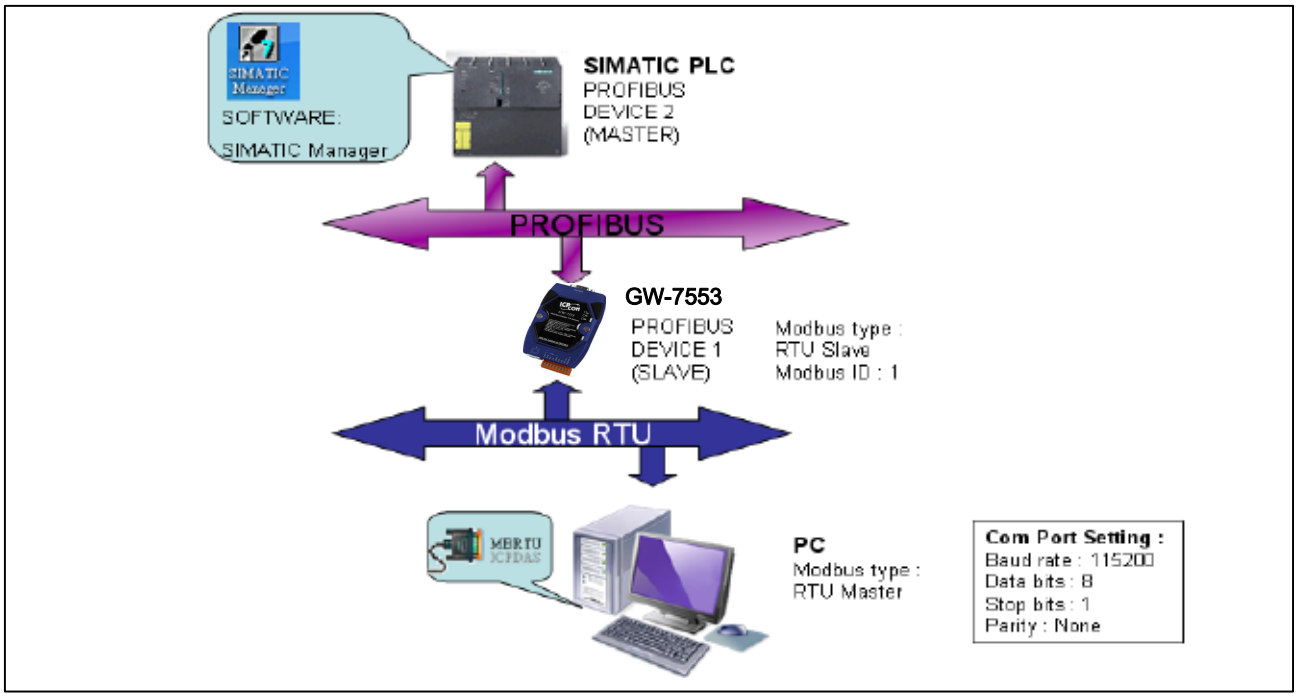
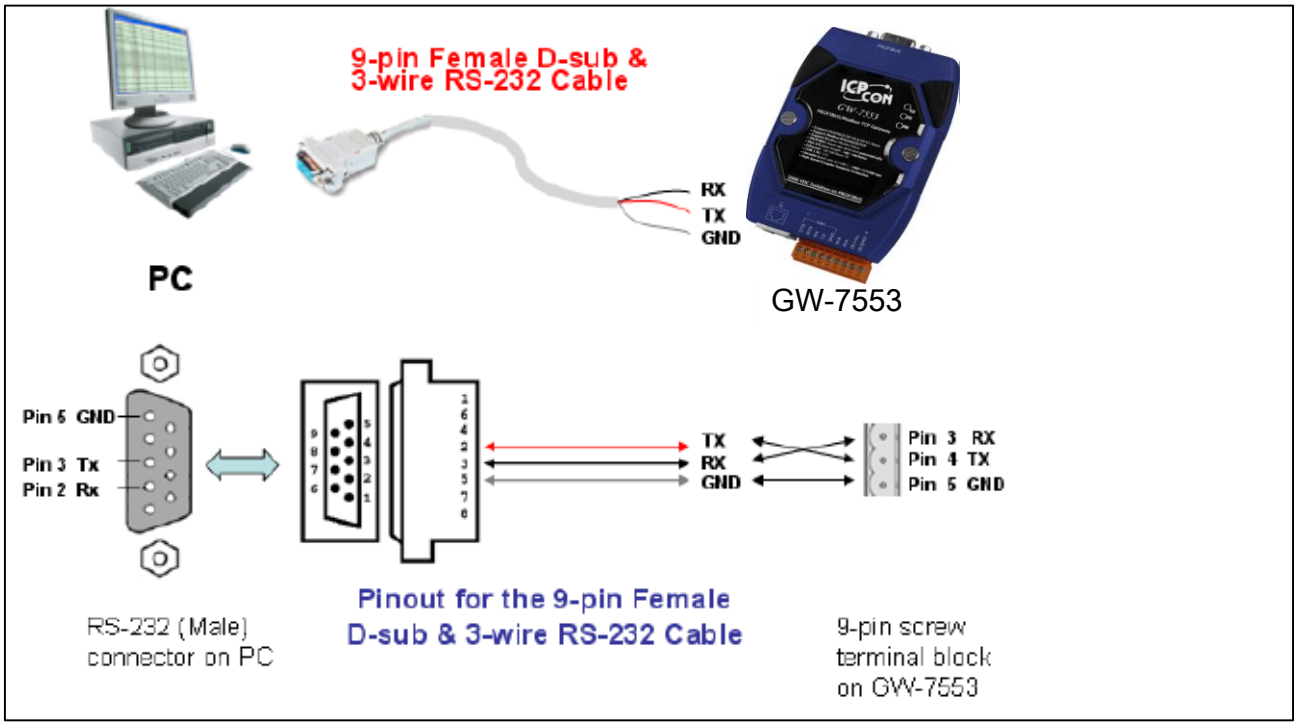
GW-7553 (Modbus RTU Slave)

example for SIMATIC STEP 7

System Architecture: GW-7553 is a PROFIBUS slave and Modbus slave device.





