APPENDIX K

SET UP DATA SOURCE USING MELSEC PROTOCOL

In this Appendix...

This manual covers the StrideLinx platform available from 2017 through 2021.

For details covering the StrideLinx Cloud 2.0 platform available after April 2021, please click here to link to that manual.

The StrideLinx Cloud 2.0 manual includes details describing the Activation Code model of Data Logging, Cloud Notify and other add-on features.

For information on the migration wizard from the original platform to StrideLinx Cloud 2.0, click here.

Set up data source for a device using MELSEC protocol

Supported hardware and firmware

StrideLinx routers support Cloud Logging via MELSEC Communication in firmware 3.17 and newer, for the following Mitsubishi PLCs:

- MELSEC-L Series: LO2CPU-P*
- MELSEC-Q Series
- MELSEC iQ-R Series: R08CPU*
- MELSEC iQ-F Series

* Other CPUs in this series may also be supported, but are unconfirmed.

NOTE: *Please first activate Cloud Logging or start the 30 day free trial if you haven't already.*

The first step in Cloud Logging is setting up a data source. This is done by selecting a communication protocol and defining the variables. This appendix shows you how to do this for a Mitsubishi PLC in both MELSOFT GX Works2 and GX Works3.

PLC settings

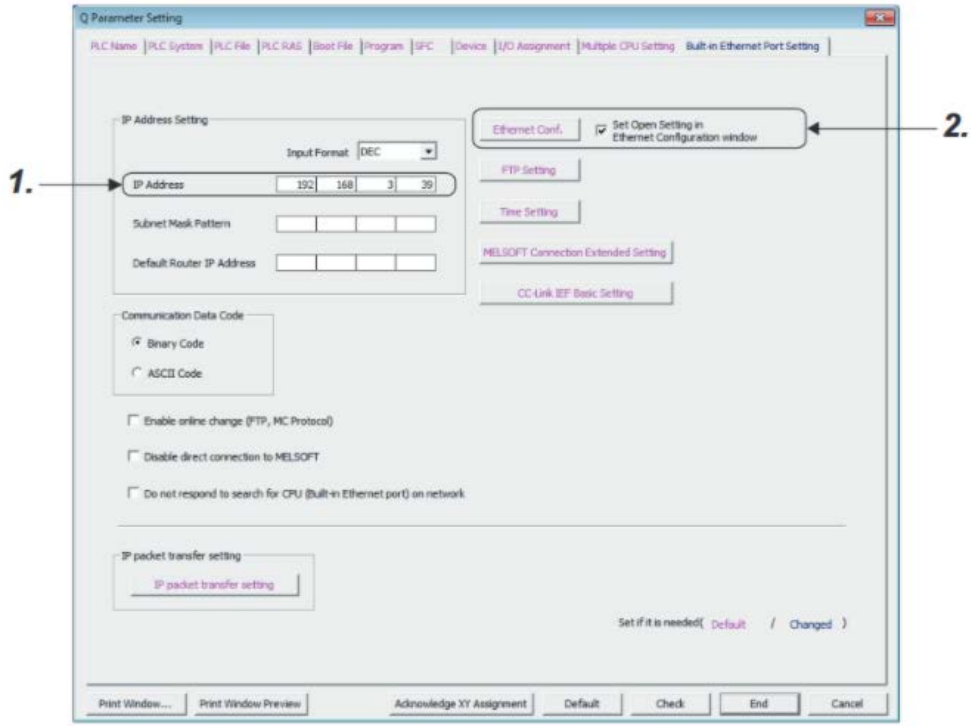
Depending on the type of Mitsubishi PLC you're using, the setup of the PLC has to be performed in either GX Works2 or GX Works3:

- L and Q series are set up using GX Works2.
- iQ-F and iQ-R series are set up using GX Works3.

