GW EIP/MODBUS... with ControlLogix

Integration guide for the GW EIP/MODBUS… into ControlLogix using Class 1 communication

Quick Reference Guide

QRG_924_EN_01_GW-EIP-MODBUS-Class1-ControlLogix.docx

Pos.	Qty.	Order-No.	Type-Description	Description
1	1	1062540 1062423 1062380 1062388	GW EIP/MODBUS 1E/1DB9 GW EIP/MODBUS 1E/2BD9 GW EIP/MODBUS 2E/2BD9 GW EIP/MODBUS 2E/4BD9	One RJ45 port and one D-SUB 9 port One RJ45 port and two D-SUB 9 ports Two RJ45 ports and two D-SUB 9 ports Two RJ45 ports and four D-SUB 9 ports
2	1		EDS files	http://www.phoenixcontact.net/qr/1062540/dev_desc
3	1			ControlLogix Controller
4	1		RSLogix5000	Logix Designer version 29.00

1 Overview

This document provides guidance to configure the GW EIP/MODBUS… for Class 1 communication, using EDS files.

EDS files provide a convenient method to read and/or write Modbus registers and Modbus coils. The EDS files work in conjunction with the Shared Memory of the GW EIP/MODBUS… The Shared Memory serves as a Modbus server/slave that’s written to by Modbus clients/masters or use the Modbus-to-Modbus commands to write Modbus data to the Shared Memory from a Modbus server/slave.

The EDS file contains two arrays of 440 SINTs used to read and write 200 Modbus registers and 320 coils. One array is for reading from the GW EIP/MODBUS shared memory, labeled “I”, and one array is for writing to the GW EIP/MODBUS… shared memory, labeled “O”. Additional registers and coils are accessible by creating a Class 1 connection using a Generic Ethernet Module, although that is beyond the scope of this guide.

Each SINT is 8 bits, where Modbus holding registers are 16 bits and Modbus coils are 1 bit. Therefore, 2 SINTs are used for each holding register and 1 SINT is used for 8 coils. The first (even) SINT maps to the low byte and the second (odd) SINT maps to the high byte.

Read (I)

The first 400 SINTs (0-399) of the array labeled “I” map to block 1 (1-200) of the GW EIP/MODBUS… Shared Holding Registers. The remaining 40 SINTs (400 to 440) map to the Shared Coil Block 1 (1-320).

Write (O)

The first 400 SINTs (0-399) of the array labeled “O” map to block 2 (201-400) of the GW EIP/MODBUS… Shared Holding Registers. The remaining 40 SINTs (400 to 440) map to the Shared Coil Block 2 (321-640).

This document assumes the user understands basic electrical concepts and communication protocols such as Modbus, serial and Ethernet communication, and is proficient in programming using RSLogix 5000.

i	Make sure you always use the latest documentation. It can be downloaded at: www.phoenixcontact.net/products

2 Login

Set the IP address of the connected PC to the subnetwork of the GW EIP/MODBUS...: for example, IP = 192.168.254.10, subnetwork = 255.255.255.0.

Open a web browser and enter the IP address of the GW EIP/MODBUS... in the “Address” field. The default IP address is 192.168.254.254.

If the web server does not load, first check the IP parameters of the PC. If everything is set correctly, check to see if there are any proxy settings loaded in the web browser. The proxy setting must be set to “Load automatically” or “Deactivated” to properly establish communication.

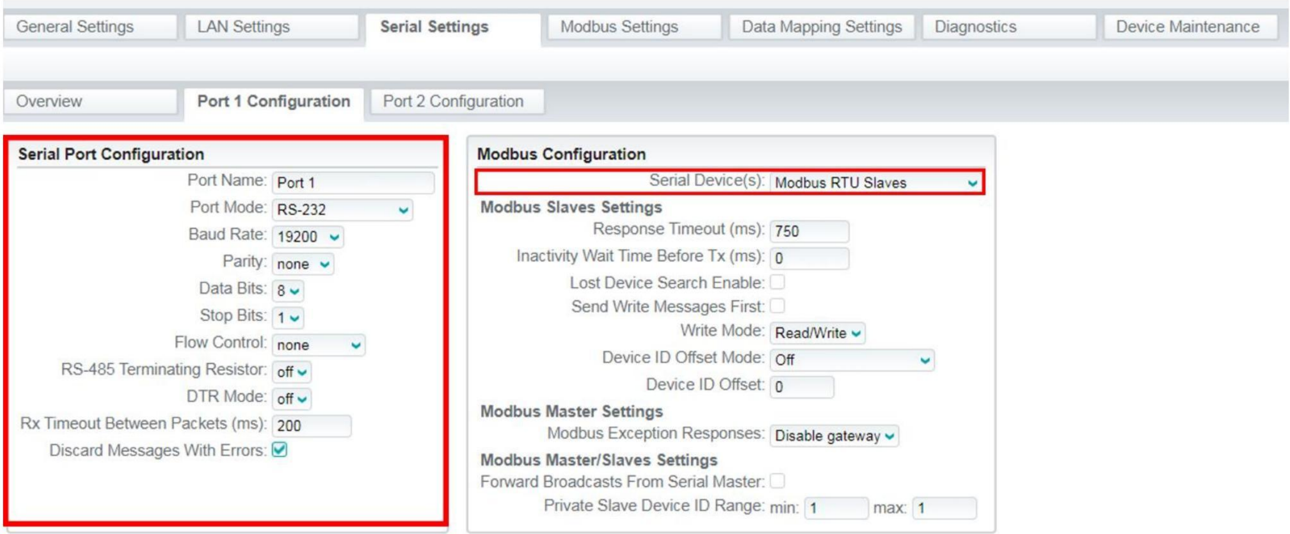
Enter the credentials to access the web server configuration pages. The default credentials are:

- User name: Admin
- Password: admin

3 GW EIP MODBUS… Configuration

3.1 Configure serial communication

If connecting a serial Modbus device, navigate to Port Configuration under the Serial Settings. Set the serial settings of the GW EIP/MODBUS… to match the serial settings of the Modbus device. Refer to Figure 1: Serial settings.



Serial Port Configuration

Port Name: Port 1
Port Mode: RS-232
Baud Rate: 19200
Parity: none
Data Bits: 8
Stop Bits: 1
Flow Control: none
RS-485 Terminating Resistor: off
DTR Mode: off
Rx Timeout Between Packets (ms): 200
Discard Messages With Errors: ☑

Modbus Configuration

Serial Device(s): Modbus RTU Slaves

Modbus Slaves Settings
Response Timeout (ms): 750
Inactivity Wait Time Before Tx (ms): 0
Lost Device Search Enable: □
Send Write Messages First: □
Write Mode: Read/Write
Device ID Offset Mode: Off
Device ID Offset: 0

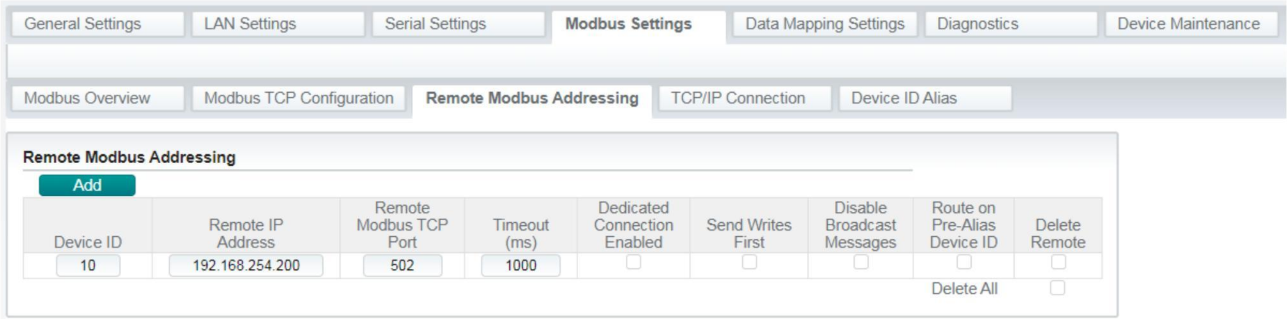
Modbus Master Settings
Modbus Exception Responses: Disable gateway

Modbus Master/Slaves Settings
Forward Broadcasts From Serial Master: □
Private Slave Device ID Range: min: 1 max: 1

Figure 1: Serial settings

3.2 Configure Modbus TCP

If the GW EIP/MODBUS… will poll a Modbus TCP server, navigate to the Remote Modbus Addressing under Modbus Settings. Enter the Device ID, IP address of the Modbus TCP server, the Modbus TCP Port and other relevant settings. Refer to Figure 2: Remote Modbus Addressing.