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Directory

Example 1:Receives AO data from Modbus master.

Example 2: Rceives DO data from Modbus master.

Example 3: Rereshes DI data to Modbus master.

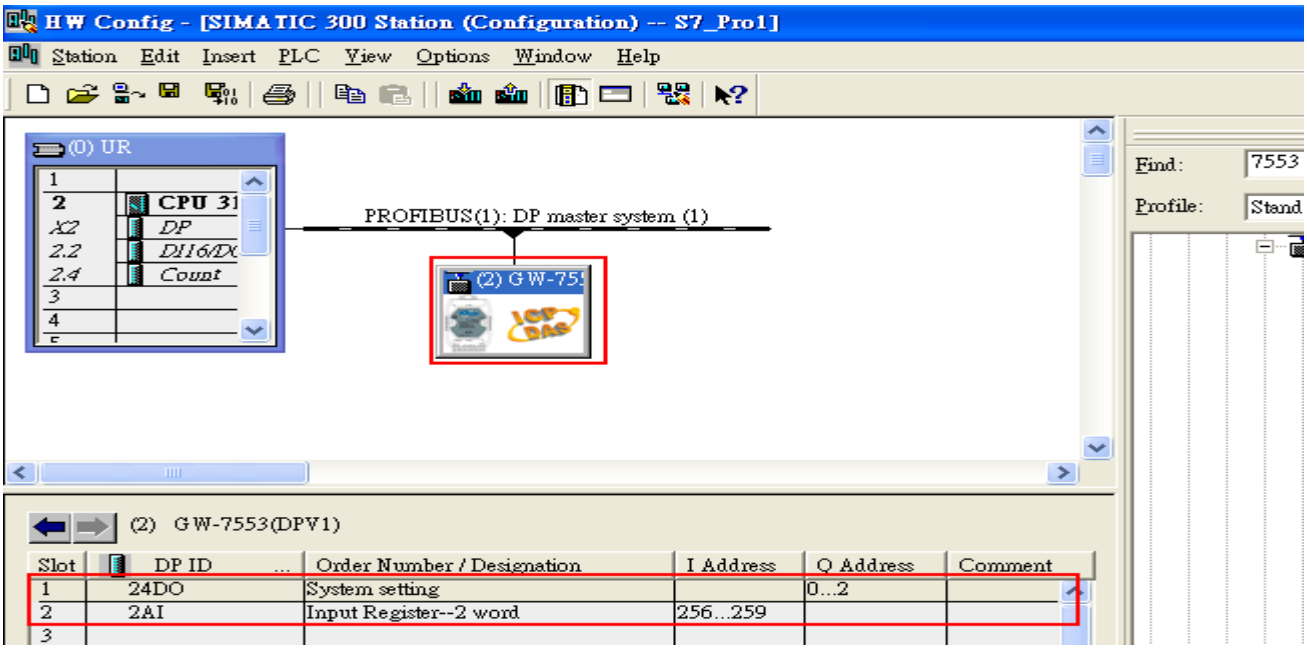
Example 4: Rereshes AI data to Modbus master.

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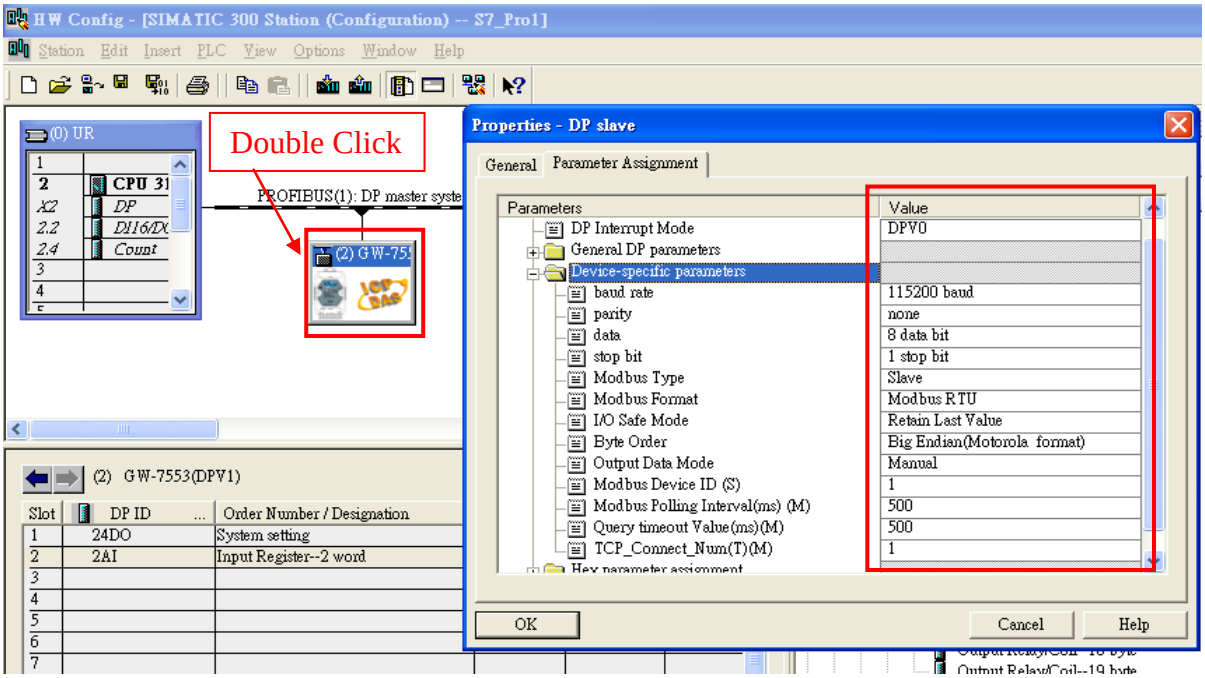
Example 1: PLC receives AO data from Modbus master.

