6.3 EtherNet/IP Connection Parameters

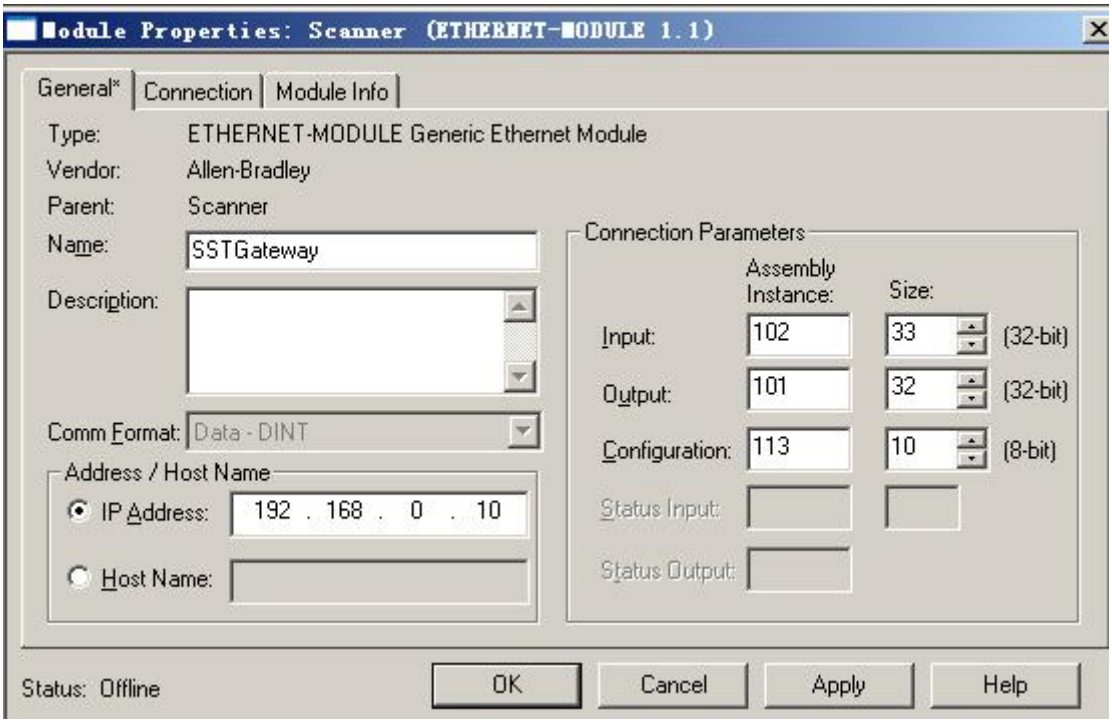
Connection parameters the gateway provides are as below:

a. Input Instance: 102 (128 Bytes), 112 (256 Bytes), 122 (492 Bytes).

b. Output Instance: 101 (128 Bytes), 111 (256 Bytes), 121 (492 Bytes).

c. Configuration Instance: 103 (10 Bytes), 113 (10 Bytes), 123 (10 Bytes).

Take configuration parameters of RSLogix5000 as an example:



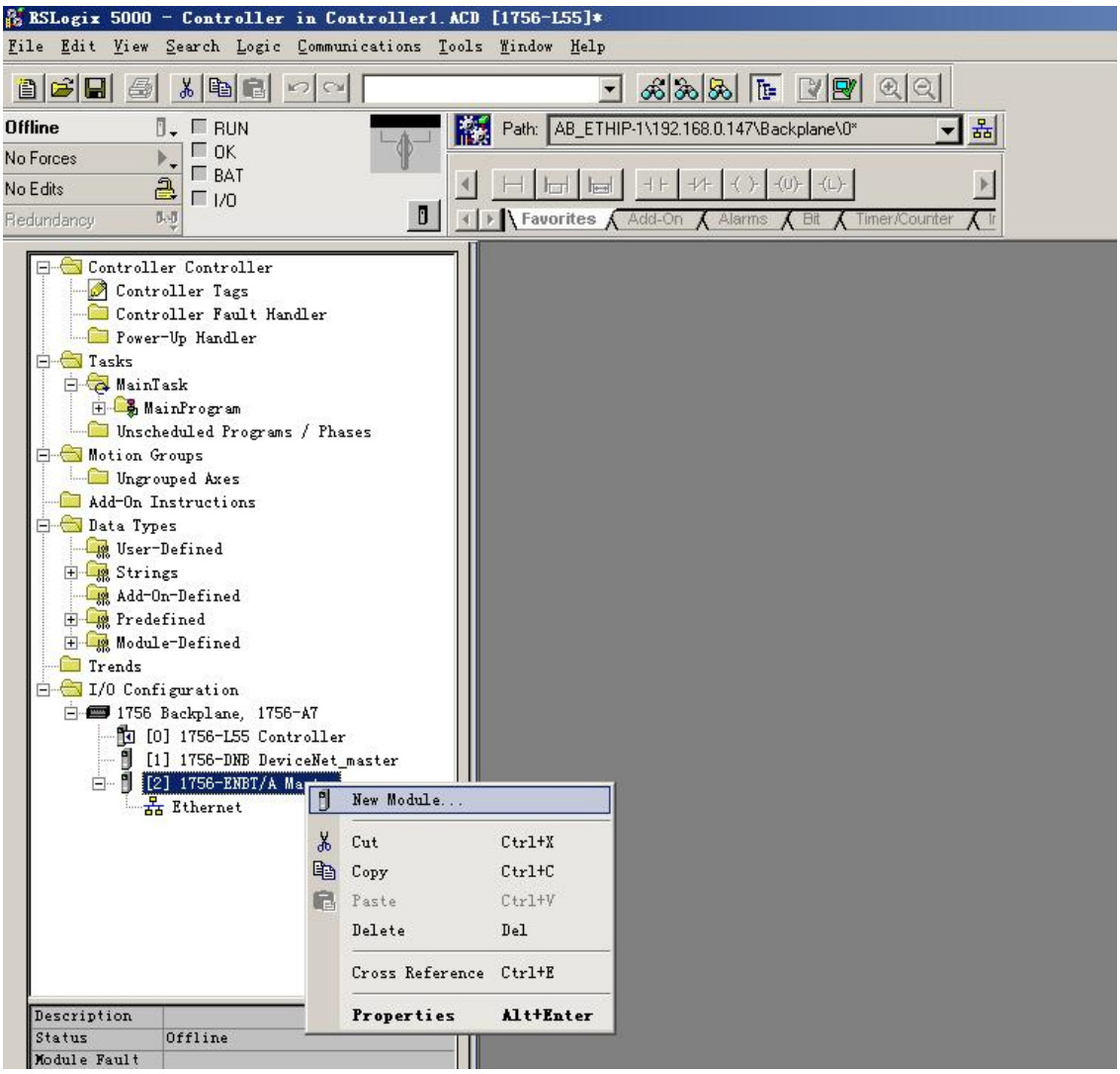
Notes: The "Size" (the bytes number that has been configured) in the above picture, is consistent with the input/output bytes number of Instance which has been configured in the configuration software SST-MI-CFG). In the above picture, "Size" is 32 (32x32/8=128) in the output bytes Instance101. Now, the relevant bytes number should also be 128 in the configuration software.

