Configure Anybus Communicator EtherNet/IP Adapter with RSLogix 5000

More info about the network and products

For the latest manuals, EDS-files, etc., see www.anybus.com

For more information concerning the EtherNet/IP network, see the Open EtherNet/IP Vendor Organization's web at www.odva.org

For information on the PLC, see the Rockwell Automation web at www.automation.rockwell.com

Document history

Revision	Date	Description	Author
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Contents

Applicable Anybus products

Description	Name / Type
Anybus Communicator	EtherNet/IP

1.Requirements

Description	Name / Type	Version
Anybus Communicator	RS-232/422/485	
Rockwell PLC	ControlLogix5000	n.a.
PLC software	RSLogix 5000	21.0.0
IPconfig tool	IPconfig	3.0.1.5
Communicator User Manual	Anybus Communicator for Ethernet, User Manual	4.00
Power supply 24VDC	n.a.	n.a
Configuration cables	n.a.	n.a.
Anybus Configuration Manager		4.3.1.1

2.Solution overview

This application note describes how to configure an Anybus Communicator EtherNet/IP adapter module with a Rockwell PLC using RSLogix 5000. An overview of the system described in this document is provided below. There may be other nodes attached to the network.

The configuration is described in two steps.

1. The PLC and network configurations – see section 4.1.
2. Configuration of the IP settings and the I/O data of the Communicator – see section 3

The configuration is described step-by-step. The reader is assumed to be familiar with industrial communication, EtherNet/IP networks and the Anybus Communicator.

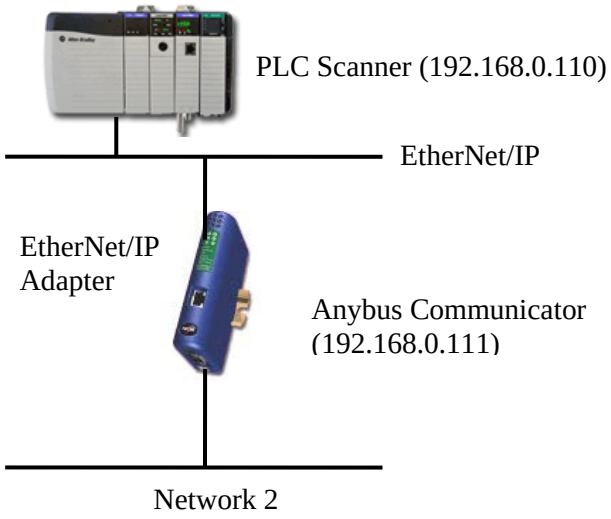


Figure 1 Hardware connection overview.

3. Anybus configuration

3.1. IP settings

The IP settings for the Communicator can be configured by various methods, for example by using the IPconfig tool as described below, or directly in the communicator configuration software.

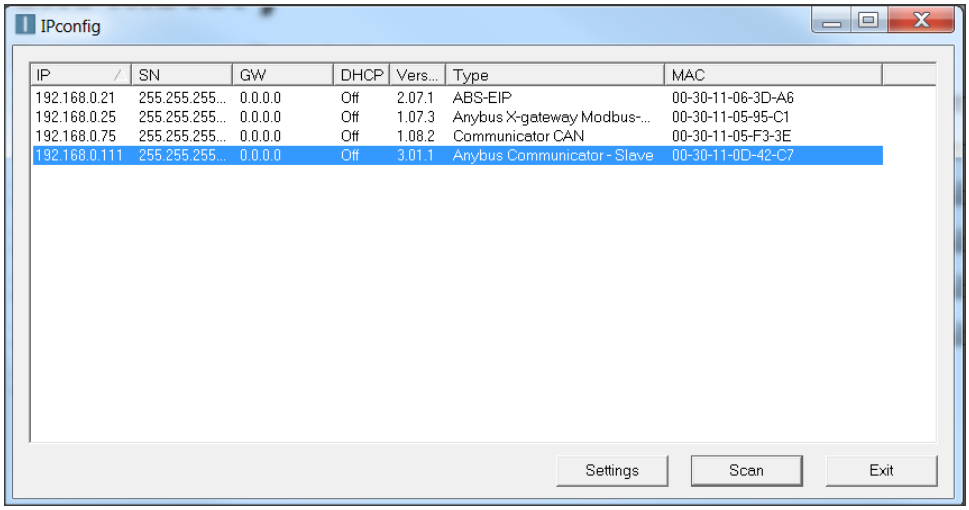


Figure 2 The IPconfig tool.

Start the program and the main window will appear. The program scans the network for the Communicator Ethernet module. The settings can be configured manually, or the DHCP function can be used which is the default for the Communicator Ethernet module. To change the settings manually, double-click on the module and enter the IP settings, as in the example below.

