

EtherNet/IP Configuration for the Moxa MGate 5105-MB-EIP and EIPScan Test Tool

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About Moxa

Moxa manufactures one of the world’s leading brands of device networking solutions. Products include serial boards, USB-to-serial hubs, media converters, device servers, embedded computers, Ethernet I/O servers, terminal servers, Modbus gateways, industrial switches, and Ethernet-to-fiber converters. Our products are key components of many networking applications, including industrial automation, manufacturing, POS, and medical treatment facilities.

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1. Introduction

This document describes the configuration of a Moxa MGate gateway as an EtherNet/IP adapter for the EtherNet/IP side and the EIPScan Test tool as an EtherNet/IP scanner. For the Modbus TCP side, connect a simulator Modsim32 as a Modbus TCP slave with 8 digital inputs and 8 digital outputs.

2. Applicable Products

Product Line	Model Name
MGate 5000 series	MGate 5105-MB-EIP MGate 5105-MB-EIP-T

3. System Requirements

Description	Model / File Name	Version
EIPScan Test Tool		1.22
Modsim32		4.A00
Moxa EtherNet/IP to Modbus gateway	MGate 5105-MB-EIP	1.1
Software utility to configure Moxa device	MGate Manager	1.8

4. System Overview

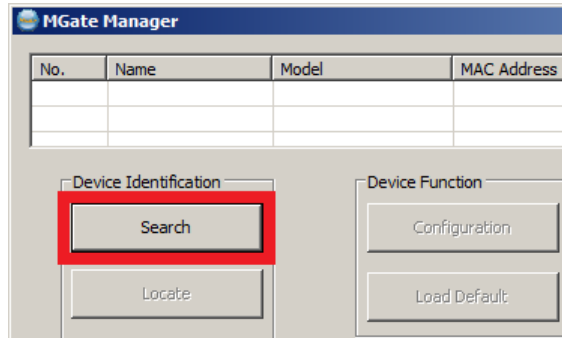
In this document, we use the MGate 5105-MB-EIP to illustrate. The system architecture is shown below.



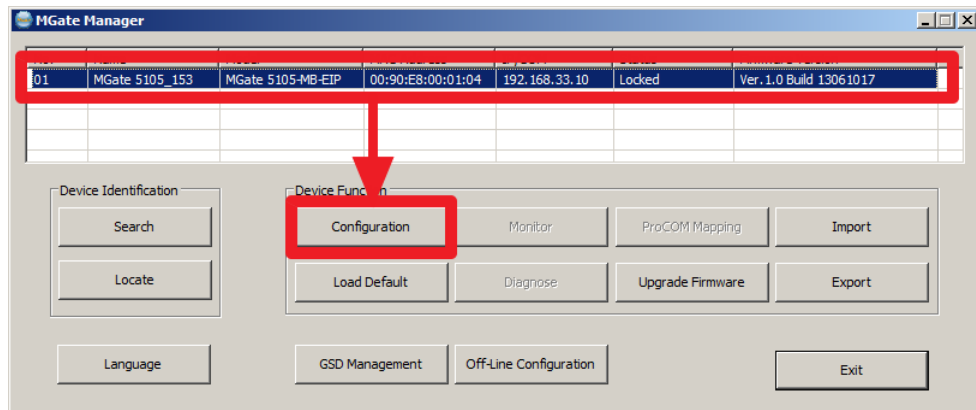
5. Moxa's PROFIBUS Device Configuration

5.1. Device configuration with MGate Manager

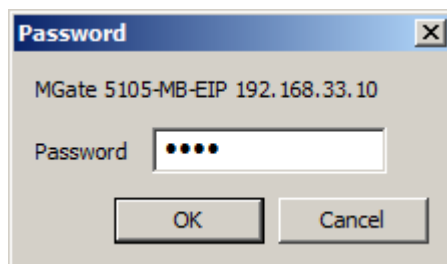
5.1.1. Start MGate Manager and **Search** for the Moxa MGate 5105-MB-EIP.