6.4 How to Read/Write I/O Data

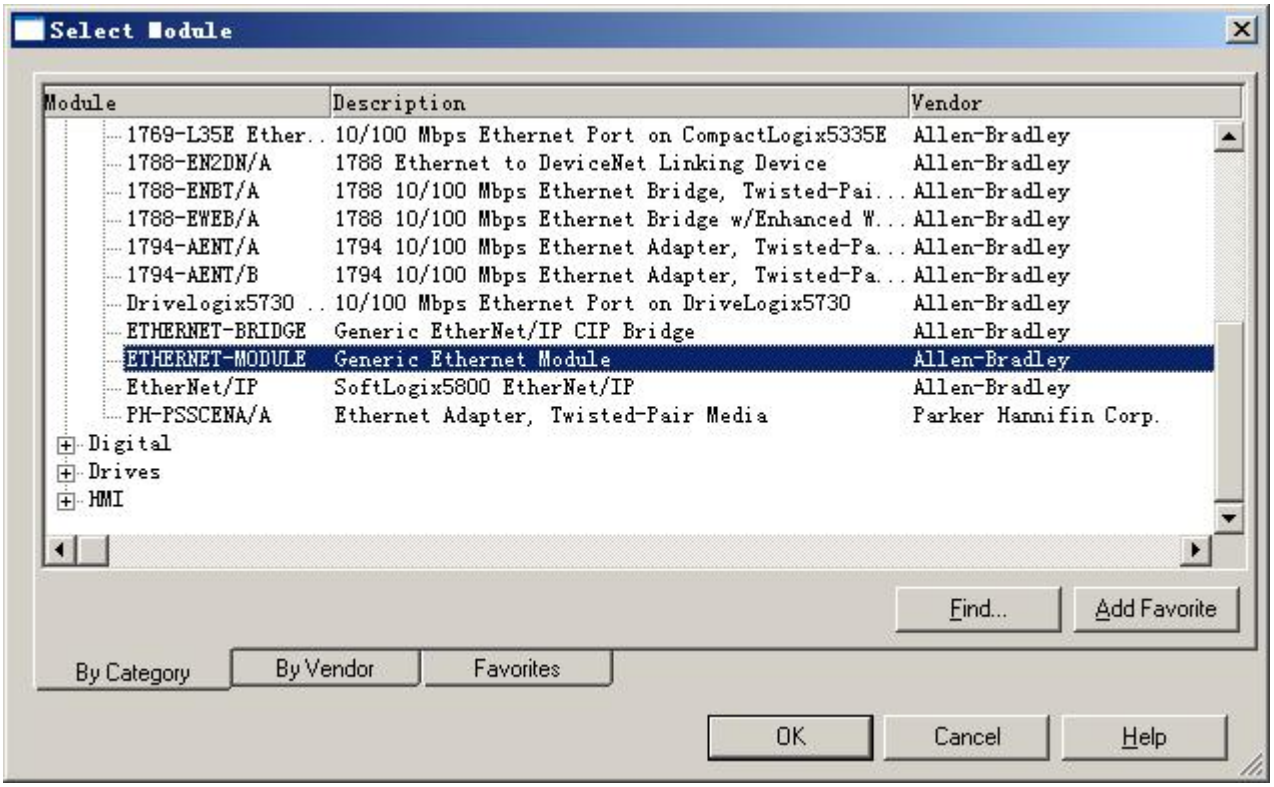
6.4.1 Read and Write Data using I/O mode(Recommended)

The following RSLogix 5000 example will describe how to read/write I/O data using I/O mode.

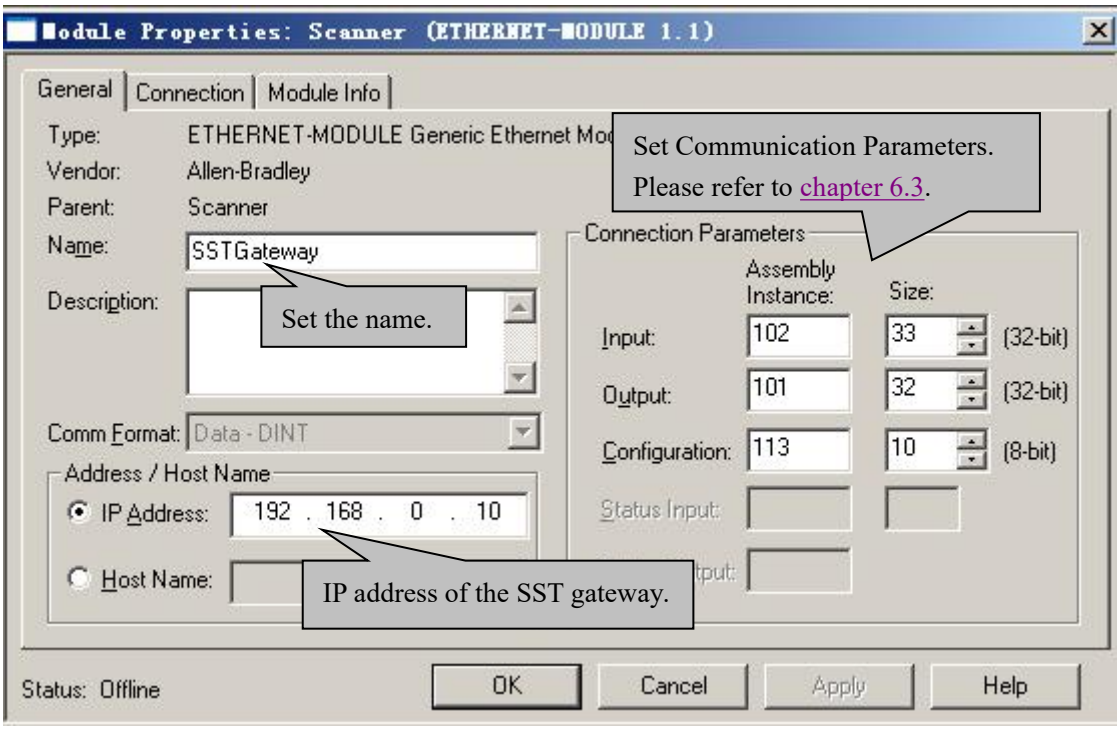
Right click on EtherNet/IP scanner module, click "New Module", as shown below:



In the pop-up dialog box, unfold "+" before "Communications", choose "ETHERNET-MODULE", click "OK", as shown below:



Configure relevant information of GT100-EI-RS in the pop-up window, as shown below:



In the above picture, the module information needs to be configured includes:

Name: Name the added EtherNet/IP adapter module (GT100-EI-RS module).

Comm Format: Configure data types. Users can choose data types as DINT, INT, SINT and REAL, etc. After