Remote Modbus Addressing

Device ID	Remote IP Address	Remote Modbus TCP Port	Timeout (ms)	Dedicated Connection Enabled	Send Writes First	Disable Broadcast Messages	Route on Pre-Alias Device ID	Delete Remote
10	192.168.254.200	502	1000	□	□	□	□	□
							Delete All	□

Figure 2: Remote Modbus Addressing

3.3 Shared memory configuration

Navigate to the Shared Memory tab under the Data Mapping Settings tab. The Shared Memory configuration options are broken into three sections, Shared Memory Configuration, Shared Holding Registers and Shared Coils. Refer to Figure 3: Shared memory configuration.

The EDS file contains two arrays of 440 SINTs used to read and write 200 Modbus registers and 320 coils. One array is for reading from the GW EIP/MODBUS shared memory, labeled “I”, and one array is for writing to the GW EIP/MODBUS… shared memory, labeled “O”. Additional registers and coils are accessible by creating a Class 1 connection using a Generic Ethernet Module, although that is beyond the scope of this guide.

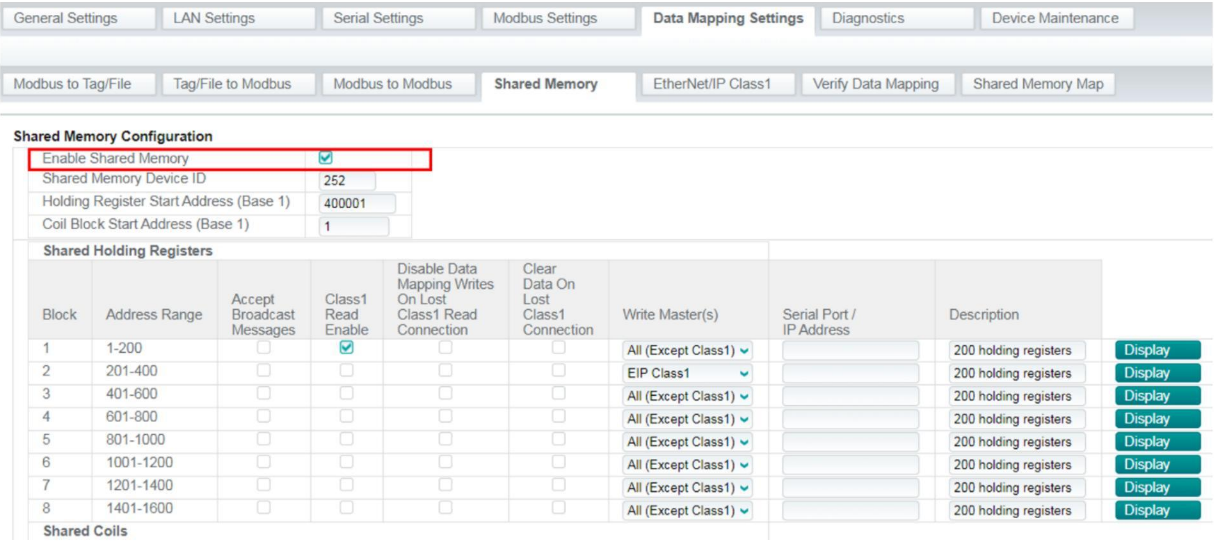
The Shared Memory Configuration section is used to enable the Shared Memory, define the Slave ID and define the starting address for the holding registers and coils.

1. Enable Shared Memory: Click the Enable Shared Memory check box.
2. Shared Memory Device ID: Enter a Modbus device ID for the GW EIP/MODBUS.... The device ID must be unique within the Modbus network. The valid range of values is 1 to 255 although Modbus org recommends using values between 1-247.
3. Holding Register Start Address (Base 1): Enter the starting address of the GW EIP/MODBUS... holding registers. The GW EIP/MODBUS… supports extended holding register addressing. Therefore, the valid starting address range is 40001 to 463935.
4. Coil Block Start Address (Base 1): Enter the starting address of the GW EIP/MODBUS… coils. The GW EIP/MODBUS…. supports extended coil addressing. Therefore, the valid starting address range is 1 to 64255.

This example will use the settings in Table 1: Shared Memory Configuration.

Table 1: Shared Memory Configuration

Shared Memory Device ID	252
Holding Register Start Address	400001
Coil Block Start Address	1



Shared Memory Configuration

Enable Shared Memory	☑
Shared Memory Device ID	252
Holding Register Start Address (Base 1)	400001
Coil Block Start Address (Base 1)	1

Shared Holding Registers

Block	Address Range	Accept Broadcast Messages	Class1 Read Enable	Disable Data Mapping Writes On Lost Class1 Read Connection	Clear Data On Lost Class1 Connection	Write Master(s)	Serial Port / IP Address	Description	
1	1-200	□	☑	□	□	All (Except Class1)		200 holding registers	Display
2	201-400	□	□	□	□	EIP Class1		200 holding registers	Display
3	401-600	□	□	□	□	All (Except Class1)		200 holding registers	Display
4	601-800	□	□	□	□	All (Except Class1)		200 holding registers	Display
5	801-1000	□	□	□	□	All (Except Class1)		200 holding registers	Display
6	1001-1200	□	□	□	□	All (Except Class1)		200 holding registers	Display
7	1201-1400	□	□	□	□	All (Except Class1)		200 holding registers	Display
8	1401-1600	□	□	□	□	All (Except Class1)		200 holding registers	Display

Shared Coils

Figure 3: Shared memory configuration

In the default configuration of the shared memory, the first block of holding registers enable Class 1 Read and allow all masters except Class 1 to have write access. The second block of holding registers disable Class 1 Read and restricts the Write Masters to EIP Class 1.

4 Modbus Master

This section describes polling the GW EIP/MODBUS… shared memory with a Modbus master.

4.1 Connection

If connecting a Modbus RTU or Modbus ASCII PLC, refer to section 3.1 Configure serial communication. If connecting a Modbus TCP PLC enter the IP address (default: 192.168.254.254) of the GW EIP/MODBUS… and Modbus TCP port 502.

4.2 Read from Shared Memory

Reference the settings from Table 1: Shared Memory Configuration for the Device ID. Use function code 03 Read Holding Registers to read the Shared Holding Registers and function code 01 Read Coils to read the Shared Coils.

Following the Shared Memory Configuration set previously, the Ethernet/IP controller writes to Block 1. Therefore, the Modbus PLC reads from holding registers 40201…40400 and coils 321….640.

4.3 Write from Shared Memory

Reference the settings from Table 1: Shared Memory Configuration. for the Device ID. Use function code 06 Write Single Holding Register to write to the Shared Holding Registers and function code 05 Write Single Coil to write to the Shared Coils.

Following the Shared Memory Configuration set previously, the Ethernet/IP controller reads from Block 2. Therefore, the Modbus PLC writes to holding registers 40001…40200 and coils 1….320.

5 Modbus Slave

This section describes configuring a Modbus-to-Modbus command using the GW EIP/MODBUS… to read and write to a Modbus slave.

