

## **Addendum to Verbatim Gateway Owner's Manual How to configure a Verbatim EtherNet/IP with RSLogix 5000**

**Revision 1.1**



*Verbatim*  
**Gateway**

## Document history

Revision	Date	Description	Author
1.00	2003-04-16	Document created	Ian Tracy
2.00	2013-12-04	Localization and updates	Michael Jammal

Raco Manufacturing and Engineering continually makes improvements in the operation and functionality of its products. This addendum describes Verbatim Gateway Ethernet communication option that allows the Verbatim Gateway to connect directly on the PLC Ethernet networks. This addendum specifically addresses the ModbusTCP and EtherNet/IP protocols.

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## Introduction

Are You Familiar with the Operation of the Verbatim Gateway Autodialer Yet?

Changes to a few, very specific features of the Verbatim Gateway are described in this addendum. It is assumed that the reader of this addendum is already familiar with the basic operation and programming method of the Verbatim Gateway product. If this is not the case, please take the time necessary to familiarize yourself with the Verbatim Gateway autodialer by reading the Verbatim Gateway Owner's Manual.

## 1. More info about the network and products

For further information about the Verbatim Gateway Ethernet Option products, please consult the RACO Mfg and Eng web pages at [www.RACOMAN.com](http://www.RACOMAN.com). The latest manuals, EDS-files (also included in the CD that is shipped with a new Verbatim Gateway Ethernet) etcetera can be downloaded from the on-line support sections of the web site.

For more information concerning the EtherNet/IP network the Open EtherNet/IP Vendor Organization has a webpage. Please visit, [www.odva.org](http://www.odva.org), for more information about EtherNet/IP.

For more information concerning the ModbusTCP network the Open Modbus Organization has a webpage. Please visit, [www.modbus.org](http://www.modbus.org), for more information about ModbusTCP.

For information concerning the Allen Bradley PLC's refer to the Rockwell Automation homepage [www.rockwellautomation.com](http://www.rockwellautomation.com)

## 2. When should you use this addendum?

The information provided in this document helps the user setup the Ethernet communication between the Verbatim Gateway and the Ethernet network. It is assumed that the user has already setup the Verbatim Gateway and is ready to setup the remote channels (section 7.2.1 in the main Verbatim Gateway manual).

**Please note that this addendum is in effect a new section (7.2.11 in the main Verbatim Gateway user Manual). Therefore, the content of this addendum covers all the requirements of connecting to the Ethernet network which also includes all testing and diagnostics.**

The Verbatim Gateway Ethernet autodialer has the capabilities of connecting two different networks. The Ethernet network is connected to NET2 of the Verbatim Gateway com card. All functionalities that a normal Verbatim Gateway can perform between different Networks can also be done in this instance. The main purpose of connecting to the Ethernet network is to get the PLC data natively instead of connecting on other external network bridges.

## 3. Industrial Network Interface

Newer PLCs are factory configured to interface over Ethernet protocols. This is a reality that affected this product evolution of Verbatim Gateway. It is important to note that the Verbatim Gateway Ethernet autodialer can support Ethernet and Modbus RTU on NET1. The number of

channels from each network would contribute to the total number of channels available on the Verbatim Gateway.

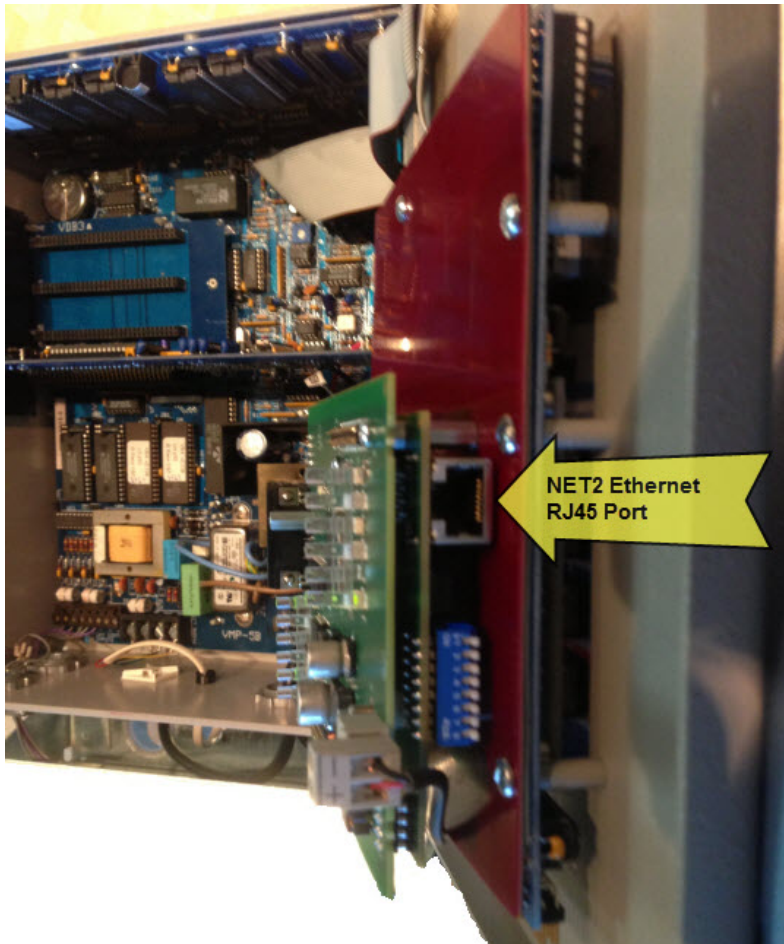
## 4. Requirements

Description	Name / Type	Version
Rockwell PLC	ControlLogix5000	n.a.
PLC software	RSLogix 5000	13.04.00
RACO IPconfig tool	RACO IPconfig	2.1.1.1
Verbatim Gateway EtherNet/IP Network Interface Addendum	Verbatim Gateway EtherNet/IP Ethernet Network Interface Addendum	1.02
Verbatim Gateway EtherNet/IP User Manual	Verbatim Gateway User Manual	2.0

## 5. Determining Net Port Number & Protocol Identifier

The Verbatim Gateway Ethernet supports four device ports, named NET1-4. Connections to any of these ports are completely separate from each other. Each will need to be configured independently (See the main Verbatim Gateway user manual). In this version of the product, the Ethernet connectivity is found in the door of the module as shown in the image below. Please note that the Ethernet is connected to NET2. For the rest of this document, all settings to NET2 are intended to help establish communication with the Ethernet networks.

This Ethernet version of the Verbatim Gateway supports equally the ModbusTCP or the EtherNet/IP networks over the Ethernet port.



## 6. User Codes for Enabling a Protocol on a Port

To enable a protocol on a particular port enter: 4906 net \* N

Configure Net 2 for Modbus protocol using 4906 2\*5. This will automatically set communication with the Ethernet card.

## 7. Communication Registers

The Verbatim Gateway behaves in the same way in all of its programming as indicated in the main Verbatim Gateway user's manual except in the way it addresses the loss of Ethernet communication functions. When addressing the communication behaviours in Ethernet you should observe these guidelines.