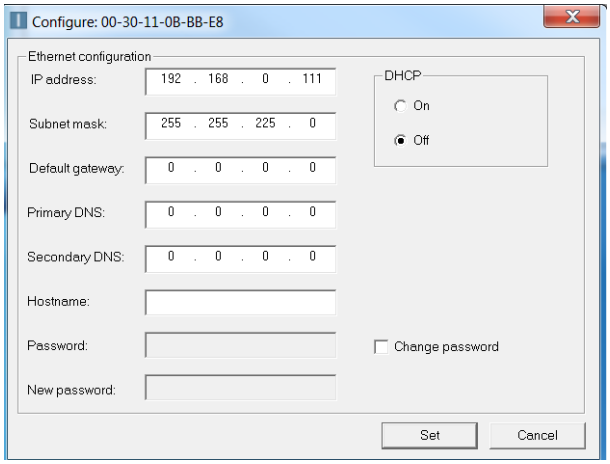
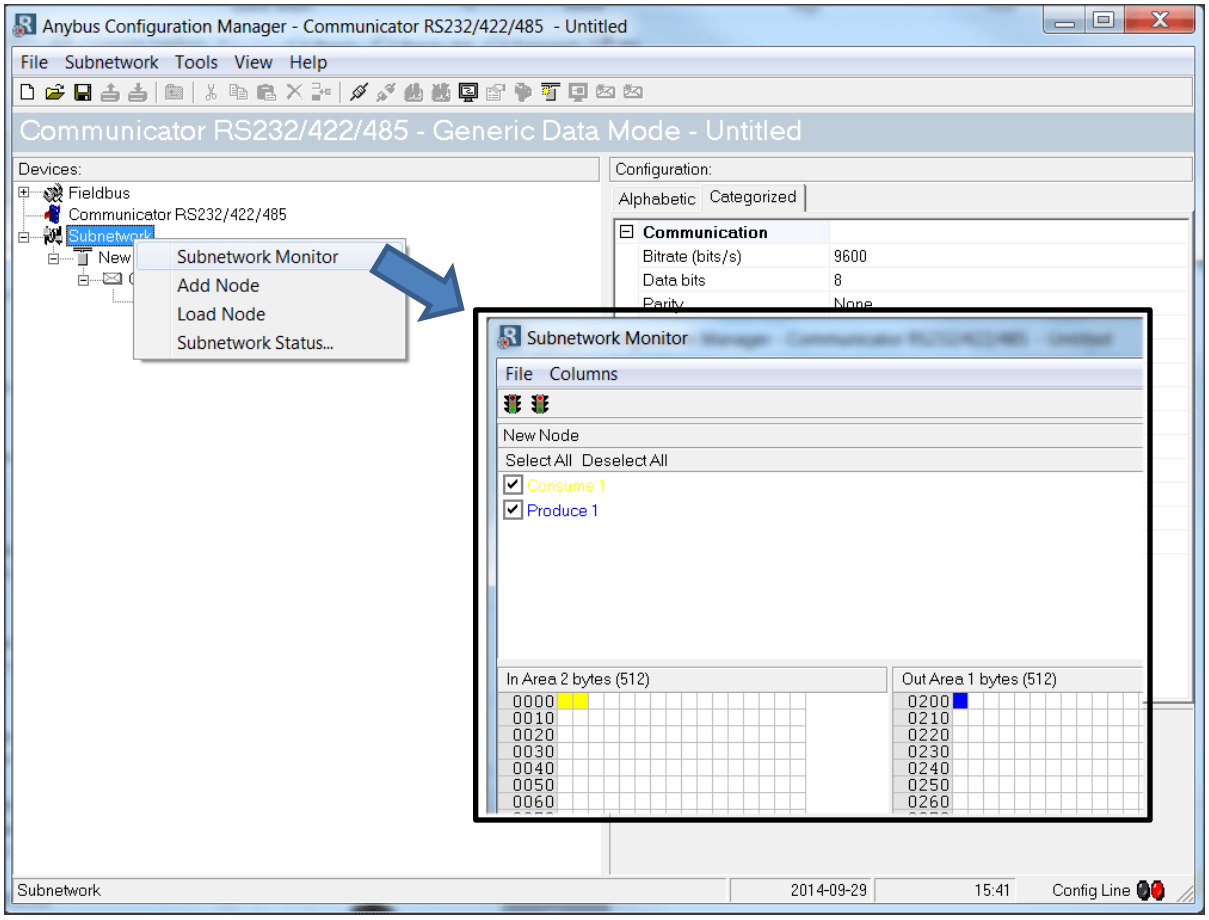


Figure 3 Configuring the IP settings.

The PLC must later be configured with the same I/O size and IP settings as the Communicator.

Note: For the PLC I/O size, see the Subnet Monitor in ACM Communicator, as in the example below.



4. EtherNet/IP configuration

The RSLogix 5000 tool is used to configure the PLC and the EtherNet/IP network. The PLC must be configured first, followed by the EtherNet/IP network. Start the RSLogix 5000 program and follow the steps below.

4.1. PLC configuration

Use an existing project or create a new one. To create a new configuration, open the **File** menu and select **New**. In the dialog that appears, select the type of PLC, in this case 1756-L71 (see e.g. the product label). Enter a name for the controller and then click **Next**.

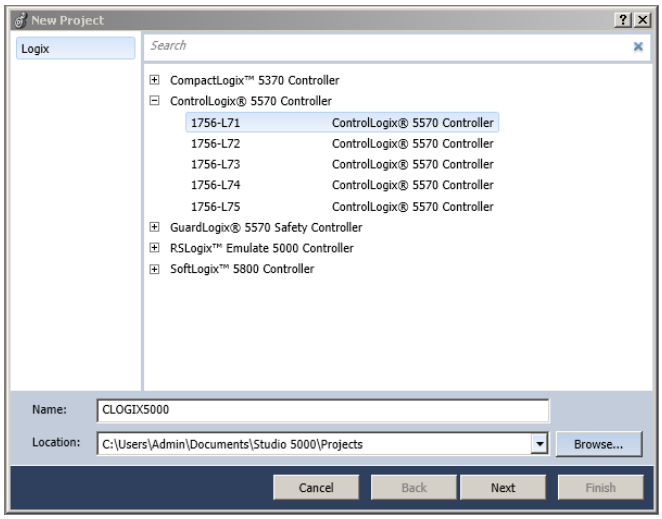


Figure 4 Adding the PLC to the configuration.