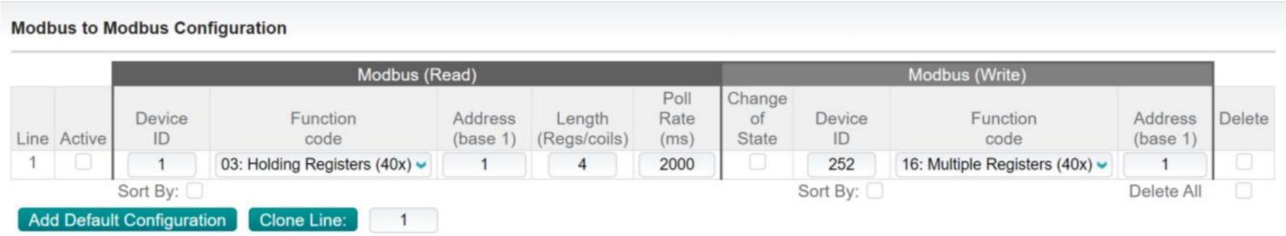
5.1 Modbus-to-Modbus read from slave, write to Shared Memory

In the web manager of the GW EIP/MODBUS… navigate to the Modbus-to-Modbus tab under Data Mapping Settings. Create a Modbus-to-Modbus configuration to read from the slave device and then write to shared memory. Refer to Table 2: Modbus-to-Modbus Configuration.

Table 2: Modbus-to-Modbus Configuration

Modbus (Read)	Device ID	Device ID of the Modbus slave to read from
	Function Code	Modbus function code
	Address (base 1)	Starting address on Modbus slave device
	Length (Regs/Coils)	Number of registers or coils to read from slave device
	Poll Rate (ms)	Rate to read from slave device
Modbus (Write)	Device ID	Device ID of the shared memory to write to reference Table 1: Shared Memory Configuration
	Function code	Corresponding function code to write to shared memory
	Address (base 1)	Starting address of shared memory

Figure 4: Modbus-to-Modbus configuration - read from slave, write to shared memory, depicts an example configuration with the Modbus slave device at Device ID 1 and the shared memory at Device ID 252. Select the active check box to the left of the configuration if you would like to activate the configuration. The GW EIP/MODBUS… will then begin polling Modbus slave Device ID 1, register 40001 through 40004 and writing the values to the Shared Memory Block 1 40001 through 40004.



Modbus to Modbus Configuration

		Modbus (Read)					Modbus (Write)				
Line	Active	Device ID	Function code	Address (base 1)	Length (Regs/coils)	Poll Rate (ms)	Change of State	Device ID	Function code	Address (base 1)	Delete
1	□	1	03: Holding Registers (40x)	1	4	2000	□	252	16: Multiple Registers (40x)	1	□
		Sort By: □						Sort By: □		Delete All	□

Figure 4: Modbus-to-Modbus configuration - read from slave, write to shared memory

To verify proper communication, navigate to the block of shared memory configured for the read in the web manager for the GW EIP/MODBUS.... It can be found under the Modbus Diagnostics tab in the shared memory tab.

5.2 Modbus-to-Modbus read from shared memory, write to slave

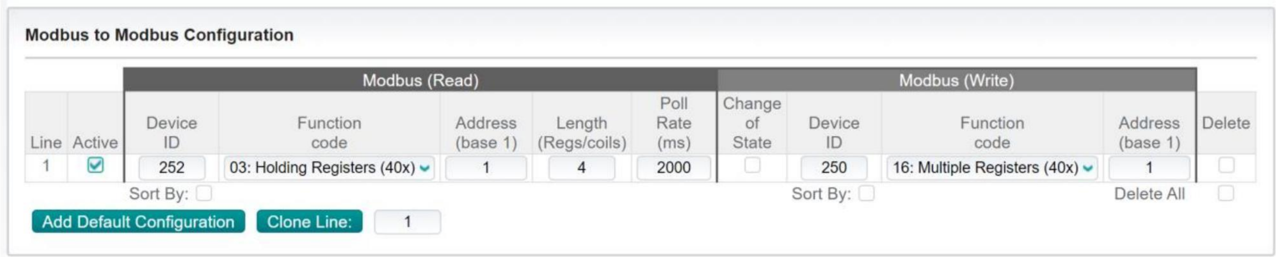
In the web manager of the GW EIP/MODBUS… navigate to the Modbus-to-Modbus tab under Data Mapping Settings. Create a Modbus-to-Modbus configuration to read from the shared memory and then write to a slave device. Refer to Table 3: Modbus-to-Modbus configuration settings.

Table 3: Modbus-to-Modbus configuration settings

Modbus (Read)	Device ID	Device ID of the shared memory reference Table 1: Shared Memory Configuration
	Function Code	Modbus function code
	Address (base 1)	Starting address of the shared memory location
	Length (Regs/Coils)	Number of registers/coils to read from shared memory
	Poll Rate (ms)	Rate of read from shared memory
Modbus (Write)	Device ID	Device ID of the Modbus slave to write to
	Function code	Desired format of write to Modbus slave
	Address (base 1)	Starting address of Modbus slave

To read data from shared memory and write the data to a Modbus slave device, navigate to the Modbus-to-Modbus tab under the Data Mapping Settings in the GW EIP/MODBUS…. Ensure the configuration is active by checking the “Active” box. Refer to Figure 5: Modbus-to-Modbus configuration - read from shared memory, write to slave.

Figure 5: Modbus-to-Modbus configuration - read from shared memory, write to slave, depicts an example configuration with the shared memory Device ID 252 and a Modbus slave device at Device ID 250. Select the active check box to the left of the configuration if you would like to activate the configuration. The GW PN/MODBUS… will then begin polling the GW PN/MODBUS… shared memory register 40001 through 40004 and writing the values to the Modbus slave device ID 250 from registers 40001 through 40004.



Modbus to Modbus Configuration

		Modbus (Read)					Modbus (Write)				
Line	Active	Device ID	Function code	Address (base 1)	Length (Regs/coils)	Poll Rate (ms)	Change of State	Device ID	Function code	Address (base 1)	Delete
1	☑	252	03: Holding Registers (40x)	1	4	2000	□	250	16: Multiple Registers (40x)	1	□
		Sort By: □						Sort By: □		Delete All	□

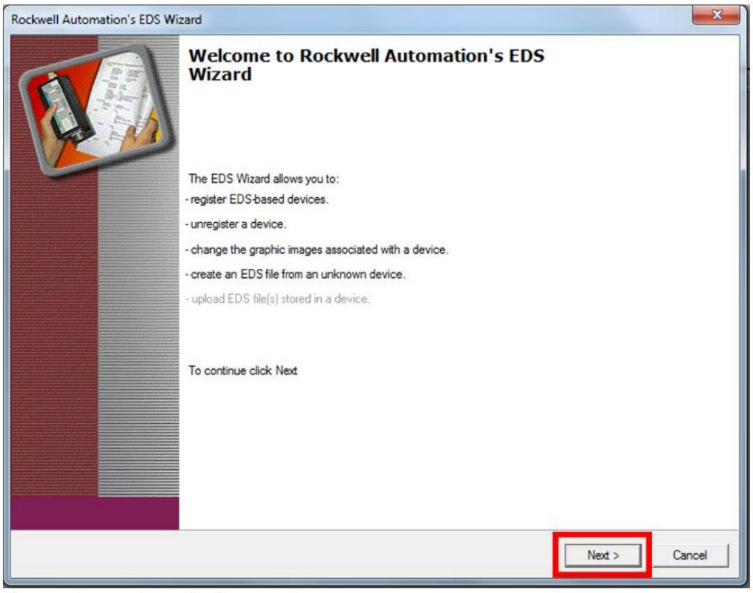
Figure 5: Modbus-to-Modbus configuration - read from shared memory, write to slave

To verify proper communication, navigate to the block of shared memory configured for the read in the web manager for the GW PN/MODBUS.... It can be found under the Modbus Diagnostics tab in the shared memory tab.