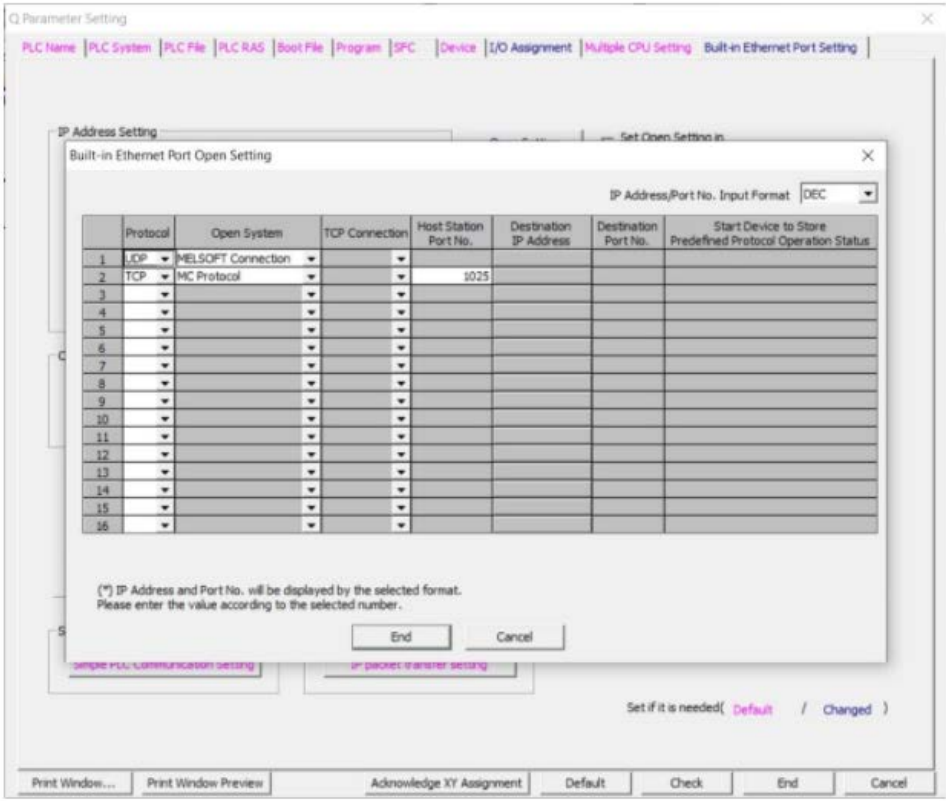
GX Works2

Setting up the CPU Module enables the PLC to communicate with an external device (i.e., your StrideLinx router). This can be done by following the next steps:

- In the Project Window, open **Parameter** > **PLC Parameter** and go to the tab **Built-in Ethernet Port Setting**.
- If you haven't already, enter an **IP address** for the CPU Module (1) and a **Subnet Mask Pattern** (usually 255.255.255.0).
- Check the option "**Set Open Setting in Ethernet Configuration window**" and press **Ethernet Conf** (2).



- On a new row, select protocol “TCP”, select open system “MC Protocol” and choose a Host Station Port Number between 1025-4999 or 5010-65534.



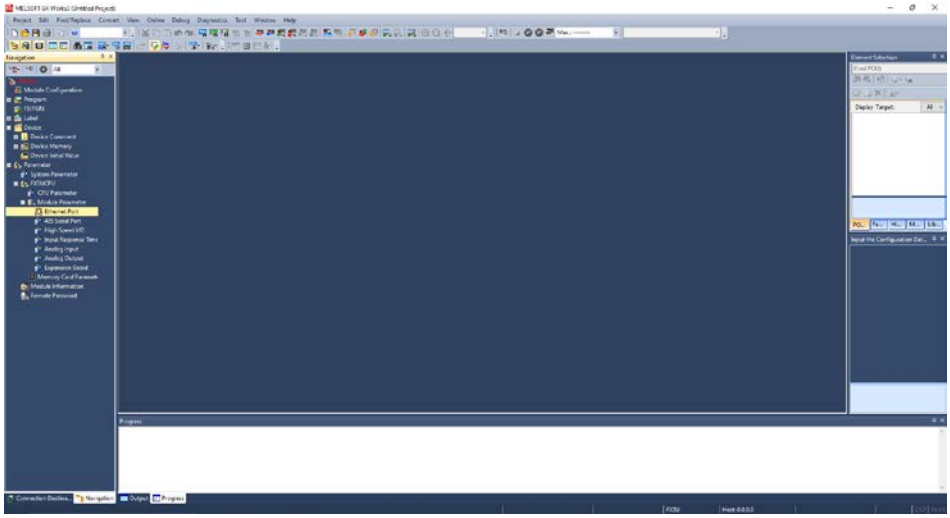
NOTE: TCP or UDP?
We support both the TCP and UDP protocols but recommend using TCP as this protocol is less error-prone.

