

# **Mitsubishi Q Driver Configuration Manual**

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# 1. Mitsubishi Q Configuration

## 1.1 Mitsubishi Q PLC

Mitsubishi Q Series PLC are modular type PLC with Ethernet port and other types of connectors depending on the modules.



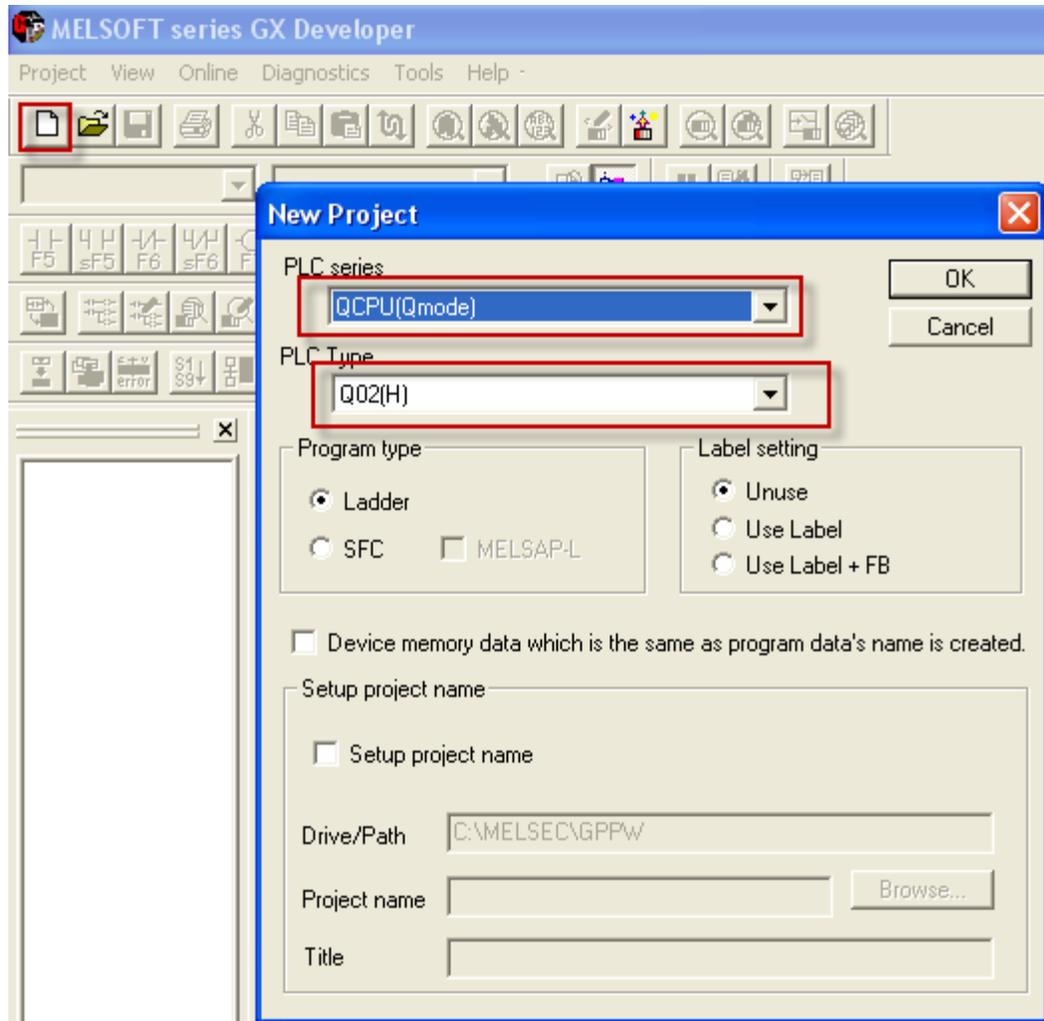
The MitsuQ driver will connect and read data directly from the PLC using the Ethernet port. The driver is listed in the TCP/IP drivers.

## 1.2 Module Settings

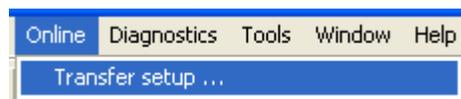
To make sure the PLC is connected properly to your computer and change the settings you need to install the Mitsubishi GX software.



