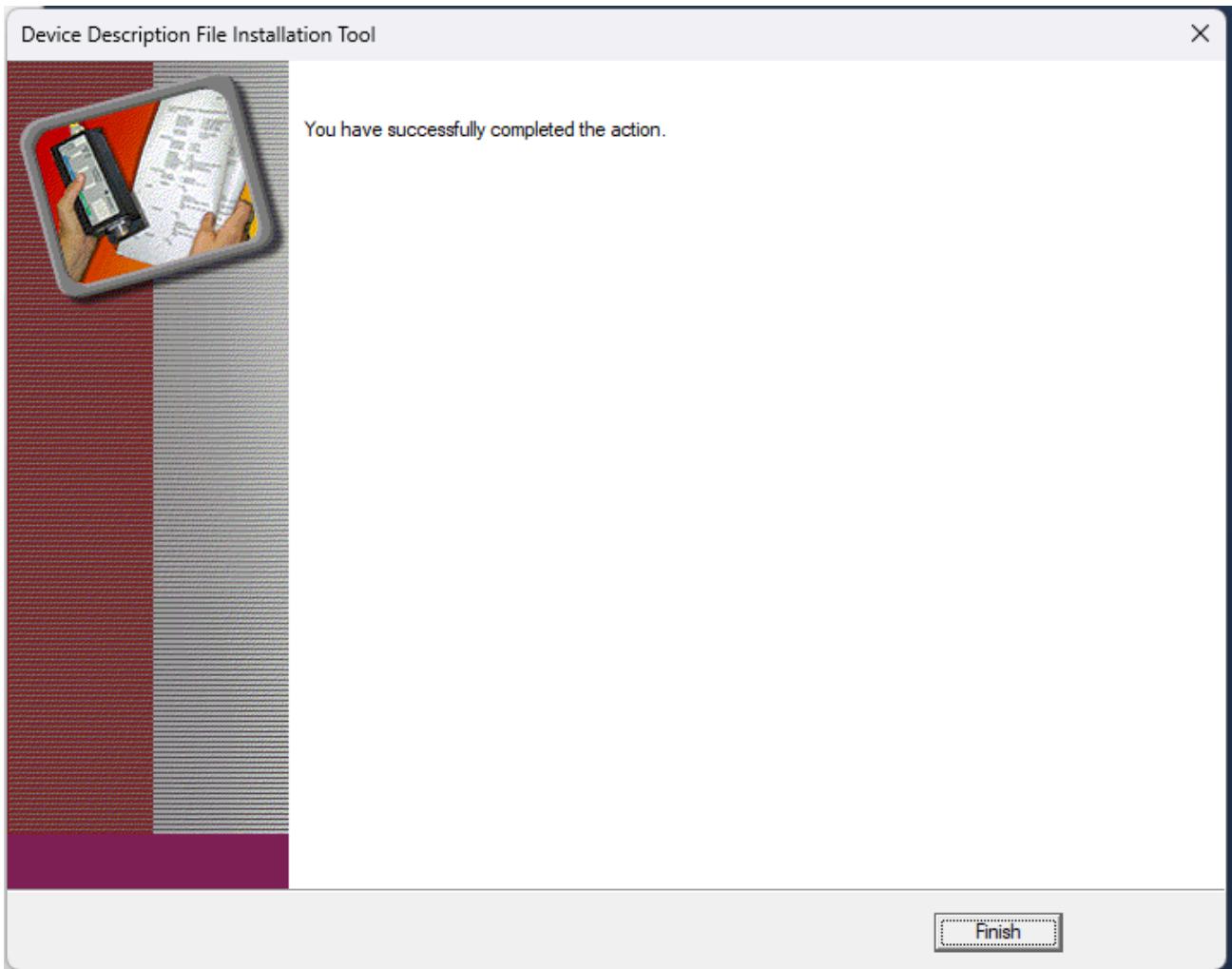






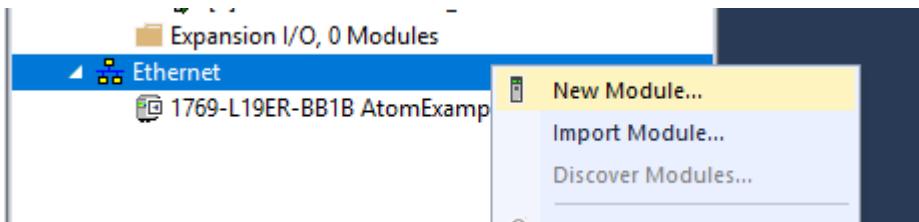






Add Atom to the project

1. Right-click **Ethernet** and select **New Module**:



2. In the **Catalog** tab, search for **Atom**, select it, and click **Create**:

Select Module Type

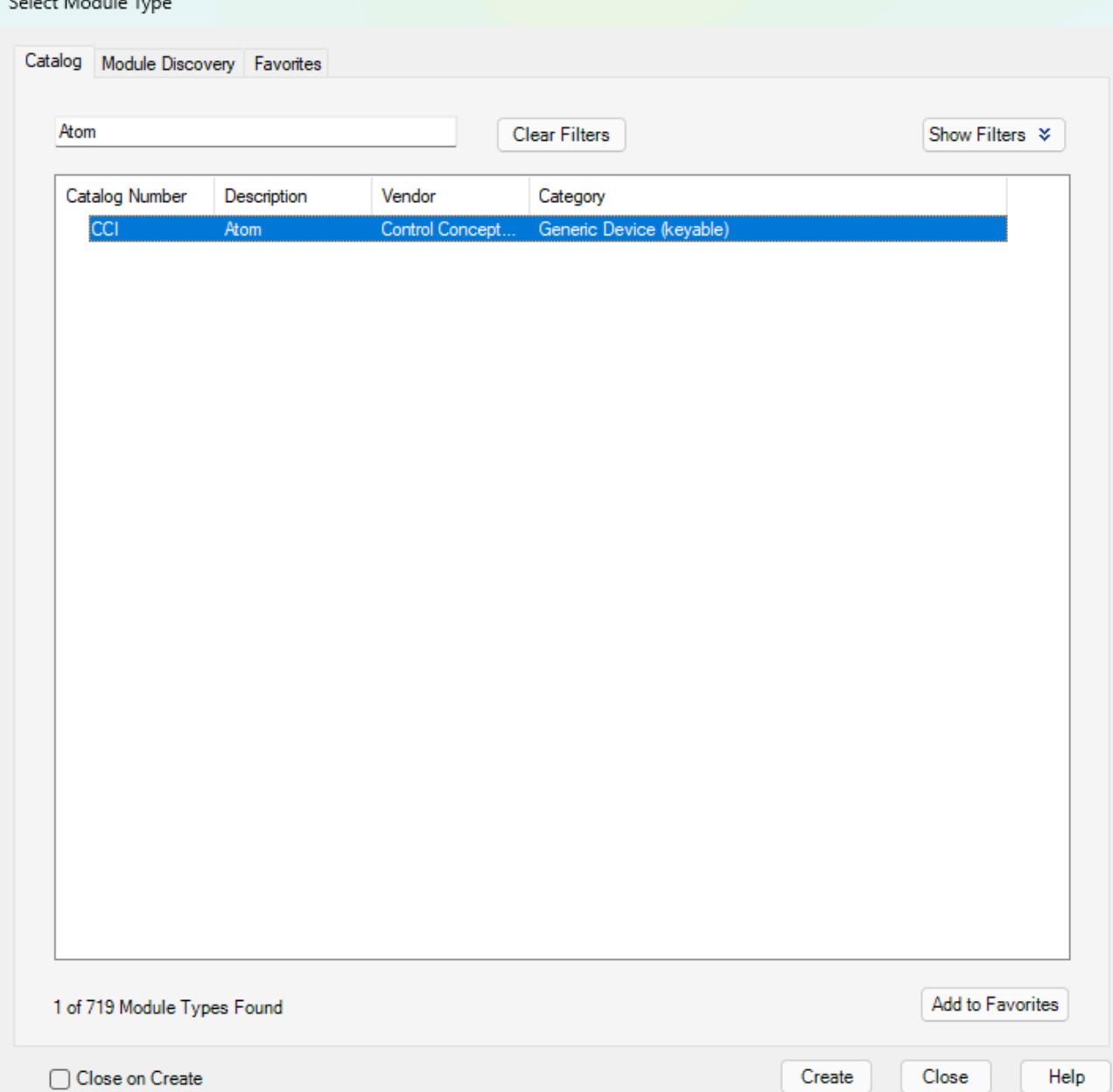
Catalog Module Discovery Favorites

Atom Clear Filters Show Filters

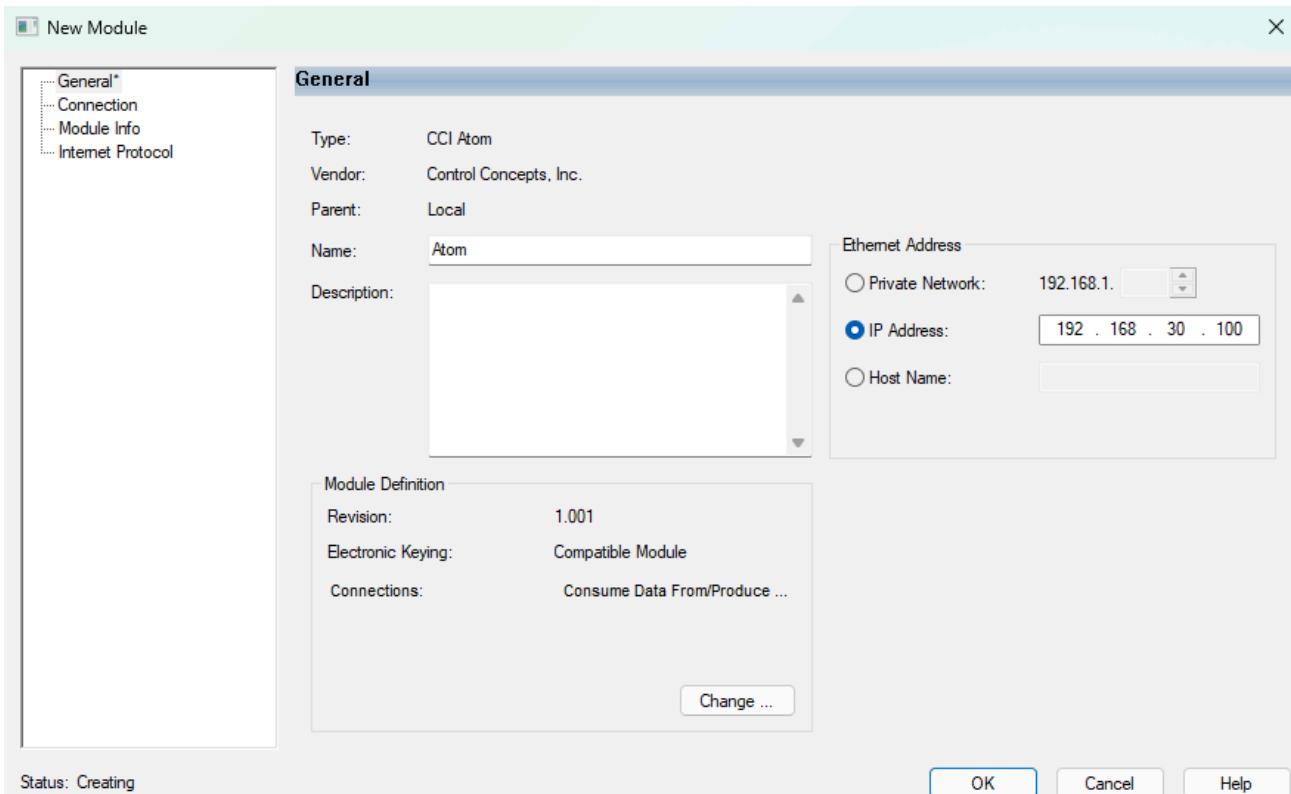
Catalog Number	Description	Vendor	Category
CCI	Atom	Control Concept...	Generic Device (keyable)

1 of 719 Module Types Found Add to Favorites

Close on Create Create Close Help

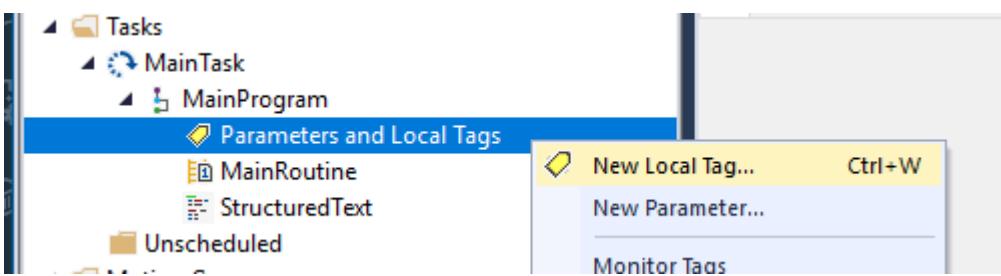


3. In the **General** tab, set the **IP Address** to **192.168.30.100** and click **OK**:



A basic example program

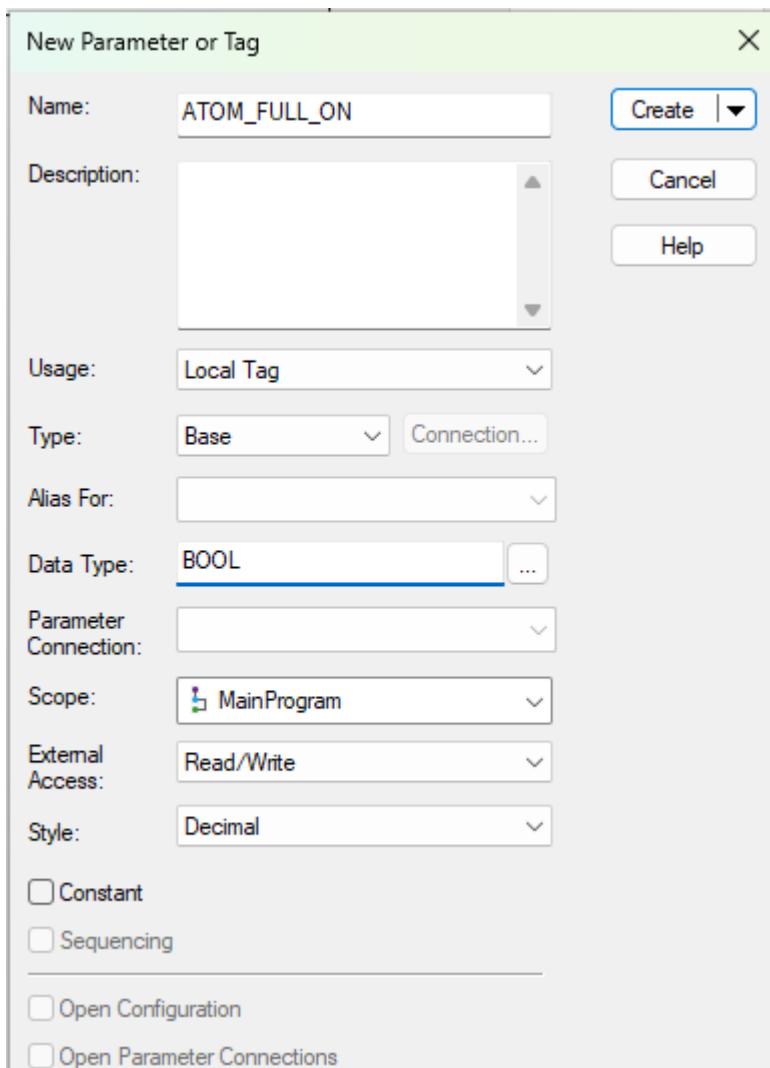
1. Right-click **Parameters and Local Tags** under **MainProgram** and select **New Tag** to create a tag:



2. Create two_ new tags:

- o Tag 1
 - **Name:** ATOM_FULL_ON
 - **Data Type:** BOOL

- Tag 2
 - **Name:** ATOM_LINE_VOLTAGE
 - **Data Type:** DINT

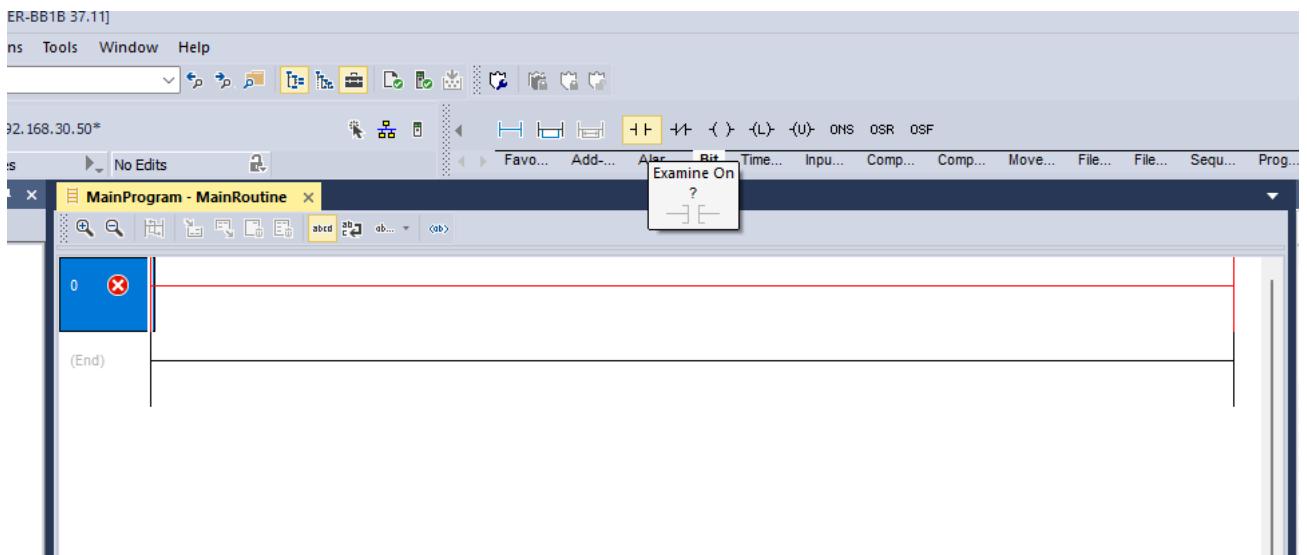


Name	Usage	Value	Force Mask	Style	Data Type	Description	Constant
ATOM_FULL_ON	Local	0	<input checked="" type="checkbox"/>	Decimal	BOOL		<input type="checkbox"/>
ATOM_LINE_VOLTAGE	Local	1	<input checked="" type="checkbox"/>	Decimal	DINT		<input type="checkbox"/>

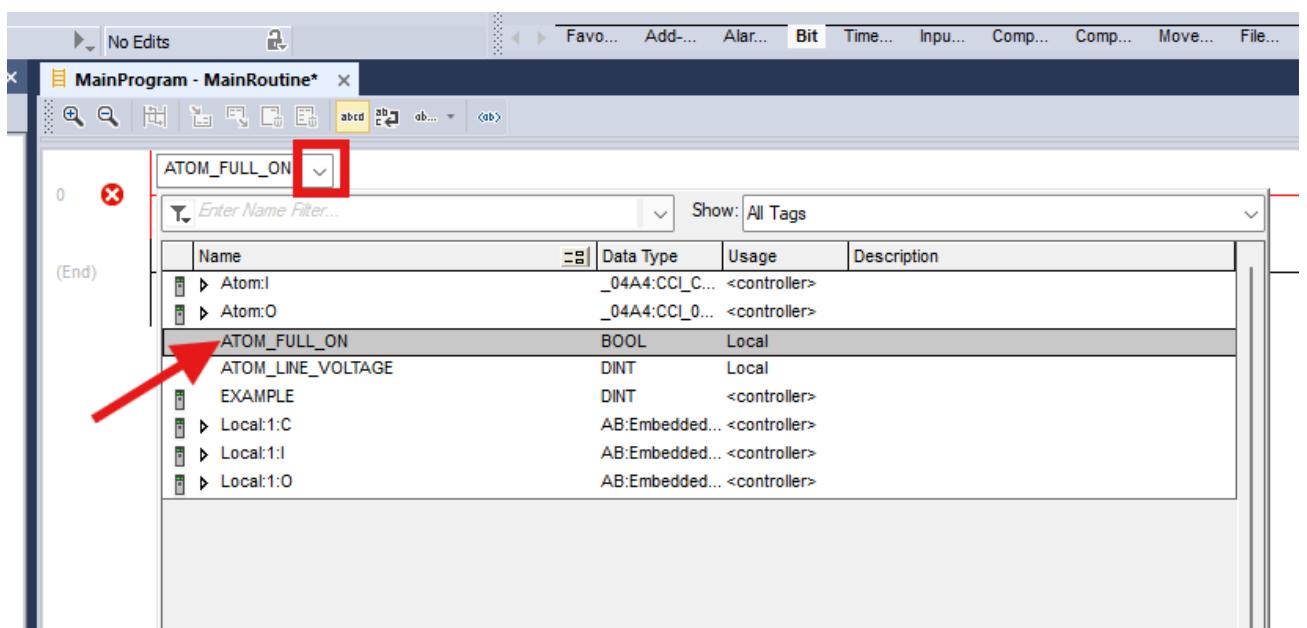
You can follow along with either the **Structured Text** or **Ladder Logic** examples below.

Ladder Logic

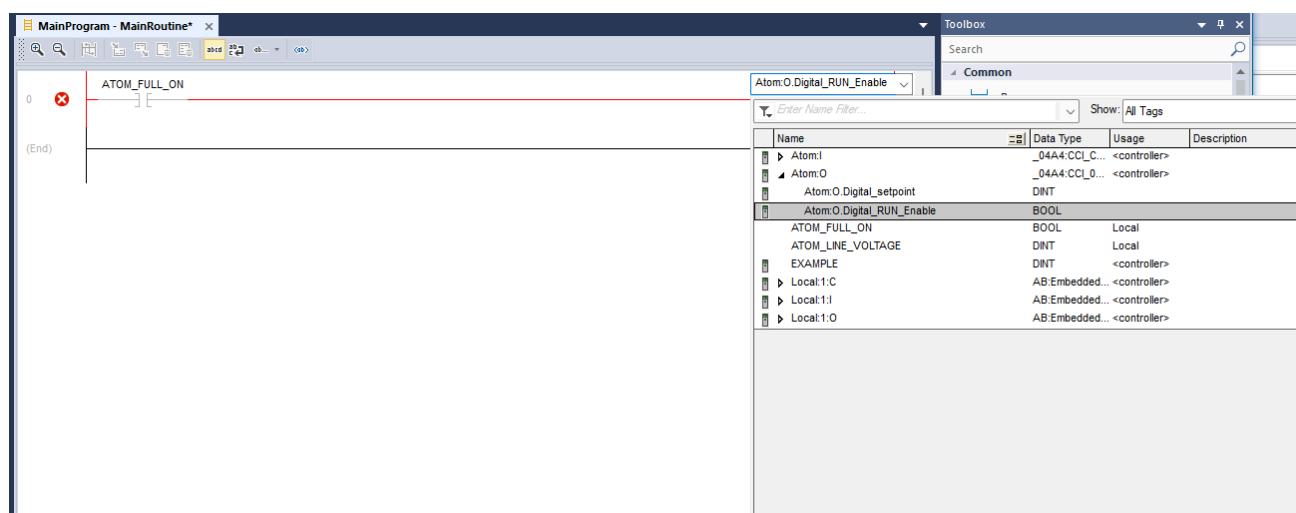
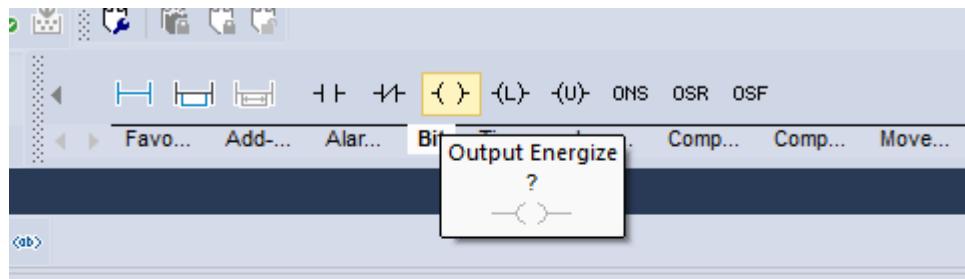
1. In the **MainRoutine** file, select **Ring 0** and add an **Examine On** instruction:



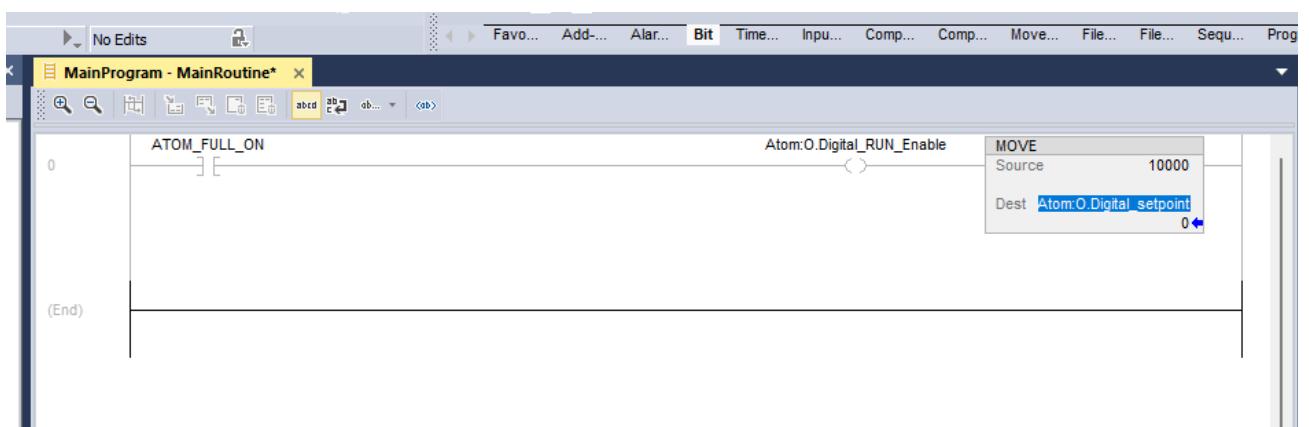
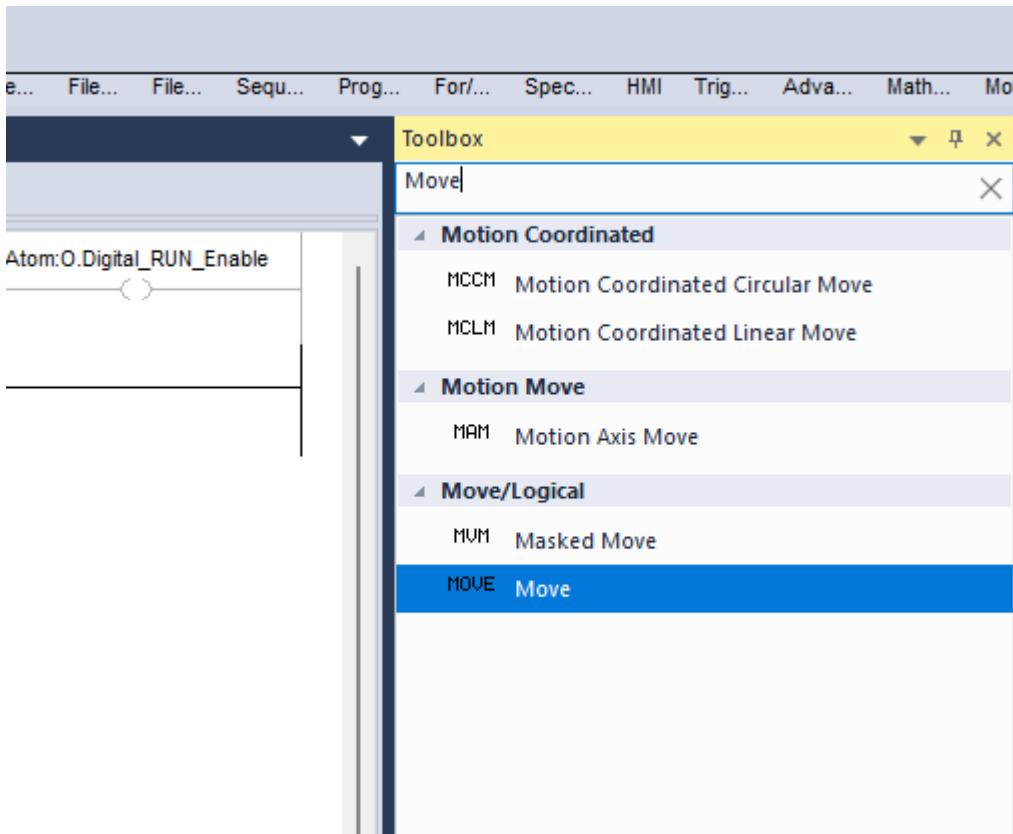
2. Configure this instruction to examine the **ATOM_FULL_ON** tag:



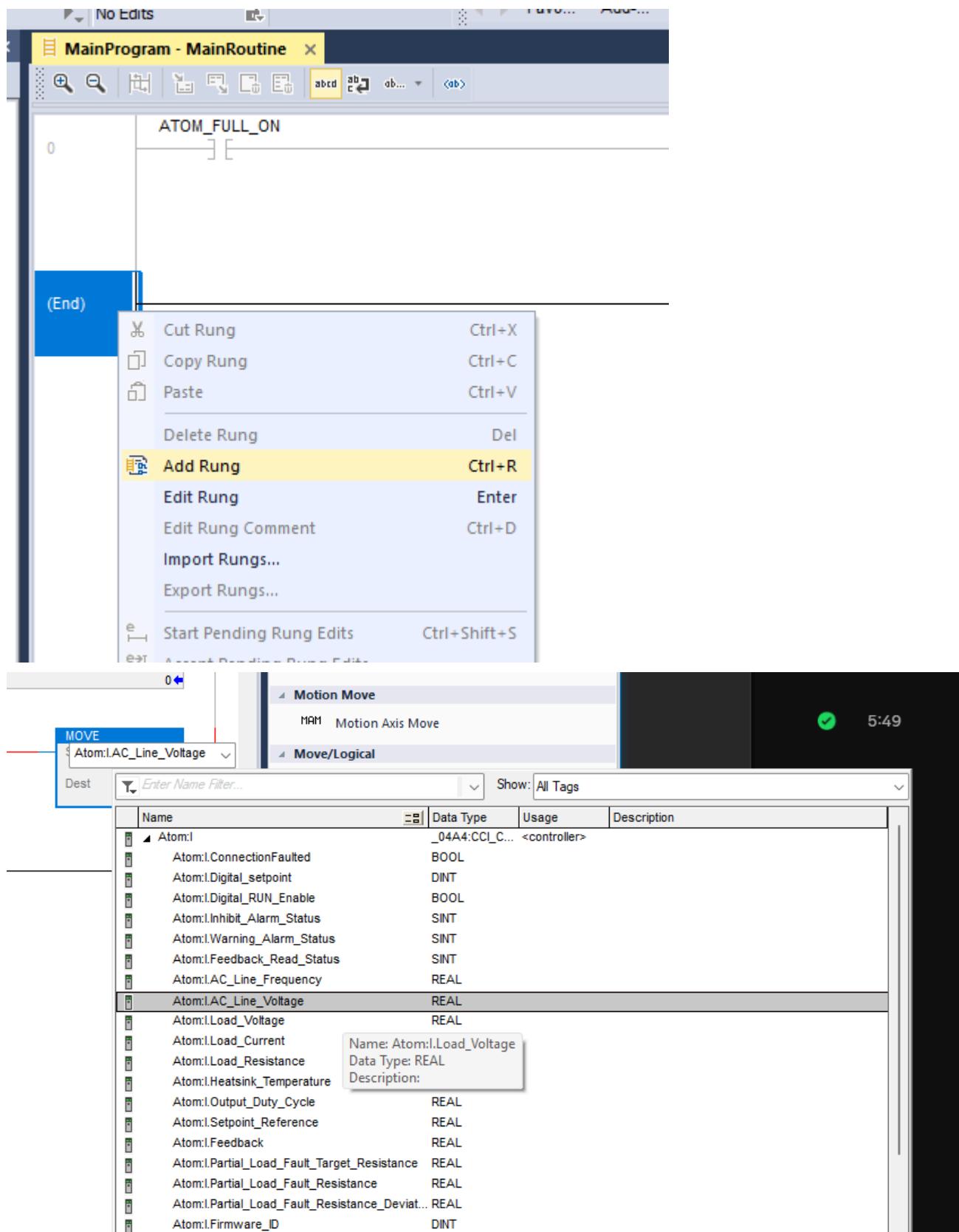
3. Add an **Output Energize** instruction and select **Atom:O.Digital_RUN_Enable**:



4. Add a **Move** instruction and set *source* to **10000** and *dest* to **Atom:0.Digital_setpoint**.

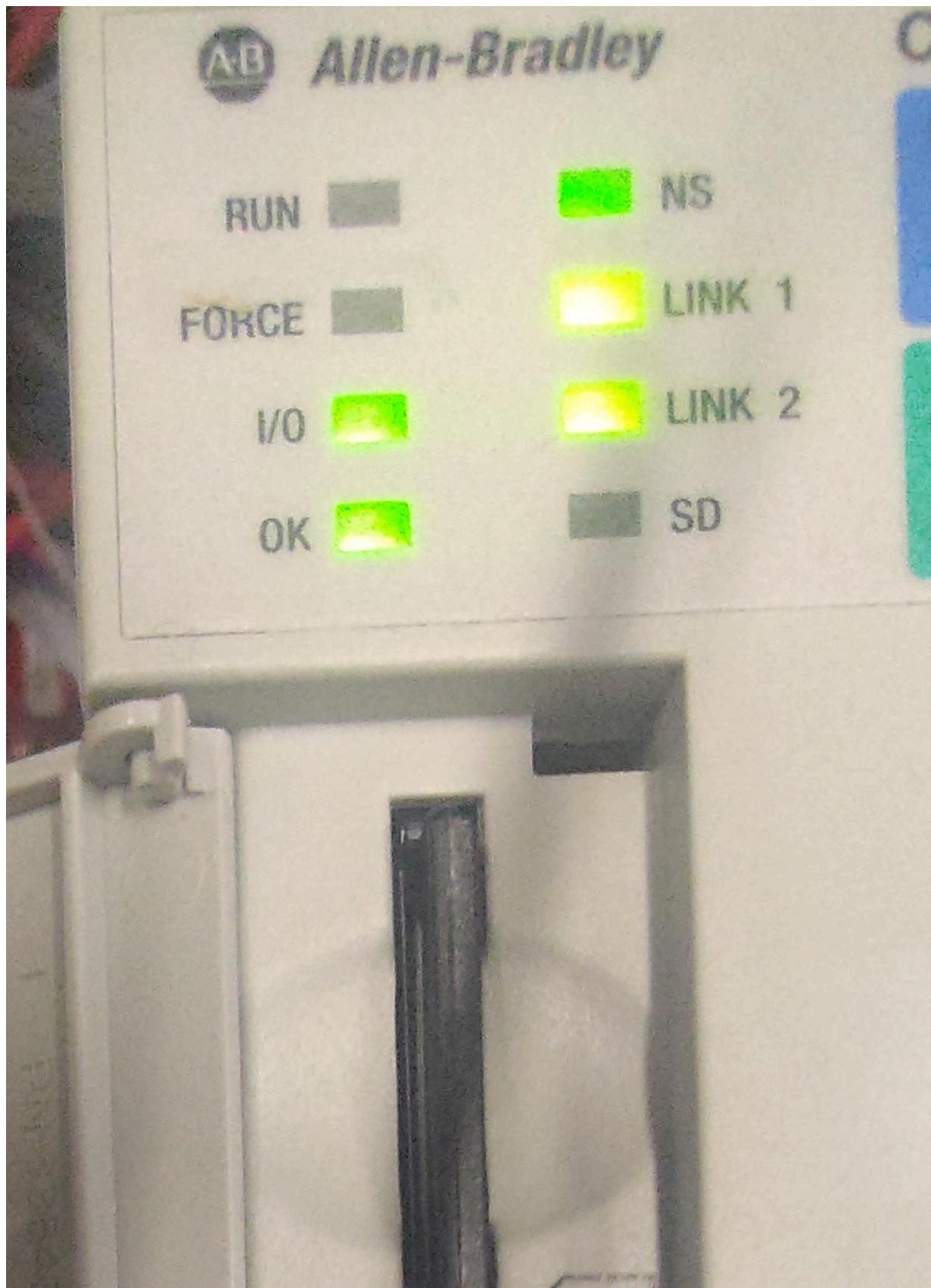


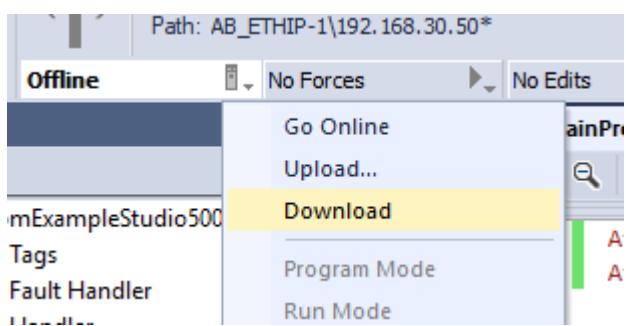
5. Right-click and select **Add rung**. In this new rung, add a **MOVE** instruction and set **source** to **Atom:I.AC_Line_Voltage** and **dest** to **ATOM_LINE_VOLTAGE**:

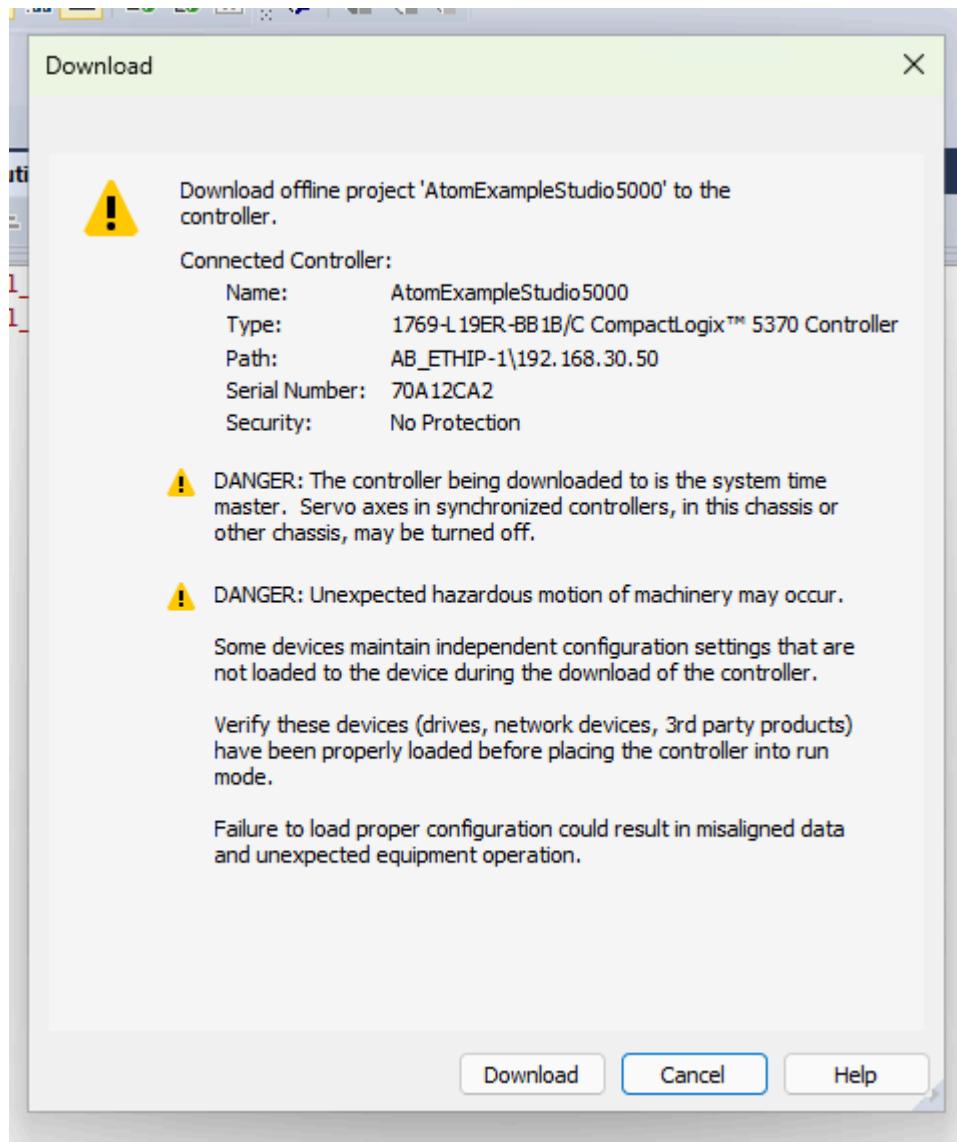


6. Select the PLC dropdown and click **Download** to download the program to your PLC:

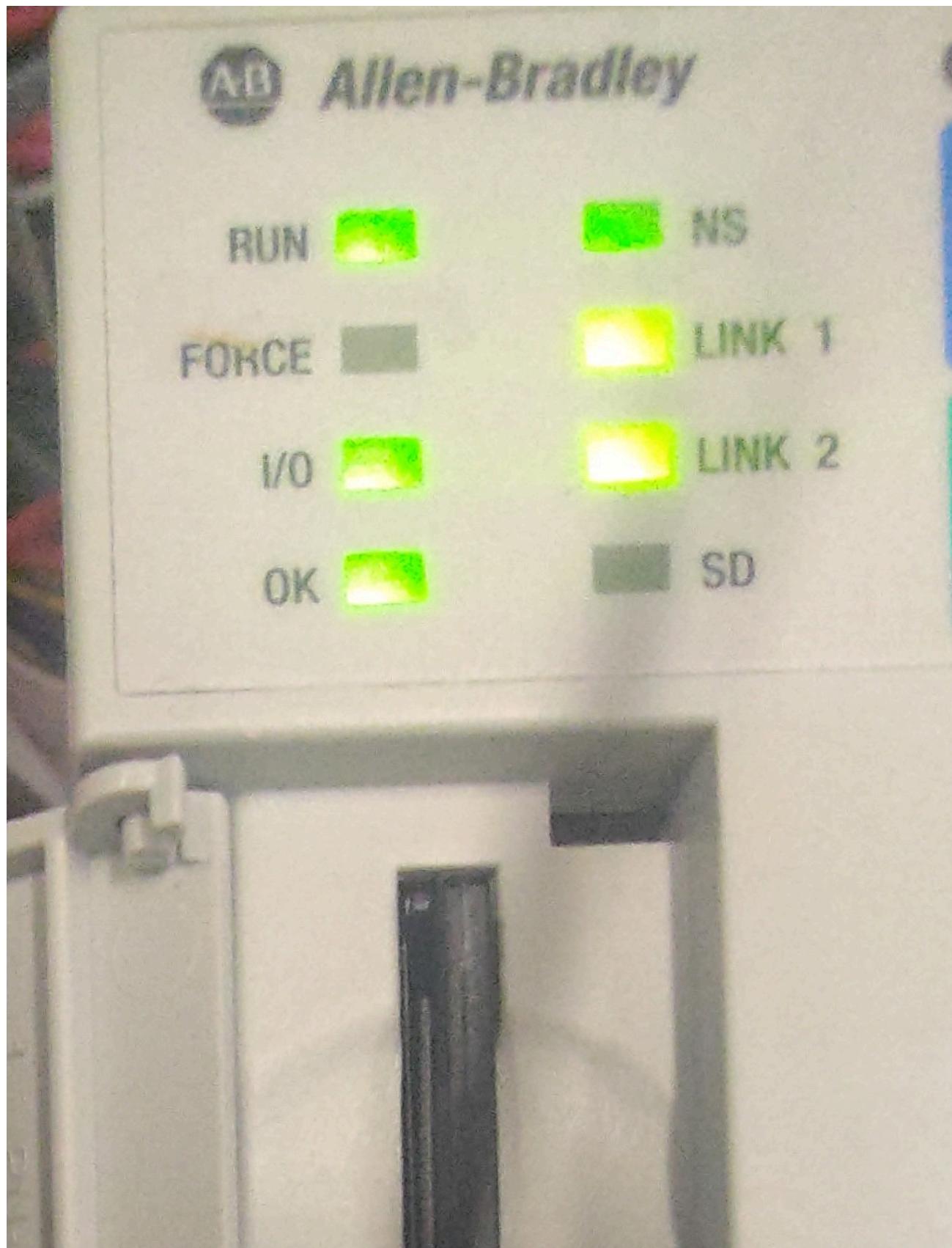
Ensure the switch on your PLC is set to **PROG** mode before downloading.