Your PLC is now ready and you can continue setting up your StrideLinx router by selecting a communication protocol.

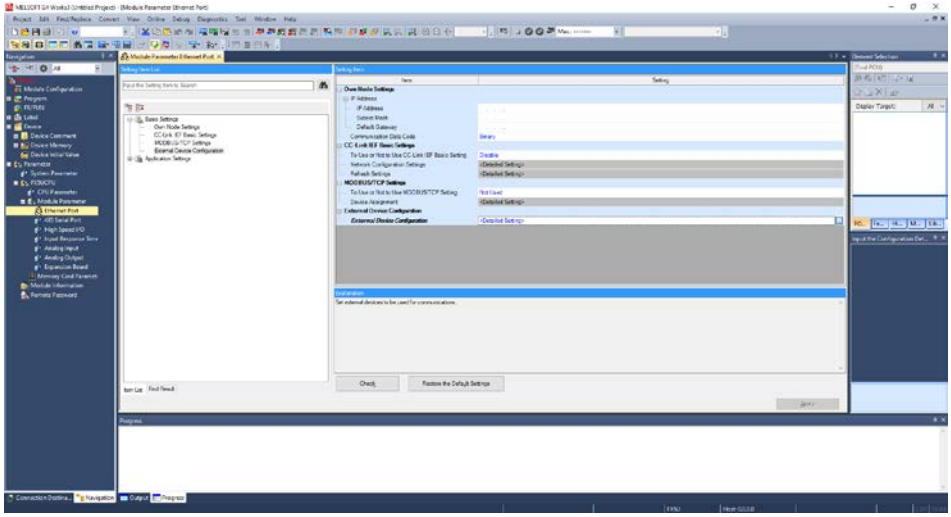
GX Works3

Setting up the CPU Module enables the PLC to communicate with an external device (i.e., your StrideLinx router). This can be done by following the next steps:

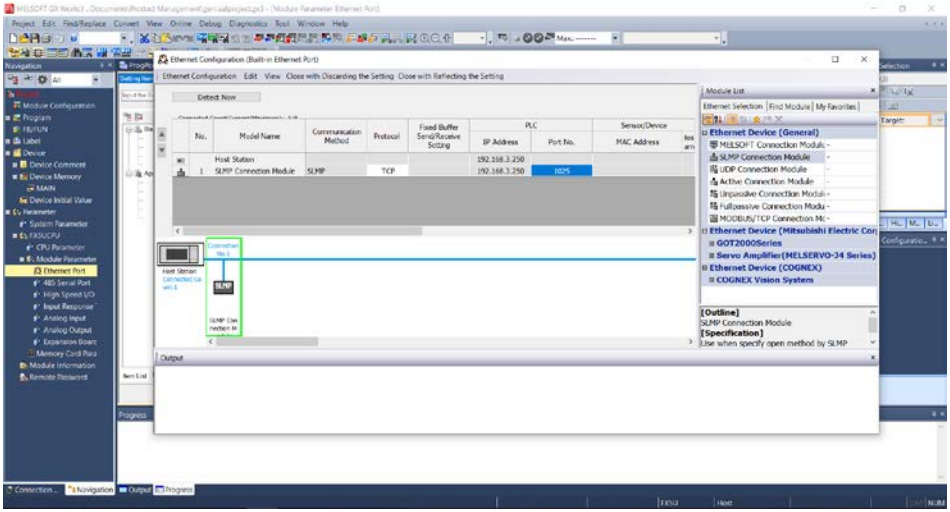
- In the Navigation pane, go to **Parameter** > **CPU** (FX5UCPU in the example below) > **Module parameter**.
- Open the **Ethernet Port** parameters.