6 ControlLogix Configuration

6.1 EDS Installation

Open RSLogix5000 and start a new program. In the toolbar select “Tools” and then “EDS Hardware Installation Tool”. In the pop-up window select “next” to start the installation process. Refer to Figure 6: EDS installation tool.



Rockwell Automation's EDS Wizard

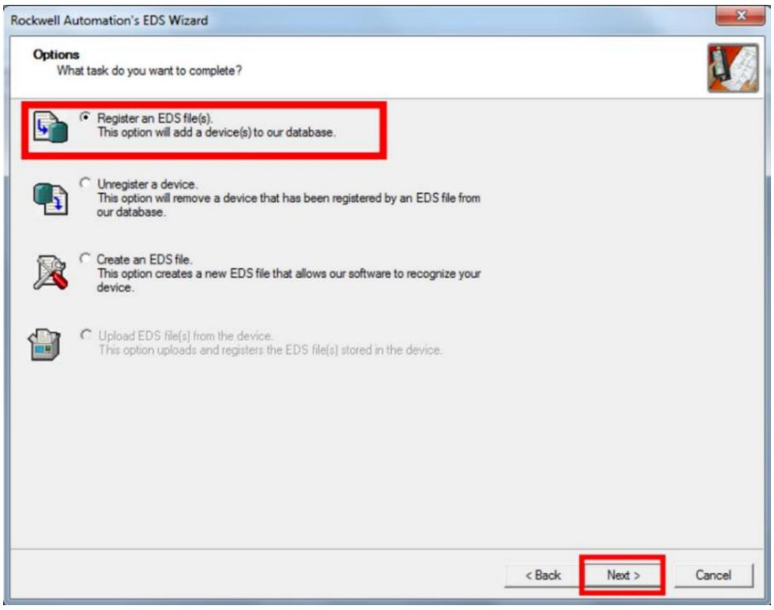
Welcome to Rockwell Automation's EDS Wizard

The EDS Wizard allows you to:
- register EDS-based devices.
- unregister a device.
- change the graphic images associated with a device.
- create an EDS file from an unknown device.
- upload EDS file(s) stored in a device.

To continue click Next

Figure 6: EDS installation tool

Select “Register an EDS File(s)” and then click next to proceed. Refer to Figure 7: EDS installation step 2.


Rockwell Automation's EDS Wizard

Options
What task do you want to complete?

● Register an EDS file(s).
This option will add a device(s) to our database.

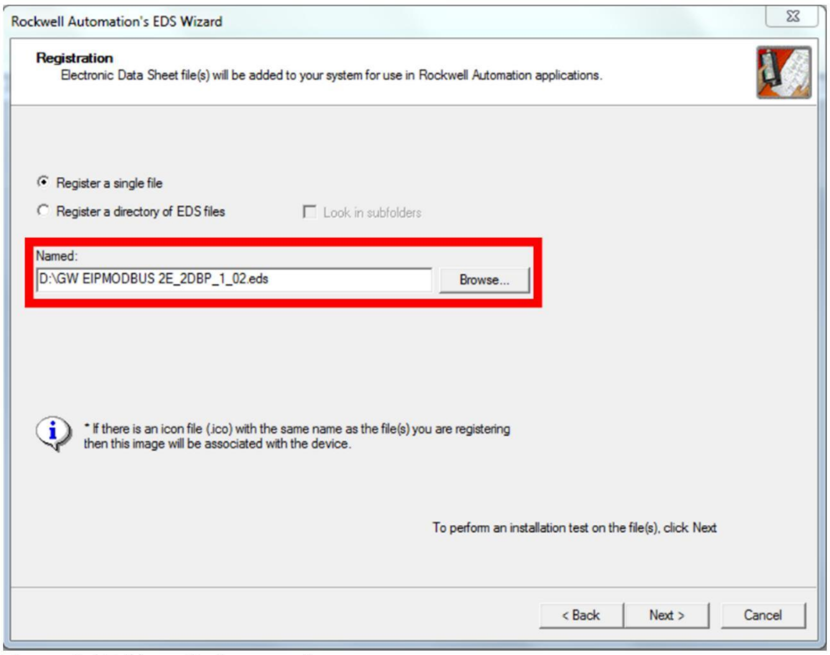
○ Unregister a device.
This option will remove a device that has been registered by an EDS file from our database.

○ Create an EDS file.
This option creates a new EDS file that allows our software to recognize your device.

○ Upload EDS file(s) from the device.
This option uploads and registers the EDS file(s) stored in the device.

Figure 7: EDS installation step 2

Select browse to choose the associated EDS files then click next. EDS files are available to download at http://www.phoenixcontact.net/qr/1062540/dev_desc. Refer to Figure 8: EDS installation step 3.


Rockwell Automation's EDS Wizard

Registration
Electronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.

● Register a single file
○ Register a directory of EDS files　□ Look in subfolders

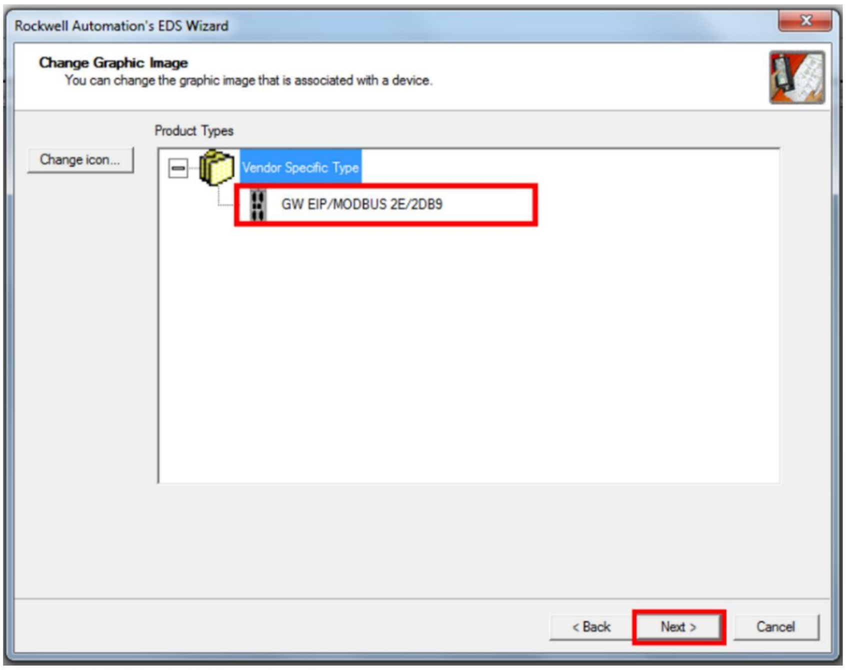
Named:
D:\GW EIPMODBUS 2E_2DBP_1_02.eds

* If there is an icon file (.ico) with the same name as the file(s) you are registering then this image will be associated with the device.

To perform an installation test on the file(s), click Next

Figure 8: EDS installation step 3

Select an image to represent the EDS file and then click next. Refer to Figure 9: EDS installation step 4.



Rockwell Automation's EDS Wizard

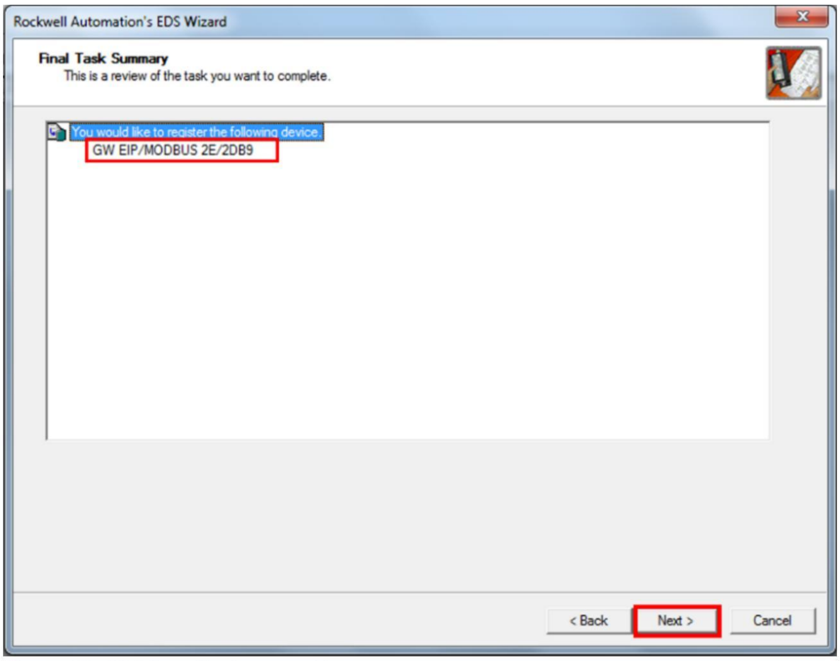
Change Graphic Image

You can change the graphic image that is associated with a device.