In the next dialog, select the chassis type and slot number (see e.g. the product label). To accept the settings, click **Finish**.

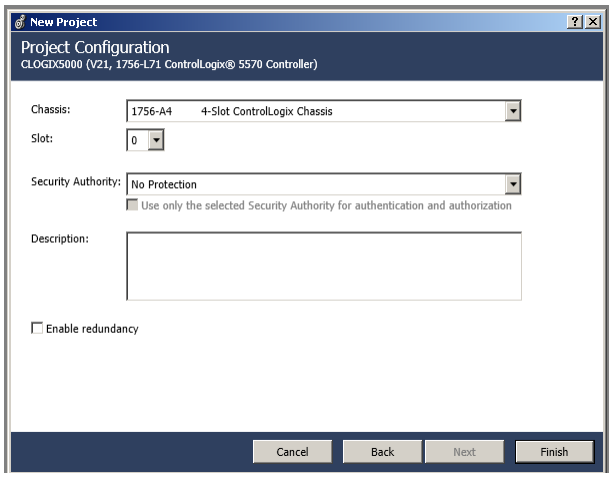


Figure 5 Selecting the chassis type and slot.

Now add the Ethernet I/O module, by right-clicking on the I/O configuration directory in the navigation list to the left, as shown below.

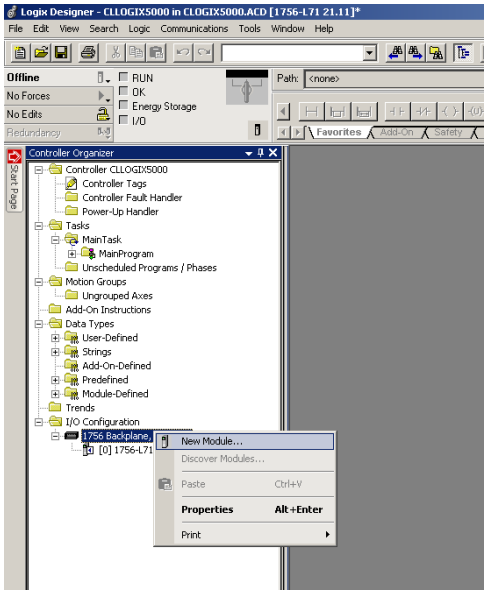


Figure 6 Adding the Ethernet module.

Click on **New module** and select the required Ethernet module, which in this case is the Ethernet Bridge 1756-EN2T. Click **Create**. This is the scanner module in the PLC.

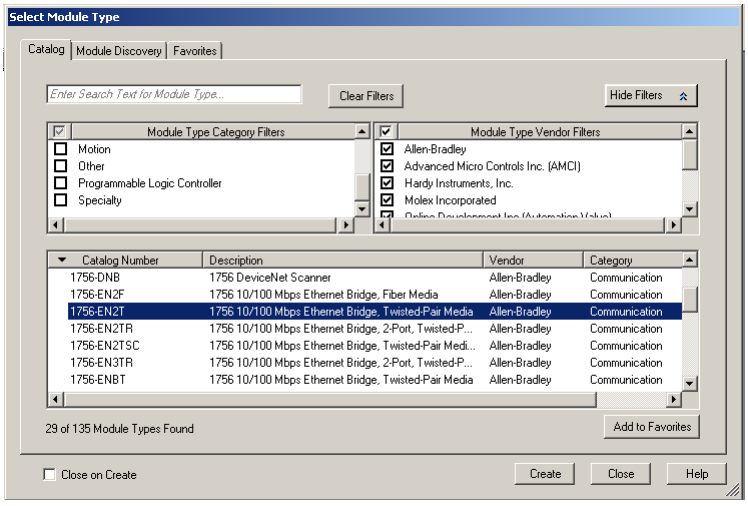


Figure 7 Selecting the type of module.

Enter the required settings and click **OK.**

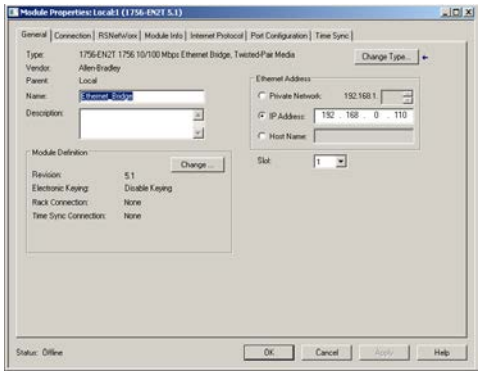


Figure 8 Configuring the settings for the Ethernet module.

4.2. Select Install Method

The Communicator can be added to the network in 2 different ways, depending on the version of the RSLogix 5000 software being used:

- By using an EDS file - requires version 20.00 or later of RSLogix 5000. See section 4.3.
- By configuring a generic module - for earlier versions of RSLogix5000. See section 4.4.

4.3. Add Communicator using an EDS file

The EDS-file is available at www.anybus.com/support, where the file can be located by entering the AB code for your product.

4.3.1. EtherNet/IP Network configuration

Add the Communicator module to the configuration in the PLC. Start by setting the program in “Offline” mode❶. Then right-click on the EtherNet/IP bridge in the I/O configuration, and select “New Module”❷.