SIMATIC STEP 7 Edit

1. HW Config. – configure GW-7553 (ex: System setting module x1, Input Register—2 word module x1)

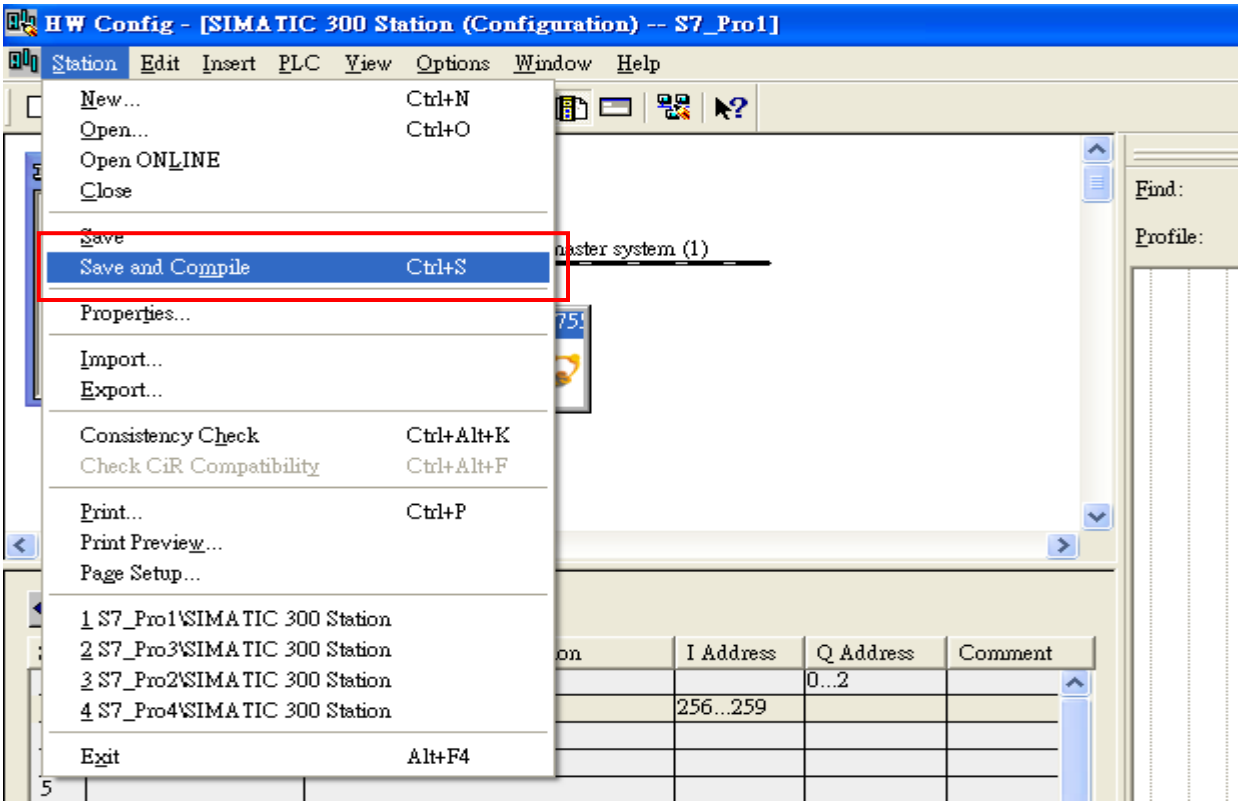


2. HW Config – Parameter assignment (ex: Com port settings, Modbus type: Slave, Modbus format: RTU, Byte Order: Big Endian). Confirm the GW-7553's Com Port setting is the same with MBRTU tool (ex: baud rate-115200, data bits-8, stop bits-1, parity-none). About the MBRTU tool, please refer to the "Communication test" in the below.