Product Types

Figure 9: EDS installation step 4

Ensure the device shown in step 5 matches the device used in the set-up. If they match, click next, otherwise confirm the selected EDS files are correct. Refer to Figure 10: EDS installation step 5.



Rockwell Automation's EDS Wizard

Final Task Summary

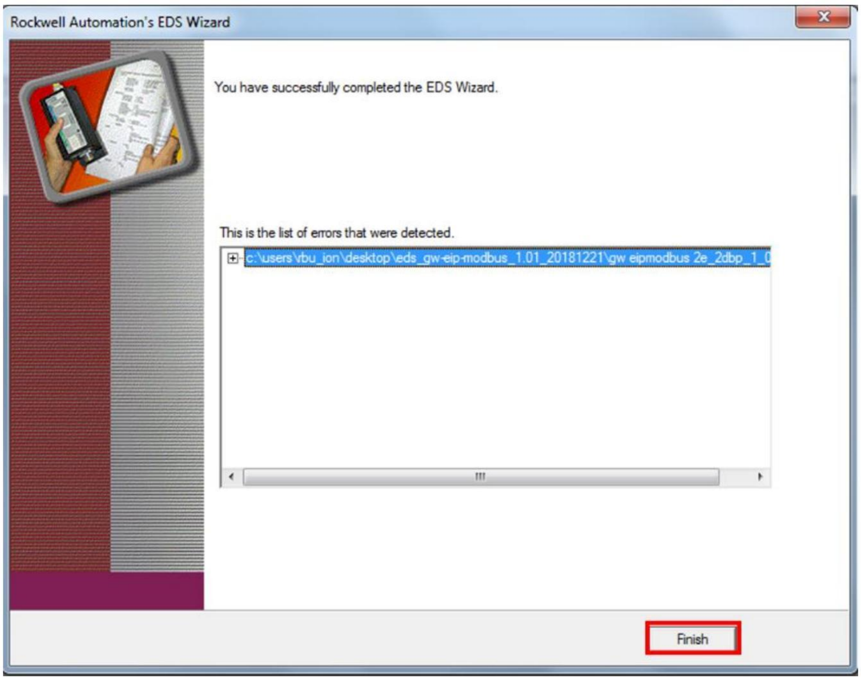
This is a review of the task you want to complete.

You would like to register the following device.

GW EIP/MODBUS 2E/2DB9

Figure 10: EDS installation step 5

The final step notifies the user if there were any errors in the installation process. Select “Finish” to complete the EDS installation. Refer to Figure 11: EDS installation step 6.



Rockwell Automation's EDS Wizard

You have successfully completed the EDS Wizard.

This is the list of errors that were detected.

c:\users\vbu_ion\desktop\eds_gw-eip-modbus_1.01_20181221\gw eipmodbus 2e_2dbp_1_0

Figure 11: EDS installation step 6

6.2 Create a new module

In RSLogix5000, navigate to the Controller Organizer on the left-hand side. Right-click on “Ethernet” and select the option “Create a new module”. Refer to Figure 12: Controller organizer.

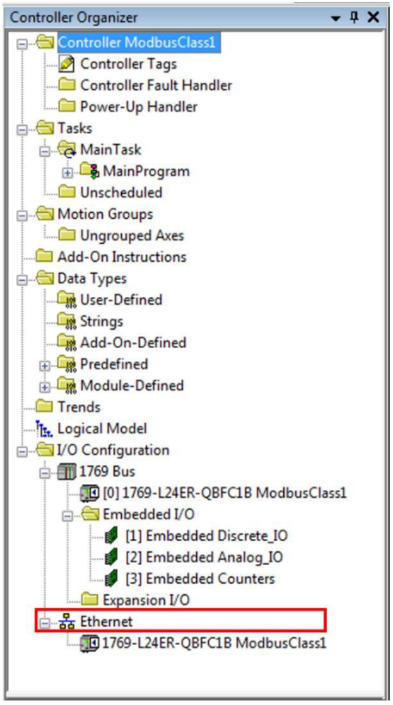
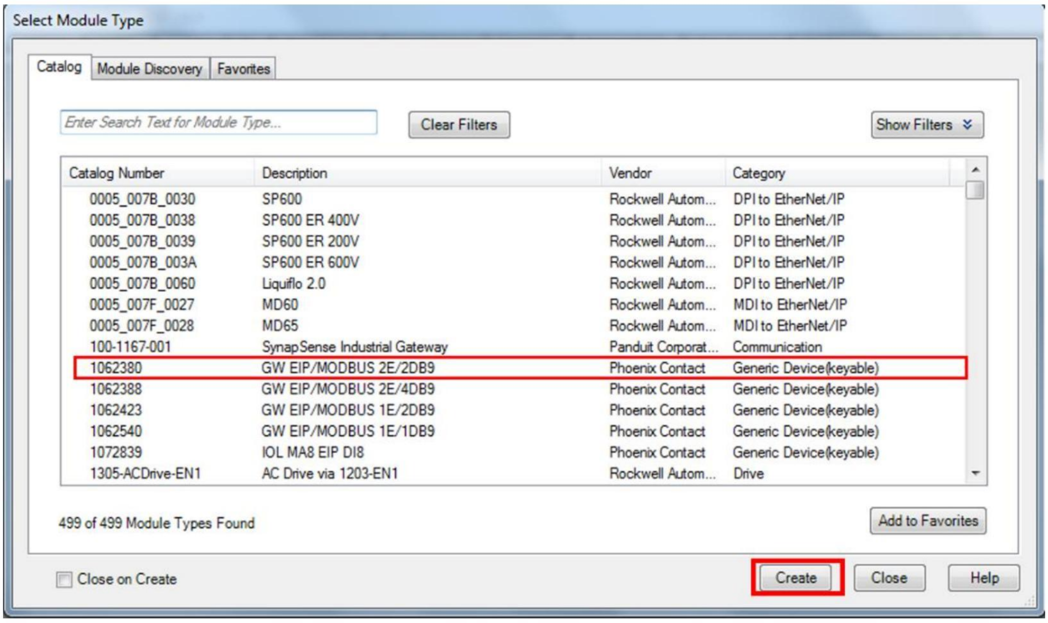


Figure 12: Controller organizer

In the pop-up window select the GW EIP/MODBUS… module used in the set-up then select “Create”. The module selected should match the module registered in the EDS installation process. The example set-up uses a GW EIP/MODBUS 2E2DB9. Refer to Figure 13: Select module type.