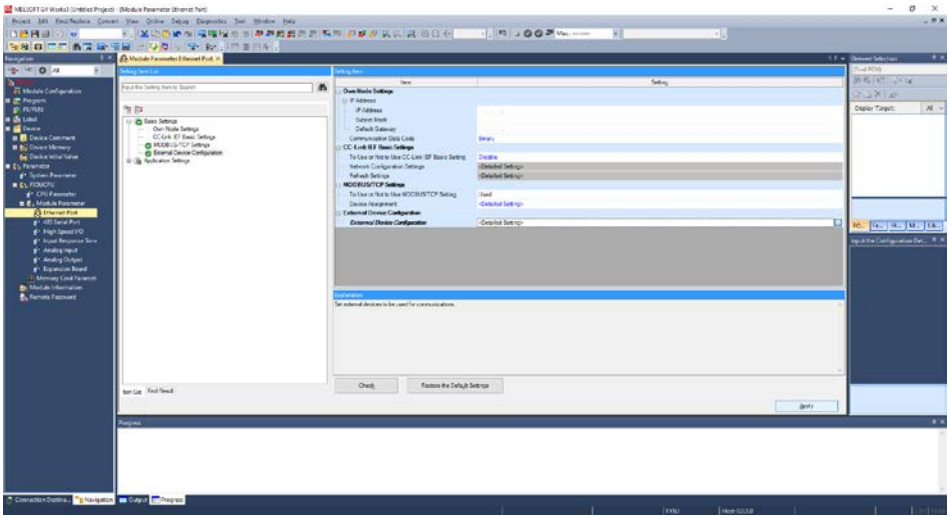
- Expand **Basic Settings** in the Item List and double click **External Device Configuration**.
- Expand Setting Item **External Device Configuration** and open the External Device Configuration window by double clicking "**<Detailed Setting>**".



- Expand **Ethernet Device (General)** in the Module List.
- Drag and drop **SLMP Connection** into the grey area. This is the MELSEC Communication Protocol.
- Select protocol "TCP" and choose a Port No. between 1025-4999 or 5010-65534.
- Save the setting by pressing **Close with Reflecting the Setting** at the top.

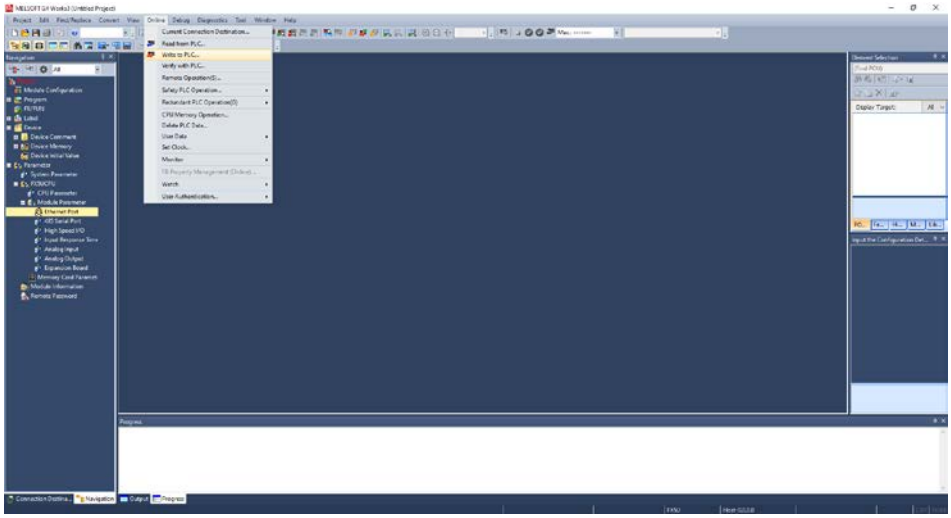


- **Apply** the new project setting.