5.1.2. Select the target device and click the **Configuration** button to configure it.



When the popup password window appears, the default password is **moxa**.



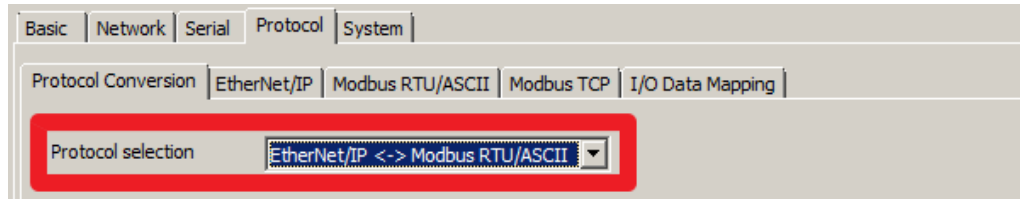
5.1.3. Select the "Network" tab to configure the IP address of the MGate 5105-MB-EIP. In this example we configure it as 192.168.33.10/255.255.255.0

Basic	Network	Serial	Protocol	System
Ethernet Settings				
IP configuration	Static			
IP address	192 . 168 . 33 . 10			
Netmask	255 . 255 . 255 . 0			
Gateway	0 . 0 . 0 . 0			
DNS Server				
DNS server 1	0 . 0 . 0 . 0			
DNS server 2	0 . 0 . 0 . 0			

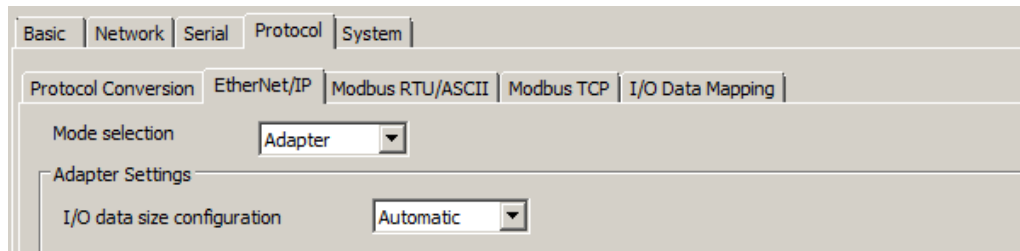
5.1.4. Select the "Serial" tab and configure the serial parameters to match the Modbus device (the iologik R2110 in this example).

Basic	Network	Serial	Protocol	System
Port 1				
Baud rate	115200			
Parity	None			
Data bit	8			
Stop bit	1			
Flow control	None			
FIFO	Enable			
Interface	RS232			
RTS on delay	0			ms
RTS off delay	0			ms

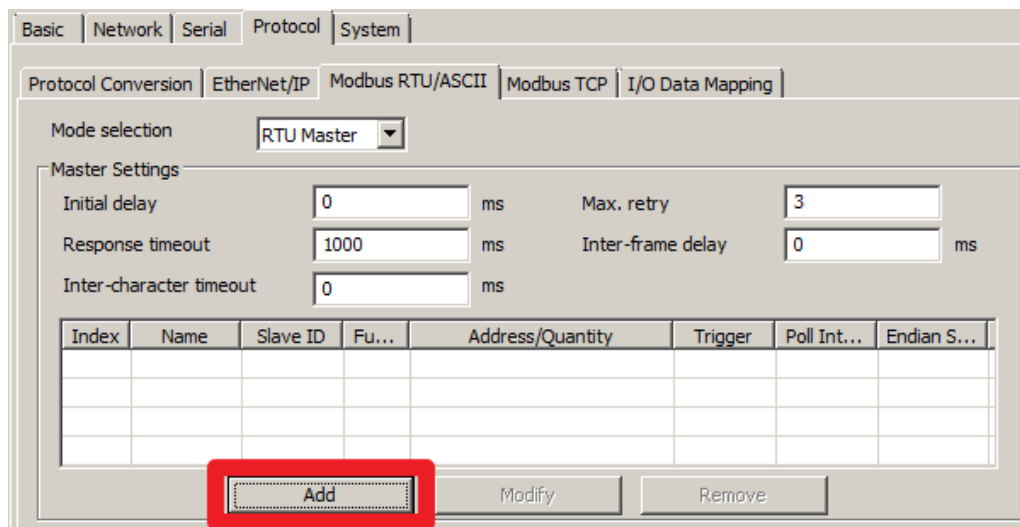
5.1.5. Select the "Protocol" tab to configure the protocol conversion settings. The first sub-tab ("Protocol Conversion") indicates which protocols are going to be converted. For this demo, we chose **EtherNet/IP <-> Modbus RTU/ASCII**.