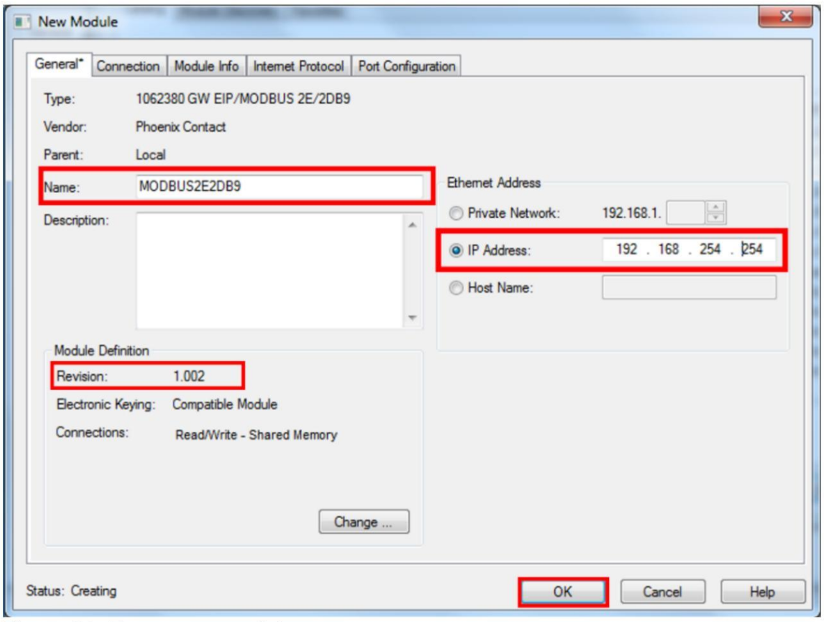
Select Module Type

Catalog Number	Description	Vendor	Category
0005_007B_0030	SP600	Rockwell Autom...	DPI to EtherNet/IP
0005_007B_0038	SP600 ER 400V	Rockwell Autom...	DPI to EtherNet/IP
0005_007B_0039	SP600 ER 200V	Rockwell Autom...	DPI to EtherNet/IP
0005_007B_003A	SP600 ER 600V	Rockwell Autom...	DPI to EtherNet/IP
0005_007B_0060	Liquiflo 2.0	Rockwell Autom...	DPI to EtherNet/IP
0005_007F_0027	MD60	Rockwell Autom...	MDI to EtherNet/IP
0005_007F_0028	MD65	Rockwell Autom...	MDI to EtherNet/IP
100-1167-001	SynapSense Industrial Gateway	Panduit Corporat...	Communication
1062380	GW EIP/MODBUS 2E/2DB9	Phoenix Contact	Generic Device(keyable)
1062388	GW EIP/MODBUS 2E/4DB9	Phoenix Contact	Generic Device(keyable)
1062423	GW EIP/MODBUS 1E/2DB9	Phoenix Contact	Generic Device(keyable)
1062540	GW EIP/MODBUS 1E/1DB9	Phoenix Contact	Generic Device(keyable)
1072839	IOL MA8 EIP DI8	Phoenix Contact	Generic Device(keyable)
1305-ACDrive-EN1	AC Drive via 1203-EN1	Rockwell Autom...	Drive

499 of 499 Module Types Found

Figure 13: Select module type

Give the new module a unique name and enter the IP address of the GW EIP/MODBUS… in the set-up. Ensure that the revision matches the version of the EDS files. When finished, select “OK” to create the module. Refer to Figure 14: Name new module.



New Module

Type: 1062380 GW EIP/MODBUS 2E/2DB9
Vendor: Phoenix Contact
Parent: Local
Name: MODBUS2E2DB9
Description:

Ethernet Address
○ Private Network: 192.168.1.
● IP Address: 192 . 168 . 254 . 254
○ Host Name:

Module Definition
Revision: 1.002
Electronic Keying: Compatible Module
Connections: Read/Write - Shared Memory

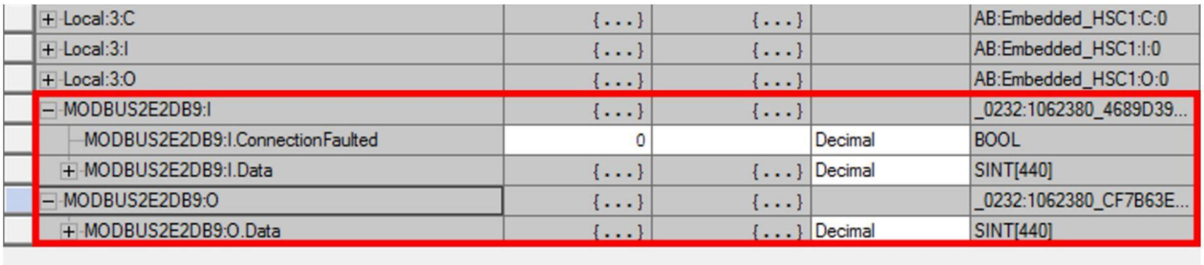
Status: Creating

Figure 14: Name new module

After creating a new module, the controller will automatically create input and output tags in the “Controller Tags” based off the module name created in the previous step. Refer to Figure 15: EDS tags for an example.

- “MODULE_NAME:I” is for all input data.

  - ○ "MODULE_NAME:I.ConnectionFaulted" verifies the connection. If the value is 0, there is a valid connection. If the value is 1, there is an error in the connection. If there is an error refer to the troubleshooting portion of this document.
  - ○ "MODULE_NAME:I.Data" is a SINT array of size 440 to store input data.
- "MODULE_NAME:O" is for all output data.
  - ○ "MODULE_NAME:O.Data" is a SINT array of size 440 to store output data.



+ Local:3:C	{...}	{...}		AB:Embedded_HSC1:C:0
+ Local:3:I	{...}	{...}		AB:Embedded_HSC1:I:0
+ Local:3:O	{...}	{...}		AB:Embedded_HSC1:O:0
− MODBUS2E2DB9:I	{...}	{...}		_0232:1062380_4689D39...
MODBUS2E2DB9:I.ConnectionFaulted	0		Decimal	BOOL
+ MODBUS2E2DB9:I.Data	{...}	{...}	Decimal	SINT[440]
− MODBUS2E2DB9:O	{...}	{...}		_0232:1062380_CF7B63E...
+ MODBUS2E2DB9:O.Data	{...}	{...}	Decimal	SINT[440]

Figure 15: EDS tags

6.3 Set path

In RSLogix5000, select the 'Who Active" icon to set a path for communication. Refer to Figure 16: Who active.

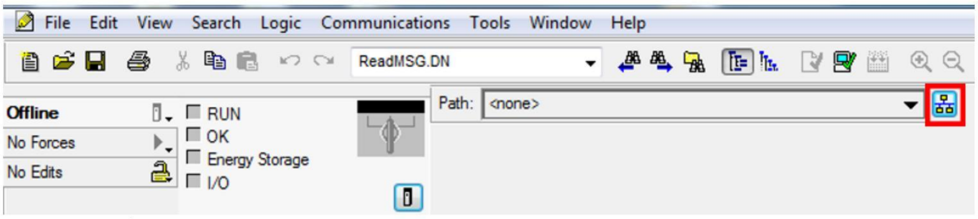
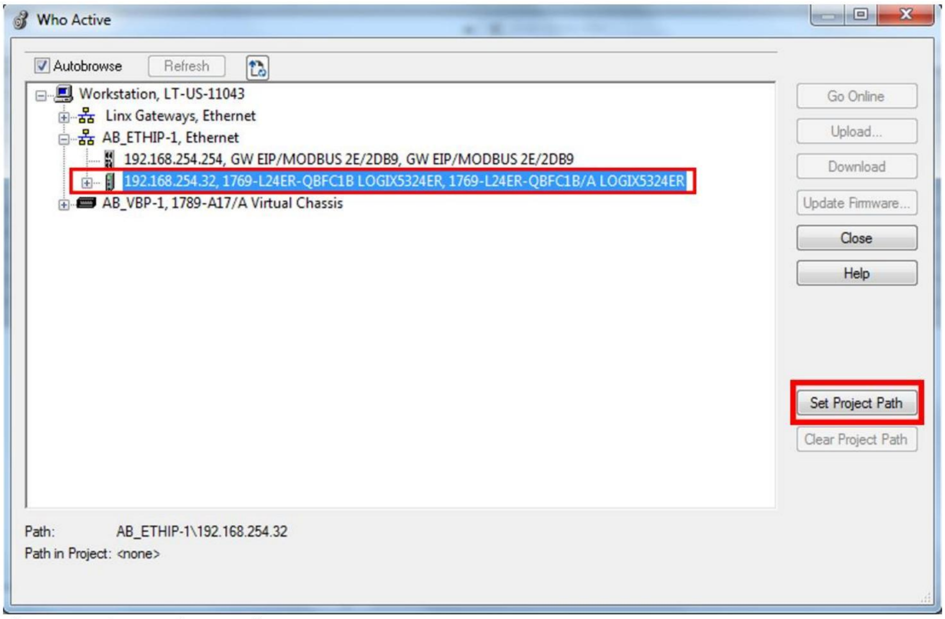


Figure 16: Who active

In the "Who Active" pop-up window, select the IP address of the controller. Select "Set Project Path" to choose that path, then close the window. Refer to Figure 17: Set project path.