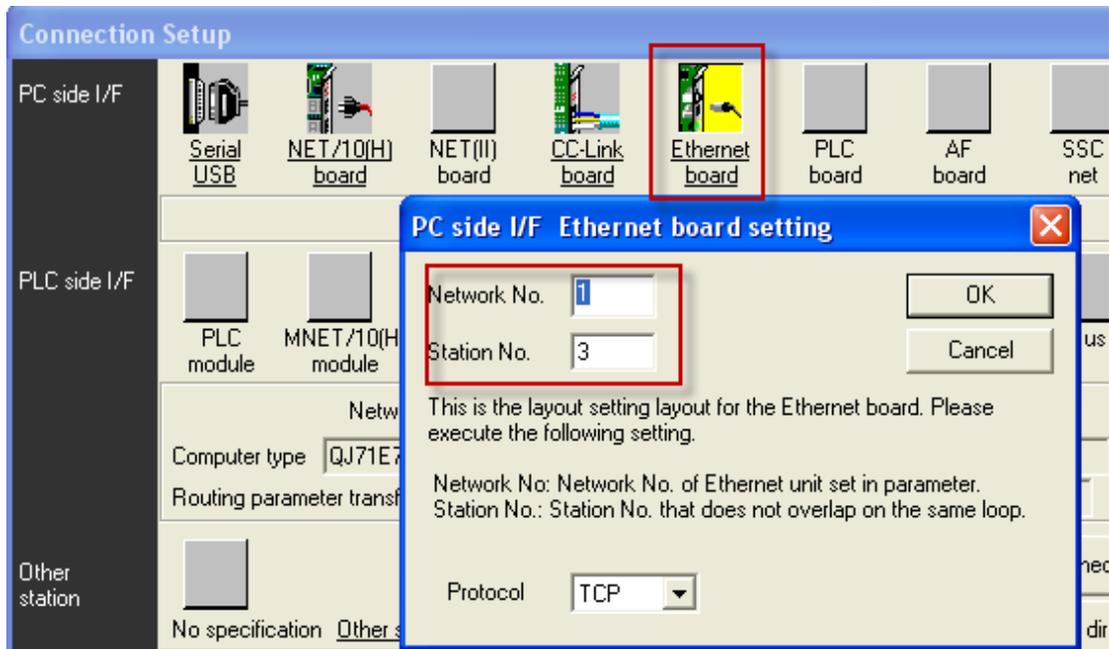
In GX Developer create a new project and select Q type CPU.



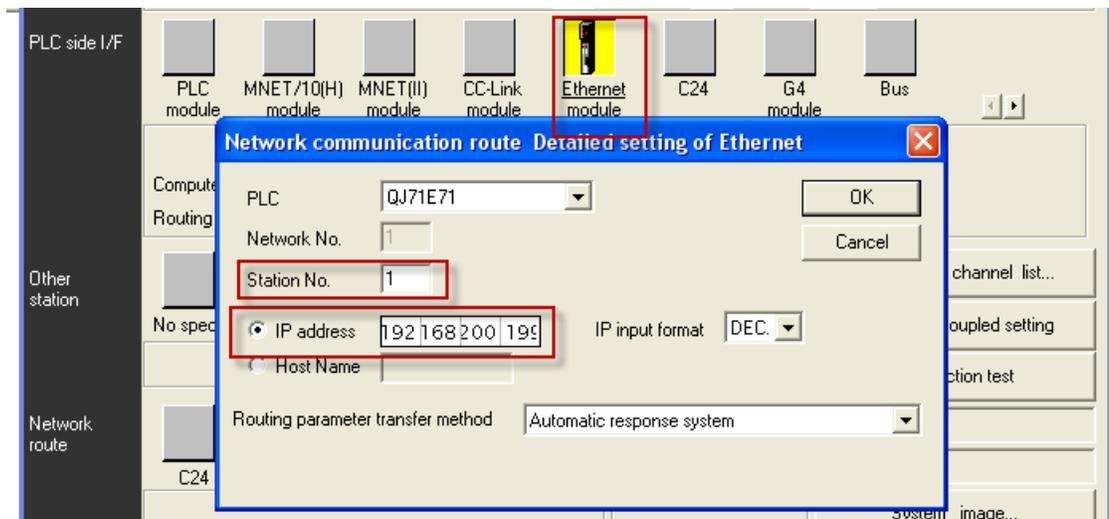
Then setup the network parameters to test the connection