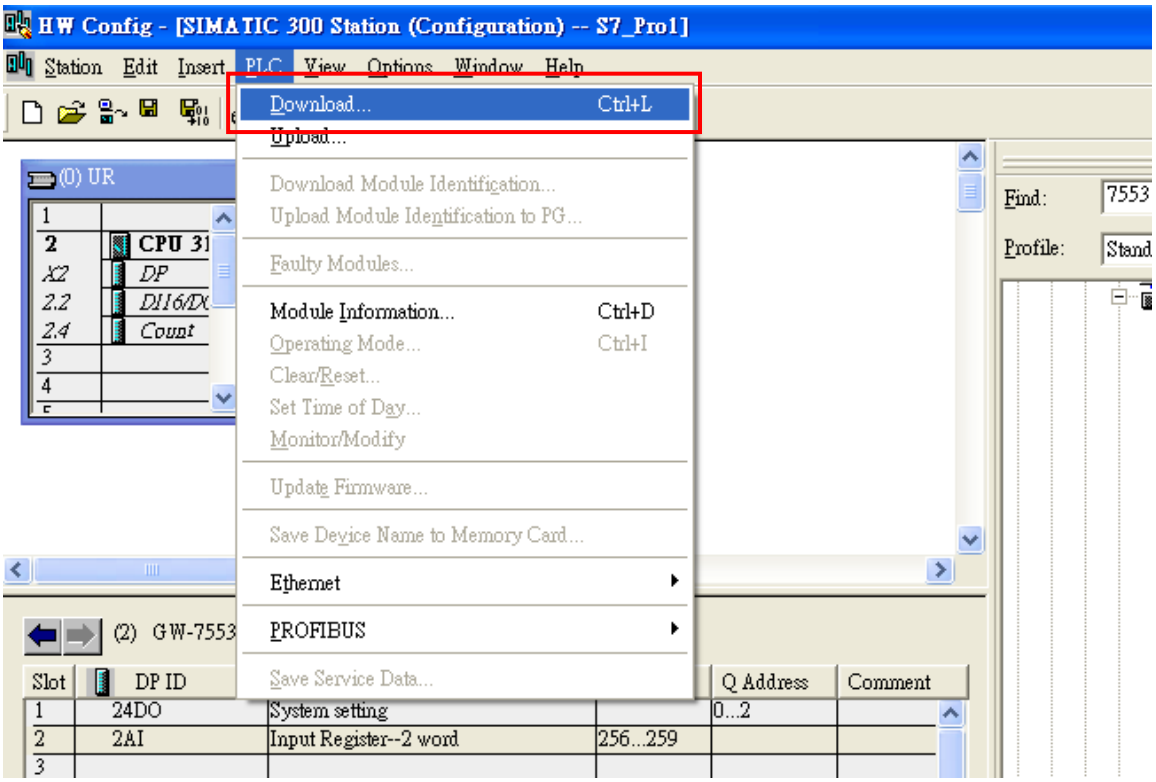


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3. Save and Compile

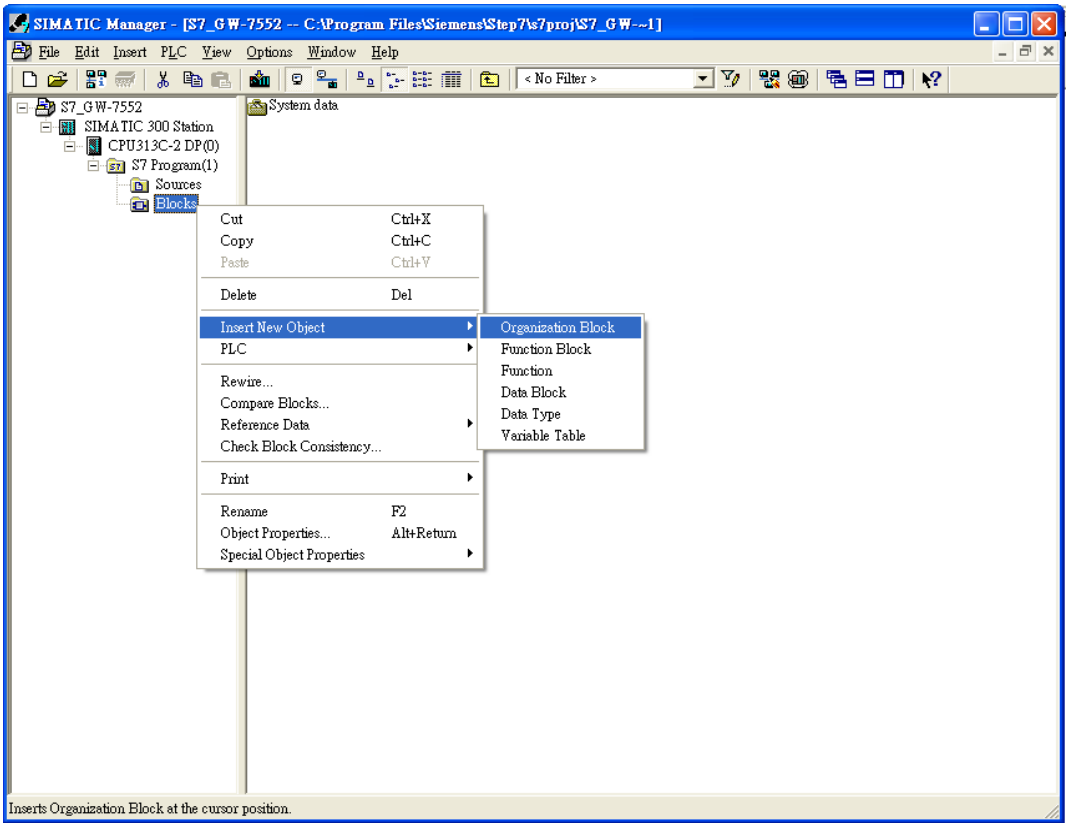


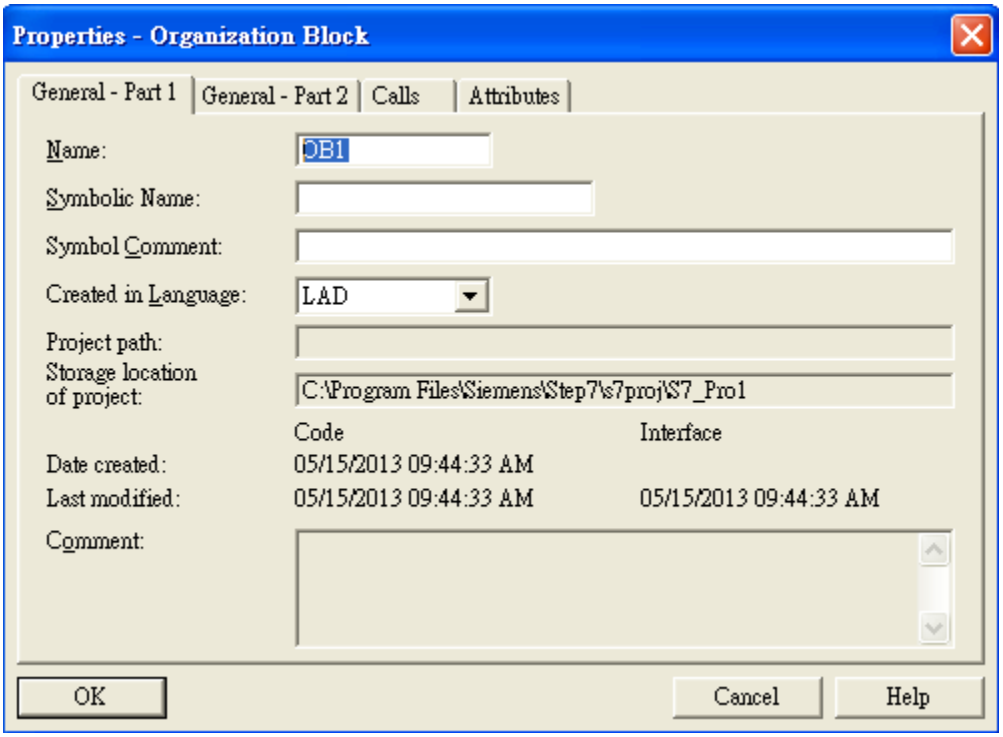