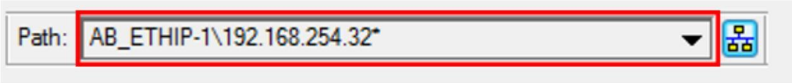


Workstation, LT-US-11043
Linx Gateways, Ethernet
AB_ETHIP-1, Ethernet
192.168.254.254, GW EIP/MODBUS 2E/2DB9, GW EIP/MODBUS 2E/2DB9
192.168.254.32, 1769-L24ER-QBFC1B LOGIX5324ER, 1769-L24ER-QBFC1B/A LOGIX5324ER
AB_VBP-1, 1789-A17/A Virtual Chassis

Path: AB_ETHIP-1\192.168.254.32
Path in Project: <none>

Figure 17: Set project path

In RSLogix5000 the path will now be set to the controller. Refer to Figure 18: Path set.

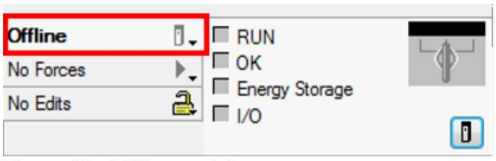


Path: AB_ETHIP-1\192.168.254.32*

Figure 18: Path set

6.4 Go online

Navigate to the top left corner of RSLogix5000 and click on the drop-down menu next to the controller status. When the controller is not active it is set to “Offline”. Refer to Figure 19: Offline activity.

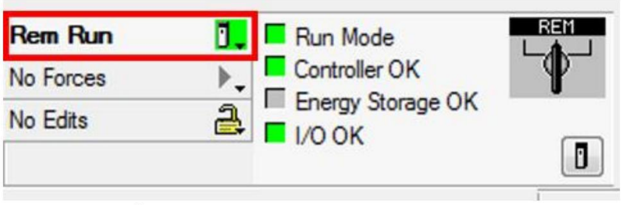


Offline
No Forces
No Edits

□ RUN
□ OK
□ Energy Storage
□ I/O

Figure 19: Offline activity

In the drop-down menu, select download and then run the program. This will start the controller for communication. Refer to Figure 20: Online activity.



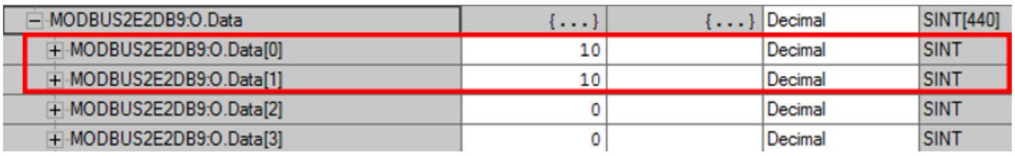
Rem Run
No Forces
No Edits

🟩 Run Mode
🟩 Controller OK
□ Energy Storage OK
🟩 I/O OK

Figure 20: Online activity

6.5 Read data from the controller, write to shared memory

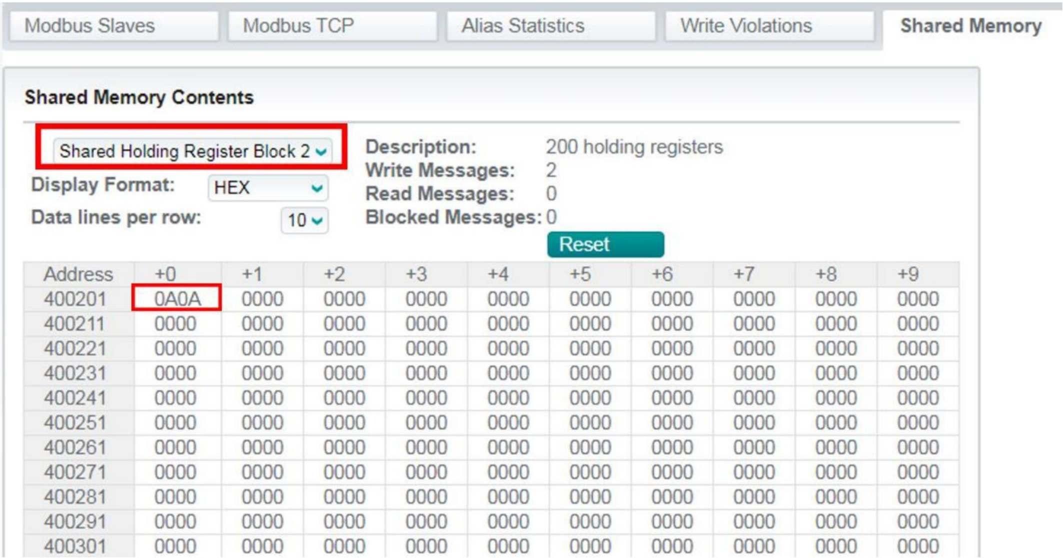
To read data from the controller and write it into the shared memory of the GW EIP/MODBUS… navigate to the controller tags created by the EDS files. In the tag created for output data, enter data to write to the shared memory. The example writes two “10’s” in decimal, which convert to “A” in hex. Refer to Figure 21: Read data from controller.



− MODBUS2E2DB9:O.Data	{...}	{...}	Decimal	SINT[440]
+ MODBUS2E2DB9:O.Data[0]	10		Decimal	SINT
+ MODBUS2E2DB9:O.Data[1]	10		Decimal	SINT
+ MODBUS2E2DB9:O.Data[2]	0		Decimal	SINT
+ MODBUS2E2DB9:O.Data[3]	0		Decimal	SINT

Figure 21: Read data from controller

To confirm the communication, navigate to the shared memory in the GW EIP/MODBUS… web manager. It is under the Data Mapping Settings tab, then the Shared Memory tab. The data maps to the second block of holding registers, due to the default shared memory configuration. Refer to Figure 22: Data written to shared memory.



Shared Memory Contents

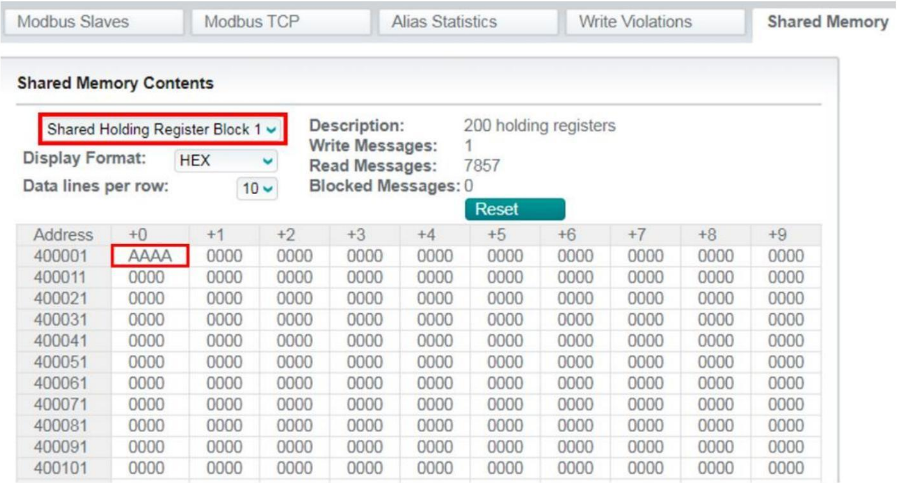
Shared Holding Register Block 2
Display Format: HEX
Data lines per row: 10
Description: 200 holding registers
Write Messages: 2
Read Messages: 0
Blocked Messages: 0

Address	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
400201	0A0A	0000	0000	0000	0000	0000	0000	0000	0000	0000
400211	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400221	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400231	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400241	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400251	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400261	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400271	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400281	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400291	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400301	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Figure 22: Data written to shared memory

6.6 Read data from shared memory, write to the controller

Using a program such as Modscan, put data into the shared memory to read. This data maps to the first block of holding registers due to the default shared memory configuration. The example block of shared memory contains “AAAA” in hex. Refer to Figure 23: Data in shared memory.