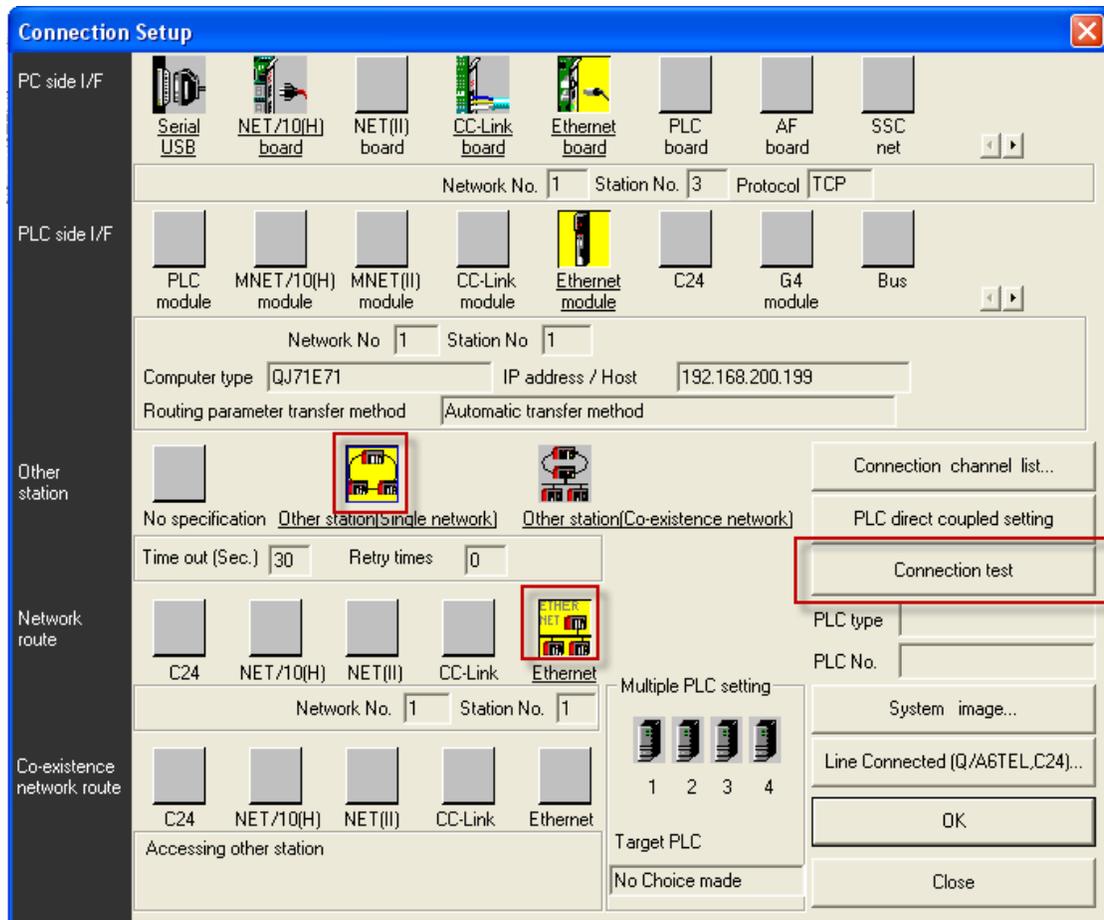
For the PC select "Ethernet board" and set the network to 1 (or another number if your PLC doesn't have the default settings) and choose a Station number different from 0.