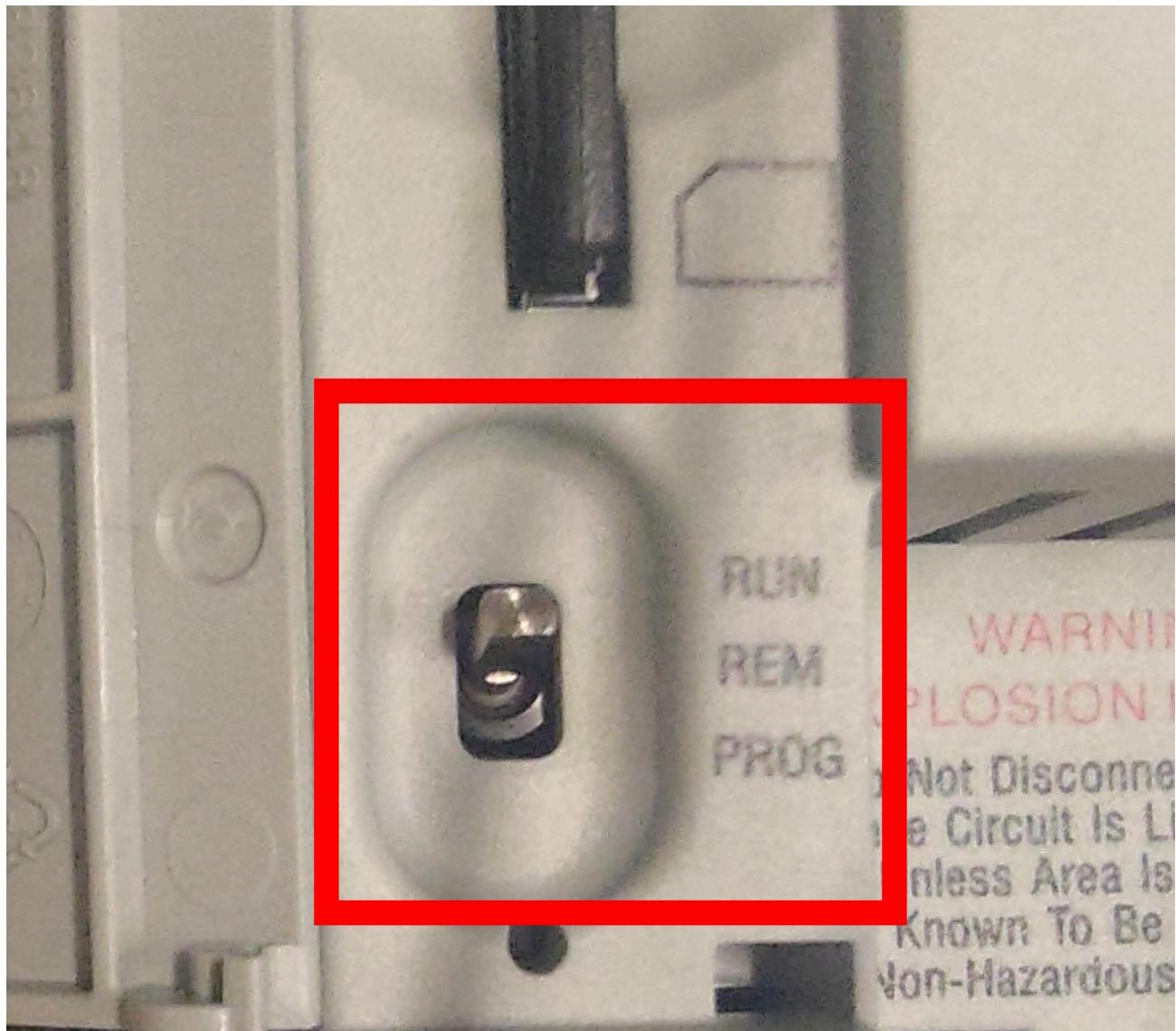




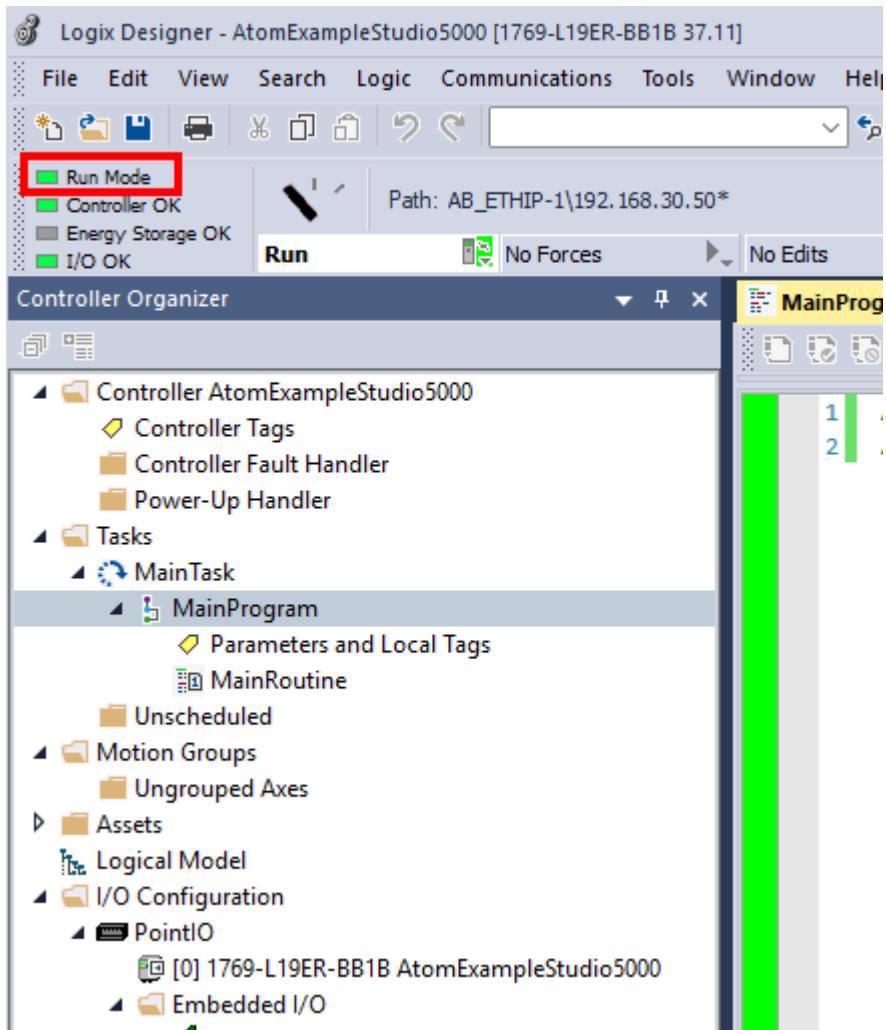


7. Flip the switch on your PLC to **RUN** mode.





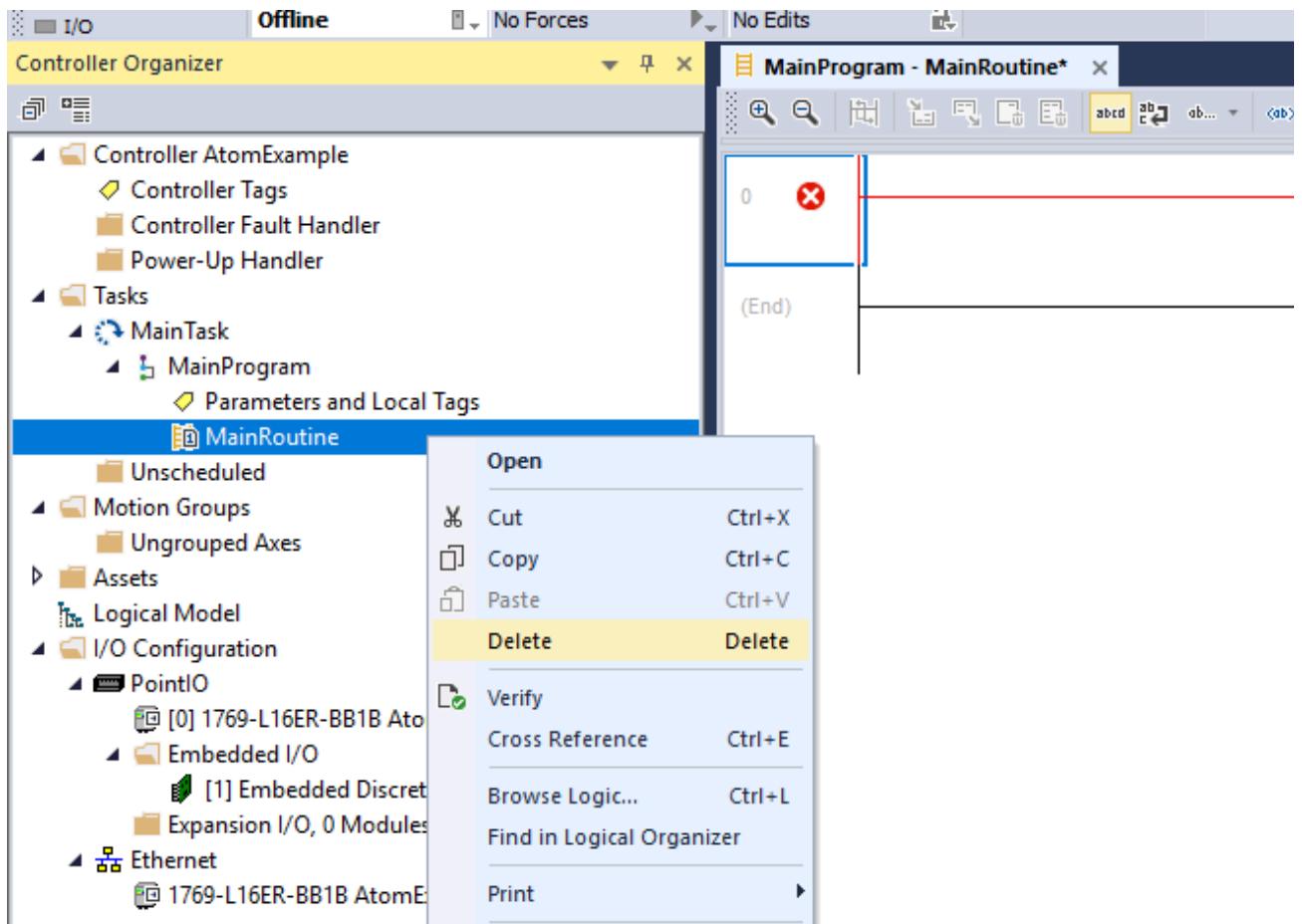
8. If everything worked properly, the controller **Run Mode** indicator light should turn green:



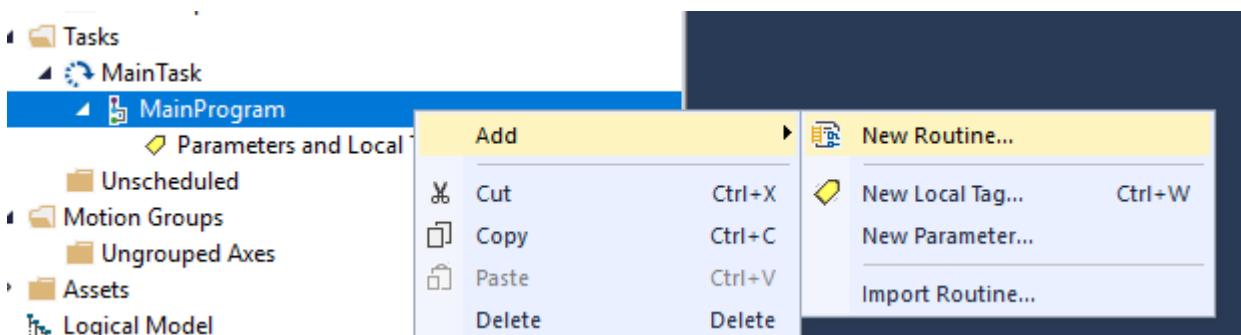
Next, jump to the [Creating a user interface](#) section.