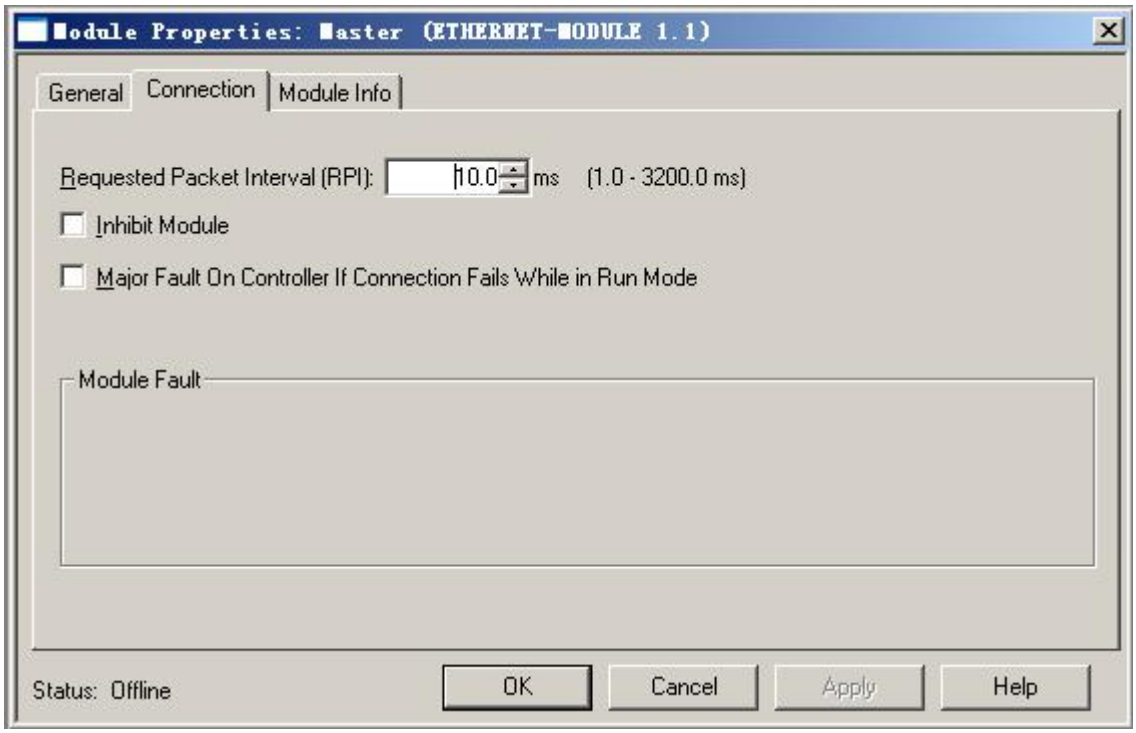
confirmation, this cannot be changed. If you want to change data types, you can create new module.

IP Address: Set IP address of the EtherNet/IP adapter module (IP address of GT100-EI-RS). IP address of GT100-EI-RS is the address downloaded into module through software SST-MI-CFG.

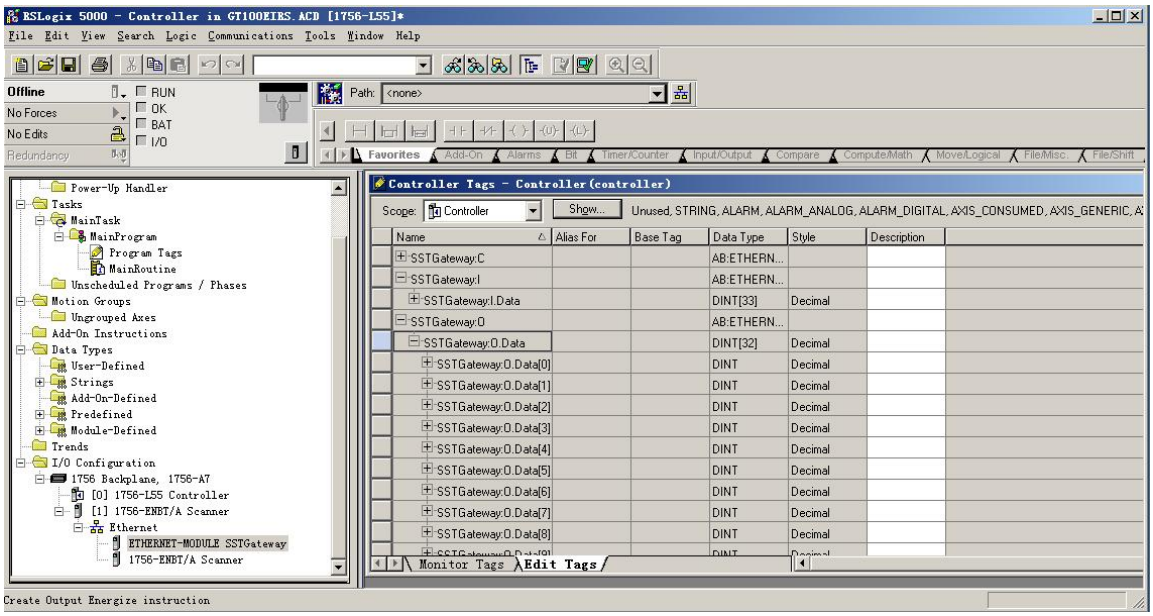
Connection Parameters: Set Connection parameters during communication, this parameter GT100-EI-RS supports can refer to past chapter.

Note: "Size" (configured bytes) in the above picture should be the consistent with relevant input and output bytes of Instance in the above chapter.

Click "OK", set scanner polling time interval in the pop-up dialog box, the default is 10ms, as shown below:

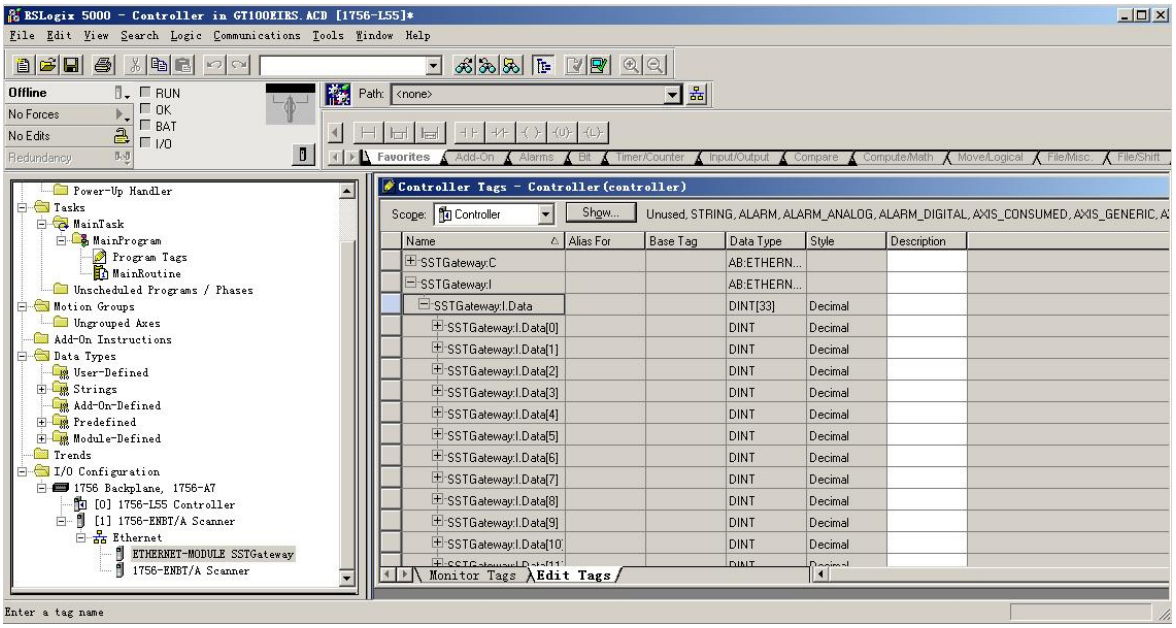


After setting this interval, click "OK" to save. Double click "Controller Tags", unfold "GT100EIRS: O", as shown below:



In the above picture, SSTGateway:O.Data [0] ~SSTGateway:O.Data [31] is the corresponding output data address of GT100-EI-RS module in scanner.