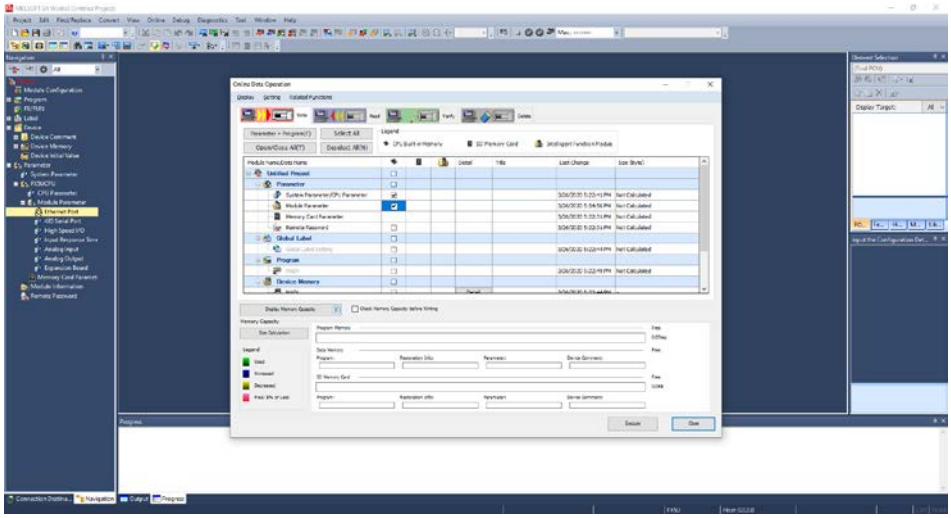


Now all that's left is to write these settings to the PLC.

- In the top menu, press **Online** > **Write to PLC**.



- Expand **Parameter**, make sure "Module Parameter" is checked, and press **Execute**.



NOTE: TCP or UDP?

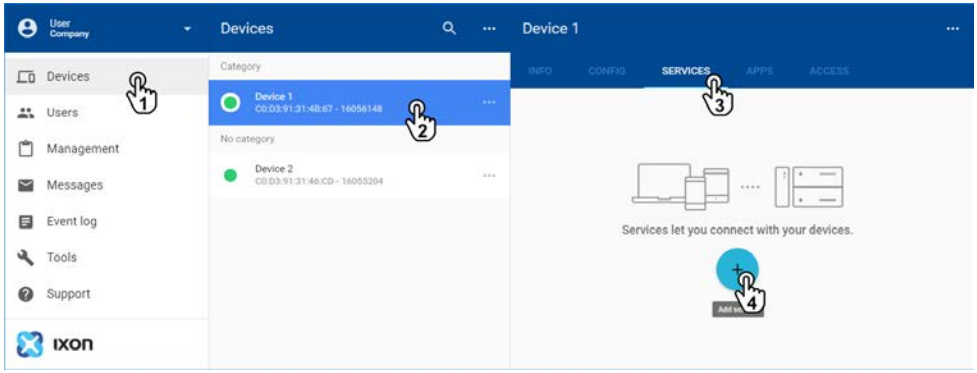
We support both the TCP and UDP protocols but recommend using TCP as this protocol is less error-prone.

Your PLC is now ready and you can continue setting up your StrideLinx router by selecting a communication protocol.

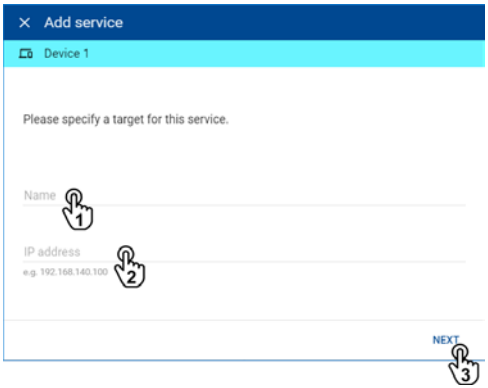
Select a communication protocol

First, select a communication protocol. This is the protocol that your StrideLinx router uses to communicate with the PLC.

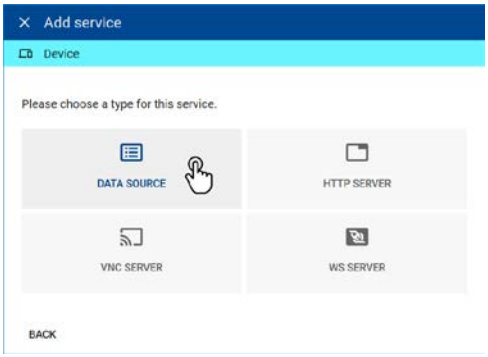
- Go to **Devices** (1) in the main menu, select your StrideLinx router (2) open its **Services** tab (3), and press **Add service** (4).



- **Name** the PLC (1), enter the PLC's **IP address** (2), and press **Next** (3).



- Select the **Data source** service type.