The communication health bit is configured with a special logic to monitor network health of connecting PLCs – If Ethernet master loses connection, a health byte in address 40031 will go from 0 to 256 or a bit in address 00488 will go from 0 to 1 indicating that the communication with the network is impaired and if the Verbatim Gateway is programmed to look for this change. A bit flipping from 0 to 1 can report the loss of communication via an alarm to the users.

To program the loss of communication alarm follow the instructions in the main Verbatim Gateway manual and insure that the register name space is set accordingly.

Program 4532 \* 2 \* 2 \* 00488 and 4532 2 (channel 32 reads address 00488 , normally 0 alarm on 1)

Note that Normal means actually talking to the PLC. You would get an alarm if you are plugged into the Ethernet, but the PLC is not communicating, or if you are not plugged into the Ethernet.

### 7.1. Additional consideration when Reading and Writing Hexadecimal versus Decimal versus Binary

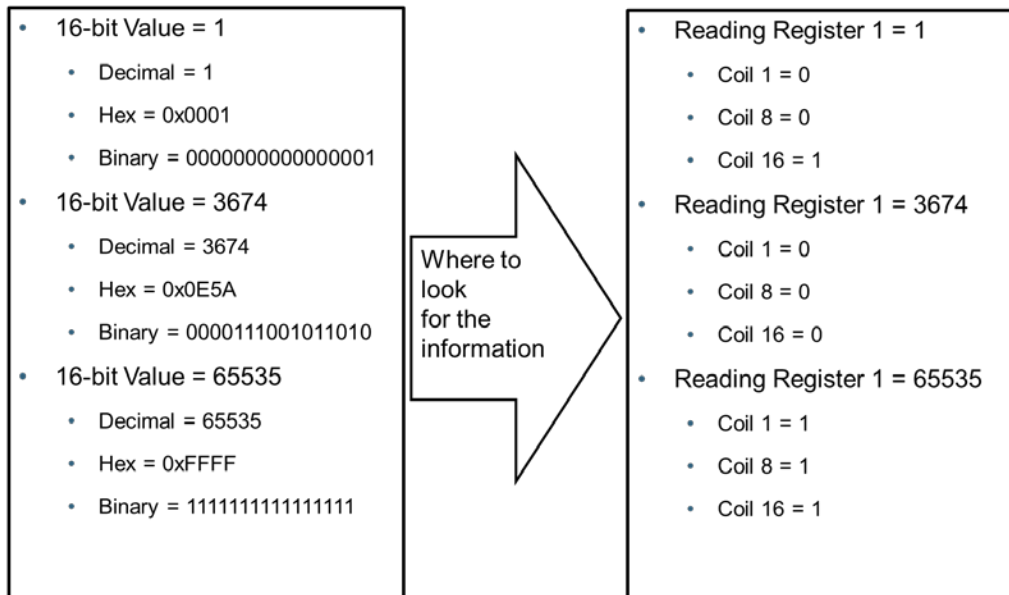
It is good to note these differences in looking for the changes in register values, coils, and bits:

- Sometimes different types of registers are mapped to different internal memory locations
  - 30001 will go to a particular read-only input register (e.g. temperature), whereas 40001 will go to a different read/write holding register (e.g. set point).
- Verbatim Gateway autodials don't work this way. All the different areas are mapped on top of one another.
  - 30001 holds the same value as 40001.
  - Coil 00001 holds the same value as the first bit of 30001 or 40001
  - Registers 1-30 hold read only input data
  - Coils 1-480 (16-bit\*30) hold input data
  - Coils 16385 (16-bit\*1025) – 16865 (+16\*bit\*30) hold read/write output data
- This allows flexibility to look at data as input registers, holding registers, coils, etc., as many Modbus masters don't have all functions implemented

Register #	Coil #	Buffer	Location in Buffer	Comments
1	1... 16	Input Buffer	000... 001h	Applicable Modbus functions: - Read Coil - Read Input Discretes - Read Holding Registers - Read Input Registers - Read/Write Registers
2	17... 32		002... 003h	
3	33... 48		004... 005h	
4	49... 64		006... 007h	
5	65... 80		008... 009h	
6	81... 96		00A... 00Bh	
7	97... 112		00C... 00Dh	
...	...		...	
255	4065... 4080		1FC... 1FDh	
256	4081... 4096		1FE... 1FFh	
257... 1024	4097... 16384	-	-	(reserved)
1025	16385... 16400	Output Buffer	000... 001h	Applicable Modbus functions: - Read Coil - Read Input Discretes - Read Holding Registers - Read Input Registers - Write Coil - Write Single Register - Force Multiple Coils - Force Multiple Registers - Mask Write Register - Read/Write Registers
1026	16401... 16416		002... 003h	
1027	16417... 16432		004... 005h	
1028	16433... 16448		006... 007h	
1029	16449... 16464		008... 009h	
1030	16465... 16480		00A... 00Bh	
1031	16481... 16496		00C... 00Dh	
...	...		...	
1279	20449... 20464		1FC... 1FDh	
1280	20465... 20480		1FE... 1FFh	
1281...	20481...	-	-	(reserved)



Therefore when reading and writing registers coil or bits one should observe the following differences



## 8. Allen Bradley PLCs Solution overview

This application note describes how to configure Verbatim EtherNet/IP with a Rockwell PLC using RSLogix 5000. Below you can find an overview of the system described in this document. Other nodes may be attached to the network, but are not necessary.

The configuration is described in two steps.

1. At first the PLC and network configuration is explained.
2. Secondly the configuration of the IP-settings and the I/O data of the Verbatim EtherNet/IP are described.

The contents describe step by step how a configuration is done. This document assumes the reader is familiar with industrial communication, EtherNet/IP networks.