Unfold "SSTGateway: I", as shown below:



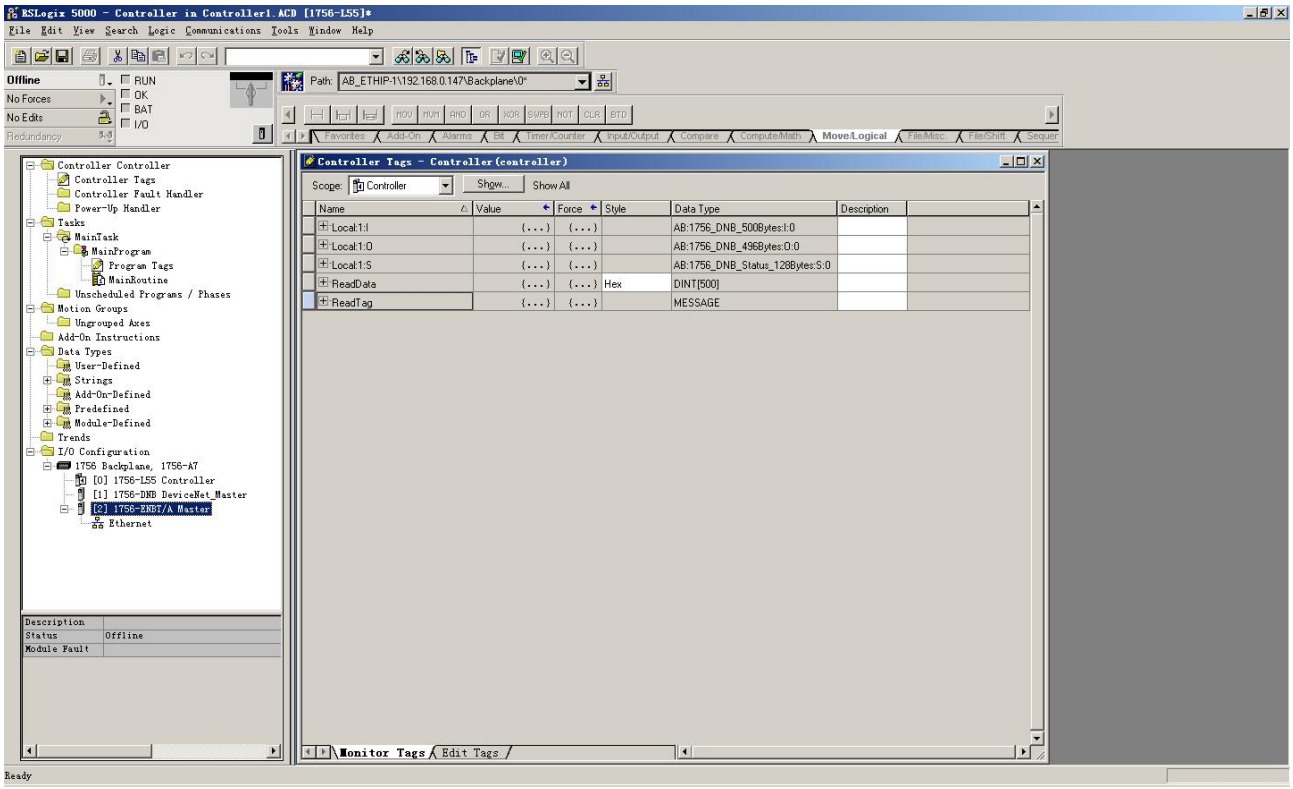
In the above picture, four bytes of SSTGateway: I. Data [0] is real time frame head of EtherNet/IP adapter. SSTGateway:I.Data [1] ~SSTGateway: I. Data [32] is the corresponding input data address of GT100-EI-RS module in scanner.

6.4.2 Read and Write Data using MSG

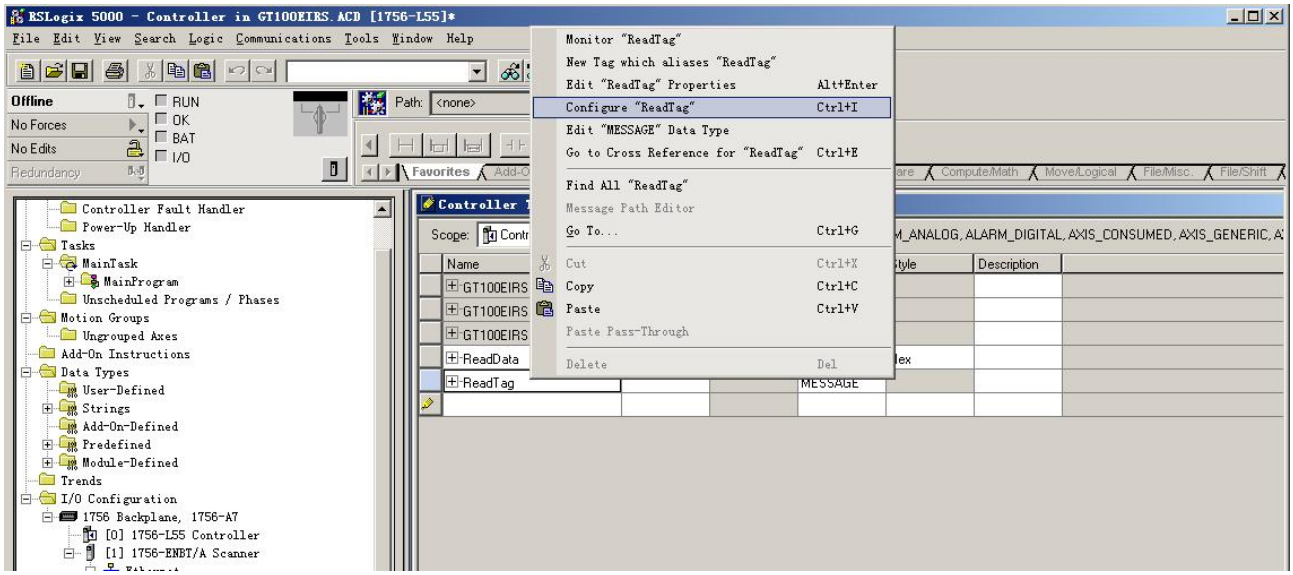
The following RSLogix 5000 example will describe how to read/write I/O data using MSG.

1 Read I/O Data

Create a new project. it is in the "Offline" mode. Add two new tags "ReadTag" and "ReadData" under the "Controller Tags" and set the type of "ReadTag" as "MESSAGE" and "ReadData" as "DINT [500]".



Right click "ReadTag", select "Configure "ReadTag":



In the new pop-up window, it needs to set some parameters as below:

Message Type: CIP Generic

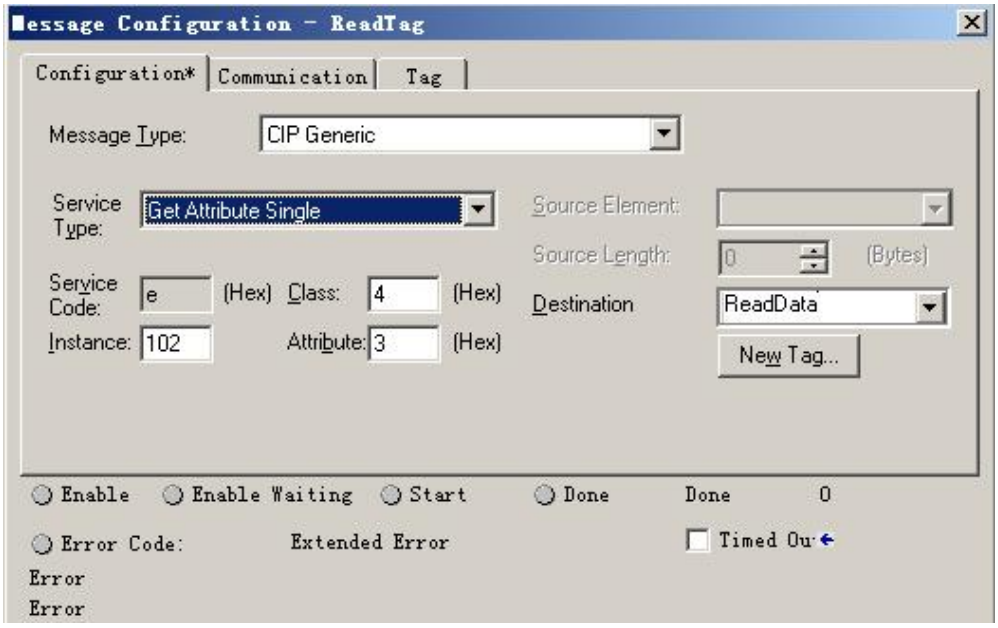
Service Type: Select "Get Attribute Single", now, relevant service code will become "e (Hex)"