- Select "MELSEC Communication Protocol" from the drop down list and enter the following details:

Data Source Settings	
Field	***Description***
Port	Enter the Port No. that you configured in your PLC. *This is named "Host Station Port Number" in GX Works2.*
MELSEC Series	The Mitsubishi MELSEC PLC series to which your PLC belongs. *If you're unsure, please consult the Mitsubishi website. "QnUCPU" is Mitsubishi's notation for every MELSEC-Q Series PLC with CPU type Q..U..CPU, for example Q04UDVCPU or Q26UDEHCPU.*
Transport protocol	Select the same protocol that you configured in your PLC.
Network No. and PC No.	If configured in the PLC, enter the correct settings here. If not, leave the default settings. *Applicable when using a custom MELSEC PLC network.*
Request destination module I/O No. and Request destination module station No.	If configured in the PLC, enter the correct settings here. If not, leave the default settings. *Applicable when using a specific I/O module for communication.*
Authentication Type	The Ethernet connection in the PLC may be password protected. Enter the password or leave it empty if no password is configured on the PLC.

- Press **Add** to create the data source.

Add variables (new, import)

Once you've added a Data Source and selected a communication protocol, you can start adding variables. This is done in the configurator tool, specifically designed to quickly **add**, **duplicate**, **import**, **export**, and **remove** variables.

- Go to **Devices** in the main menu, select your StrideLinx router, open its **Services** tab, and edit the PLC's services.
- Select **Data source** and press **Open configurator**.
- To add a variable press **Add variable**.

You can choose to:

- **Manually** add new variables
- **Import** variables from a file (or device)

Manually add new variables

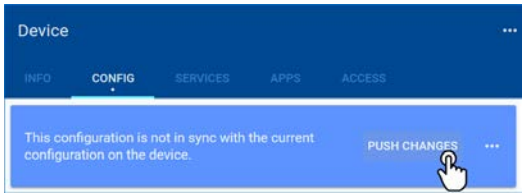
- Press **Add new variable**.
- Enter your variable's **name**, **type**, additional information, and press Add]. The table below contains explanatory text for each text field. Use GX Works to find these values for each variable that you want to log.

Data Tag Input Fields		
Field	***Description***	***Example***
Name	Enter a name for the variables.	Temperature
Type	The variable's data type	Unsigned word
Device Type	The variable's device type	D - Data register
Device No.	Address in the PLC memory	100
Factor (optional)	Multiplies the value (leave empty if boolean)	0.1
Unit (optional)	Displayed text behind the value	Celsuis

You can easily duplicate this variable if you're adding variables that are only slightly different. This way you only have to make small adjustments.

NOTE: After this next step, the config push, the device will temporarily disconnect to reconfigure its network settings and will automatically reconnect. This may take a minute.

- Press **Push changes** in the config tab to complete the setup.



Import variables from a file (or device)

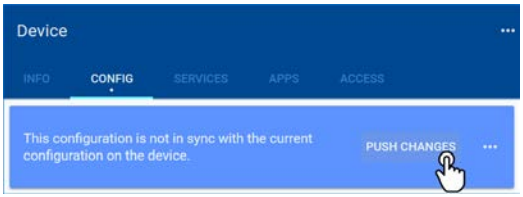
You can easily **copy variables from one device to another** by exporting the variables and then importing them in your new device.

When you press **Import from CSV-file**, you'll see a browse window.

- Select a CSV file to import and press **Open**.
- When the file has been read, press **Add** to add all variables to your data source.

NOTE: After this next step, the config push, the device will temporarily disconnect to reconfigure its network settings and will automatically reconnect. This may take a minute.

- Finally, press **Push changes** in the config tab to complete the setup.