5.1.6. Change to the "EtherNet/IP" tab to configure EtherNet/IP settings. In this Demo, the Allen-Bradley PLC is the EtherNet/IP Scanner, so we choose **Adapter** for MGate 5105-MB-EIP and use **Automatic** for I/O data size configuration, which means that the MGate 5105-MB-EIP will do the I/O data mapping for us.



5.1.7. Change to the "Modbus RTU/ASCII" tab to configure Modbus RTU/ASCII settings, since in this demo we use a Modbus RTU device. Refer to the ioLogik R2110 User's Manual, which indicates how to read the DI status from the ioLogik R2110 and write the DO status to the ioLogik R2110. Configure the two Modbus commands on this tab. Click the **Add** button to add Command1.



Command1 is for reading the DI status from Modsim32. Click **OK** to add the command.

The screenshot shows a 'Modbus Command' dialog box with the following fields and values:

Name	Command1	
Slave IP address	192 . 168 . 33 . 1	Port 502
Slave ID	1	
Function	02 - Read discrete inputs	
Trigger	Cyclic	
Poll interval	1000	ms
Endian swap	None	
Read starting address	0	
Read quantity	8	
Write starting address	0	
Write quantity	0	

Buttons: OK, Cancel, Help

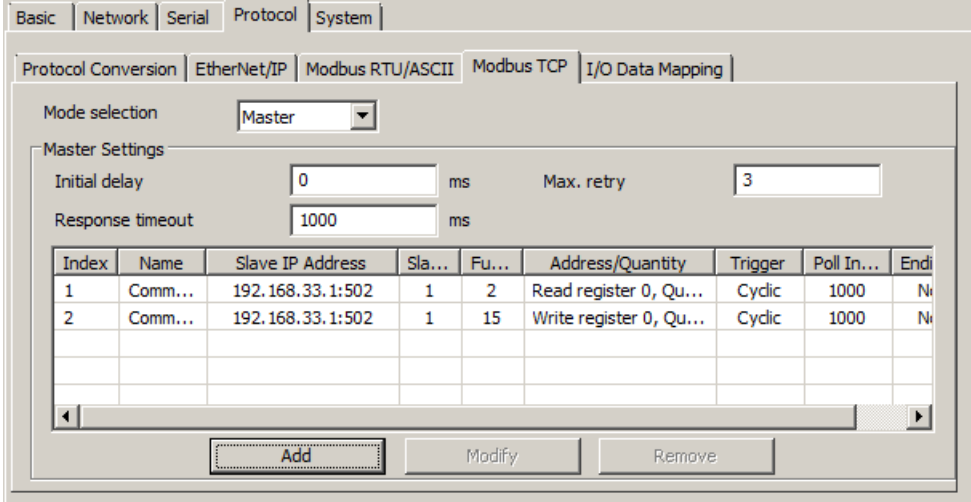
Command2 is for writing the DO status to Modsim32. Click **OK** to add the command.