4. Download setting into STEP 7



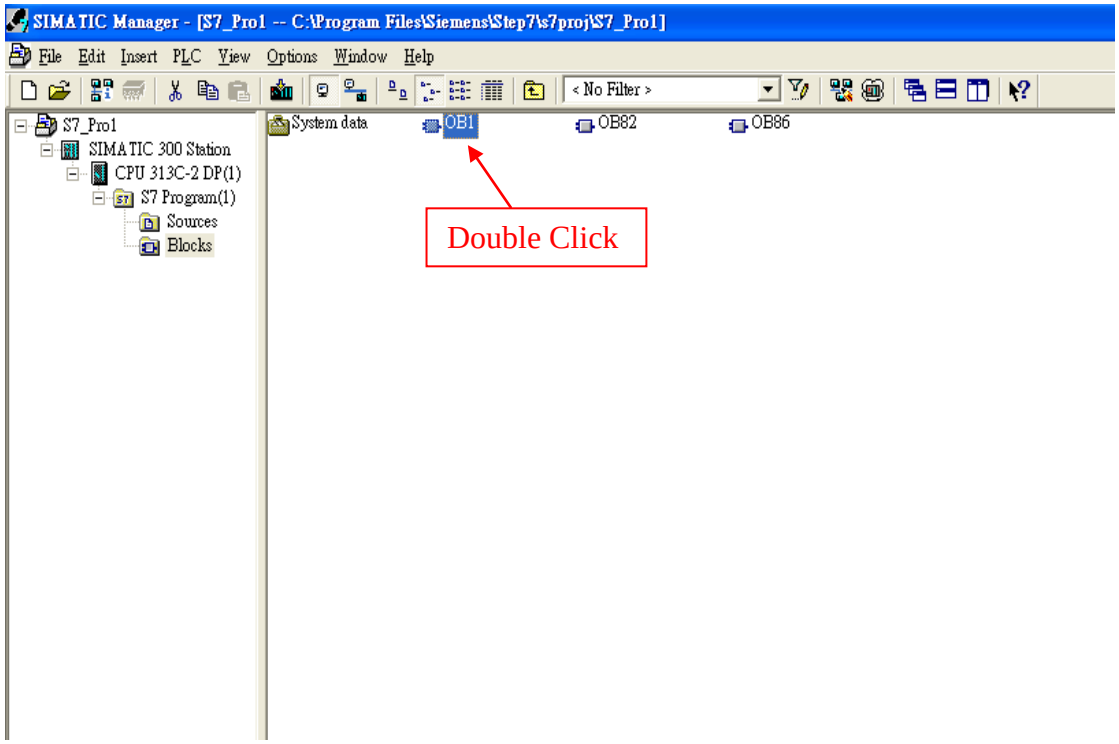
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5.Insert a new Organization Block (OB1,OB82,OB86)