Class: 4 (Hex)

Instance: 102 (128 Bytes), 112 (256 Bytes) and 122 (492 Bytes) can be set

Attribute: 3 (Hex)

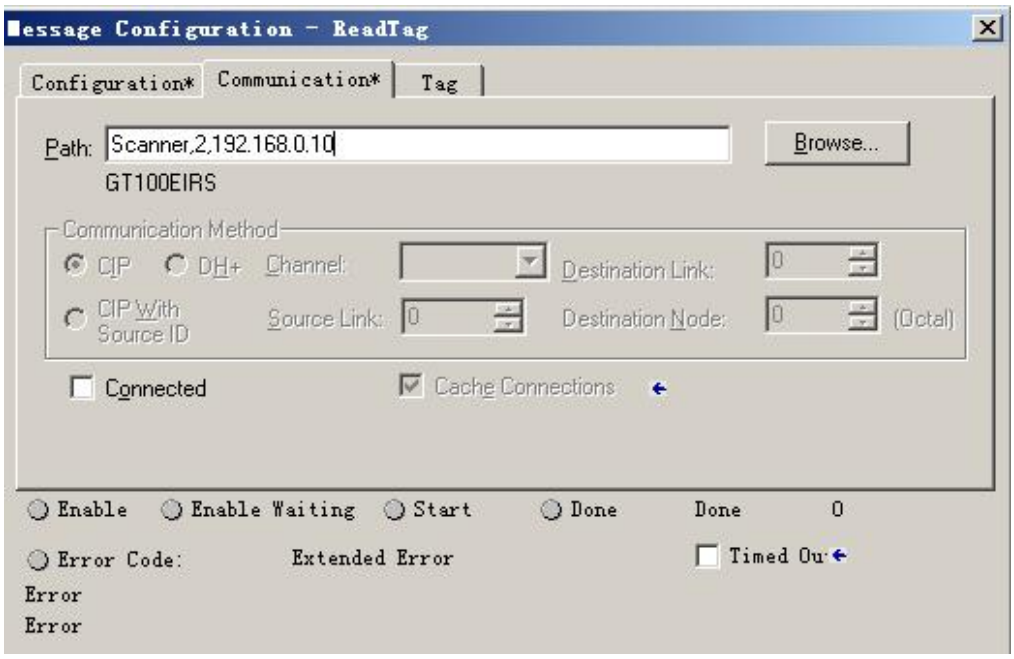
Destination: Select "ReadData" label, now, the data that have been received will be saved in this tag.



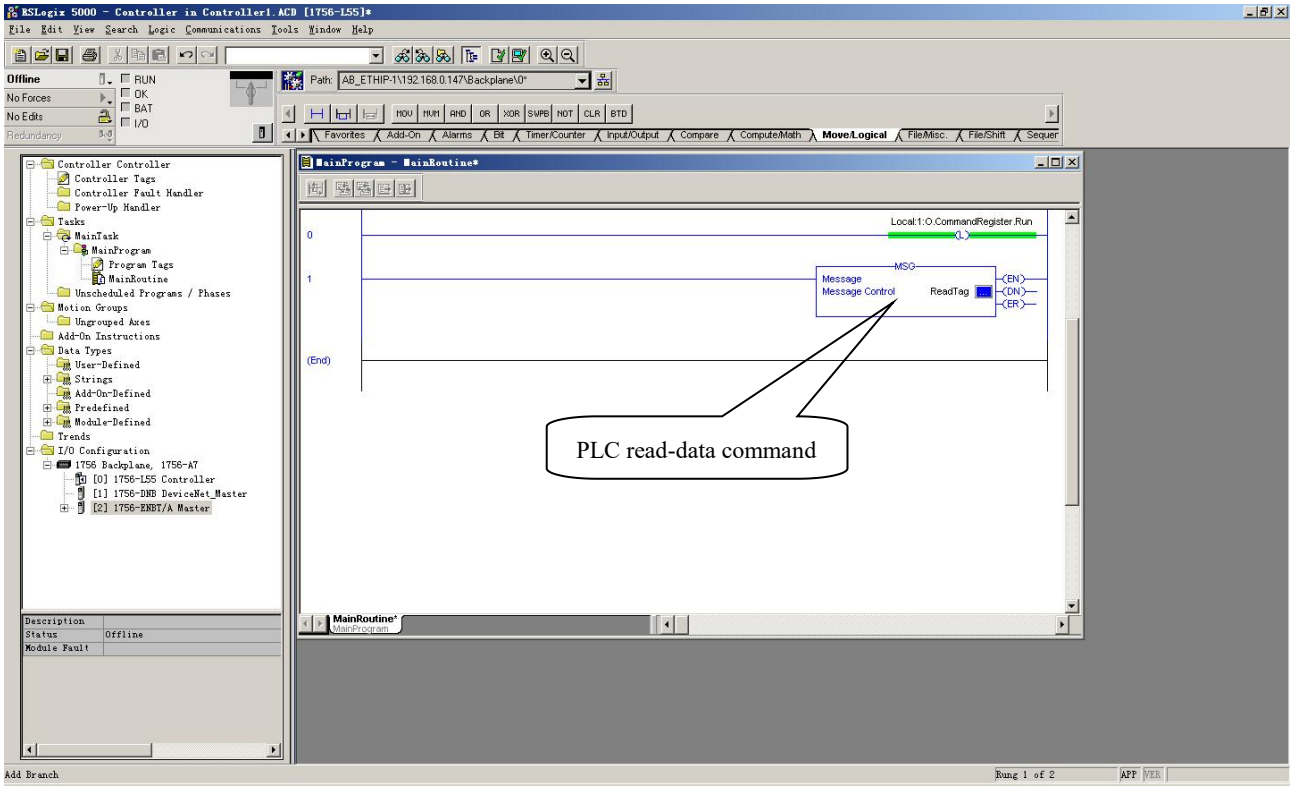
Choose "Communication" label, input the relevant path of connecting EtherNet/IP adapter in the blank space

behind the Path, the path format is: EthetNet IP hostname, EtherNet/IP scanner slot No., IP address of EtherNet/IP adapter, after setting the path, click "Apply", "Confirm". As is shown below:

In this instance, EtherNet/IP hostname is "Scanner", EtherNet/IP scanner slot No. Is "2", EtherNet/IP adapter (GT100-EI-RS) is "192.168.0.10". IP address of GT100-EI-RS is the address which is downloaded into the module through SST-MI-CFG.