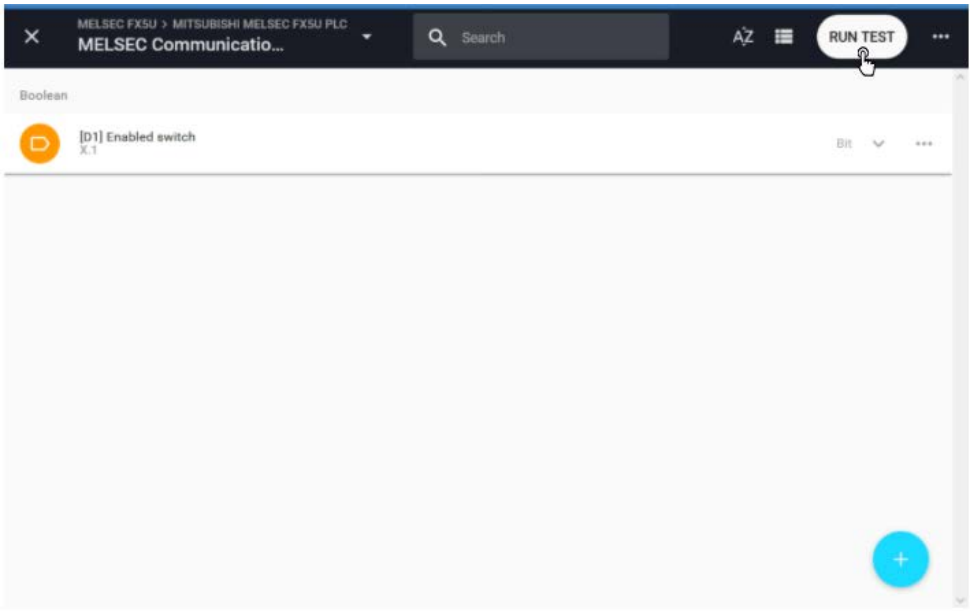


Now that you've added the variables, you can test if they're configured properly.

Test variables

The test utility is used to **check if all the added variables are set correctly**. It shows the **status** of every variable and displays the variables' **latest values** if everything is configured correctly. If not, it will show an error message.

- In the configurator, press **Run test**.



A connection will now be set up to stream the data directly to your computer, using:

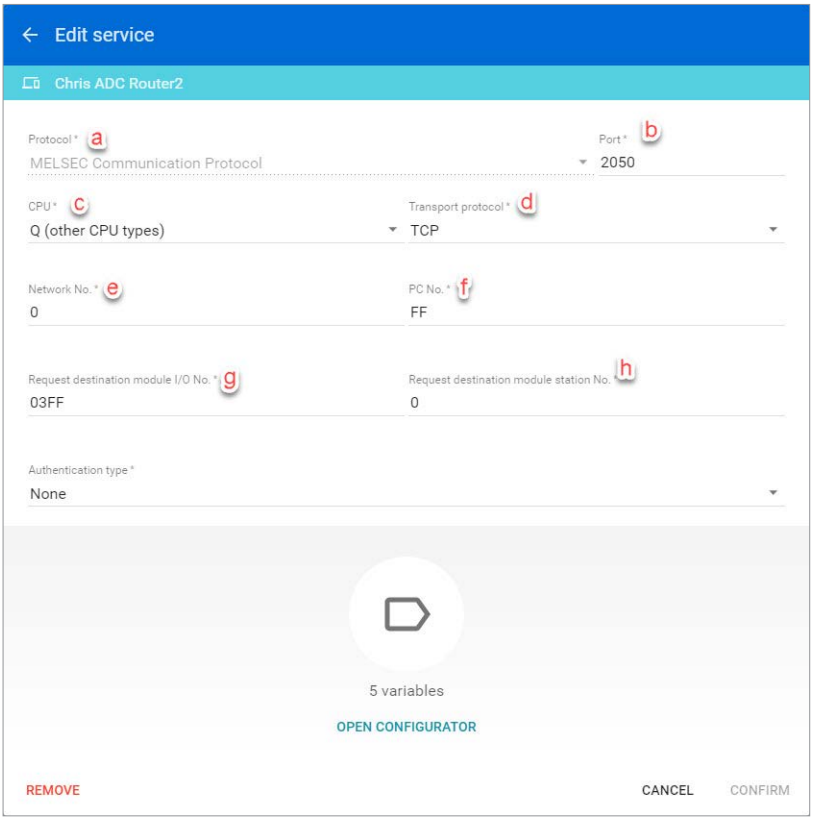
- Port: 443
- Transport Protocol: TCP
- Application Protocol: WebSocket

Unexpected result?

If the test utility shows unexpected values, please check if the addresses and data types of all variables are entered correctly.

If you get no data at all, please also check that the above listed port and protocols are not being blocked by your computer's or company's firewall.

Connecting StrideLinx to Q series Ethernet module QJ71E71-100 with MELSEC Protocol



a. Choose the MELSEC Communication Protocol

b. The port number needs to match the "Host station Port No." field in the "Open settings" dialog described later in this document. NOTE: the value configured in StrideLinx platform is in decimal format but the value in the Mitsubishi programming software is in Hex format. So in the example above, using a value of 2050 here should be 0802 in the Mitsubishi programming software.

c. Choose the "Q (other CPU types)" option.

d. Choose TCP transport protocol.