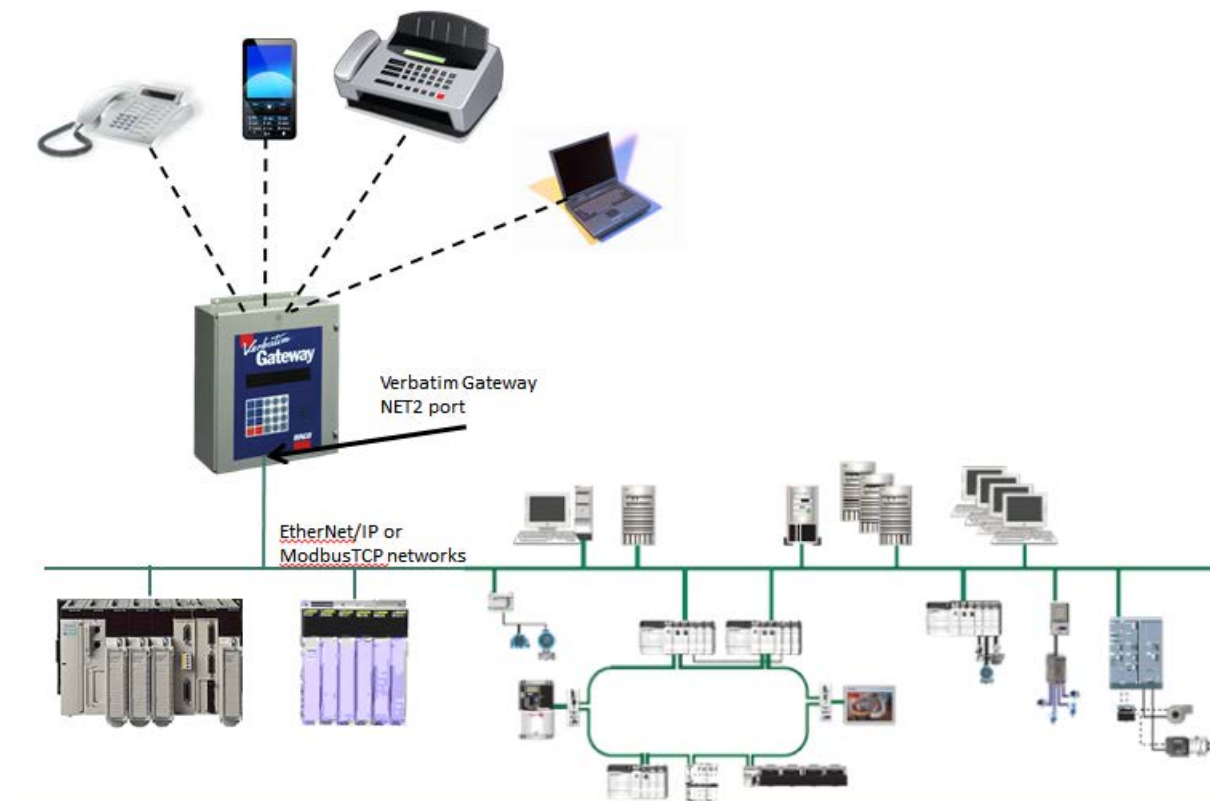


Figure 1 Hardware connection overview.

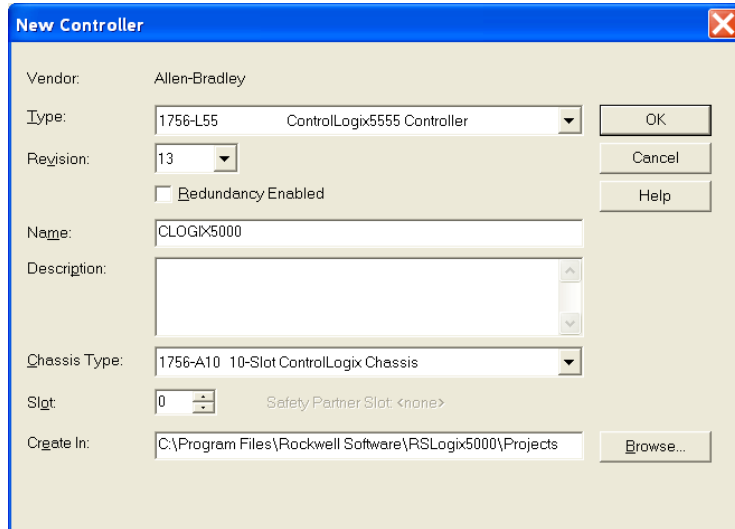
## 9. EtherNet/IP configuration

**Before you begin:** Insure that the EDS file (Found on the “Ethernet IP Configuration Tools” CD that was shipped with the Verbatim Gateway) is copied to the RSLogix 5000 EDS directory (as indicated by Rockwell Automation Manual). The EDS file insures that the RSLogix controller can identify the RACO Ethernet autodialers in the Ethernet modules and tags.

To configure the PLC and the EtherNet/IP network the tool RSLogix 5000 is used. Firstly the PLC needs to be configured and secondly the EtherNet/IP network. Start the RSLogix 5000 program and follow the steps below.

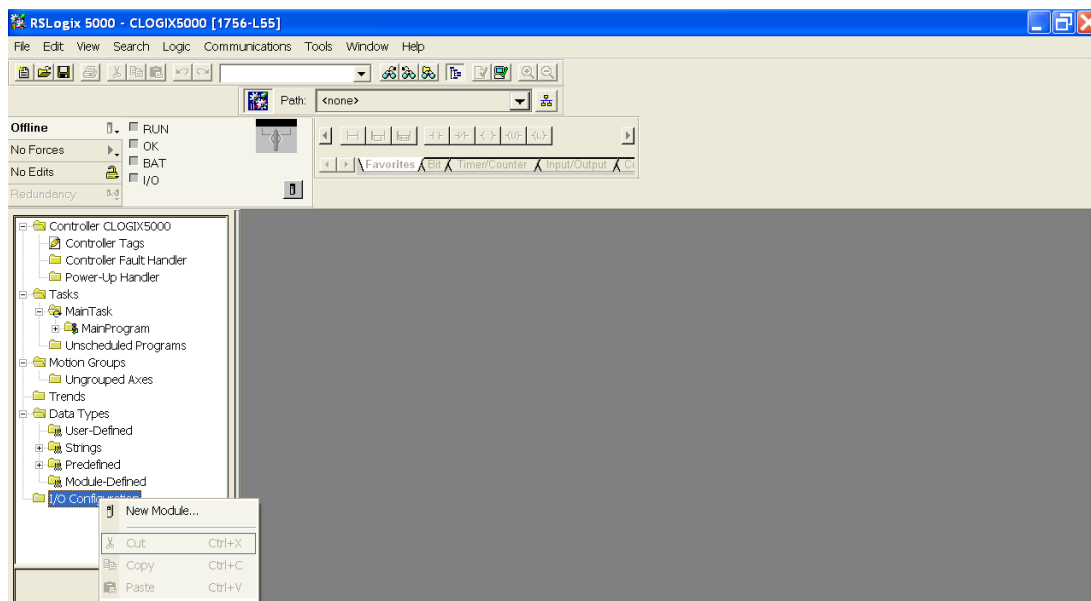
## 9.1. PLC configuration

Either create a new project or use an existing. To create a new configuration, open the file menu and select new. In the appearing dialogue select the desired type of PLC, in this case the type 1756-L55 is used. Also enter a name for the controller and select chassis type, slot number and project path. To accept the settings press OK.



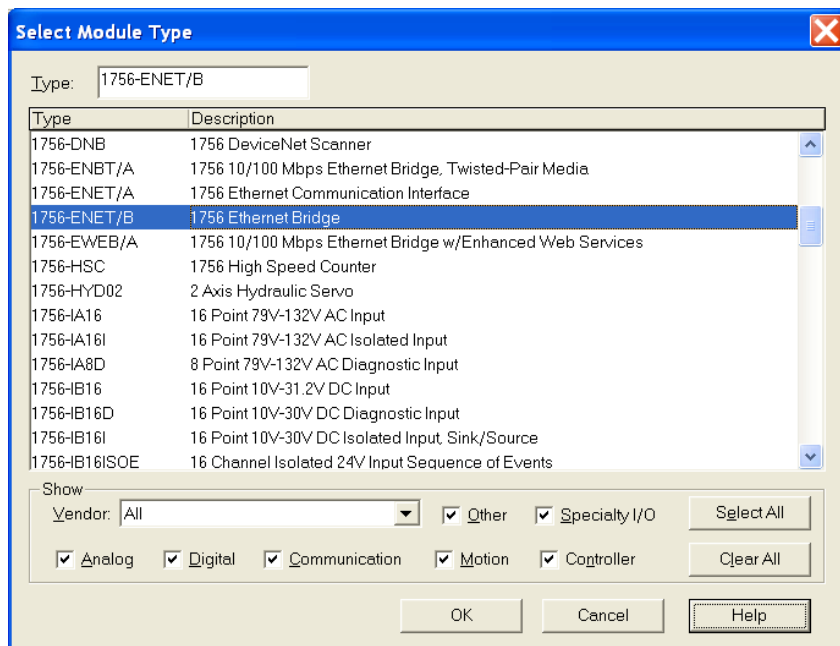
**Figure 2** Adding the PLC to the configuration.