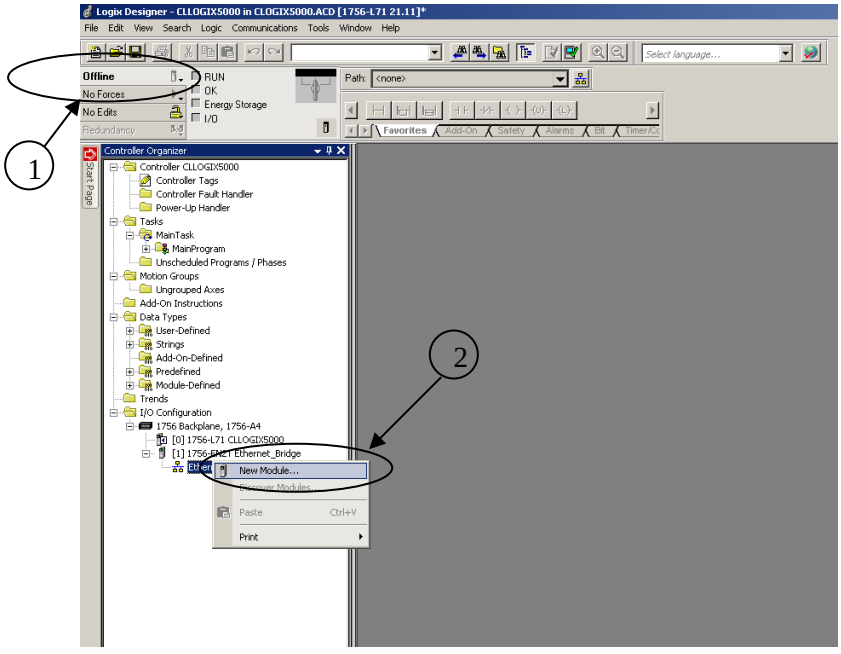


Figure 9 Adding the Anybus module.

A dialog window will appear. In this dialog, select “Anybus Communicator Slave” and click **Create**.

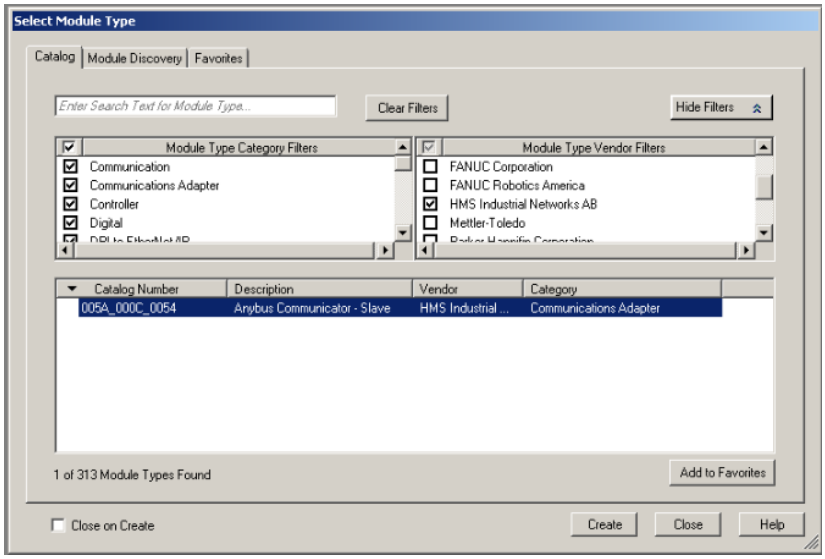


Figure 10 Setting the module type.

Give the module a name and click **Change** in the module definition field to alter the input/output data sizes. See the image below.

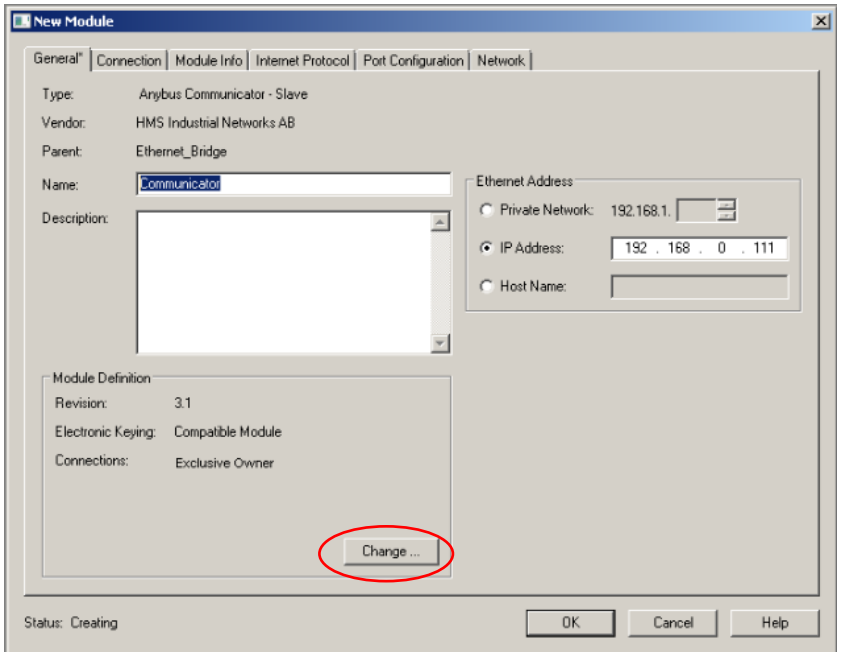


Figure 11 Change input/output sizes.