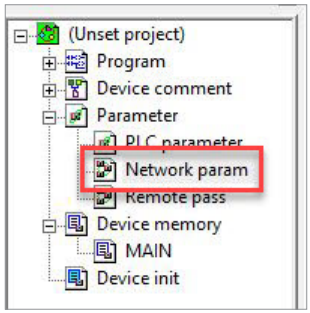
e. Use a value of 0 for the "Network Number".

f. Leave the default value of FF for the "PC number".

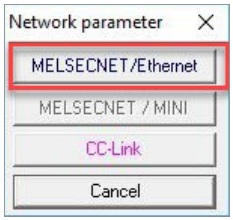
g. Leave the default value of 03FF for the "Request destination module I/O No".

h. Use a value of 0 for the "Request destination module station No".

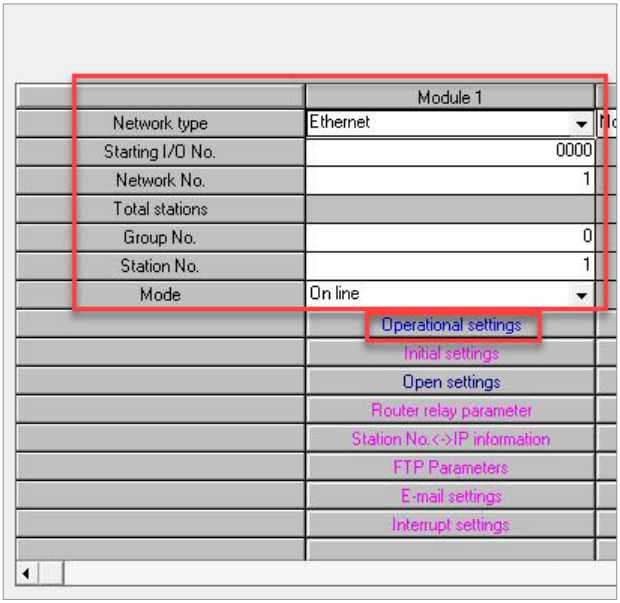
Module setup in the Mitsubishi programming software:



- Double click on the "Network param" option on the left-hand side tree under the "Parameter" section of the project. This will generate a new dialog box.

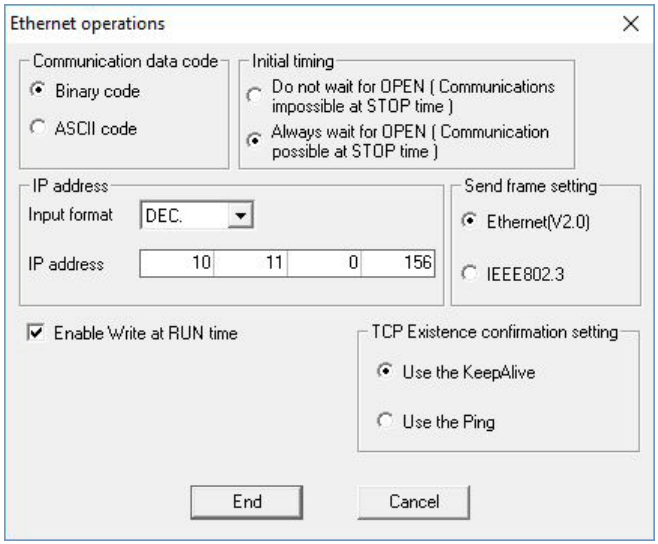


- Select the "MELSECNET/Ethernet" option in the "Network parameter" dialog.



- Configure the settings as shown in the dialog above.

- Next, click on the "Operational settings" button to open a new dialog.



- Configure the options as shown above.
- IP address: choose a unique IP address that is compatible with the subnet of the LAN side of your StrideLinx router.
- Click on the "End" button after setting up this dialog.

- Now click on the "Open settings" button in the "MELSECNET/Ethernet" dialog to display the settings above.

- Configure your ethernet module to match the settings above. NOTE: the "Host station Port No." must match the setup in the StrideLinx router. The value shown here is in hex format while the value in the StrideLinx router is in decimal format.
- Click on the "End" button and write these values to your PLC. A power cycle may be required on the PLC for these settings to take effect.