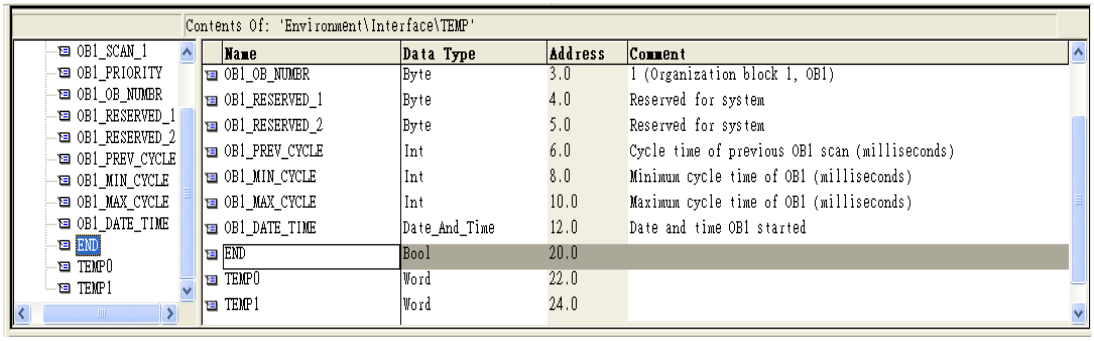


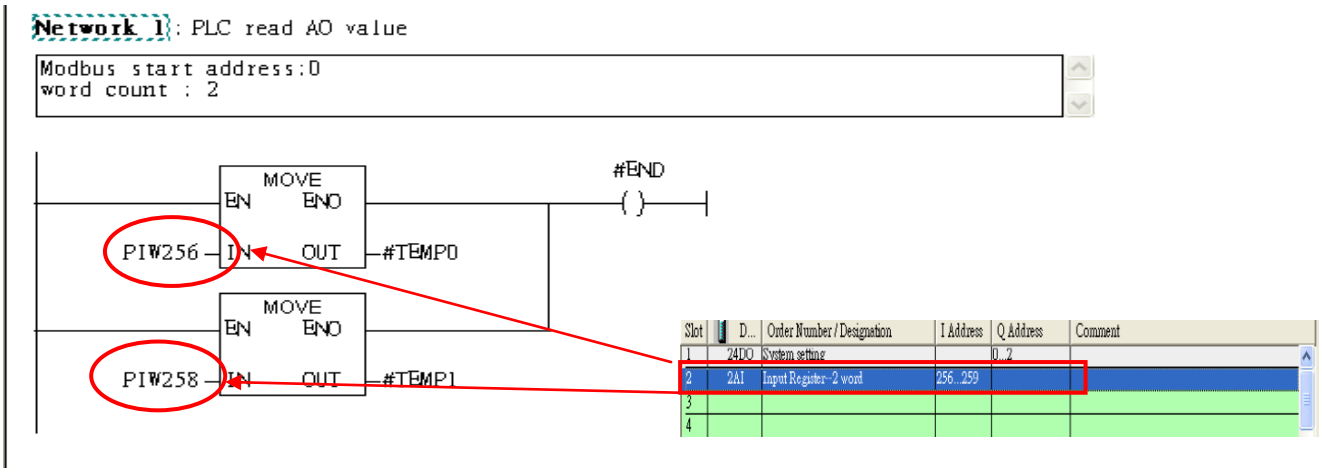
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6.S7 program edit

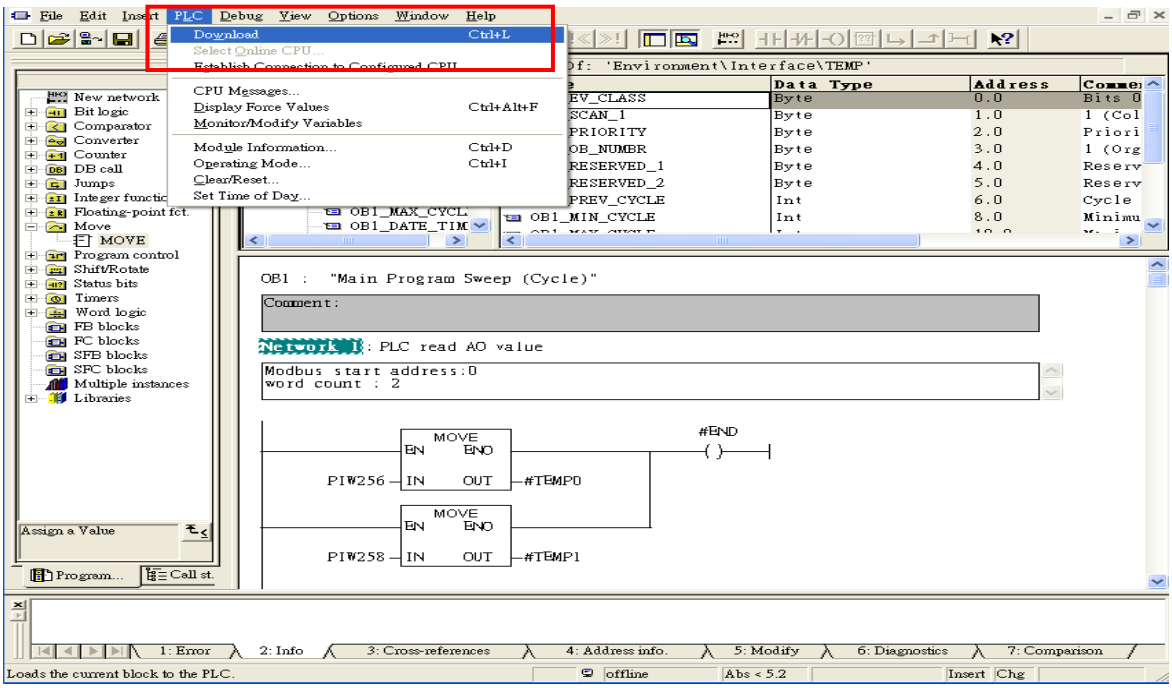
Variables used in the example LD Program:





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7. S7 program download



8. Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.