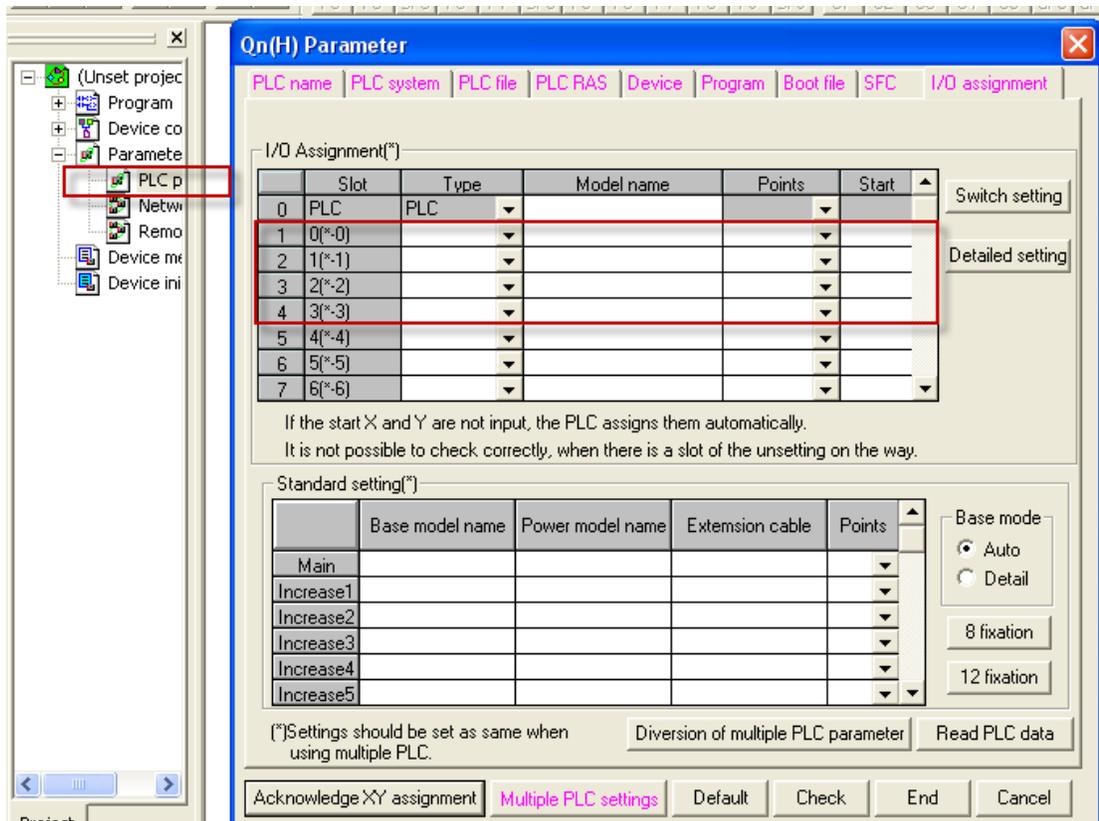
For the PLC select "Ethernet module" and type the IP address of your PLC.



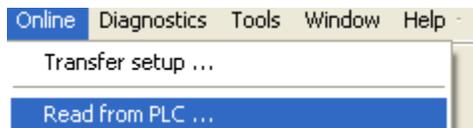
Set "Other station" to "Single network" and "Network route" to "Ethernet". You can now test the connection and validate the settings.