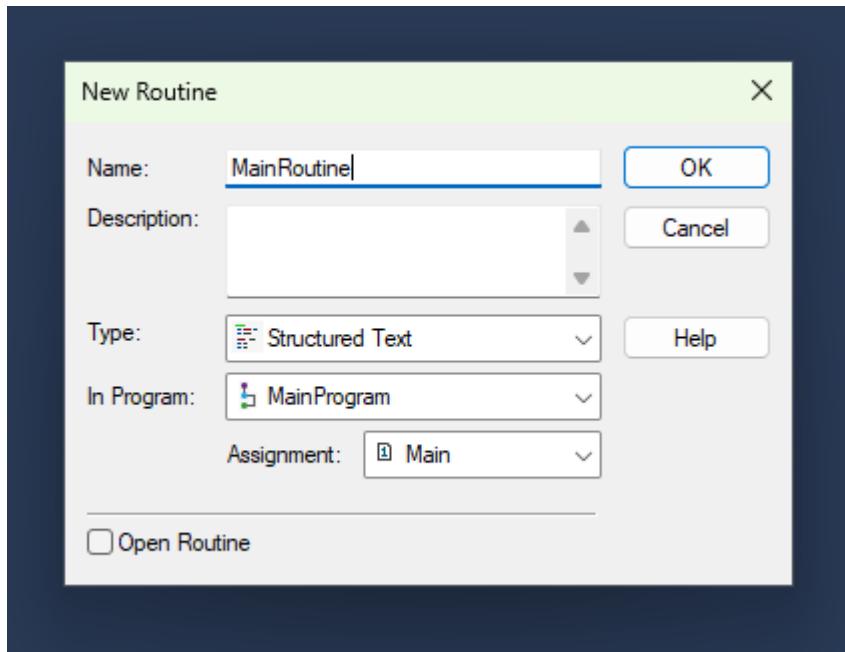
Structured Text

1. Delete the default `MainRoutine`:

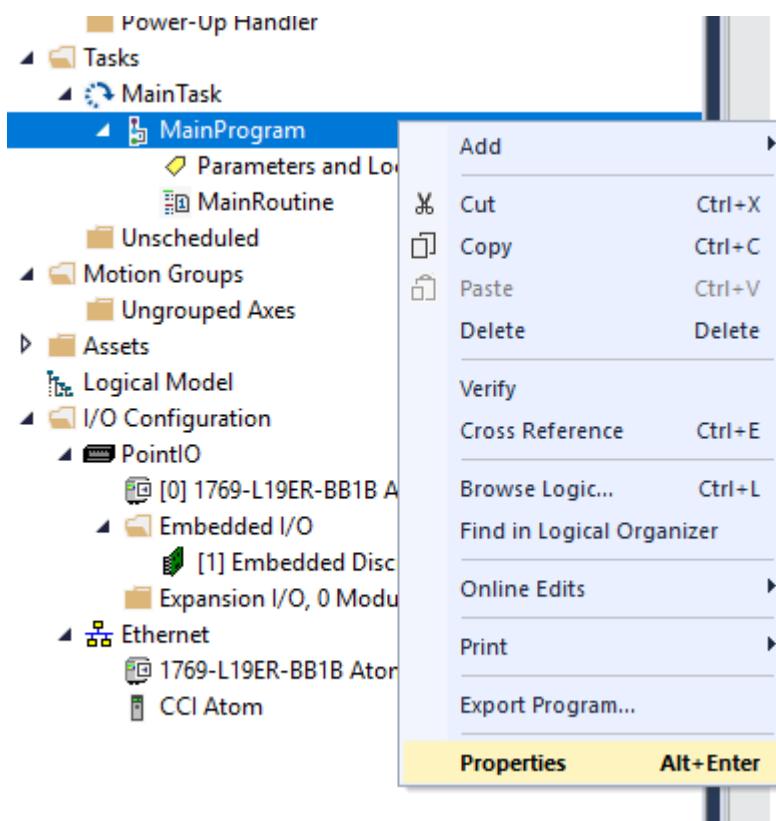


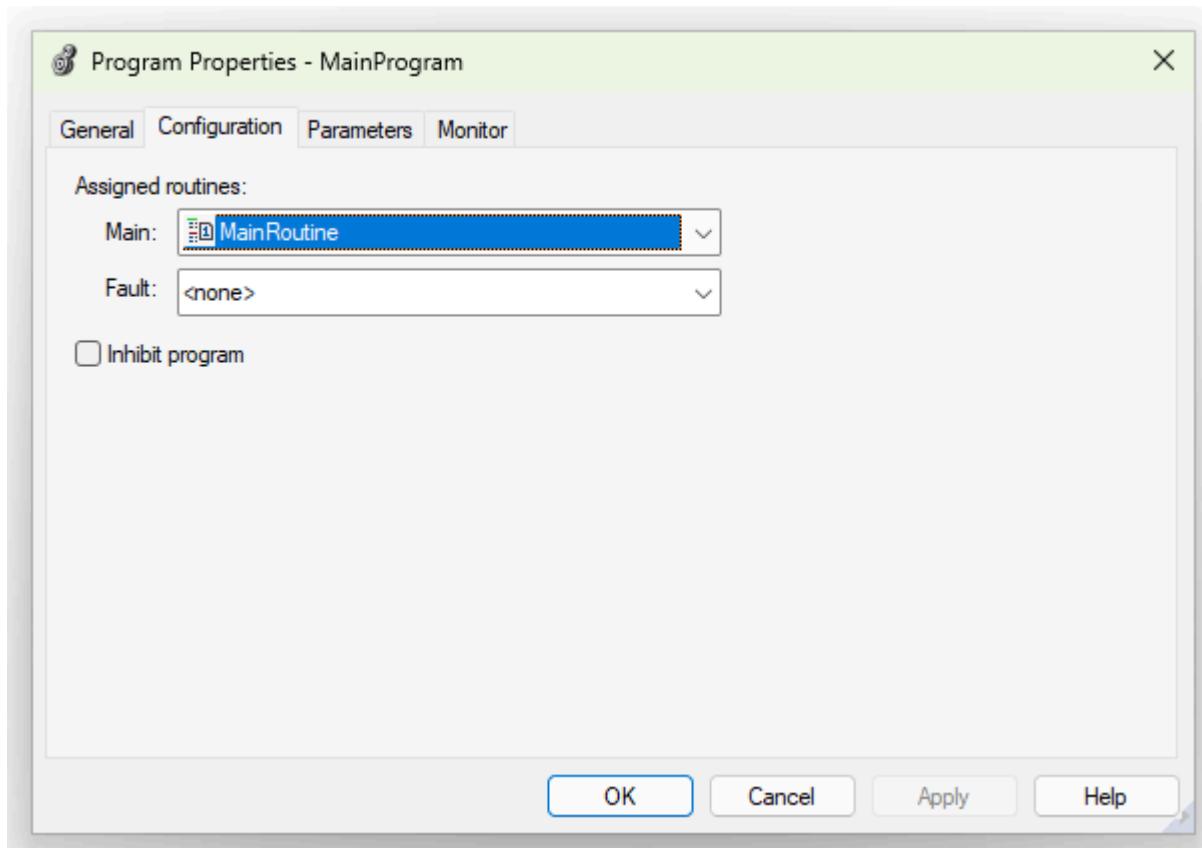
2. Right-click **MainProgram** and select **Add Routine**. Name it **MainRoutine**, set the **Type** to **Structured Text**, and click **OK**:



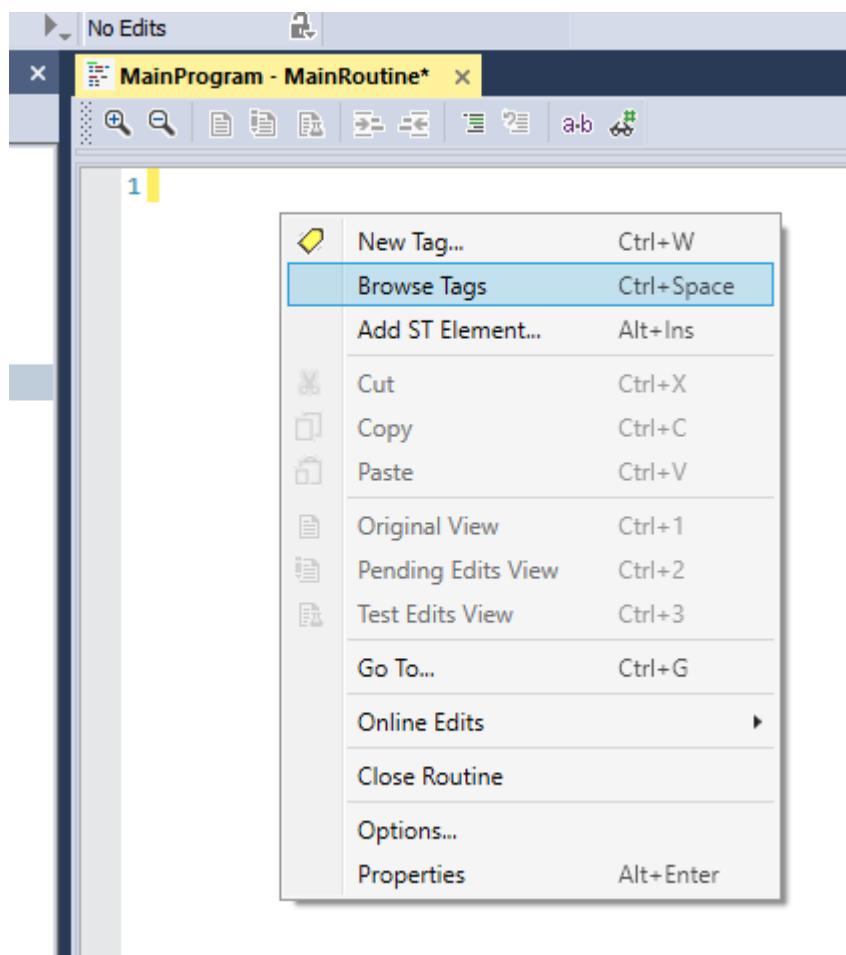


3. Right-click **MainRoutine**, select **Properties**, and ensure **MainRoutine** is set as the **Main Routine** in the **Configuration** tab:





4. Insert tags by right-clicking in `MainRoutine` and selecting **Browse Tags**.



5. You can insert Atom:I (input) and Atom:O (output) tags to control ATOM:

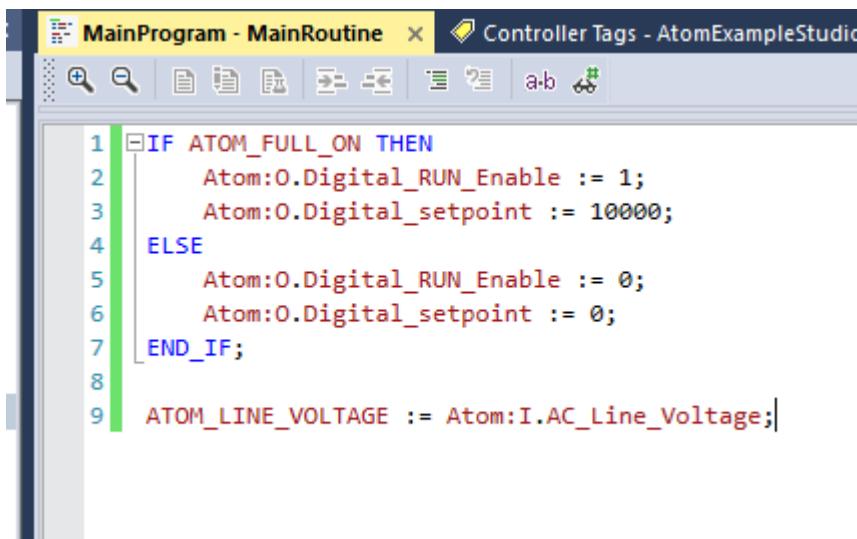
The screenshot shows the "Tags" window in RSLogix Studio 5000. The search bar at the top contains "Atom:0.Digital_setpoint". The table below lists various tags:

Name	Type	Usage	Description
Atom:I	_04A4:CCI_C...	<controller>	
Atom:O	_04A4:CCI_O...	<controller>	
Atom:0.Digital_setpoint	DINT		
Atom:0.Digital_RUN_Enable	BOOL		
Local:1:C	AB:Embedded...	<controller>	
Local:1:I	AB:Embedded...	<controller>	
Local:1:O	AB:Embedded...	<controller>	

6. Add the following code to `MainRoutine`:

```
IF ATOM_FULL_ON THEN
    Atom:0.Digital_RUN_Enable := 1;
    Atom:0.Digital_setpoint := 10000;
ELSE
    Atom:0.Digital_RUN_Enable := 0;
    Atom:0.Digital_setpoint := 0;
END_IF;

ATOM_LINE_VOLTAGE := Atom:I.AC_Line_Voltage;
```



```
1 IF ATOM_FULL_ON THEN
2     Atom:0.Digital_RUN_Enable := 1;
3     Atom:0.Digital_setpoint := 10000;
4 ELSE
5     Atom:0.Digital_RUN_Enable := 0;
6     Atom:0.Digital_setpoint := 0;
7 END_IF;
8
9 ATOM_LINE_VOLTAGE := Atom:I.AC_Line_Voltage;
```

Next, jump to the [Creating a user interface](#) section.

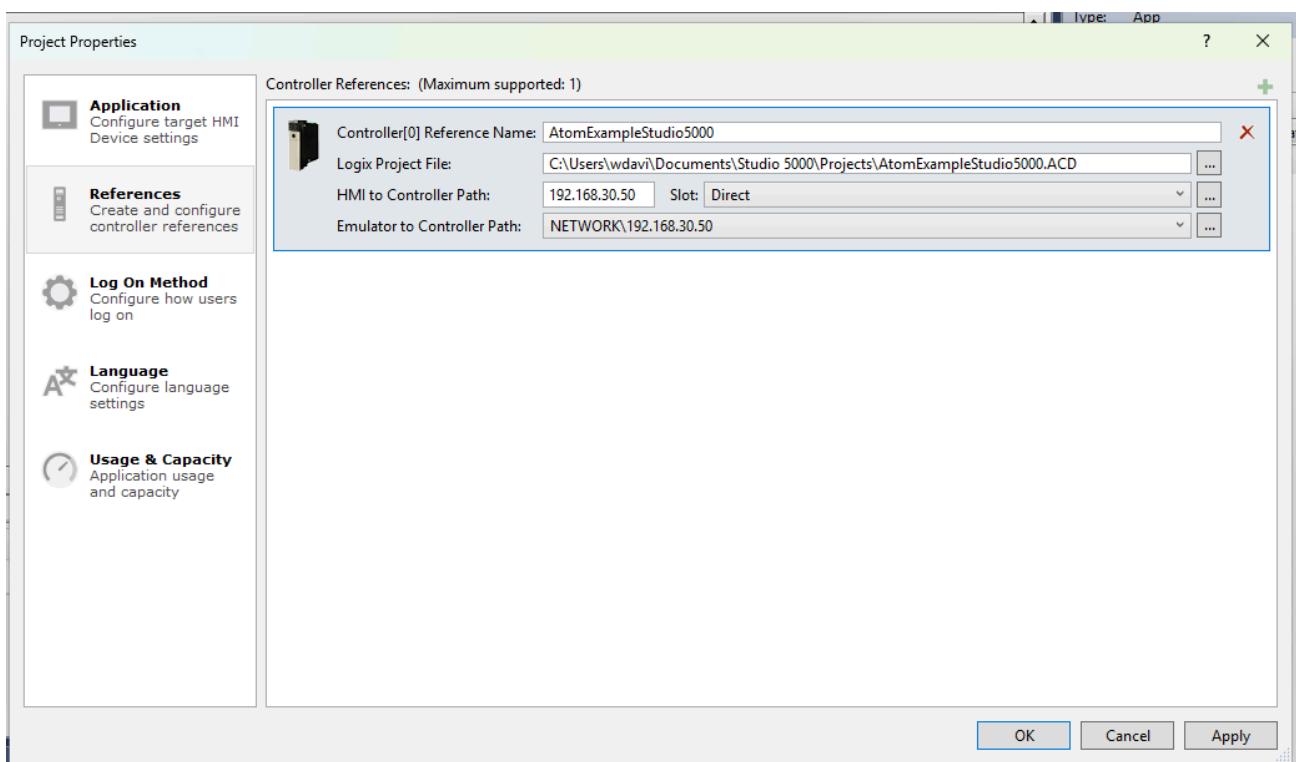
Creating a user interface

INFO

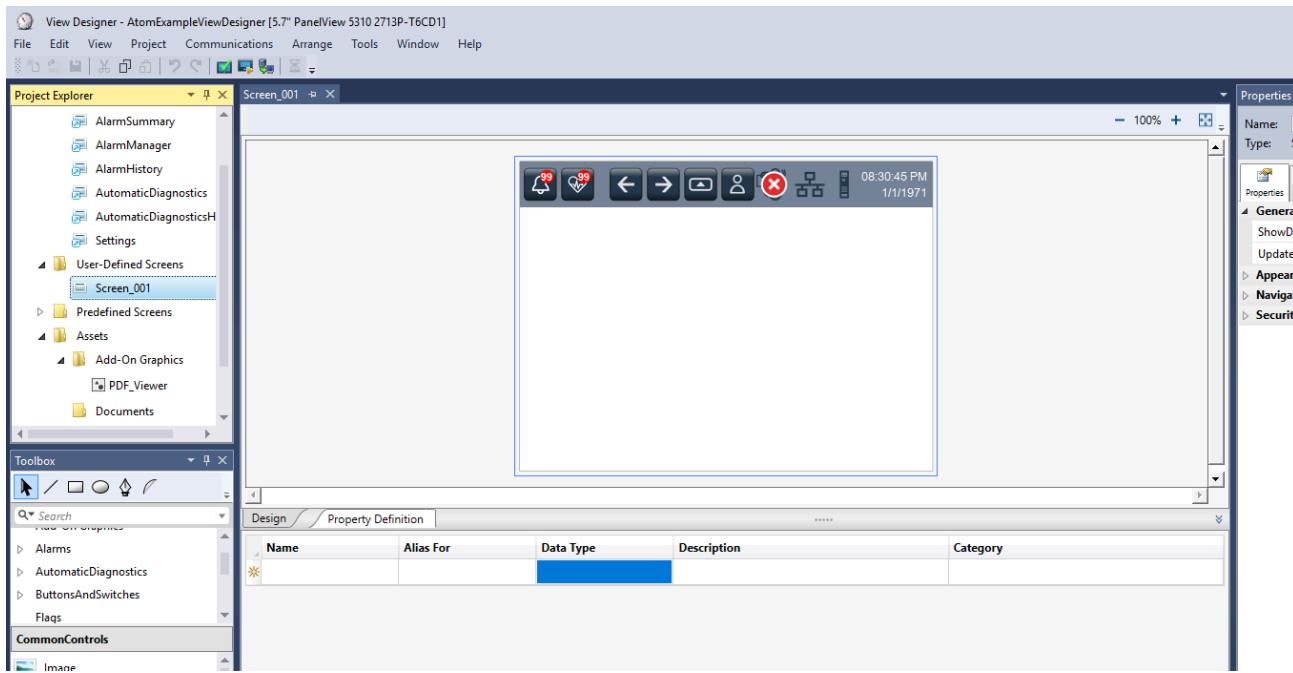
Studio 5000 comes with a separate program called **View Designer** for creating user interfaces. It's usually installed at `C:\Program Files (x86)\Rockwell Software\Studio 5000\View Designer\ENU\V10\ViewDesigner.exe`