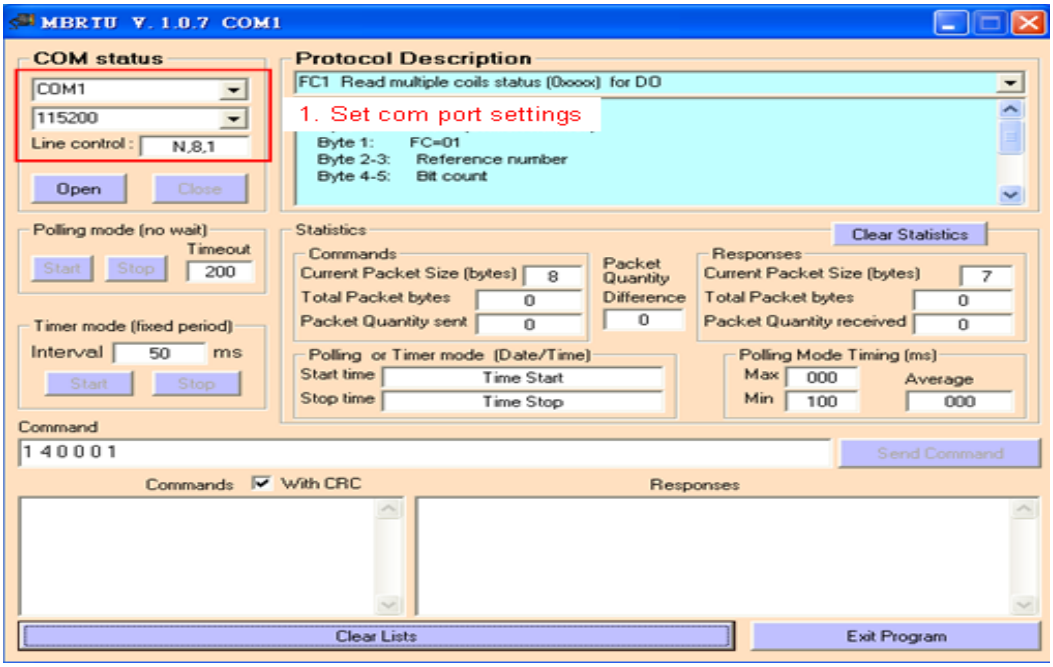


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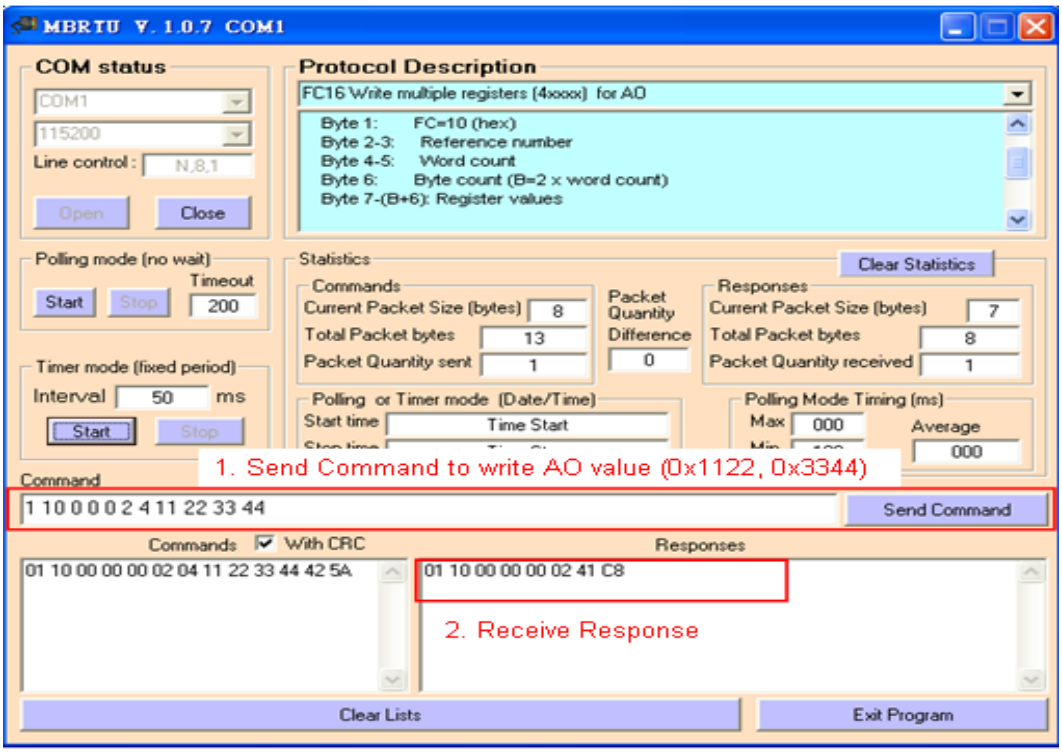
Communication test

1. Confirm the GW-7553's Com Port setting is the same with Modbus Master tool (ex: MBRTU, you can download MBRTU from http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus_utility/)