The screenshot shows a 'Modbus Command' dialog box with the following fields and values:

Name	Command2	
Slave IP address	192 . 168 . 33 . 1	Port 502
Slave ID	1	
Function	15 - Write multiple coils	
Trigger	Cyclic	
Poll interval	1000	ms
Endian swap	None	
Read starting address	0	
Read quantity	10	
Write starting address	0	
Write quantity	8	

Buttons: OK, Cancel, Help

5.1.8. Return to the "Modbus TCP" tab to see a summary of the commands that we added.

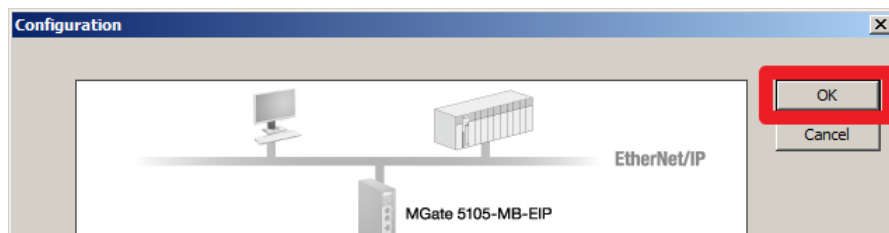


The screenshot shows the "Modbus TCP" configuration window. The "Mode selection" is set to "Master". Under "Master Settings", "Initial delay" is 0 ms, "Response timeout" is 1000 ms, and "Max. retry" is 3. Below these settings is a table with the following data:

Index	Name	Slave IP Address	Sla...	Fu...	Address/Quantity	Trigger	Poll In...	Endi
1	Comm...	192.168.33.1:502	1	2	Read register 0, Qu...	Cyclic	1000	Ni
2	Comm...	192.168.33.1:502	1	15	Write register 0, Qu...	Cyclic	1000	Ni

Buttons for "Add", "Modify", and "Remove" are located at the bottom of the window.

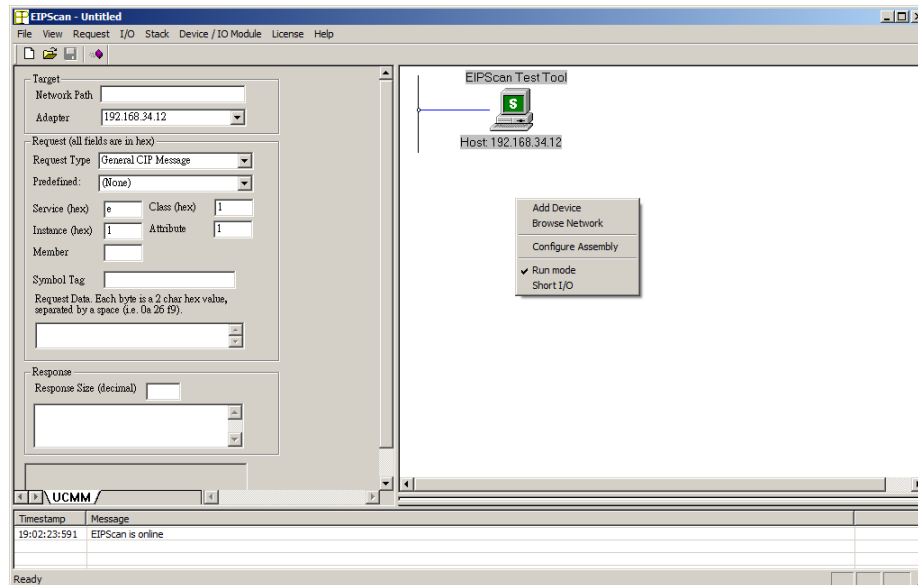
5.1.9. Next click **OK** to save the new configurations. The MGate 5105-MB-EIP will restart automatically and start using the new settings.