The “module definition” window will now appear, in which the size and data type for the input/output data of the Communicator should be set. This example uses Data-SINT, which will represent the data in the Communicator module as a field of 8-bit values. It is also possible to select Data-INT, which will represent the data as 16-bit values, or Data-DINT, which will represent it as 32-bit values.

The size of the input and output connections must correspond to the size configured for the Communicator module. Using Data-SINT or Data-DINT would mean re-calculating the size to match the data type, so if Data-SINT was twenty 8-bit values, then Data-INT would be ten 16-bit values and Data-DINT would be five 32-bit values. The example below only uses 2 x 8-bit input values and 1 x 8-bit output value.

Click **OK**.

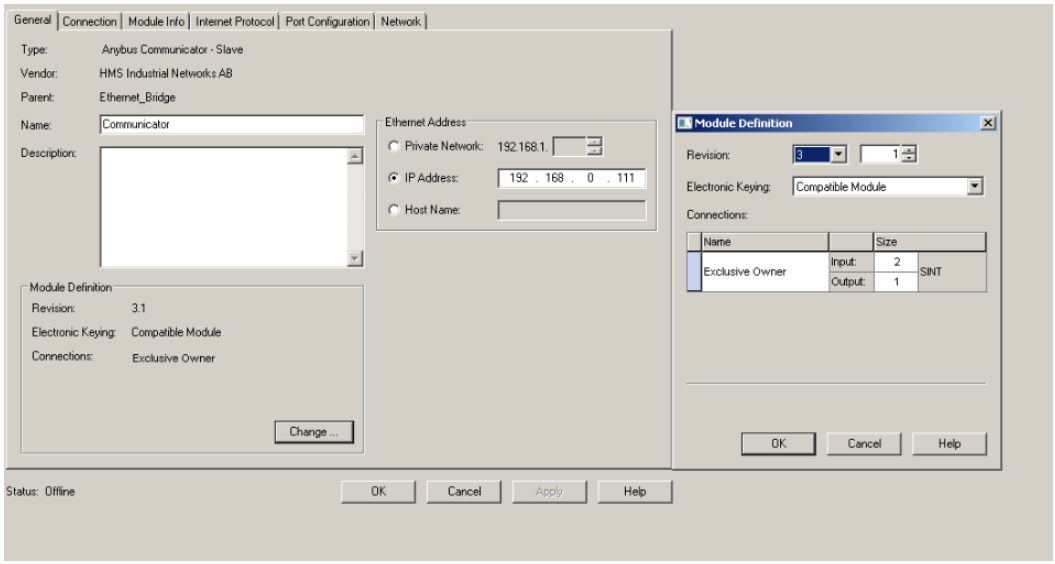


Figure 12 Module definition.

Finally, the IP address configured for the module should be entered - 192.168.0.111 in this example. The IP address should be in the same range as the IP address for the PLC system.

Click **OK** once more to proceed.

In the controller tags for the PLC (to the left), the configured I/O data values for the implemented Communicator can be seen. Now proceed to section 4.5.

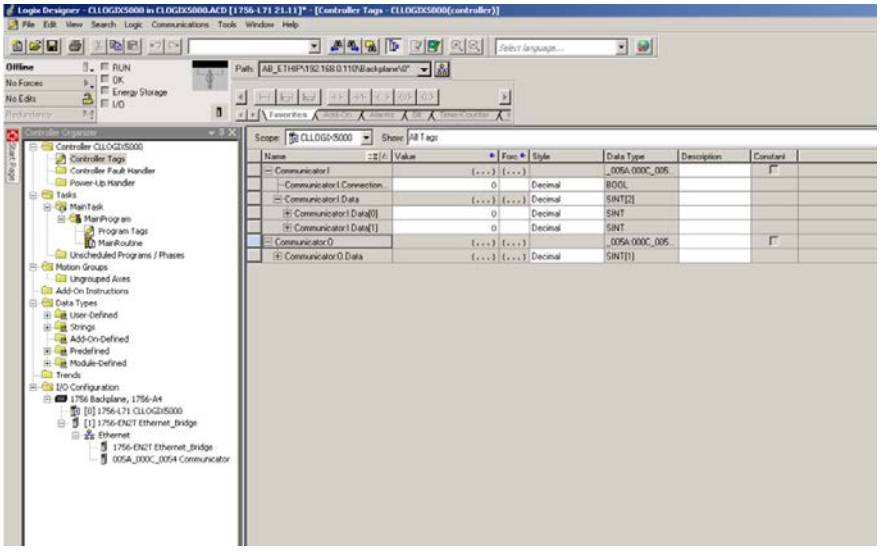


Figure 13 Configured values.

4.4. Add Communicator to Network – Generic Module

4.4.1. EtherNet/IP Network configuration

Add the Communicator to the configuration in the PLC. Start by setting the program in "Offline" mode❶. Right-click on the EtherNet/IP bridge in the I/O configuration, and select "New Module"❷.