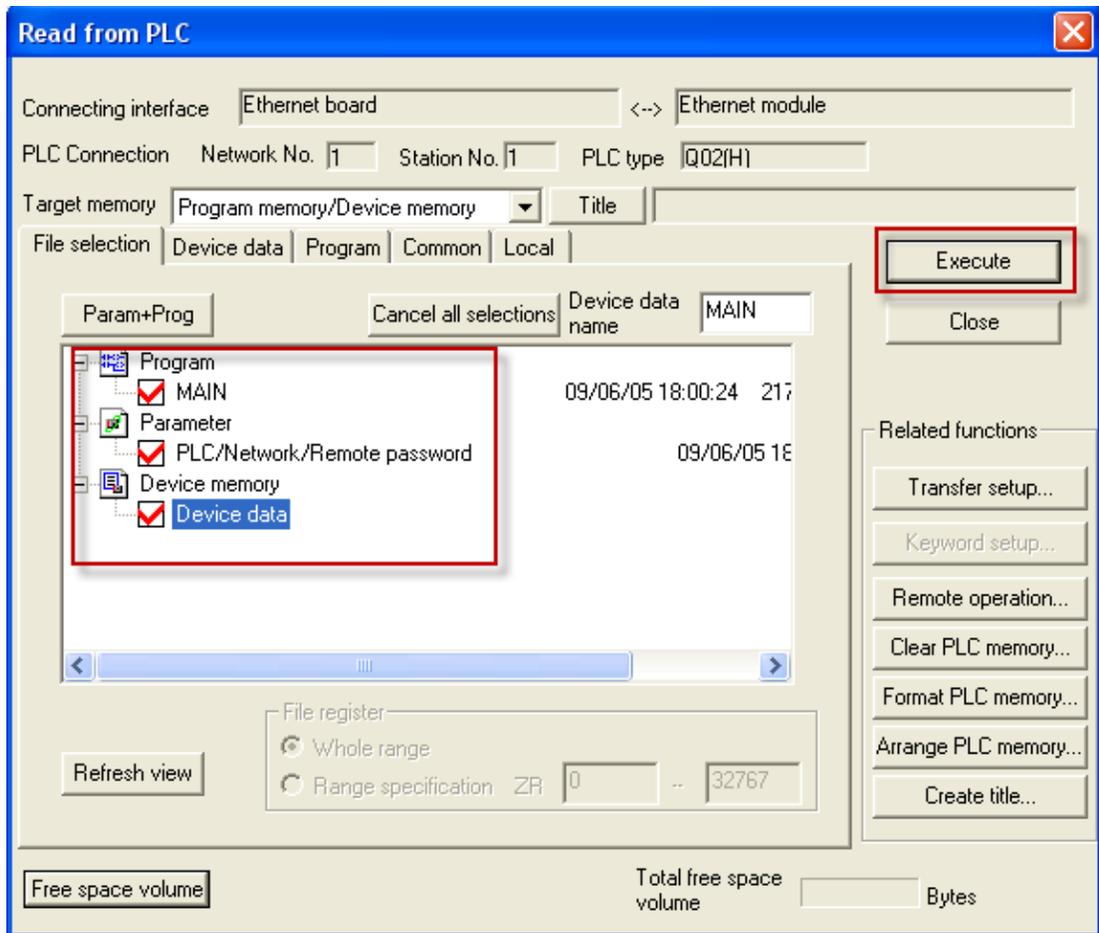


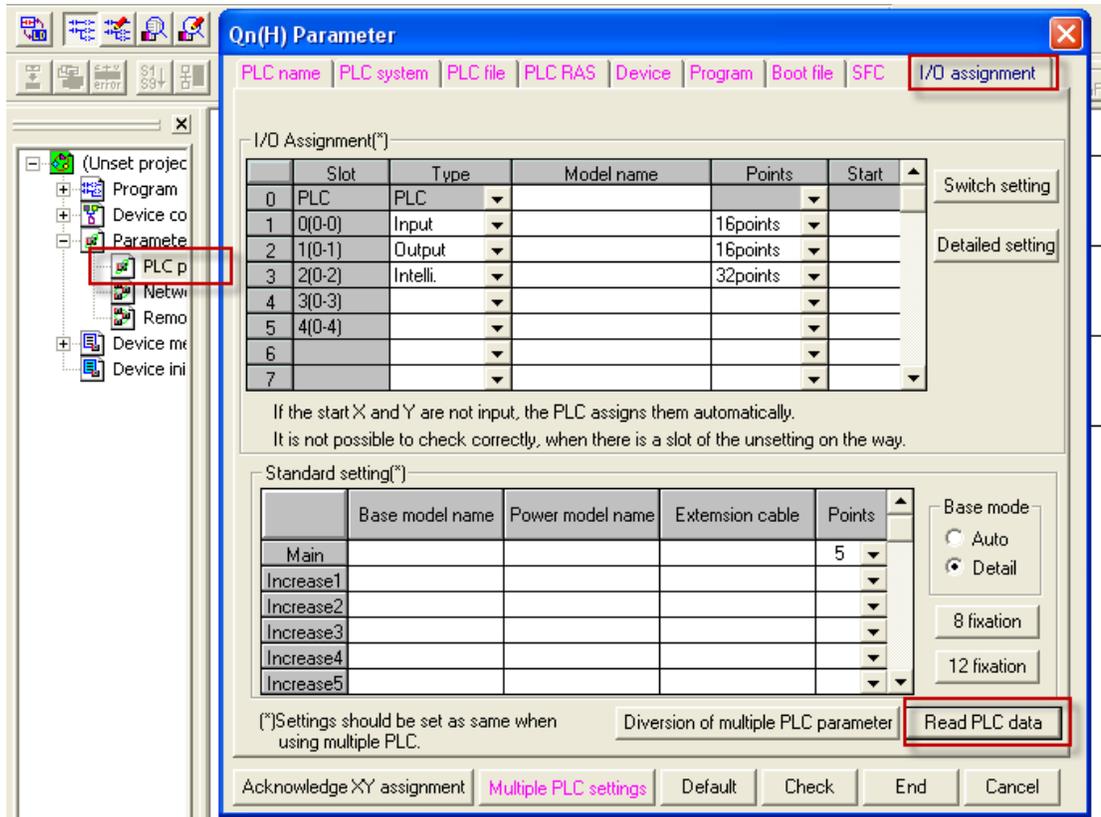
If the PLC has not been set you should define the different modules now in the software.