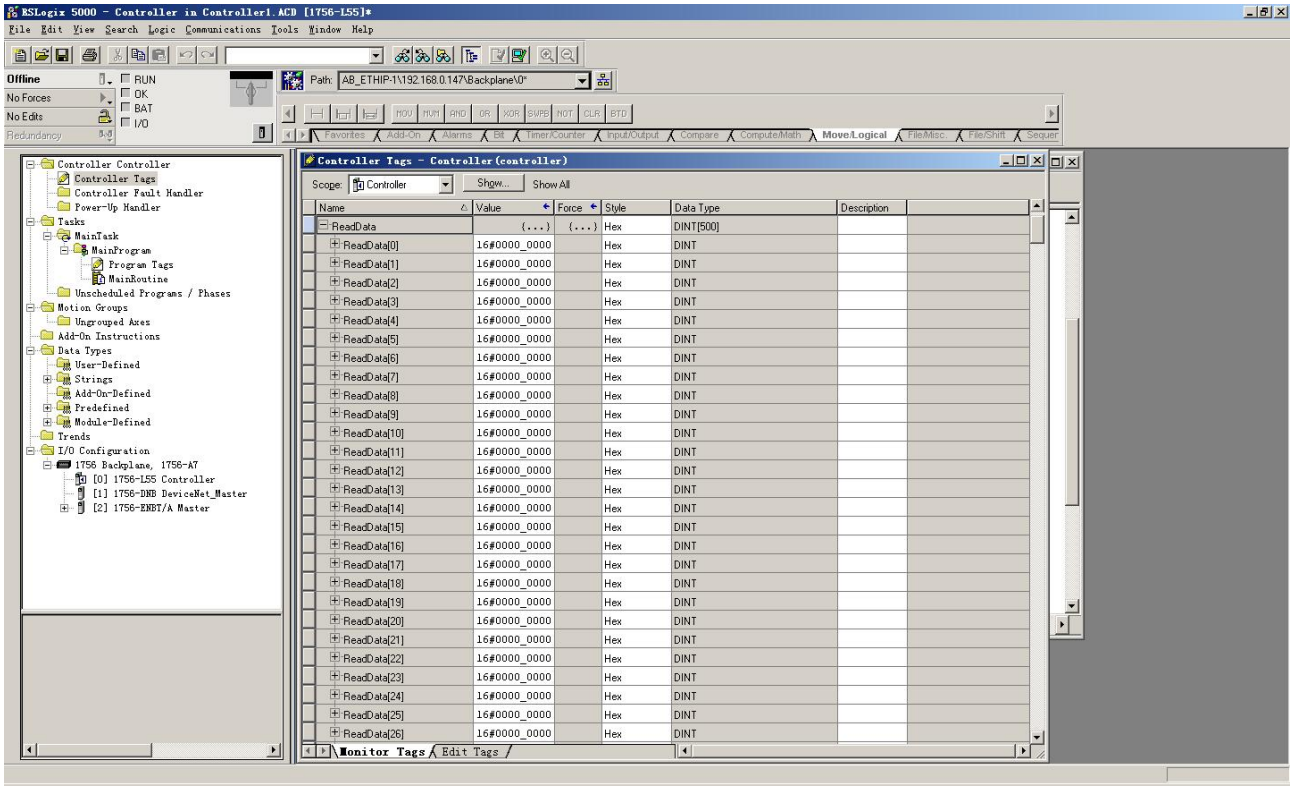
Add a "MSG" command in "MainRoutine" under the "MainProgram" and choose "ReadTag" as "Message Control", as shown below:



This is a simple command which can sent a read request, it still needs to add some logic commands to trigger this command in common program. About the detailed information, please refer to RSLogix5000.

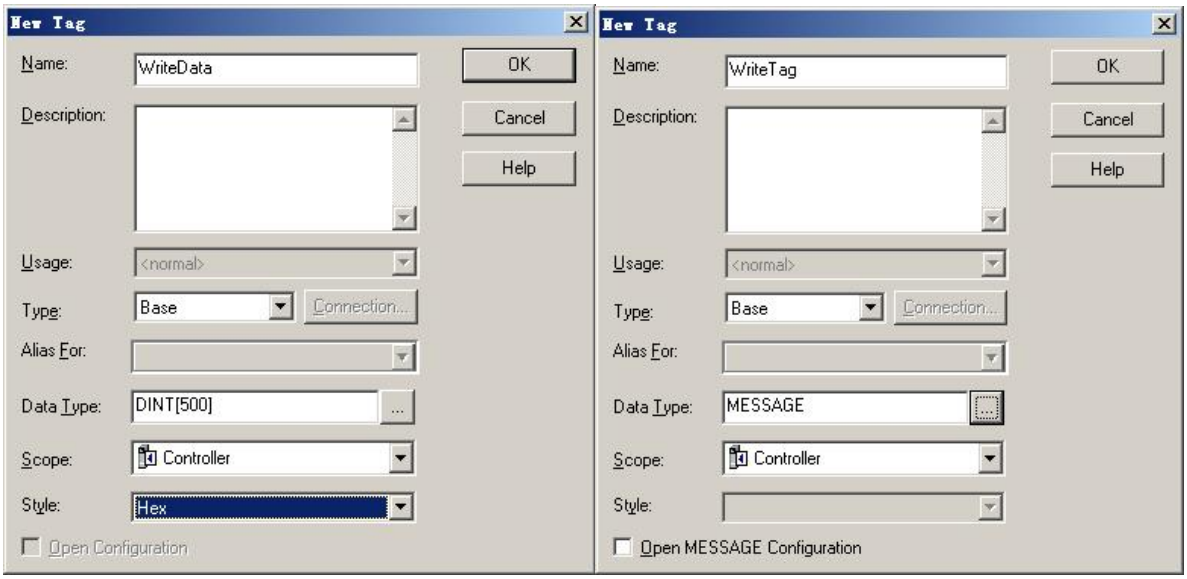
Download the program to the PLC and set PLC into "Online" state.

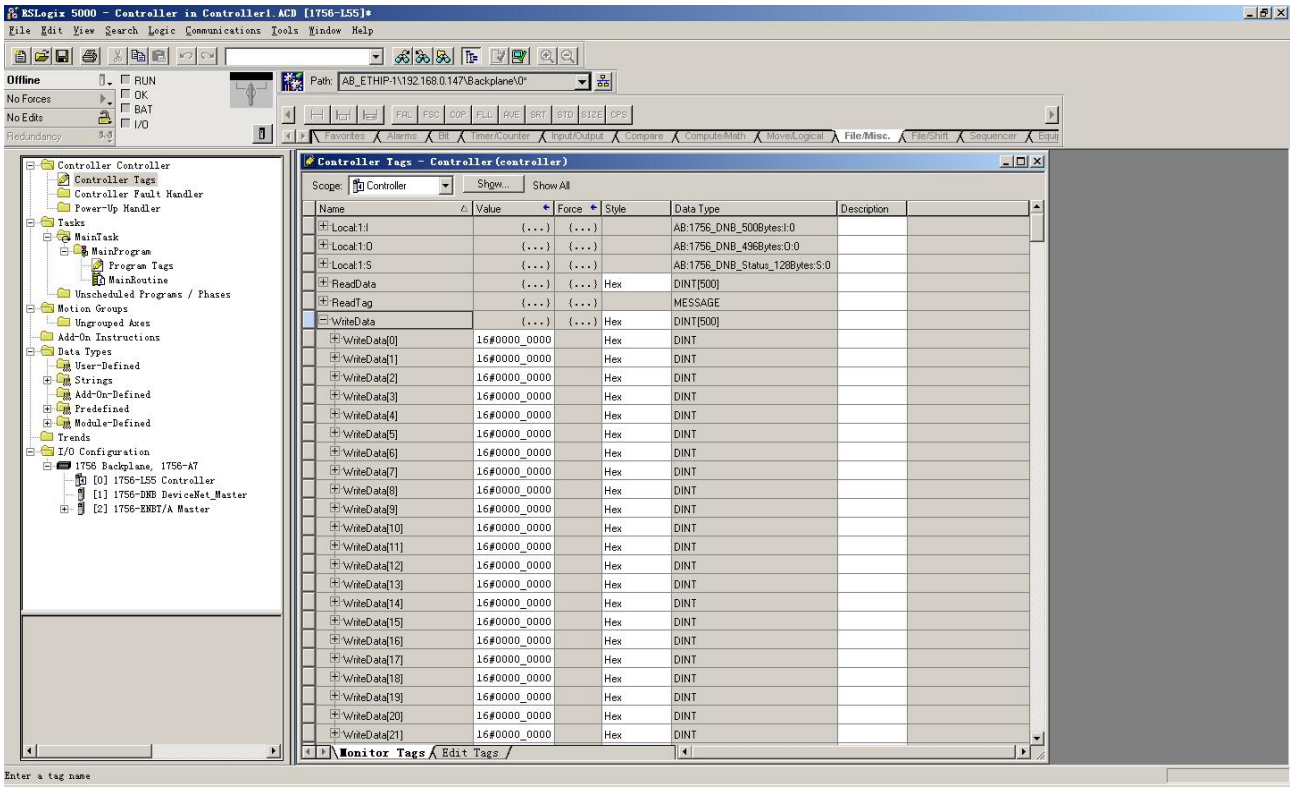
Click "Control Tags" and select "Monitor Tags", unfold "ReadData", you will see that PLC can read the data of Modbus slave through the gateway GT100-EI-RS.