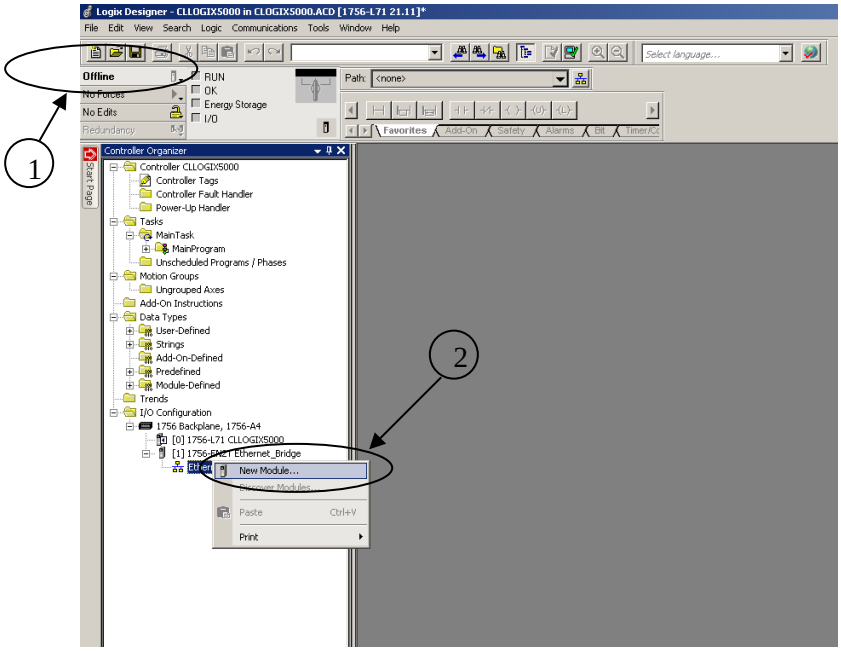


Figure 14 Adding the generic module.

A dialog window will now appear. Select "Generic Ethernet module" and click **Create**.

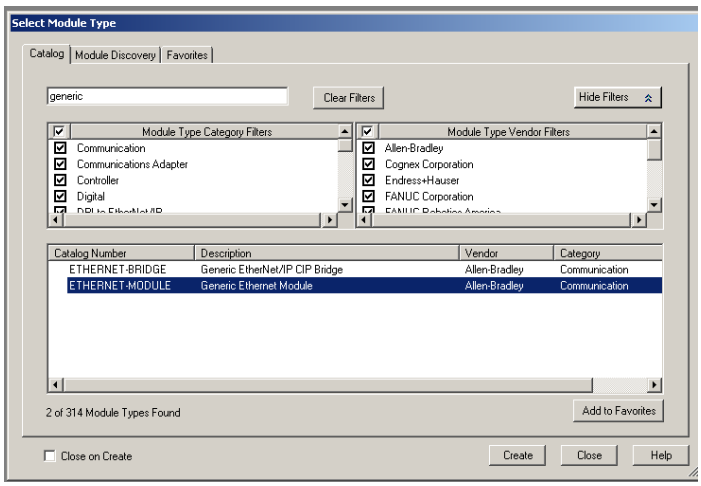


Figure 15 Selecting the Generic Ethernet Module.

In the following dialog, RSLogix 5000 will request information regarding the communication to the Communicator. Firstly, enter a name for the Communicator ❶. In the example below this is “Anybus”. This name will create a tag in RSLogix 5000, which can be used to access the memory location in the PLC where the data for the Communicator will be stored. An optional description can also be added.

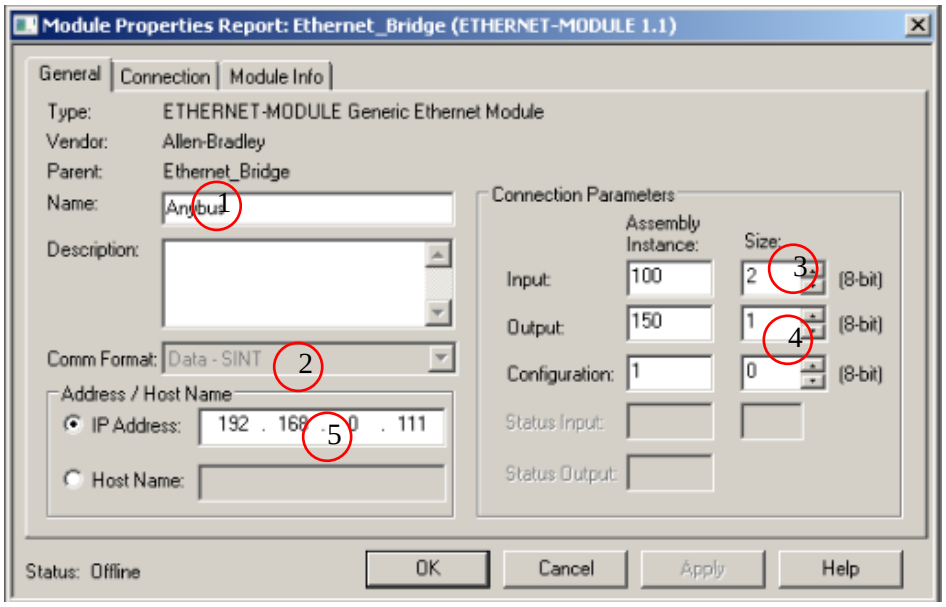


Figure 16 Configuring the module properties.

Now select the “Comm Format”, which tells RSLogix5000 the format of the data❷. In this example, Data-SINT is selected, which will represent the data in the Communicator module as a field of 8-bit values. It is also possible to select Data-INT, which will represent the data as 16-bit values, or Data-DINT, which will represent it as 32-bit values.

The size of the input ❸ connection and output ❹ connection shall correspond to the size configured for the Communicator module, in this case 2 bytes in and one byte out.