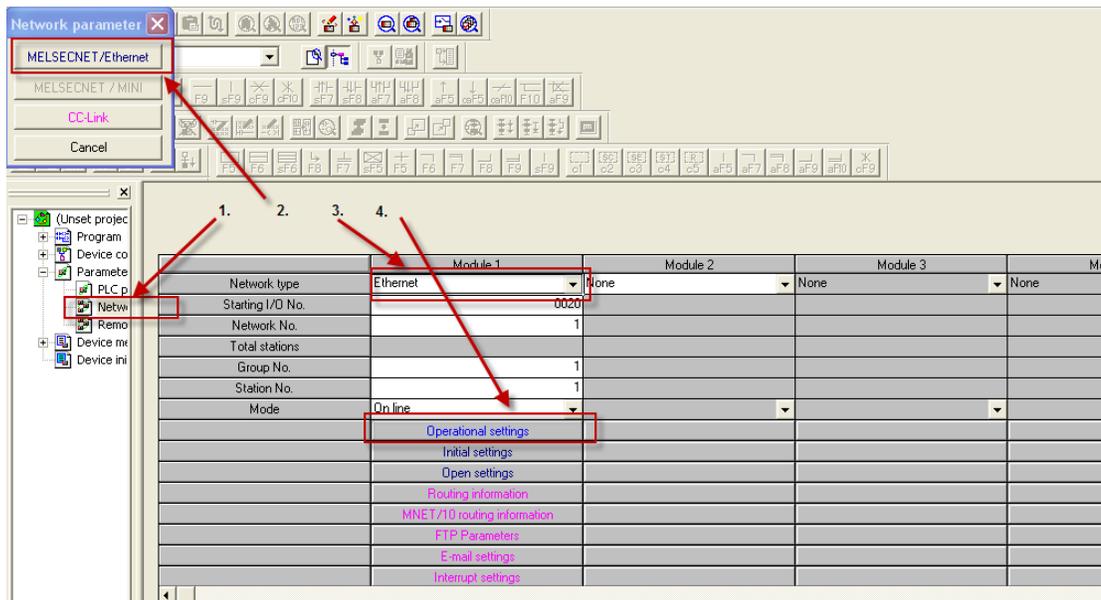
If the module has already been configured you can upload the settings.



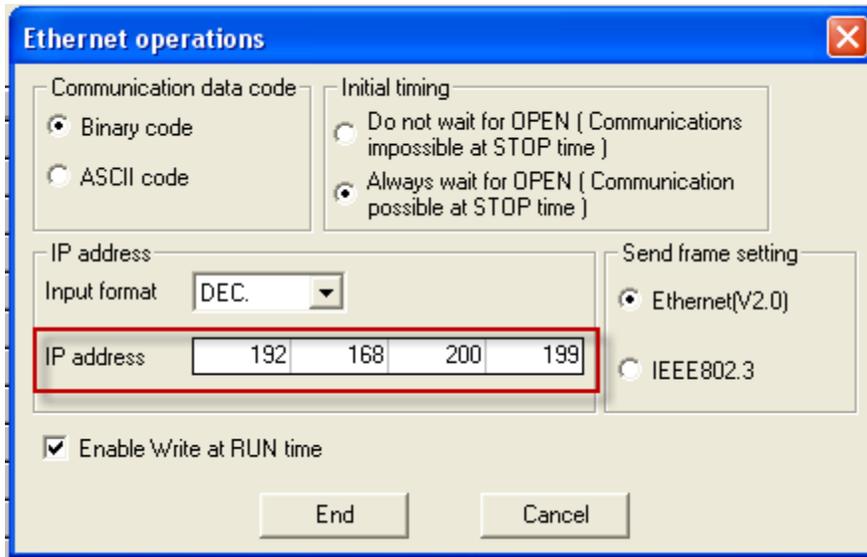




We should now configure the PLC network settings so that WebAccess Can read data. Enter the "Network Parameters"



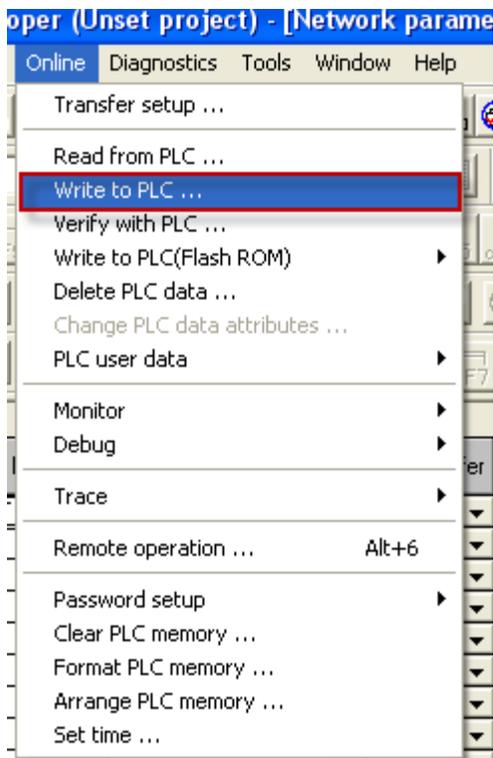
You can change the IP in the operational settings