Then add the Ethernet I/O module. Right click on the I/O configuration directory in the navigation list to the left as seen below.



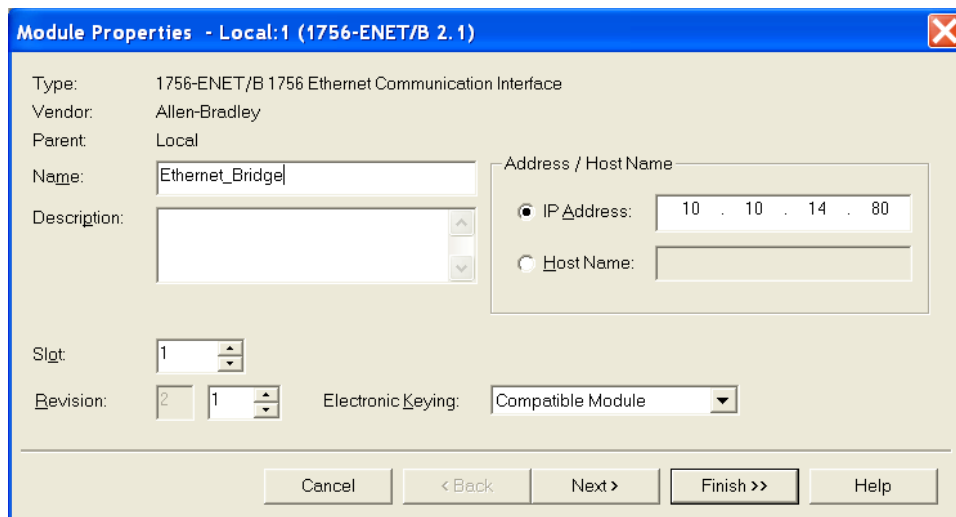
**Figure 3** Adding the Ethernet module.

Click on new module and select the desired Ethernet module, in this case the Ethernet Bridge. This module is the scanner module in the PLC.



**Figure 4** Selecting the type of module.

Then enter the desired settings and press finish.



**Figure 5** Configuring the settings for the Ethernet module.

## 9.2. EtherNet/IP network configuration

The second step is to configure the EtherNet/IP network and adding the RACO Verbatim EtherNet/IP module to the configuration in the PLC. Begin with setting the program in “Offline” mode ❶. Then right click on the EtherNet/IP Bridge in the I/O configuration, and select “New Module” ❷.

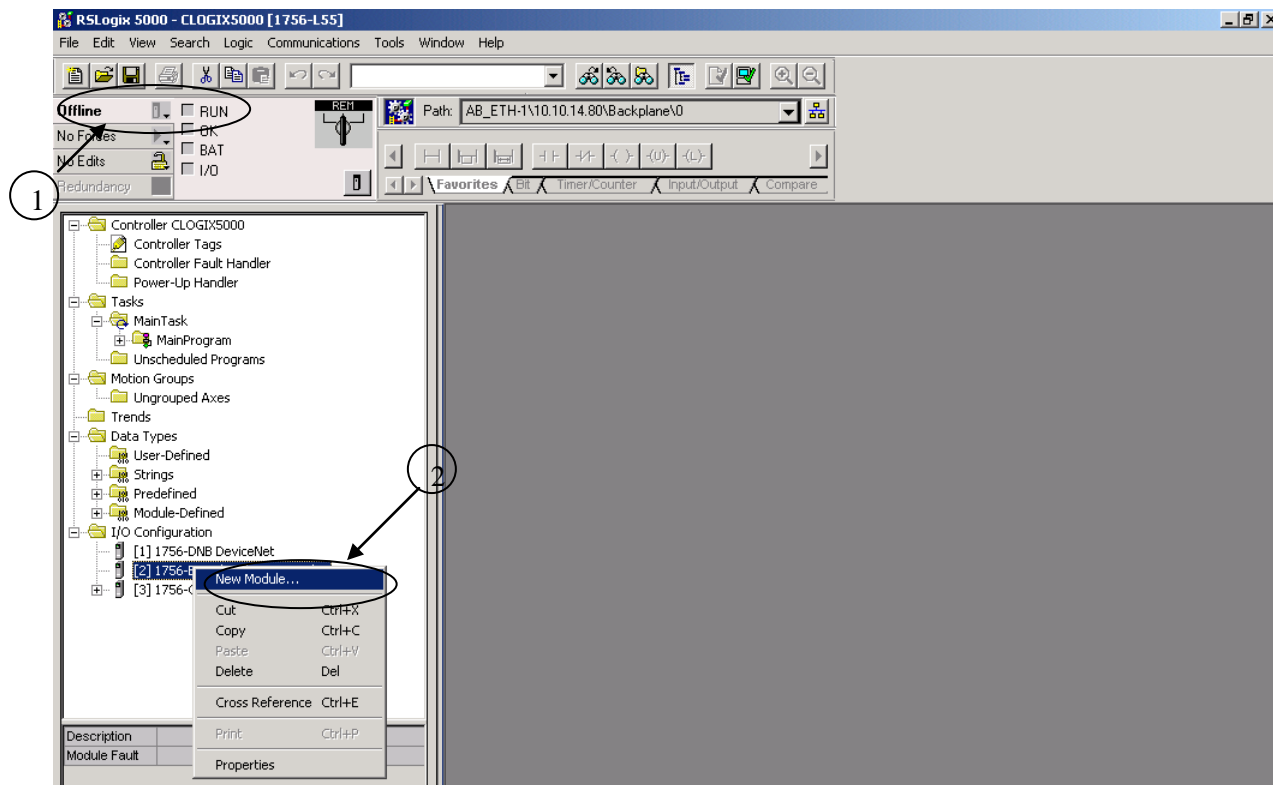
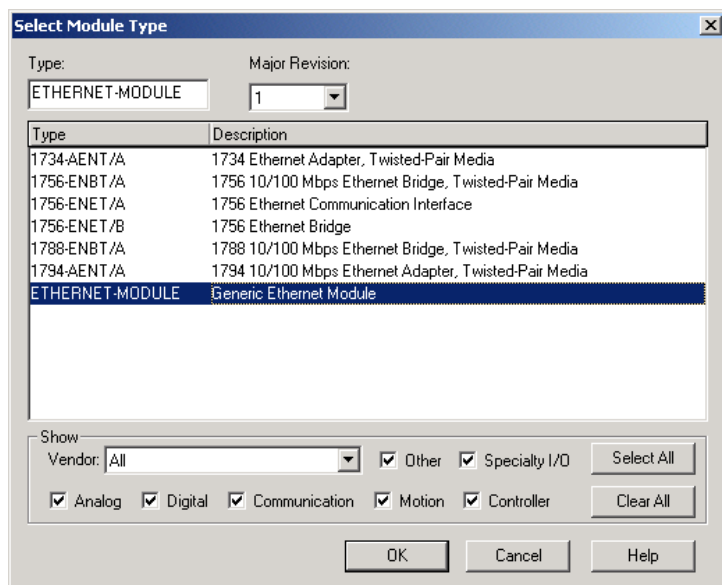