Finally, the IP address ❺ configured for the module should be entered, in this example is 192.168.0.111.

Click **OK** to proceed.

In the next dialog, enter a value for the time between each scan of the module. In this example, the interval is set to 50ms, to reduce the network load. Make sure that “Inhibit Module” is not checked. Click **OK**.

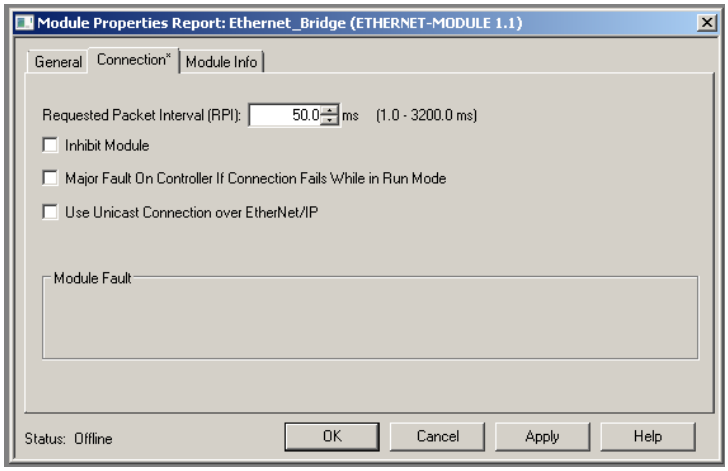


Figure 17 Configuring the scan interval.

The Communicator has now been added to the I/O configuration in RSLogix 5000. The main screen will look something like this:

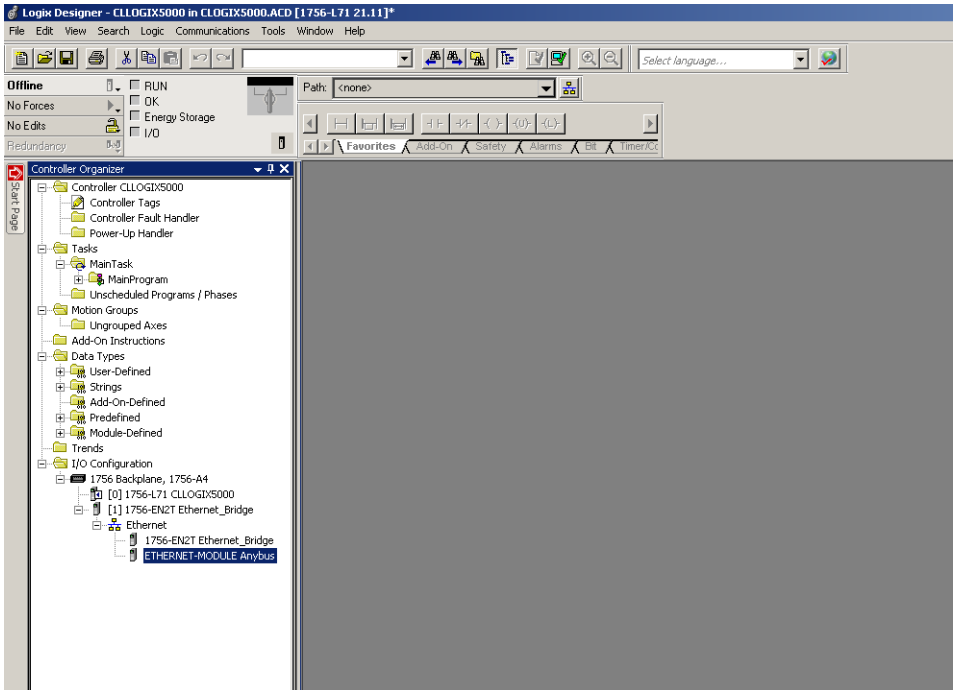


Figure 18 The main screen showing the completed configuration.

4.5. Downloading the configuration to the PLC

First select the communication path, which can be done by opening the **Communications** menu and selecting the **Who Active** command. Select the desired communication path as seen below.

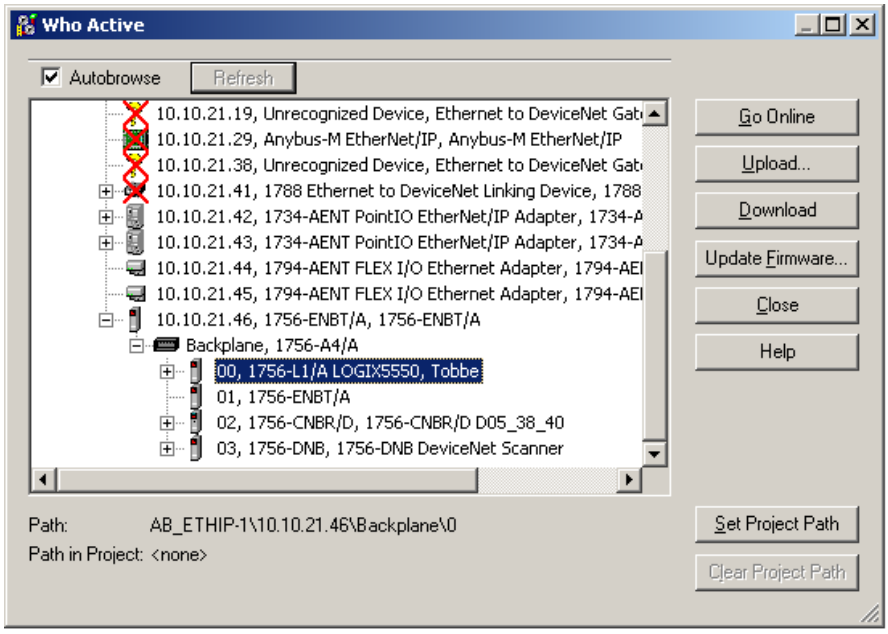


Figure 19 Configuring the communication path.