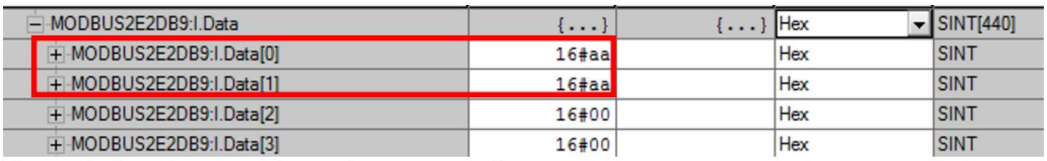
Shared Memory Contents

Shared Holding Register Block 1
Display Format: HEX
Data lines per row: 10
Description: 200 holding registers
Write Messages: 1
Read Messages: 7857
Blocked Messages: 0

Address	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
400001	AAAA	0000	0000	0000	0000	0000	0000	0000	0000	0000
400011	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400021	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400031	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400041	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400051	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400061	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400071	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400081	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400091	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
400101	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Figure 23: Data in shared memory

The controller reads the data in the shared memory and writes it to the “input data” tag created from the EDS files. The example shows the data written in the controller. Refer to Figure 24: Shared memory data written to controller.



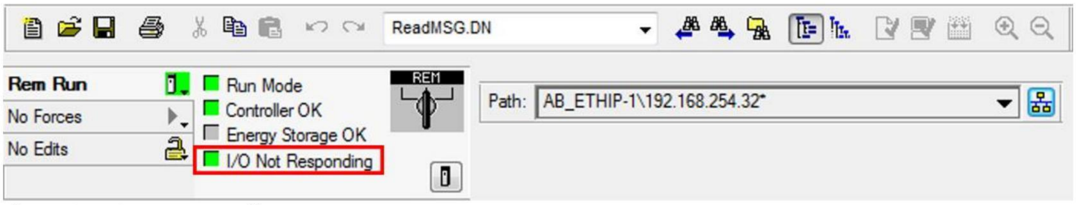
⊟ MODBUS2E2DB9:I.Data	{...}	{...}	Hex	SINT[440]
⊞ MODBUS2E2DB9:I.Data[0]	16#aa		Hex	SINT
⊞ MODBUS2E2DB9:I.Data[1]	16#aa		Hex	SINT
⊞ MODBUS2E2DB9:I.Data[2]	16#00		Hex	SINT
⊞ MODBUS2E2DB9:I.Data[3]	16#00		Hex	SINT

Figure 24: Shared memory data written to controller

7 Troubleshooting

7.1 IO not responding

If communication to the GW EIP/MODBUS is not working, check the IO status of the controller. If the IO status says “I/O Not Responding” communication cannot occur. Refer to Figure 25: IO not responding.



ReadMSG.DN

Rem Run
No Forces
No Edits

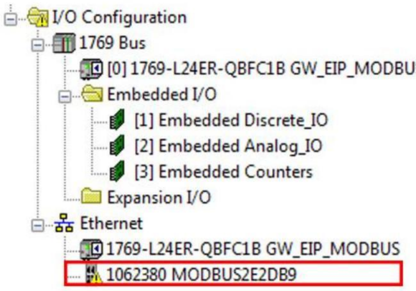
🟩 Run Mode
🟩 Controller OK
□ Energy Storage OK
🟩 I/O Not Responding

REM

Path: AB_ETHIP-1\192.168.254.32*

Figure 25: IO not responding

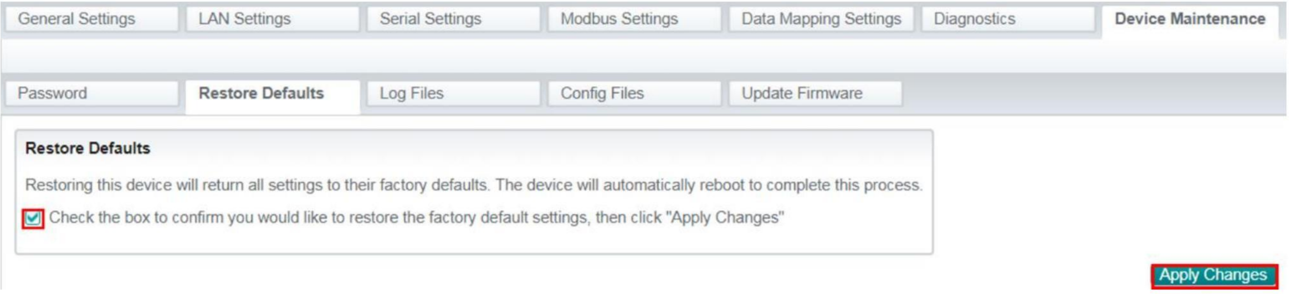
To fix this, navigate to the module on the Controller Organizer. If there is a warning sign next to the module, there is an error in the configuration of the GW EIP/MODBUS…. Refer to Figure 26: Module error.



```
I/O Configuration
  1769 Bus
    [0] 1769-L24ER-QBFC1B GW_EIP_MODBUS
    Embedded I/O
      [1] Embedded Discrete_IO
      [2] Embedded Analog_IO
      [3] Embedded Counters
    Expansion I/O
  Ethernet
    1769-L24ER-QBFC1B GW_EIP_MODBUS
    1062380 MODBUS2E2DB9
```

Figure 26: Module error

Navigate to the GW EIP/MODBUS… web manager to check the configuration. EDS files map to the default configuration of the shared memory. To restore default settings, navigate to “Device Maintenance” then “Restore Defaults”. Check the box and select “Apply Changes” to restore factory defaults of the GW EIP/MODBUS…. Refer to Figure 27: Restore default settings.



Restore Defaults

Restoring this device will return all settings to their factory defaults. The device will automatically reboot to complete this process.

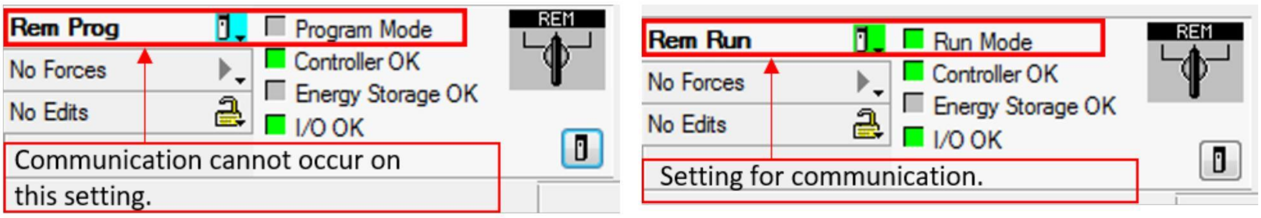
☑ Check the box to confirm you would like to restore the factory default settings, then click "Apply Changes"

Apply Changes

Figure 27: Restore default settings

7.2 Error writing to the controller

If the GW EIP/MODBUS… cannot write data into the controller, check the status of the controller. The controller needs to be in run mode, not program mode. Refer to Figure 28: Controller status.



Communication cannot occur on this setting.

Setting for communication.

Figure 28: Controller status