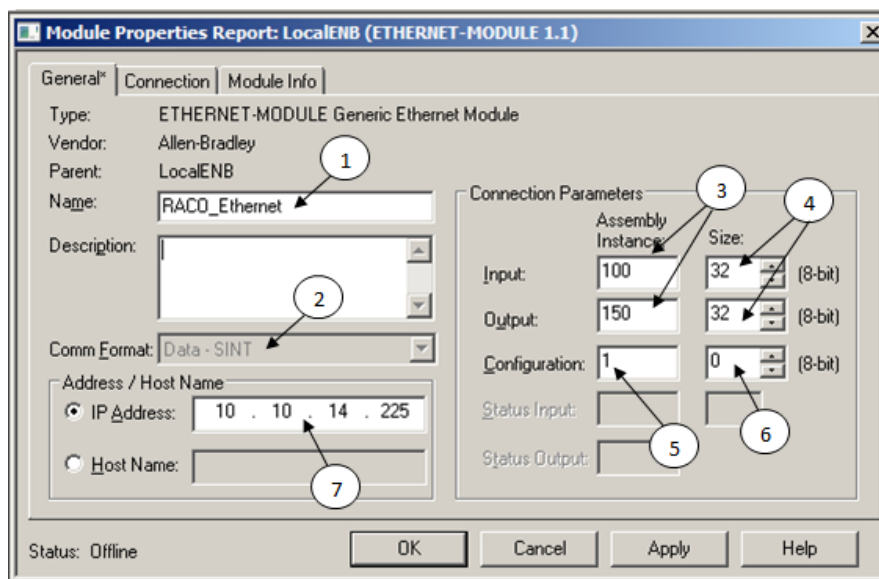
Figure 6 Adding the Verbatim Gateway module.

Now a dialogue window will appear. In this dialogue window, select “Generic Ethernet module” and press OK.



**Figure 7** Selecting the Generic Ethernet Module.

In the next dialogue window, RSLogix 5000 will ask for information regarding the communication to the Verbatim Gateway module. First enter a name for the Verbatim Gateway module❶. In the example below we call it “RACO Ethernet”. This name will create a tag in RSLogix 5000, which can be used to access the memory location in the PLCs memory where the data for the Verbatim Gateway module will be stored. A description can also be added, but that is optional.



**Figure 8** Configuring the module properties.

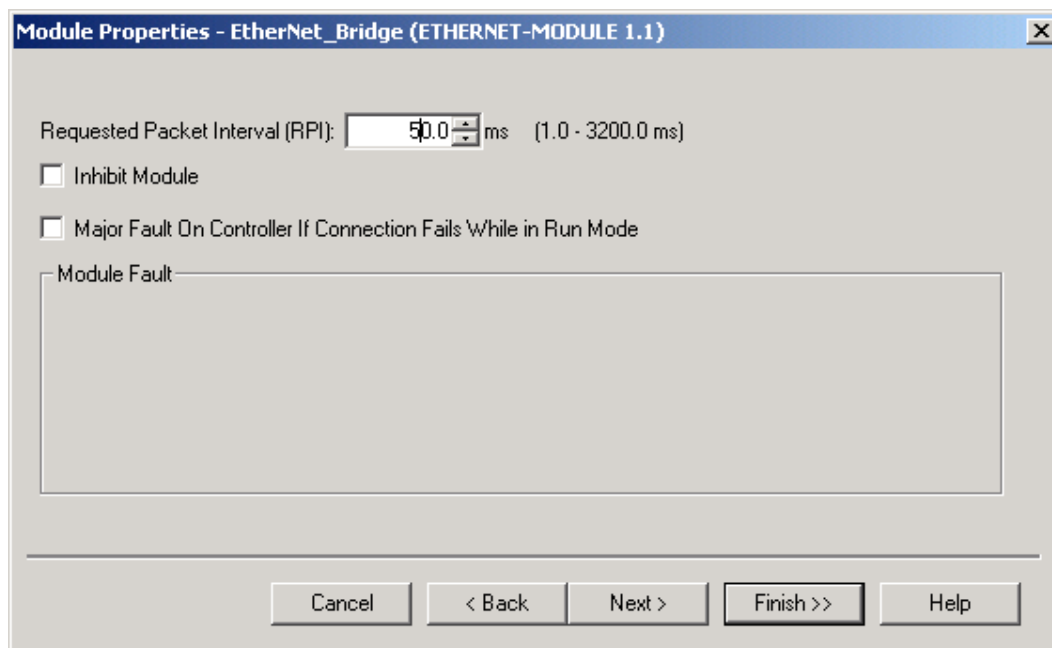
Next step is to select the “Comm Format”, which tells RSLogix5000 the format of the data❷. In our example, we have selected Data-SINT, which will represent the data in the Verbatim Gateway module as a field of 8-bit

values. It is also possible to select Data-INT, which will represent the data as 16-bit values, and Data-DINT, which will represent it as 32 bit values.

I/O data is accessed in input instance 100 and output instance 150, so these values have to be entered as the instance values for input and output<sup>⑤</sup>. The size of the input connection and the output connection shall correspond to the size that we have configured the Verbatim Gateway module for. In our case we are using 32 8-bit values of input and output data, so that is the size that we enter<sup>④</sup>. 32 in this case stands for 32 instances of 8 bits. If we had been using Data-INT or Data-DINT, we would have to recalculate the size to match the data type, so Data-INT would have been 16 16-bit values, and Data-DINT would have been 8 32-bit values.

The Verbatim Gateway module does not have a configuration assembly instance by default, but RSLogix5000 requires a value for this anyway. An instance value of 0 is not a valid instance number, but any non-zero value will work, here we have selected the value 1<sup>⑥</sup>. The data size of the configuration instance has to be set to 0, otherwise the configuration instance will be accessed and the connection will be refused<sup>⑥</sup>. As a final step we enter the IP address that we have configured for the module, here 10.10.14.225<sup>⑦</sup>.

The next step is to press next.



**Figure 9** Configuring the scan interval.

In this dialogue we will enter a value for the time between each scan of the module. In this example, we have set the interval to 50 ms to reduce the network load. Make sure that “Inhibit Module” isn’t checked. After this, press finish.

Now the Verbatim Gateway has been added to the I/O configuration in RSLogix 5000. The main screen will look as follows.