1. Launch View Designer and create a new project with the following settings:

- **Controller[0] Reference Name:** AtomExampleStudio5000
- **Logix Project File:** path-to-your-project\AtomExampleStudio5000.ACD
- **HMI to Controller Path:** 192.168.30.50
- **Emulator to Controller Path:** NETWORK\192.168.30.50

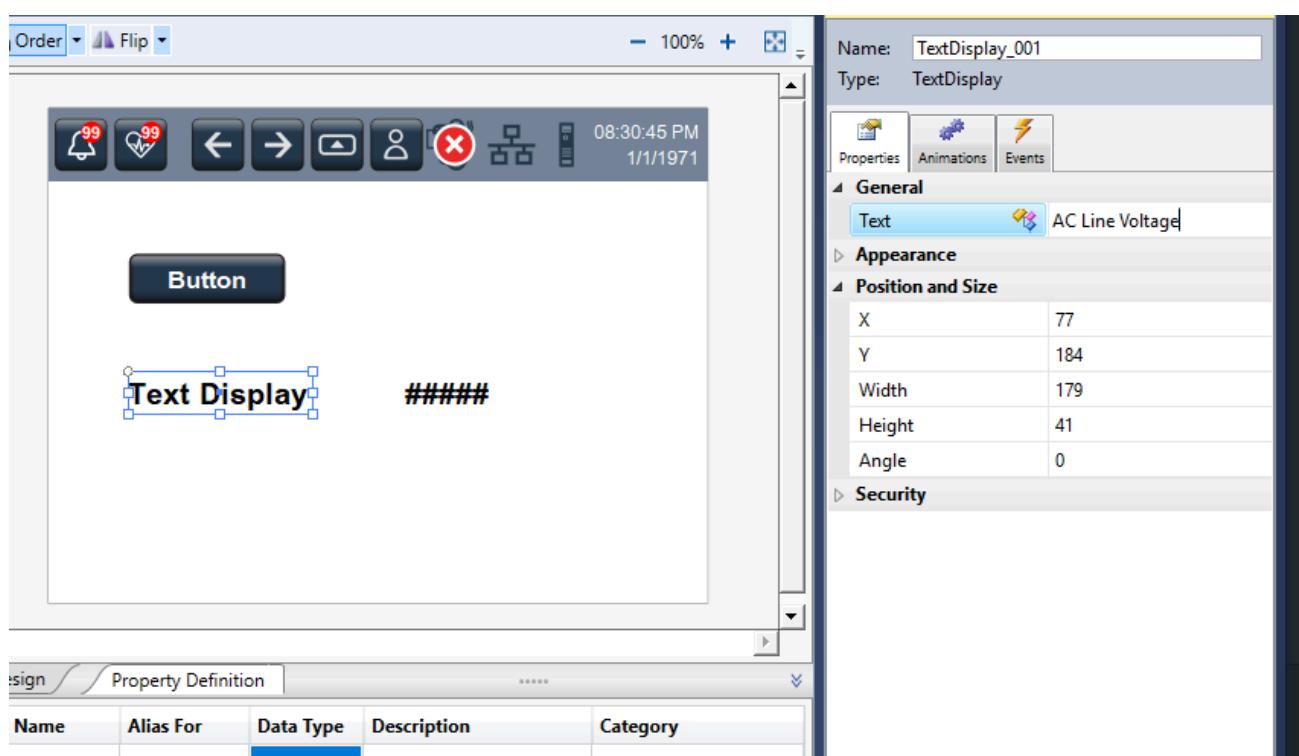
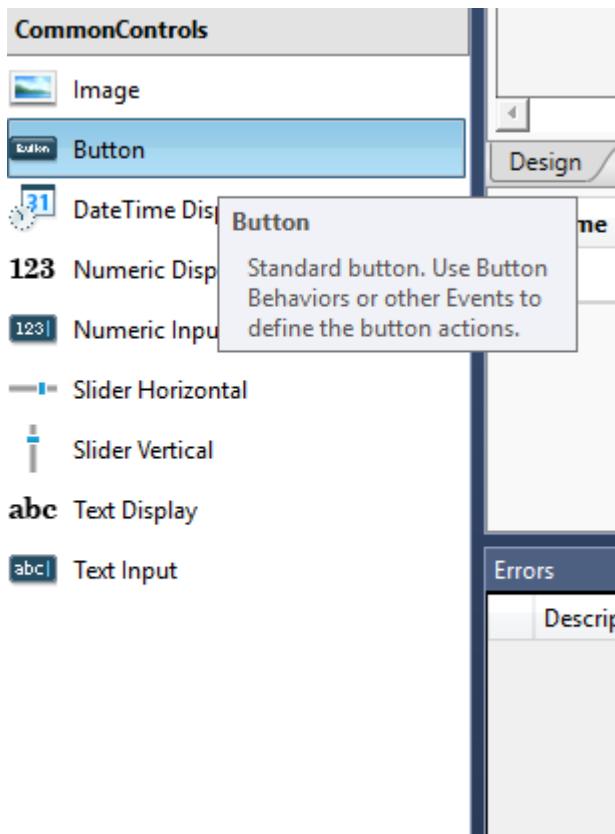


2. Open Screen_001:

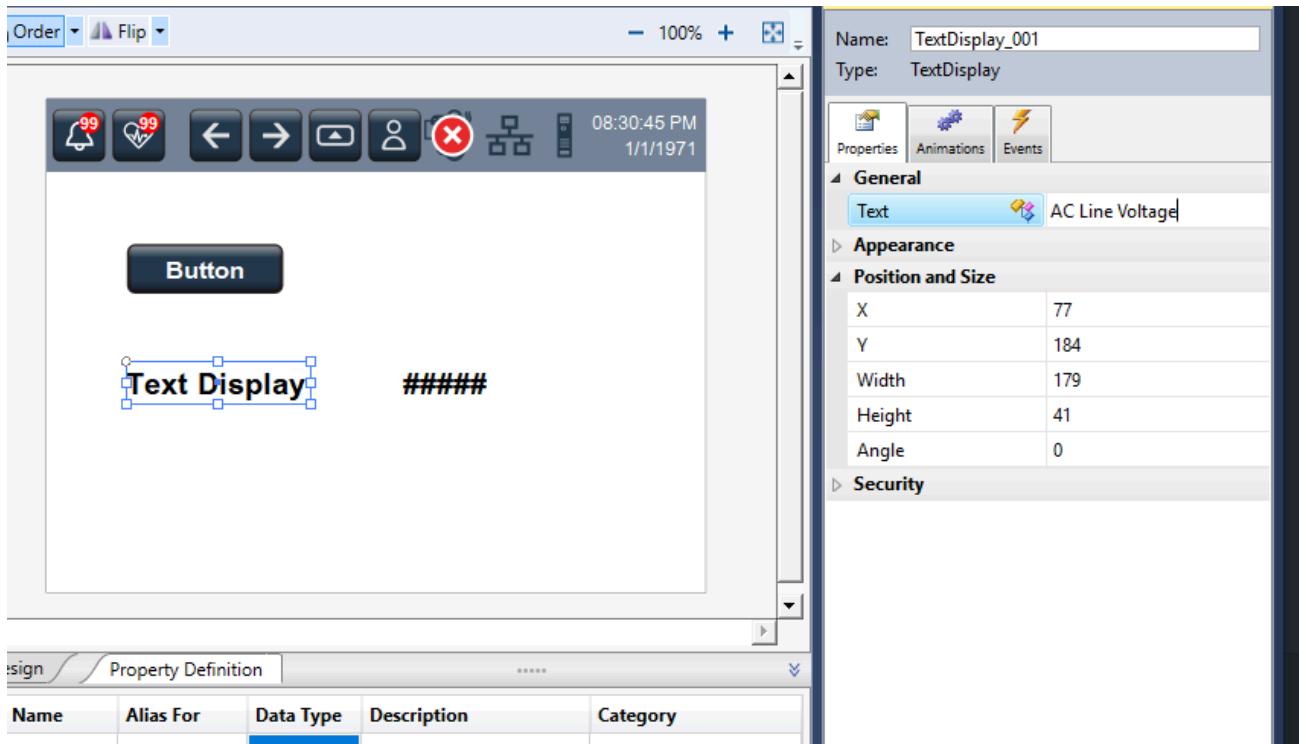


3. In the **CommonControls** toolbox, drag three components onto the screen:

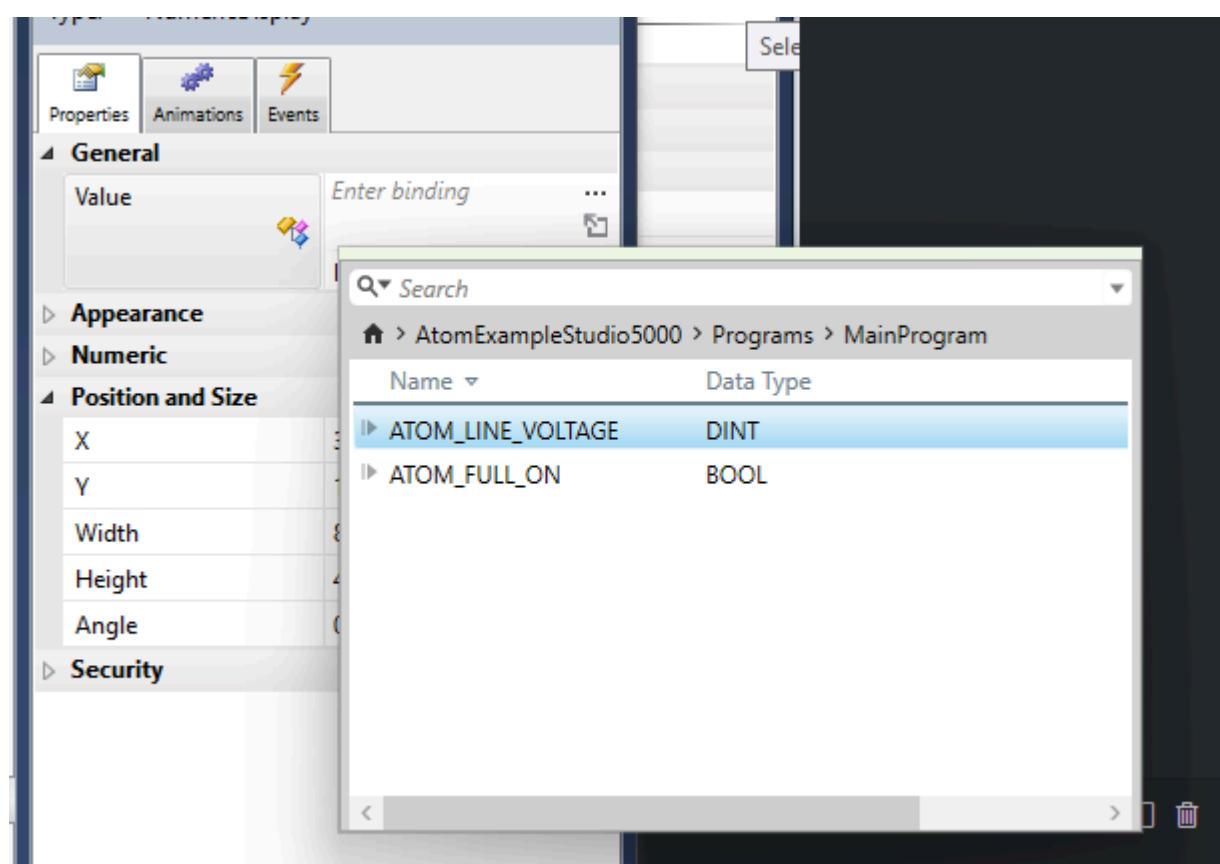
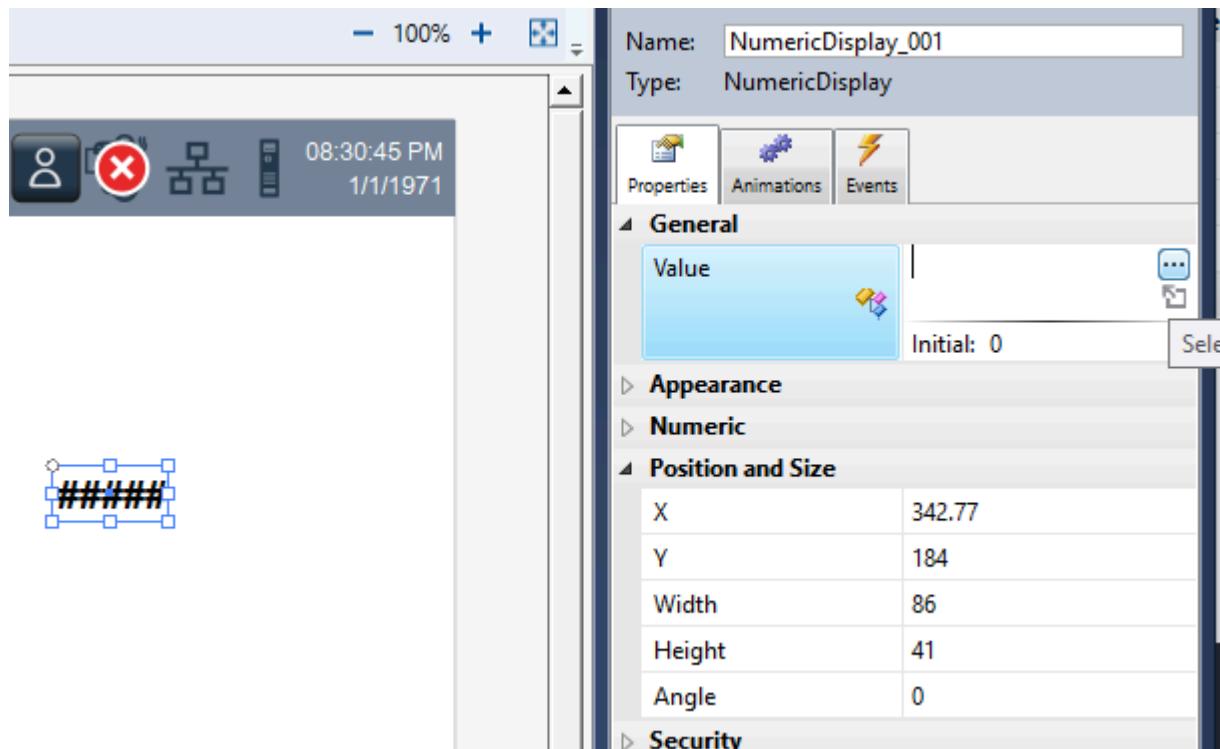
- **Button**
- **Numeric Display**
- **Text Display**