2 Write I/O Data

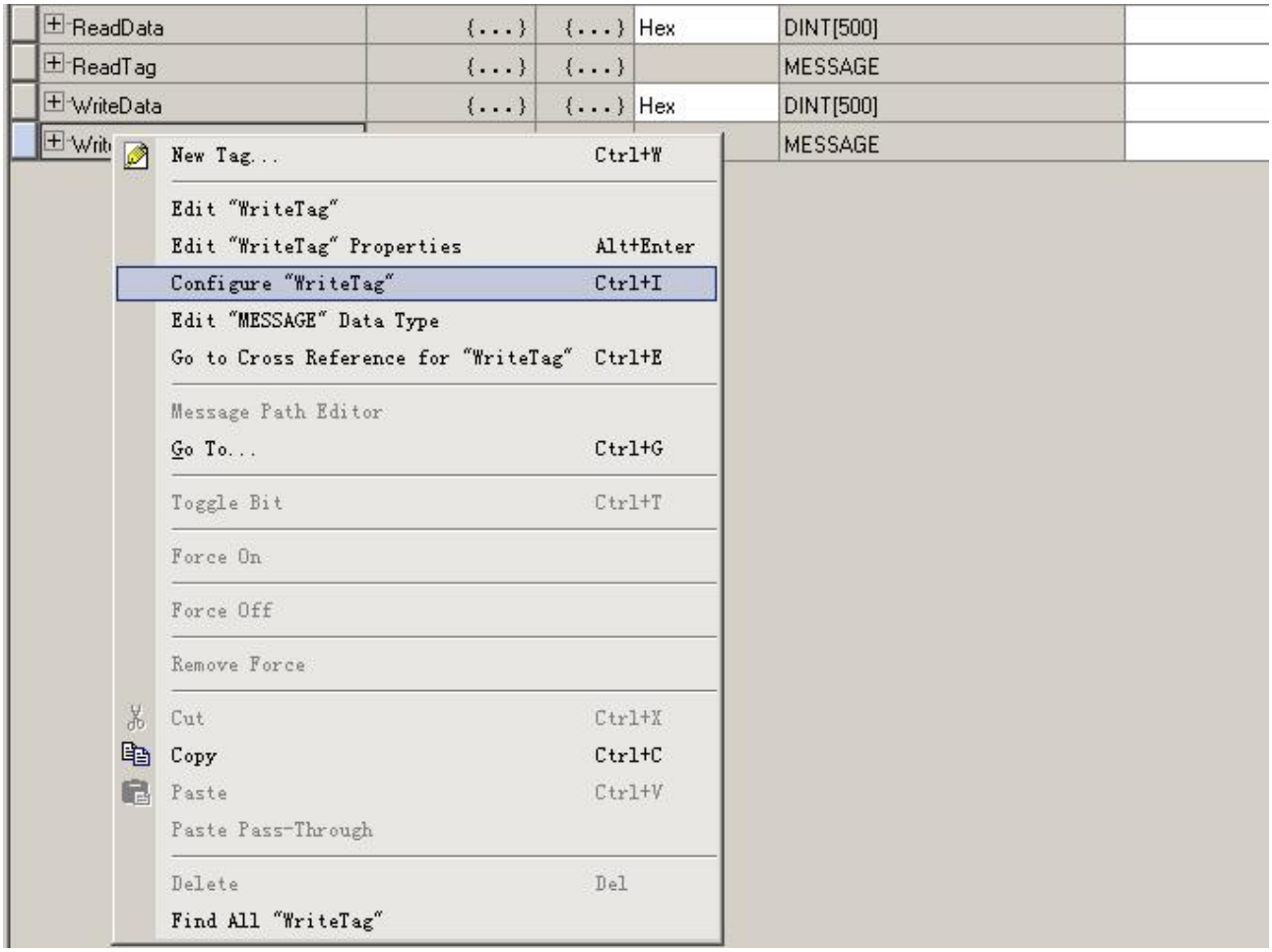
Enter the "Offline" mode, add two new tags "WriteTag" and WriteData" under the "Controller Tags". Define the type of "WriteTag" as "MESSAGE" and "WriteData" as "DINT [500]":





Enter the "Monitor Tags" interface. input some data beginning from address WriteData[0] in the "WriteData" tag. There data will be outputted to GT100-EI-RS through PLC and write these data to Modbus slave devices through Modbus write command.

Right click "WriteTag", select "Configure "WriteTag"":



In the new pop-up window, it needs to configure as below:

Message Type: CIP Generic

Service Type: Select "Set Attribute Single", now, relevant Service Code will become "10 (Hex)"

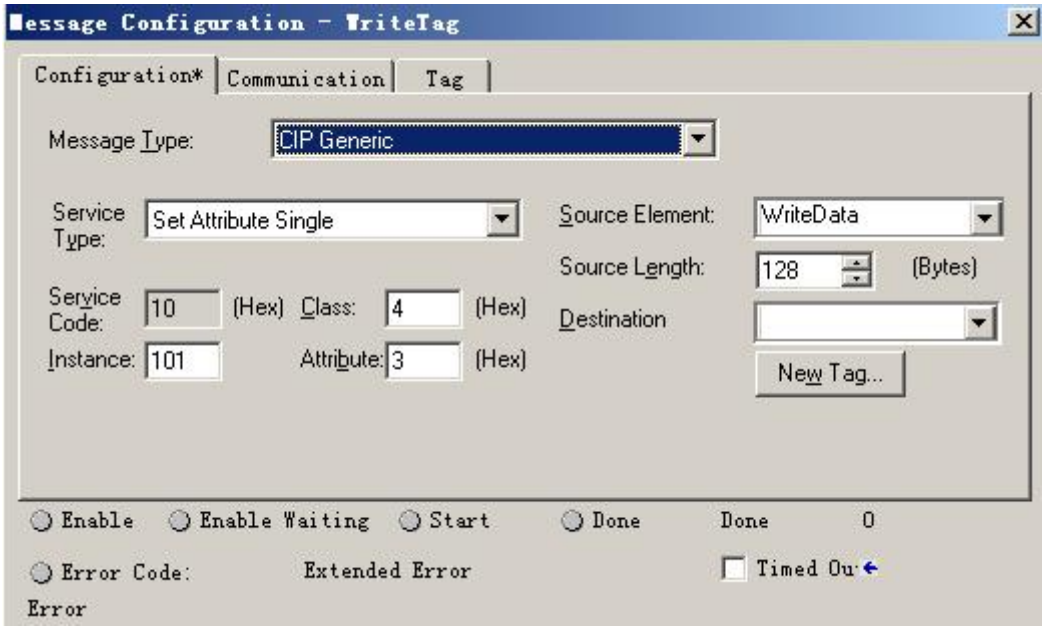
Class: 4 (Hex)