Then go to "Open settings" to set the transaction options. Depending on the software version the pairing option will be named "No Pair" or "Disabled". Please note the port number. The default port should be 5001 which in Hexa becomes 1389 (the port number is in Hexa in the settings page).

	Protocol	Open system	Fixed buffer	Fixed buffer communication	Pairing open	Existence confirmation	Local station Port No.	Destination IP address	Dest. Port No.
1	TCP	Unpassive	Send	Procedure exist	No pairs	Confirm	1389		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

Now download the updated settings.



## 2. WebAccess Configuration

### 2.1 Port

The MitsuQ protocol uses a TCP/IP port. Unlike Serial Ports multiple connections (and therefore multiple WebAccess TCP/IP ports) can be opened on the same physical IP port.

#### 2.1.1 Check the port number

For TCP/IP ports the port number does not impact the driver. It is used to recognize the port inside WebAccess. You can choose any number below 64 but you should make sure that the port number does not correspond to a serial port on your computer (As the port number for serial connections must match the COM port number in your computer).

## 2.1.2 WebAccess Comport Page

Open your WebAccess Configuration and select the SCADA node you want to add the device to. Then select "Add a new Comport"

All the settings in this page must match the settings in all the modules attached to the port. **So all the modules attached to the same comport must have the same settings.**

Update Comport		<a href="#">[Cancel]</a>	<input type="button" value="Submit"/>
Interface Name	TCPIP <input type="button" value="v"/>		
Comport Number	2 <input type="text"/>		
Description	Mitsubishi Q <input type="text"/>		
Scan time	1 <input type="text"/>	<input type="radio"/> MilliSecond	<input checked="" type="radio"/> Second
		<input type="radio"/> Minute	<input type="radio"/> Hour
TimeOut	1000 <input type="text"/>	MilliSecond	
Retry count	3 <input type="text"/>		
Auto Recover Time	60 <input type="text"/>	Second	
Backup Port Number	0 <input type="text"/>		
		<a href="#">[Cancel]</a>	<input type="button" value="Submit"/>

### 2.1.3 Comport Number

Choose any available comport number

### 2.1.4 Description

This is an optional field used for user reference.

### 2.1.5 Scan Time

This is the time in milliseconds to scan the Devices. This must match the ability of the device to respond. **A typical scan rate is 1 per second.**

If the Device cannot respond as fast as the SCAN Time entered, WebAccess will scan at a slower rate.

### 2.1.6 Timeout

With a 1 second scan rate, **a typical Time Out = 200 Milliseconds.**

Timeout is the time waited before re-sending a communications packet that did not have a reply.

Timeout specifies how long the software waits for a response to a data request, specifically to wait for a reply from one packet. A recommended value is one-fifth the scan rate, longer if the communication device is slow.

Combined with Retry count, Timeout also determines time to consider a device or port as BAD. Timeout is the time to wait since last communication packet sent without a reply. Time is in milliseconds. Slow or poor quality communications require longer timeout. The faster the communications, the shorter the timeout required. Shorter timeouts result in faster reconnects after communication failures.

### **2.1.7 Retry Count**

**A typical Retry count = 3.**

Number of times to retry communications if no reply is received from a device. Combined with Timeout, also determines time to consider a device or port as BAD.

This is the number of times after the first attempt has failed that communication should be attempted before indicating a failure. (If Retry count is 3, a total of 4 failed requests have occurred before tags are marked bad). Specifically, this is how many times to send a single packet after the field device fails to respond to the first packet. After the retry count is exceeded, all the tags in the packet are marked with asterisks and the next packet of requests is sent. A reasonable value is 3 to 5 times. After this number of tries, the tags in this packet are marked as "fail to respond" (i.e. asterisks) and are disabled. In reality, increasing the number of retries hides failures on the part of the field device to respond to a request. Essentially, increasing the retries gives the field device more chances to reply.

### **2.1.8 Auto Recover Time**

**A typical Auto Recover Time = 60 Seconds.**

Auto Recover Time is the time to wait before attempting to re-establish communications with a BAD device or port.