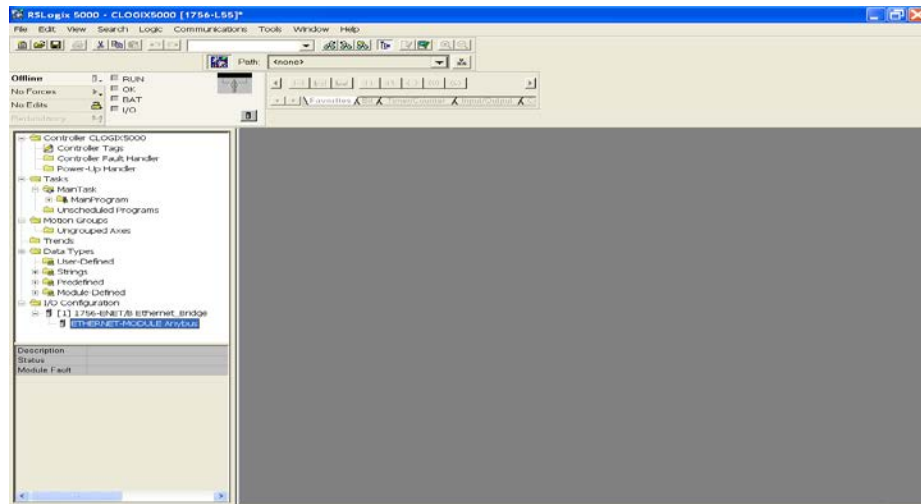


Figure 10 The main screen when the configuration is completed.

### 9.3. Downloading the configuration to the PLC

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

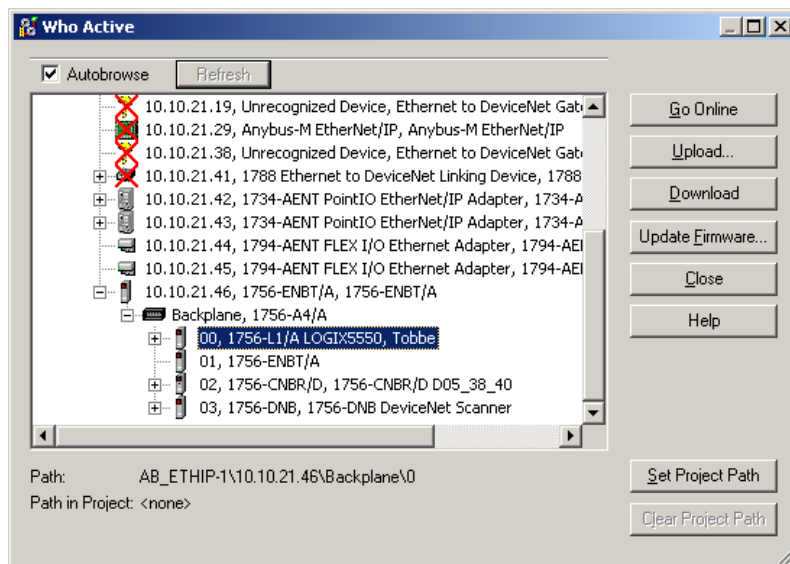
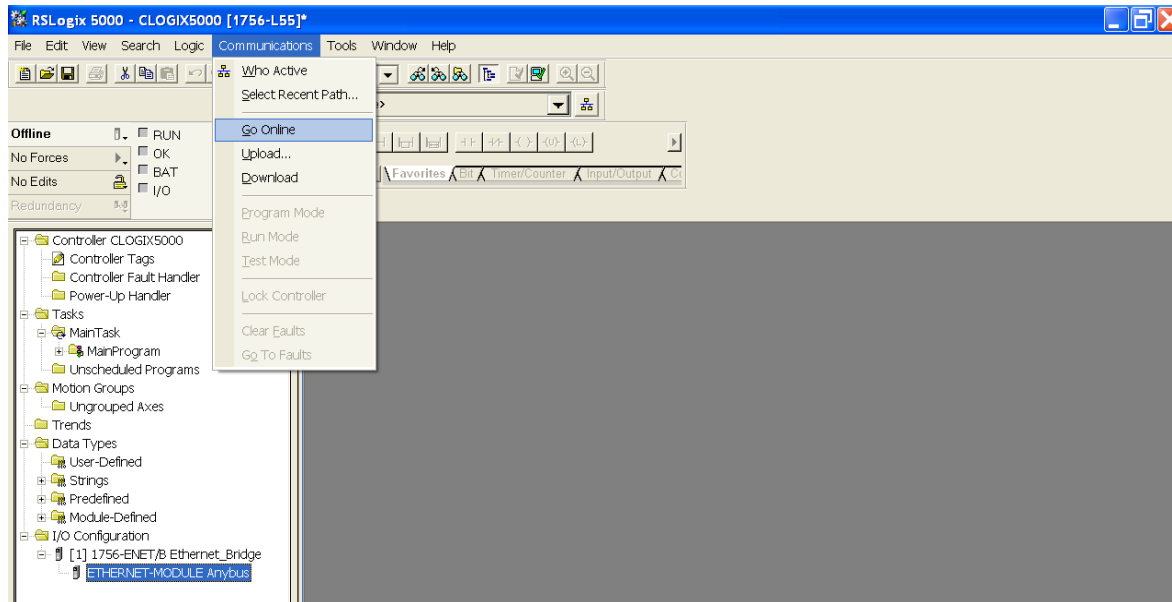


Figure 11 Configuring the communication path.

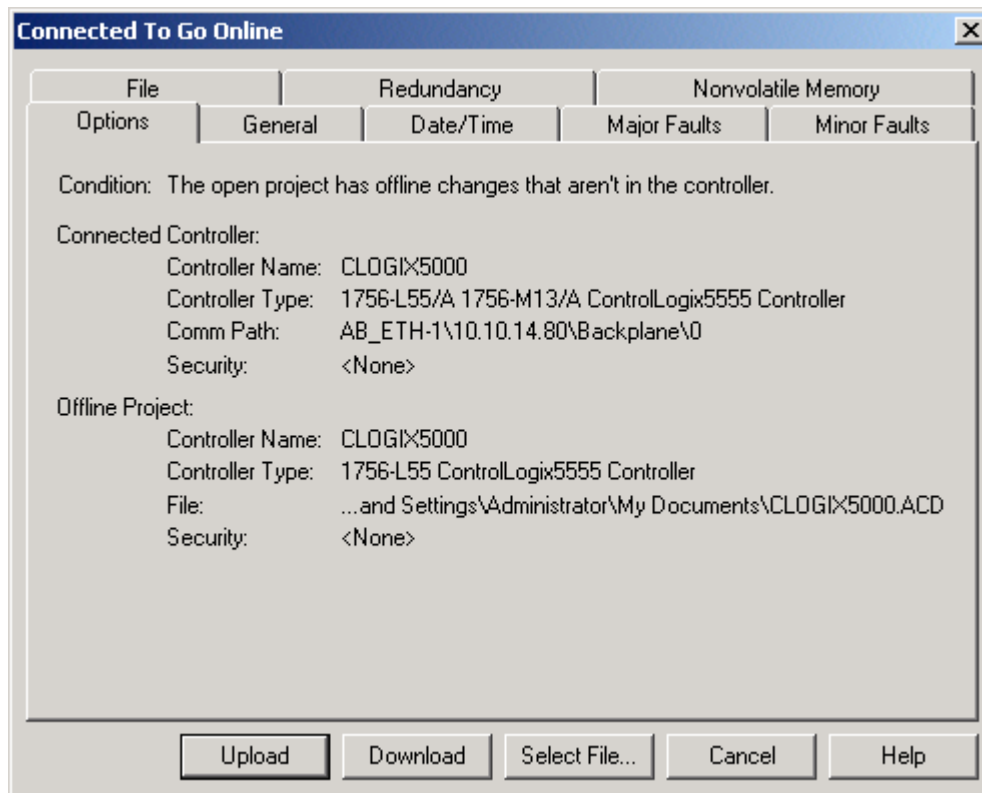


Select “Go Online” from the “Communications” menu.