Select **Go Online** from the **Communications** menu.

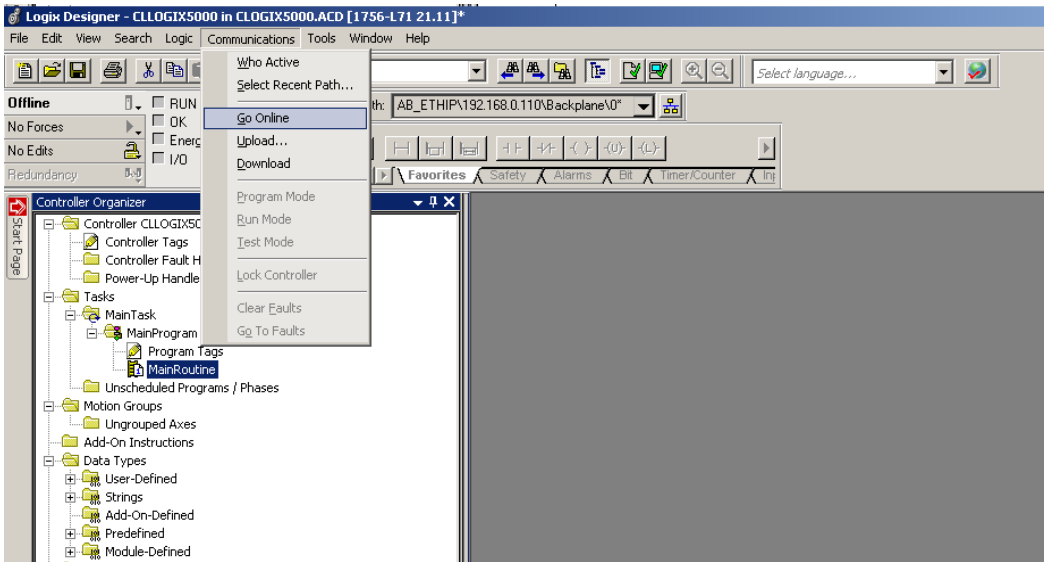


Figure 20 Opening the online window.

In the new window that appears, select **Download**.

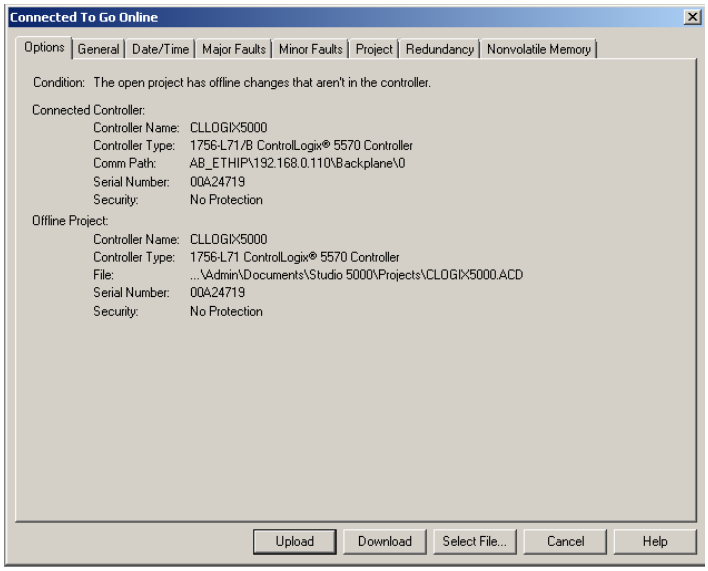


Figure 21 The download window.

A new window will then ask for confirmation to download the configuration. Select **Download** and the configuration will be downloaded to the PLC.

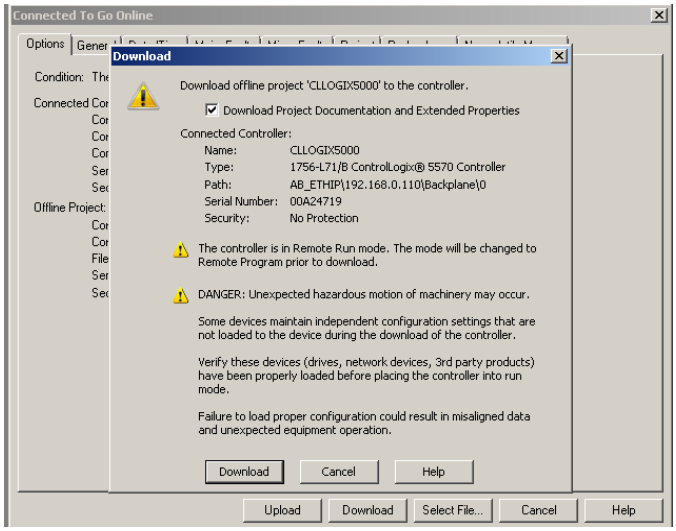


Figure 22 Downloading the configuration to the PLC.

If there are any errors, a warning triangle will be shown on the Communicator in the I/O configuration listing. Double-click the module to view the reported error(s).