If communications to the PLC is unusually slow due to hardware, communications or network issues, you might consider increasing this value. If communications to the PLC or RTU fails frequently, you may want to decrease this number in order to have WebAccess try to re-establish communications sooner.

If communications to the PLC, RTU or device Fails (i.e. exceeds Timeout) WebAccess will wait the Auto Recover Time before trying to re-establish communications.

## 2.1.9 Backup Port

The Backup Port has not been tested for Adam 6K

## 2.2 Device

Then Go to the port page and select "Add a new device". Select the ADAM6K device Type.

Create New Device		[Cancel]	Submit
Device Name	<input type="text" value="MitsuModule"/>		
Description	<input type="text"/>		
Unit Number	<input type="text" value="0"/>		
Device Type	<input type="text" value="MitsuQ"/>		
Primary	IP Address	<input type="text" value="192.168.200.199"/>	
	Port Number	<input type="text" value="5001"/>	
	Device Address	<input type="text" value="1"/> if other than Unit Number	
Secondary	IP Address	<input type="text"/>	
	Port Number	<input type="text"/>	
	Device Address	<input type="text"/>	
Use UDP :	<input type="text" value="0"/>	Network No.	<input type="text" value="1"/>
PC No.	<input type="text" value="255"/>	Destination IO # :	<input type="text" value="1023"/>
		[Cancel]	Submit

### 2.2.1 Unit Number

The Unit number is not important for TCPIP communication as it is replaced by the IP Address. Just select any available unit number.

### 2.2.2 Port Number

The port number should match the one set previously so if you entered 1389 in the PLC you should type 5001 here.

### 2.2.3 Use UDP

As we set a TCP type transaction set "Use UDP" to 0. It is also possible to use an UDP transaction but the settings are different.

### 2.2.4 Network No.

The network number in WebAccess should match the one in the PLC. The default network number is 1.

### 2.2.5 PC No.

The PC station number should be set to 255.

### 2.2.6 Destination IO#

The destination IO address should be set to 1023 if it was not changed in the PLC.

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## 2.3 Block

There are no Blocks defined for MitsuQ driver but users can define their own blocks if necessary.

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## 2.4 Tag

If you do not use all the channels in the device and you want to reduce your tag count you can add the parameters one by one using "Add tag".

Create New Tag		[Cancel]	Submit
Parameter	X	Point (discrete)	
Alarm	No Alarm		
Tag Name	DIO		
Description	Inout Relay		
Scan Type	Constant Scan		
Address	X0000		
Conversion Code	Unsigned Integer		
Start bit	0		
Length	1		

### 2.4.1 Parameter

The parameter gives the type of tag you want to import. Try to select a parameter as close to the tag type as possible because it will fill the other option with the default parameters.

In MitsuQ all the available types have been put to the parameter list so by choosing the correct one all the other fields are set automatically. And the address template is given

## 2.4.2 Address

The address is composed of letters giving the data type followed by the position in the memory containing that data type.

## 2.4.3 Scaling Type

If the data sent by the module is not in a human readable unit you can use the scaling to change the unit and display a more convenient unit in the node. In most cases a linear scaling type will be sufficient.

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## 2.5 Supported Block List

There are no predefined blocks in the MitsuQ driver.

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## 2.6 Main Parameter List

Parameter	Description	Address
CN	Counter Current	CN0000
D	Data Register	D0000
R	File Register	R0000
SD	Special Register	SD0000
SN	Retentive Timer Current	SN0000
SW	Special Link Register	SW0000
TN	Timer Current	TN0000
W	Link Register	W0000
Z	Index Register	Z0000
ZR	File Register	ZR0000
B	Link Relay	B0000
CC	Counter Coil	CC0000
CS	Counter Contact	CS0000
DX	Direct Input	DX0000
DY	Direct Output	DY0000

<b>Parameter</b>	<b>Description</b>	<b>Address</b>
F	Annunciator	F0000
L	Latch Relay	L0000
M	Internal Relay	M0000
S	Step Relay	S0000
SB	Special Link Relay	SB0000
SC	Retentive Timer Coil	SC0000
SM	Special Relay	SM0000
SS	Retentive Timer Contact	SS0000
TC	Timer Coil	TC0000
TS	Timer Contact	TS0000
V	Edge Relay	V0000
X	Input Relay	X0000
Y	Output Relay	Y0000
TEXT	Text in D Memory	D0000