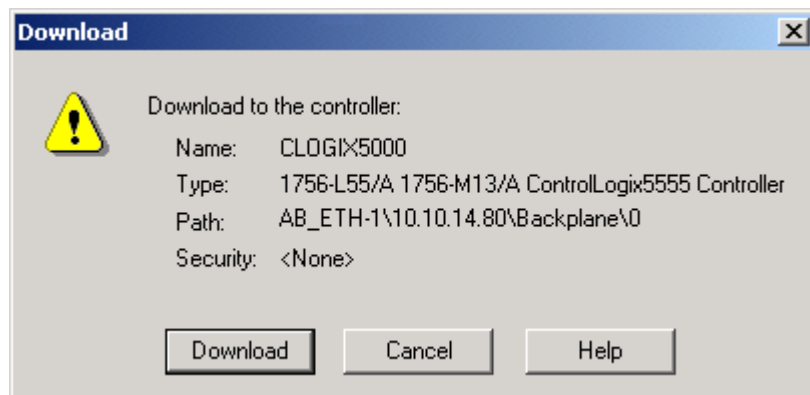
**Figure 12** Opening the online window.

A new window appears, select “Download”.



**Figure 13** The download window.

A new window will popup with the question if you actually want to download the configuration, select “Download”. The configuration will now be downloaded to the PLC.



**Figure 14 Downloading the configuration to the PLC.**

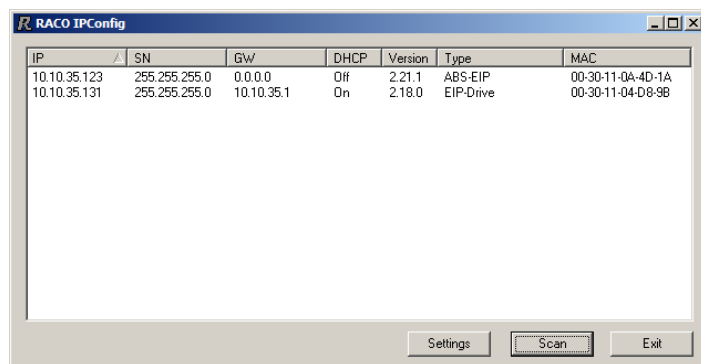
If there are any errors, a warning triangle will be present on the Verbatim Gateway in the I/O configuration listing. Double click the module to view any error that is reported.

## 10. Verbatim Gateway configuration

The Verbatim Gateway module has to be configured for the same I/O size and IP-settings as in the PLC configuration. The configuration of the IP-settings and the I/O sizes is described in the two following chapters. In the subsequent two chapters the configuration of the Verbatim Gateway Communicator and Verbatim Gateway EtherNet/IP is explained in detail.

### 10.1. IP settings

Make sure each node on the network has a unique IP address. The IP settings of the Verbatim Gateway EtherNet/IP modules can be configured in various ways. It is recommended to use the RACO IPconfig tool for configuring the IP-settings. The RACO IPconfig tool can be used to configure the IP settings of all RACO EtherNet/IP modules. The program can be downloaded at [RACOMan.com](http://RACOMan.com) website<sup>1</sup>. Start the program and the main window will be opened.



**Figure 15 The RACO IPconfig tool.**

The program scans the network for RACO Gateway Ethernet modules. The settings can be configured manually or the DHCP function can be used. For the RACO Gateway Ethernet modules DHCP is activated by default. To change the settings manually, double click on the desired module and enter the desired IP-settings as seen below.

**Note:** The RACO IP Config tool is able to locate all the RACO Ethernet Autodialers in the network. There is no need to have the autodialers in the same subnet to be discovered.

The screenshot shows a window titled "RACO Configure: 00-30-11-04-D8-9B". Inside, there is a section for "Ethernet configuration" with several input fields and a DHCP section. The IP address is set to 10.10.35.131, Subnet mask to 255.255.255.0, Default gateway to 10.10.35.1, Primary DNS to 10.10.35.7, and Secondary DNS to 10.10.100.88. The Hostname, Password, and New password fields are empty. The DHCP section has "On" selected. There is a "Change password" checkbox which is unchecked. At the bottom right are "Set" and "Cancel" buttons.

Ethernet configuration	
IP address:	10 . 10 . 35 . 131
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	10 . 10 . 35 . 1
Primary DNS:	10 . 10 . 35 . 7
Secondary DNS:	10 . 10 . 100 . 88
Hostname:	
Password:	
New password:	

DHCP

☒ On

☐ Off

☐ Change password

Set

Cancel

**Figure 16** Configuring the IP settings.

## **10.2. Setting Verbatim Gateway Remote Channels**

The following six-step procedure will configure your Verbatim Gateway to link its Remote Channels (RC) to your PLC addresses, via the Ethernet network.

### **10.2.1. STEP #1 — Protocol Driver (4906)**

When setting the Protocol, Node Address and Communication parameters (i.e. 4906, 4905, 4901, 4903 and 4904), it is good practice to include the NET ID.

Insert the NET ID immediately following the parameter number, (e.g., 4906 2 \*5 for Net 2 where 2 is the NET ID) This avoids any confusion about which net is being configured.

Set the Protocol Driver to Ethernet on NET 2 Key in 4906 2 \* 5 (enter)

To read the Protocol Driver for NET 2, key in 4906 2 (enter)

### **10.2.2. STEP #2 — Node Address (4905)**

The default node address of the Verbatim Gateway is 1, designed to work with the Ethernet card.

To check Verbatim Gateway node address use 4905 2 (Enter)

To set Verbatim Gateway node address to 1: 4905 2\*1 (Enter)

### **10.2.3. STEP #3 — Communication Parameters (4901,4903,4904)**

The default Verbatim Gateway communication parameters for Modbus are:

9600 baud, 1 stop bit, even parity

These defaults are designed to work with the Ethernet card without modification.

To check parameters, use 4900 2 (Enter)

To verify successful network communications on NET 2, key in 4930 \* 2 (enter)

#### **If needed:**

Select the communication parameters. RACO recommends the following (default) communication settings:

BAUD rate = 9600 for “9600” on NET 2, key in 4901 2<point>9600 (enter)

Stop Bits = 1 for “1” on NET 2, key in 4903 2<point> 1 (enter)

Parity = Even for “Even” on NET 2, key in 4904 2<point> <3> (enter)

DATA Bits cannot be altered and remain at 8.

#### STEP #4 — Set Defaults

This step simplifies Channel Configuration (i.e. Step 6).

By setting to Default both the NET ID and NODE / STATION address, it is no longer necessary to reference them when setting Channel address.

Set the following to DEFAULT.

- 1 NET ID, used to communicate via ModbusTCP (or EtherNet/IP), in this example “2”
- 2 NODE address of the target PLC, in this example “2”

To change the NET ID to “2,” key in 4910 2 (enter)

To confirm the NET ID, key in 4910 (enter)

To change the PLC NODE/STATION address to “2” of NET 2, key in 4911 2(enter)

To confirm PLC NODE/STATION address, key in 4911 (enter)

#### 10.2.4. STEP #5 Channel 1 & 2 Configuration (4501) (4502)

Since Verbatim Gateway channels are completely compatible with the logical and I/O addressing scheme for the file structure of the SLC series processors, the table below should look familiar.