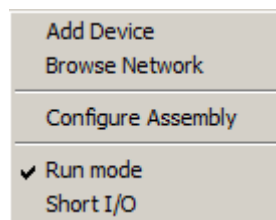
6. EIPScan Configuration

6.1. Using the EIPScan Test Tool

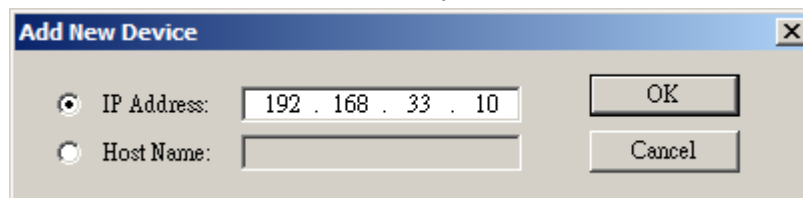
6.1.1. To use the EIPScan Test Tool, click **Start** → **All Programs** → **EIPScan Test Tool** → **EIPScan Test Tool**. The main window should open, as shown below:



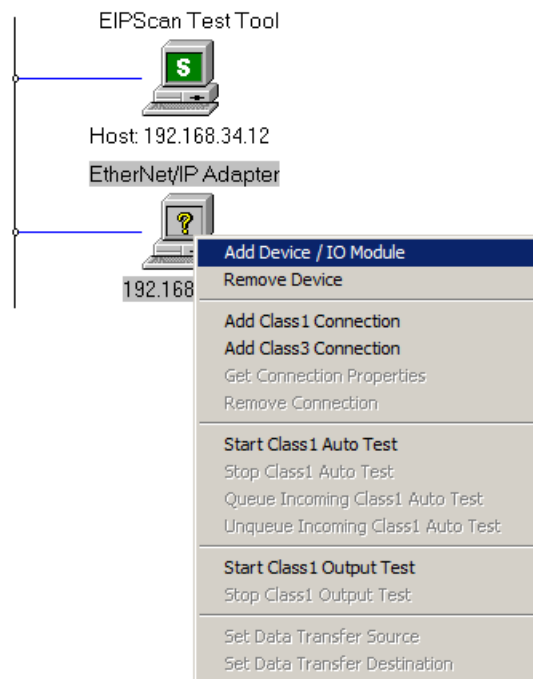
6.1.2. Right click on the right hand side window and choose Add Device.



6.1.3. Next, input the IP address of the MGate 5105-MB-EIP. For this example, we use 192.168.33.10. Click **OK** to proceed.



6.1.4. A new EtherNet/IP device will be shown on the network. Right click on the new device and choose **Add Class1 Connection** to communicate with the MGate 5105-MB-EIP.



6.1.5. Configure the major parameters as below:

O → T:

Connection Point: **100**

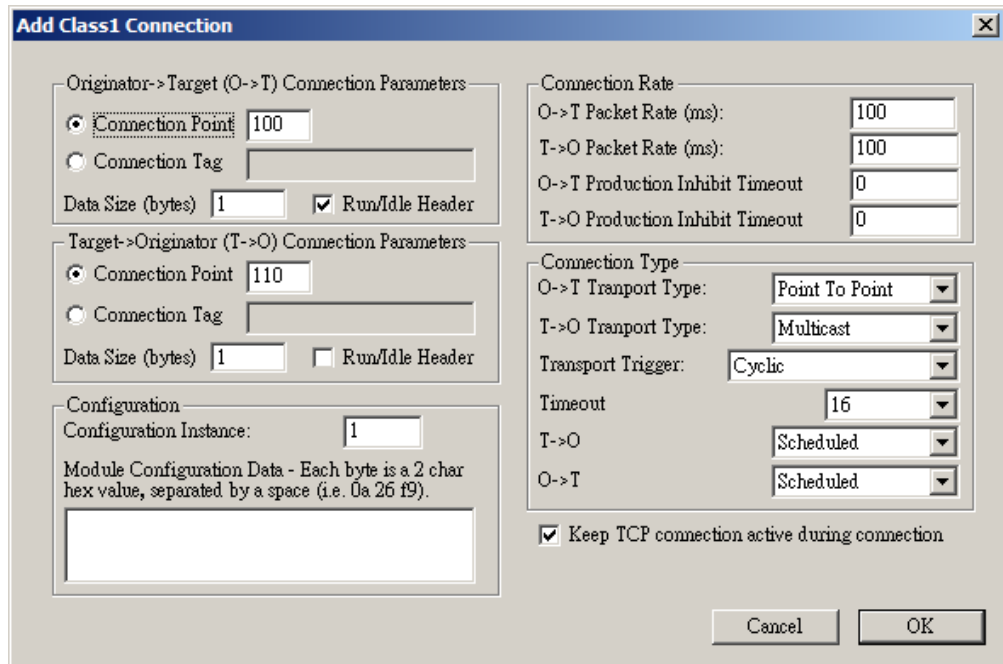
Data size: 1 (in this example)