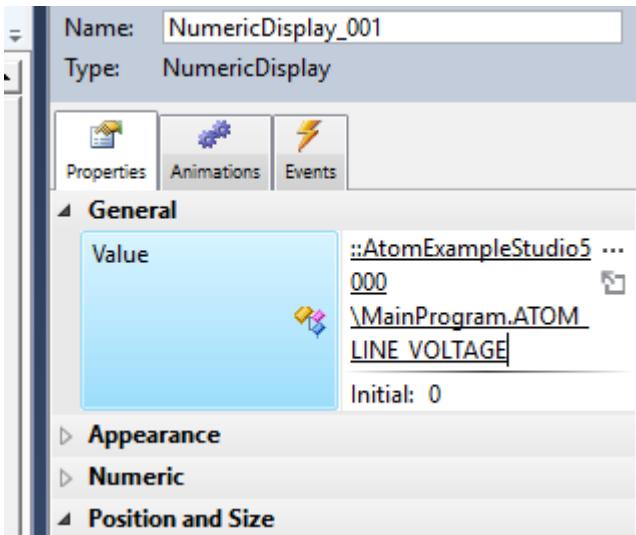


4. Select the **Text Display** component and set the text to **AC Line Voltage**:

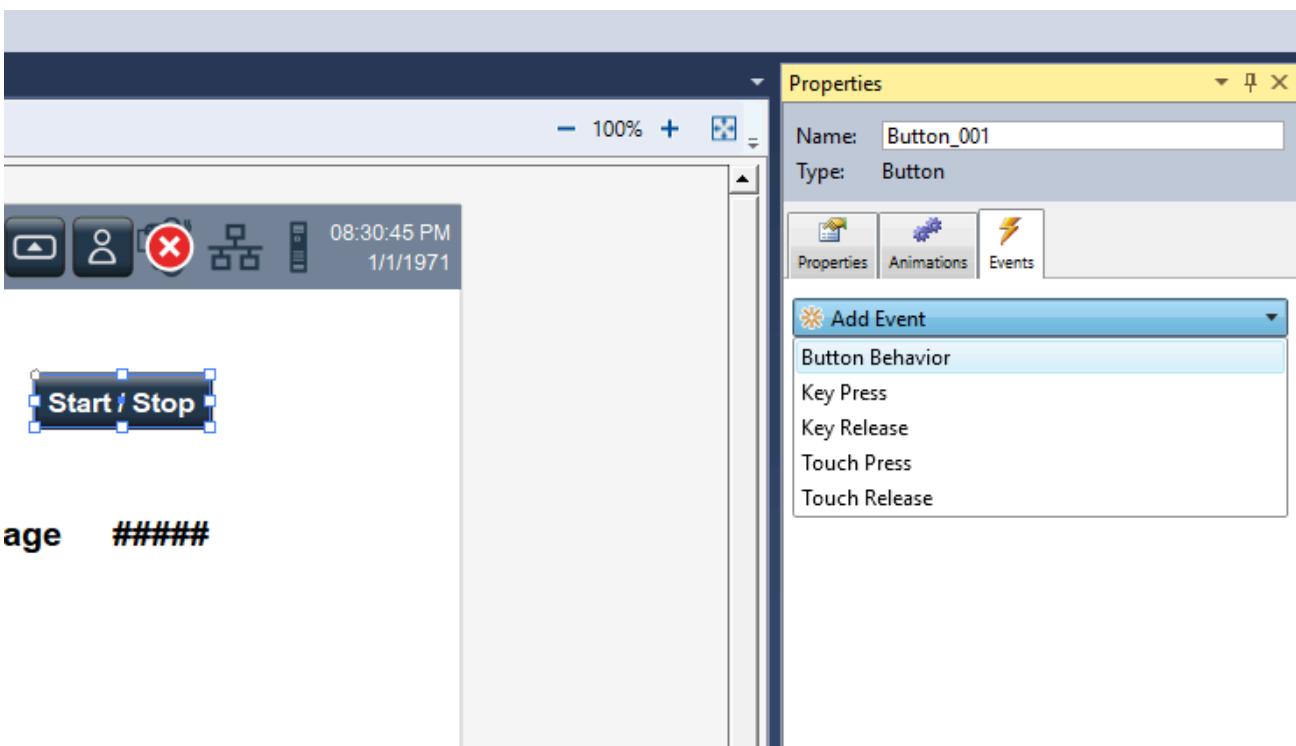


5. Select the **Numeric Display** component and set the **Value** (in the **Properties** panel) to **ATOM_LINE_VOLTAGE**:

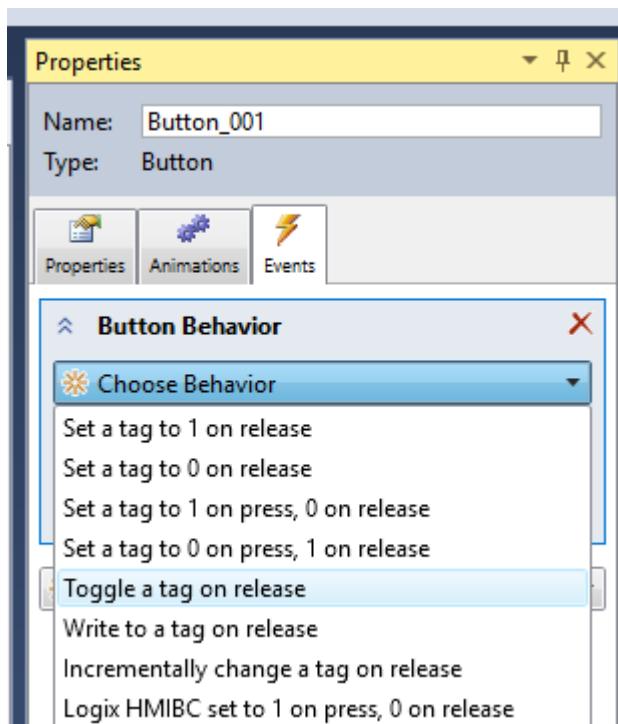


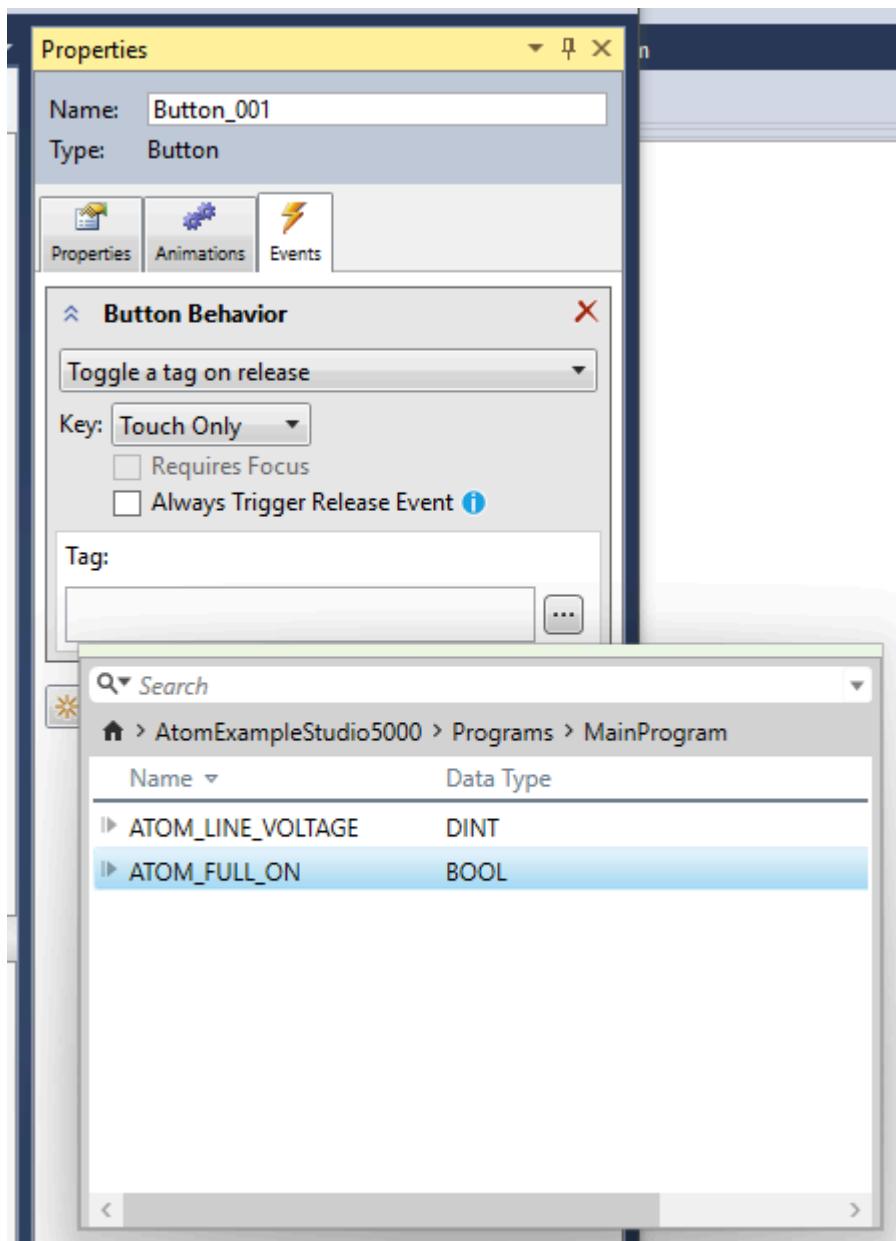


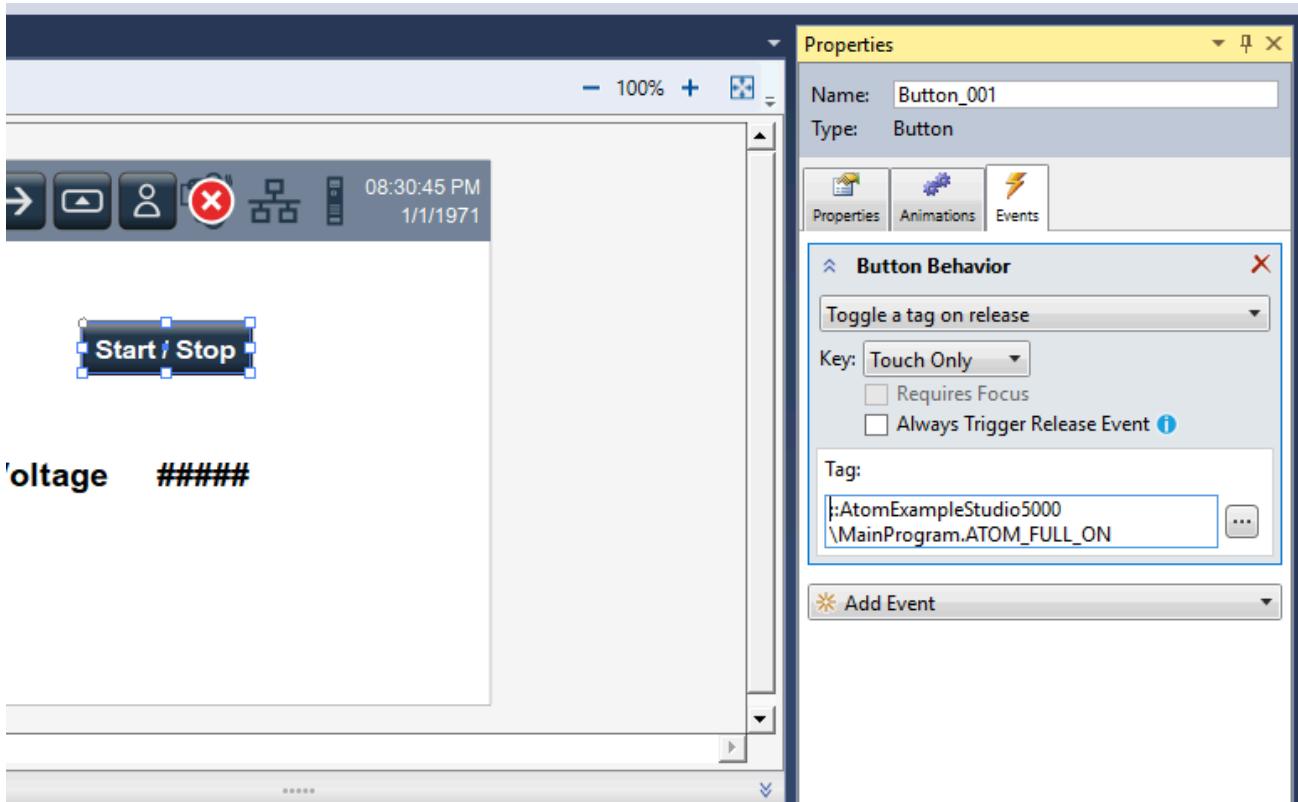
6. Select the *Button component and set the text to Start / Stop. In the Events panel, click Add Event, Button Behavior:



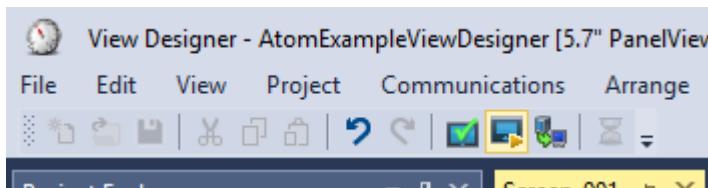
7. Select Toggle a tag on release and set the tag to ATOM_FULL_ON:





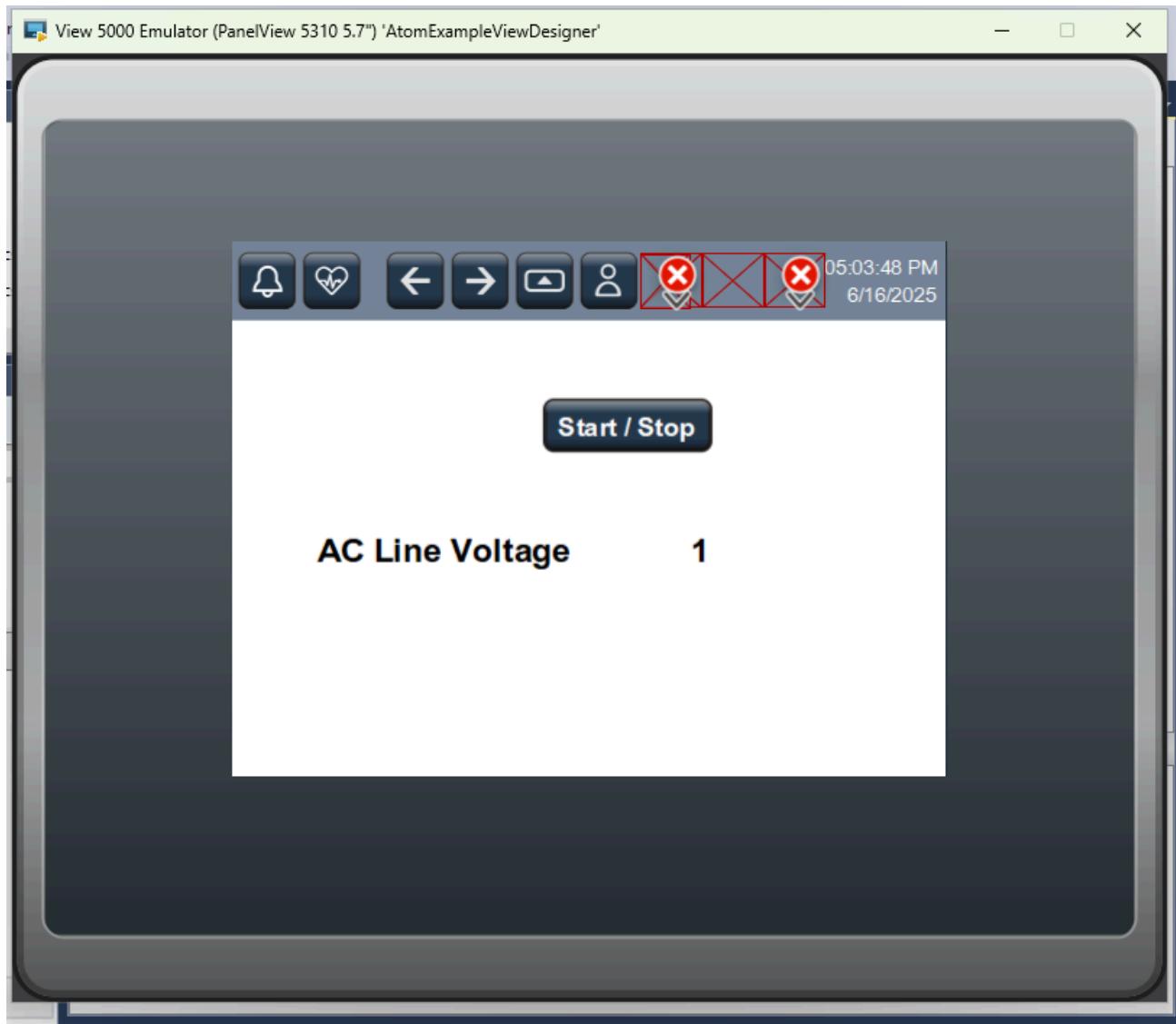


8. Select the **Emulate** button to launch the HMI emulator:

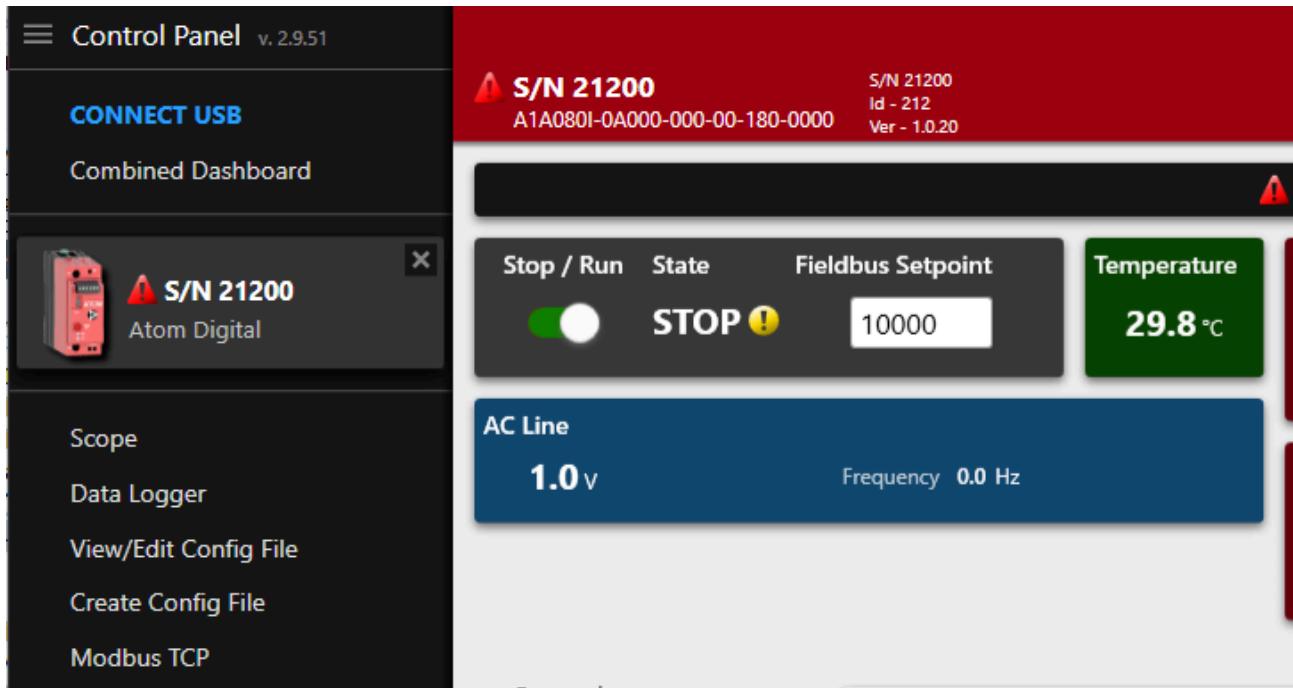


9. Ensure your PLC is in **RUN** if it is not already.

10. In the emulator, you can click **Start / Stop** to toggle ATOM's operation. The **AC Line Voltage** display should show the current line voltage (in tenths of volts (e.g., **2300** for **230.0V**)):



If you are connected to ATOM with Control Panel, you can watch the **Stop / Run** and **Fieldbus setpoint** controls change as you toggle the button in the Rockwell emulator.



Troubleshooting

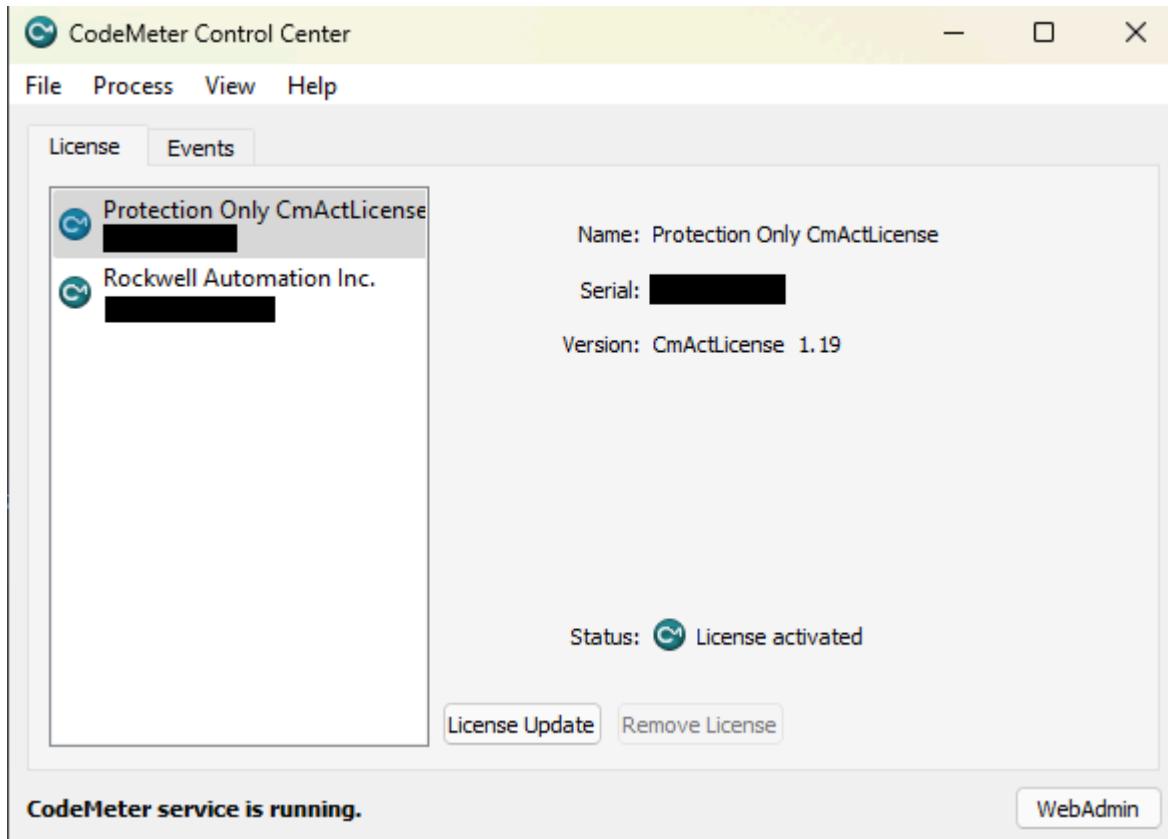
Installation troubleshooting

Activation issues

If you use your PC for multiple PLC environments (like Siemens TIA, Codesys, etc.) you may run into activation issues caused by CodeMeter licenses.

Follow [this guide](#) to delete other CodeMeter licenses as Studio 5000 requires exclusive access to the CodeMeter license manager.

Your CodeMeter should look like this:



Factory Talk activation

Use **Factory Talk Activation Manager** to ensure you have a valid Studio 5000 license.

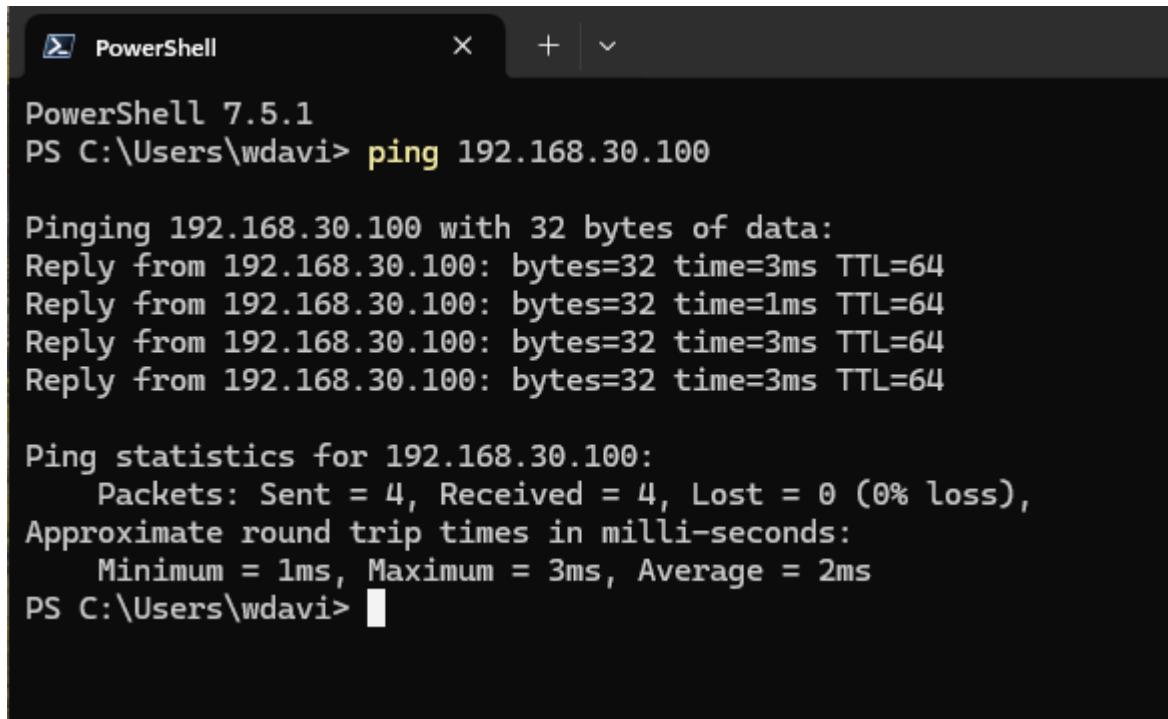
The screenshot shows the FactoryTalk Activation Manager application. On the left, there is a sidebar with options: Find Available Activations (selected), Get New Activations, Borrow Activations, Return Activations, Rehost Activations, Renew Activations, and Learn more... Below this is a search bar: "Select the location that will provide your activations or add a new activation location:" with "Path to Activations" set to "C:\Users\Public\Documents\Rockwell Automation\Activations". To the right, there is a table titled "Available activations:" showing the following data:

	Product	Serial #	Expires	Support Expires	Activation	Feature Version	Location	Total	In Use	Borrowed	Product Version	
▶	FactoryTalk Logix Echo Node	[REDACTED]	8/20/2025	8/21/2025	[REDACTED]	1.00	[REDACTED]	1	1	0	3.00.01	
▶	RSLogix 5000 Mini	[REDACTED]	8/20/2025	8/21/2025	[REDACTED]	1.00	[REDACTED]	1	0	0	37.00.02	
	RSLogix 5000 MLP Option	[REDACTED]	8/20/2025	8/21/2025	[REDACTED]	1.00	[REDACTED]	1	0	0	37.00.02	

At the bottom left is a "Refresh Activations" button.

Can't connect to PLC or ATOM

Use the `ping` utility on Windows to check if your PC can reach the PLC/ATOM:



```
PowerShell 7.5.1
PS C:\Users\wdavi> ping 192.168.30.100

Pinging 192.168.30.100 with 32 bytes of data:
Reply from 192.168.30.100: bytes=32 time=3ms TTL=64
Reply from 192.168.30.100: bytes=32 time=1ms TTL=64
Reply from 192.168.30.100: bytes=32 time=3ms TTL=64
Reply from 192.168.30.100: bytes=32 time=3ms TTL=64

Ping statistics for 192.168.30.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 2ms
PS C:\Users\wdavi>
```

If:

- Ping is successful - you have a configuration problem with your PC
- Ping is unsuccessful - you have a hardware configuration, PLC configuration, or ATOM configuration problem.