TABLE #2

Identifier	File Type	Example
<b>O</b>	Output	O:1.0/0 (SLC500) O:017/10 (PLC5)
<b>I</b>	Input	I:0.1/0 (SLC500) I:013/07 (PLC5)
<b>S</b>	Status	S:2 (word) S:2/0 (bit)
<b>B</b>	Bit	B:0 (word) B9:0/1 (bit)
<b>T</b>	Timer	T4:0.2 (word) T:0.0/1 (bit)
<b>C</b>	Counter	C5:0.2 (word) C10:0.0/1 (bit)
<b>R</b>	Control	R6:2.1 (word) R:2/15 (bit)
<b>N</b>	Integer	N:1 (word) N:1/0 (bit)
<b>F</b>	Floating Point	F:2 (32-bit word)
<b>NOTE: Cannot specify 16 or 1-bit points with F file type.</b>		
<b>D, G, M1, etc...</b>	All other types	Not Supported

Table #2 shows the Allen-Bradley-supported address types available to link to Verbatim Gateway channels. Indirect, indexed and symbolic addressing schemes are not supported.

Table #3

Register Address	Description	Size / Limitation
0xxxx	Coil number xxxx	1-bit
1xxxx	Input number xxxx	1-bit
3xxxx	Input register number xxxx	16-bit
4xxxx	Output register number xxxx	16-bit
5xxxx	Floating Point register	32-bit

Table #3 illustrates the Modbus data file convention within the Verbatim Gateway. These Modbus Register Addresses map to the Rockwell Automation controllers registers as per the Modbus Table File numbers, on the Channel Configuration form within RSLogix, illustrated above.

**Important:**

*It should be noted that Output Register (4xxxx) and Holding Register (5xxxx) data types use the same data area at the Verbatim Gateway end. The Holding Register (5xxxx) uses two consecutive 16-bit addresses that are interpreted as a 32-bit floating point number (i.e. 5xxxx & 5xxxx+1). Not unlike the Holding Register, the Output Register (4xxxx) also reserves two consecutive 16 bit words; however the extended word is left blank.*

*Similarly, when addressing the input register (3xxxx), allow for two consecutive 16 bit words, keeping in mind the word is reserved but not used. Hence, consecutive addressing of both Input and Output Registers will appear as follows. For example, first Input Register address point 30001, second address point 30003, third address point 30005, etc.*

Once channels are configured, they are ready to be assigned to your project typically linked to Alarm Notifications, Data Logging and Messaging.

### 10.2.5. STEP #6 — Assignment of Alarm Conditions

Having created and tested your Remote Channels, Step #6, you are now able to assign alarm conditions. You may reference Verbatim Gateway user manual (Section 7.8.3.1, 7.8.3.2, 7.8.3.3) to complete this step.

## 11. Testing

When connected to ControlLogix controller, it is possible to access the data exchanged by the ControlLogix 5000 and the Verbatim Gateway module. By writing data to the tags the communication between the PLC and the Verbatim Gateway, it is possible to ensure that the corresponding data bytes have changed on the Modbus RTU side of the network.

## 11.1. Monitoring the tags

First go online and switch to “Remote Run” on the PLC. To monitor the tags, open the “Controller Tags” window ❶ and go to monitor tags ❷. Three tags named “RACO\_Ethernet:C”, “RACO\_Ethernet:I” and “RACO\_Ethernet:O” should be visible, representing the three instances configuration, input and output. The configuration instance is created even if we selected its size as zero. The RACO\_Ethernet:I tag is data going from the Verbatim Gateway and RACO\_Ethernet:O tag holds data going to the Verbatim Gateway.

First enter 01 02 03 04 (for the sake of example) in the Output Tag, so there is some “data” to read. This can be done just by entering values for the Output tags ❸. If the network is correctly configured the corresponding data bytes will obtain the respective value if polled by the Verbatim Gateway.

Note on the Verbatim Gateway side you should be hearing alarms being announced when the alarm conditions are triggered. Test all the conditions before you complete your deployment...

The screenshot displays the RACO software interface. At the top, a status bar shows 'Run Mode', 'Controller OK', 'Battery OK', and 'I/O OK'. Below this is a 'Controller Organizer' on the left and a 'Controller Tags - RACO\_TEST(controller)' window on the right. The 'Controller Tags' window shows a table of tags with columns: Name, Value, Force Mask, Style, and Data Type. The table lists various local and RACO\_Ethernet tags. A callout ❶ points to the 'Controller Tags' folder in the 'Controller Organizer'. A callout ❷ points to the 'Monitor Tags' button at the bottom of the 'Controller Tags' window. A callout ❸ points to the 'RACO\_Ethernet:O.Data[1]' tag in the table.

Name	Value	Force Mask	Style	Data Type
Local:1:C	{...}	{...}		AB:Embedded
Local:1:I	{...}	{...}		AB:Embedded
Local:2:C	{...}	{...}		AB:Embedded
Local:2:I	{...}	{...}		AB:Embedded
Local:2:O	{...}	{...}		AB:Embedded
RACO_Ethernet:C	{...}	{...}		AB:ETHERNE
RACO_Ethernet:I	{...}	{...}		AB:ETHERNE
RACO_Ethernet:I.Data	{...}	{...}	Decimal	SINT[32]
RACO_Ethernet:O	{...}	{...}		AB:ETHERNE
RACO_Ethernet:O.Data	{...}	{...}	Decimal	SINT[32]
RACO_Ethernet:O.Data[0]	0		Decimal	SINT
RACO_Ethernet:O.Data[1]	0		Decimal	SINT
RACO_Ethernet:O.Data[2]	0		Decimal	SINT
RACO_Ethernet:O.Data[3]	0		Decimal	SINT
RACO_Ethernet:O.Data[4]	0		Decimal	SINT
RACO_Ethernet:O.Data[5]	0		Decimal	SINT
RACO_Ethernet:O.Data[6]	0		Decimal	SINT
RACO_Ethernet:O.Data[7]	0		Decimal	SINT
RACO_Ethernet:O.Data[8]	0		Decimal	SINT
RACO_Ethernet:O.Data[9]	0		Decimal	SINT
RACO_Ethernet:O.Data[10]	0		Decimal	SINT
RACO_Ethernet:O.Data[11]	0		Decimal	SINT
RACO_Ethernet:O.Data[12]	0		Decimal	SINT
RACO_Ethernet:O.Data[13]	0		Decimal	SINT
RACO_Ethernet:O.Data[14]	0		Decimal	SINT

## 12. Quick Start

### 1) Set up Verbatim Gateway:

#### In Program Mode

- 4906 2\*5 (enter) / Modbus on Net 2
- 4930 \*2 (enter) / check for Communication Normal
- 4910 2 / make Net 2 default
- 4911 2 / make Node 2 default
- 4532 \* 00488 <point> (enter) / set up communications health check on channel 32
- 4532 2 \* / make channel 32 normally 0

### 2) Set up Ethernet side of Verbatim Gateway

- Plug Ethernet cable into Ethernet outlet
- Use Raco IPConfig tool to determine current IP of Verbatim Gateway Ethernet card, and change it if necessary.

### 3) Set up PLC