T → O:

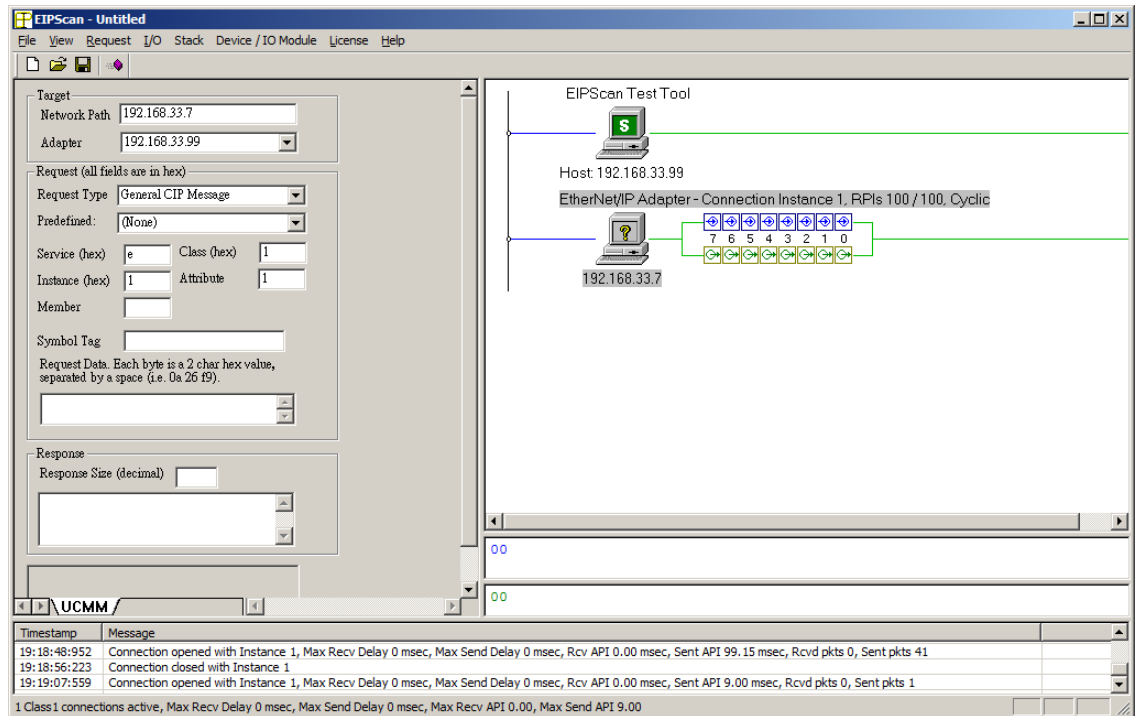
Connection Point: **110**

Data size: 1 (in this example)

And then click **OK**.



6.1.6. DI/DO buttons will be shown next to the MGate 5105-MB-EIP:



6.1.7. Try modifying the DO and check if the Modsim32 data changes, or modify the value of Modsim32 and check if the DI status changes in EIPScan.