Instance: 101 (128Bytes), 111 (256Bytes) and 121 (492Bytes)

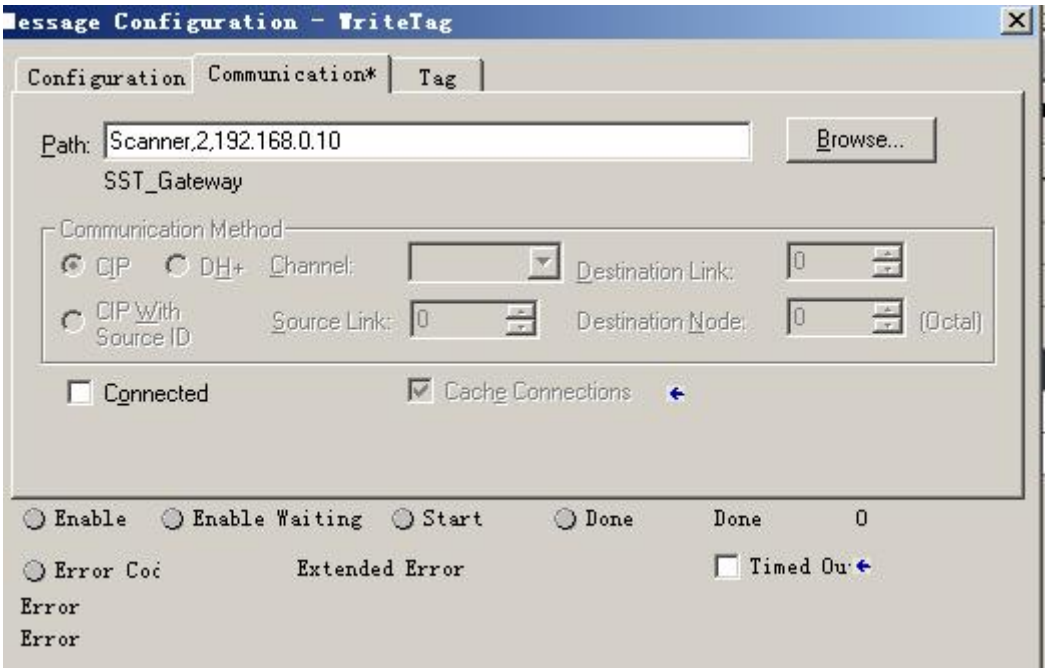
Attribute: 3 (Hex)

Source Element: Select "WriteData" tag, it indicates the data in the "WriteData" tag will become the data PLC outputs.

Source Length: Use byte as unit, this value should be less than or equal to the current selecting bytes which Instance represents (Configured bytes number in SST-MI-CFG).

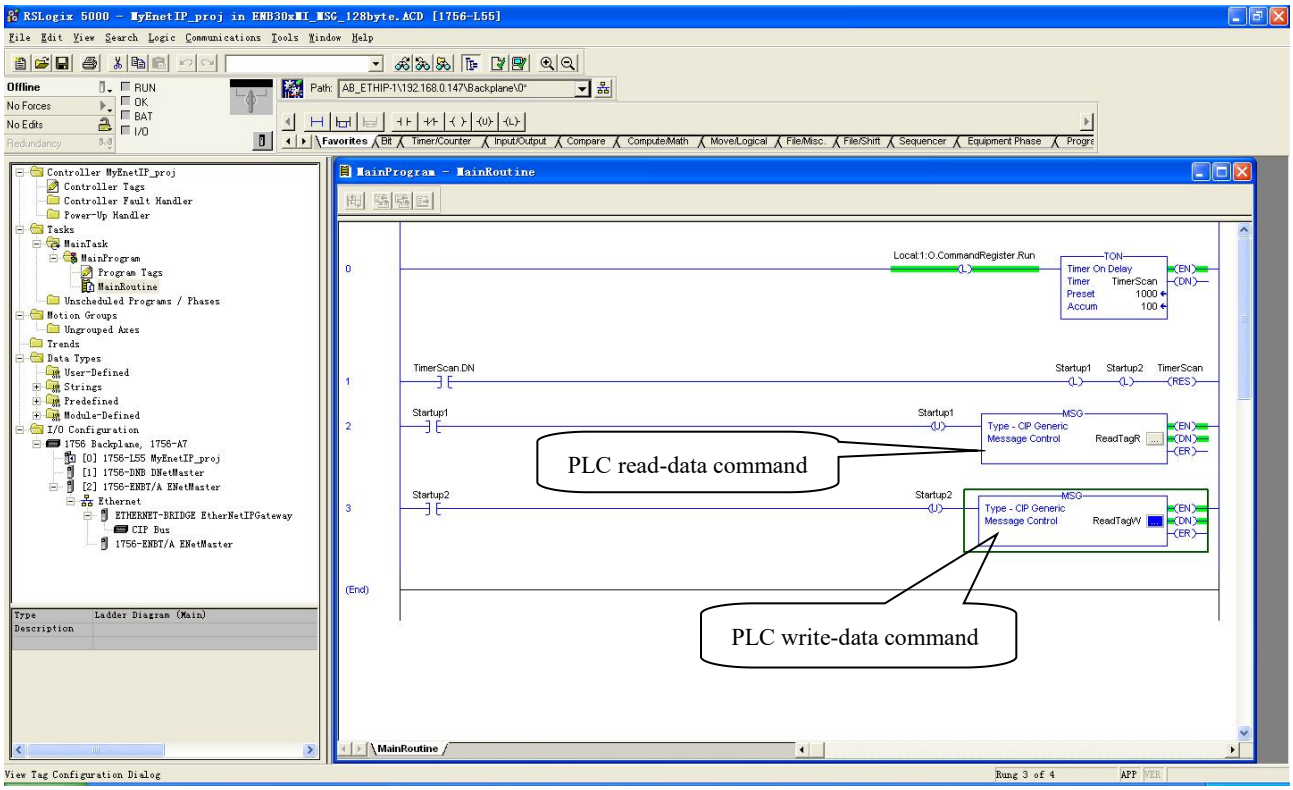


Choose "Communication" label, input the relevant path of connecting EtherNet/IP adapter in the blank space behind the Path, the path format is: EthetNet IP hostname, EtherNet/IP scanner slot No., IP address of EtherNet/IP adapter, after setting the path, click "Apply", "Confirm". As is shown below:



In this instance, EtherNet/IP hostname is "Scanner", EtherNet/IP scanner slot No. Is "2", EtherNet/IP adapter (GT100-EI-RS) is "192.168.0.10". IP address of GT100-EI-RS is the address which is downloaded into the module through SST-MI-CFG.

Add a "MSG" command in "MainRoutine" under the "MainProgram" and choose "WriteTag" as "Message Control", as shown below:



Download PLC program to the PLC and set PLC to "Online" state, the data in "WriteData" will be outputted to Modbus slave through GT100-EI-RS (EtherNet/IP adapter).