Com Port Settings: baud rate-115200, data bits-8, stop bits-1, parity-none

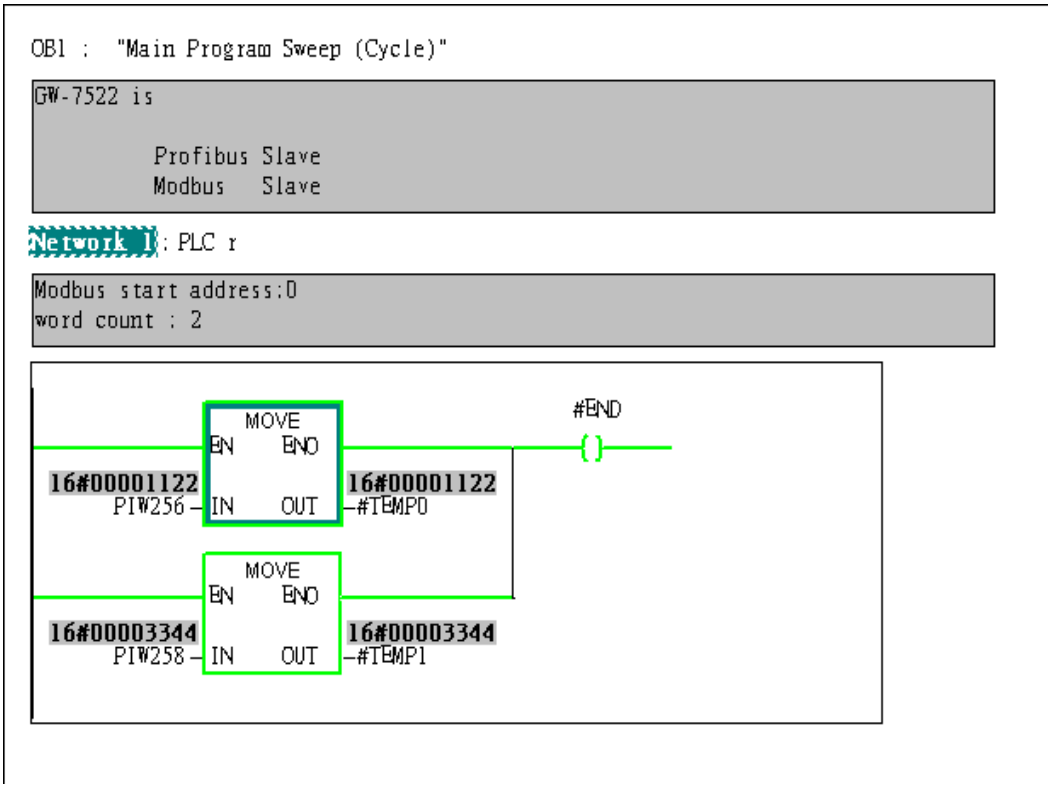


2. Click "Send Command" button to wirte AO value (0x1122, 0x3344)



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3. PLC will receives the “AI Value (0x1122, 0x3344)” at PLC address PIW256&PIW258

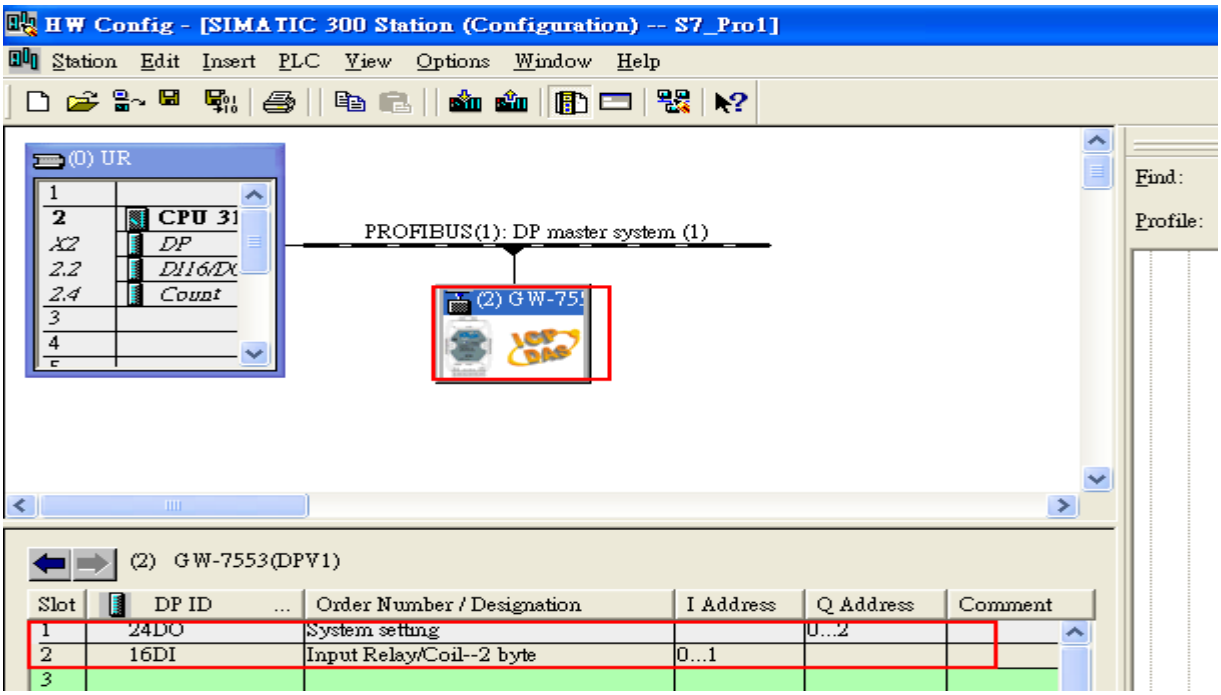


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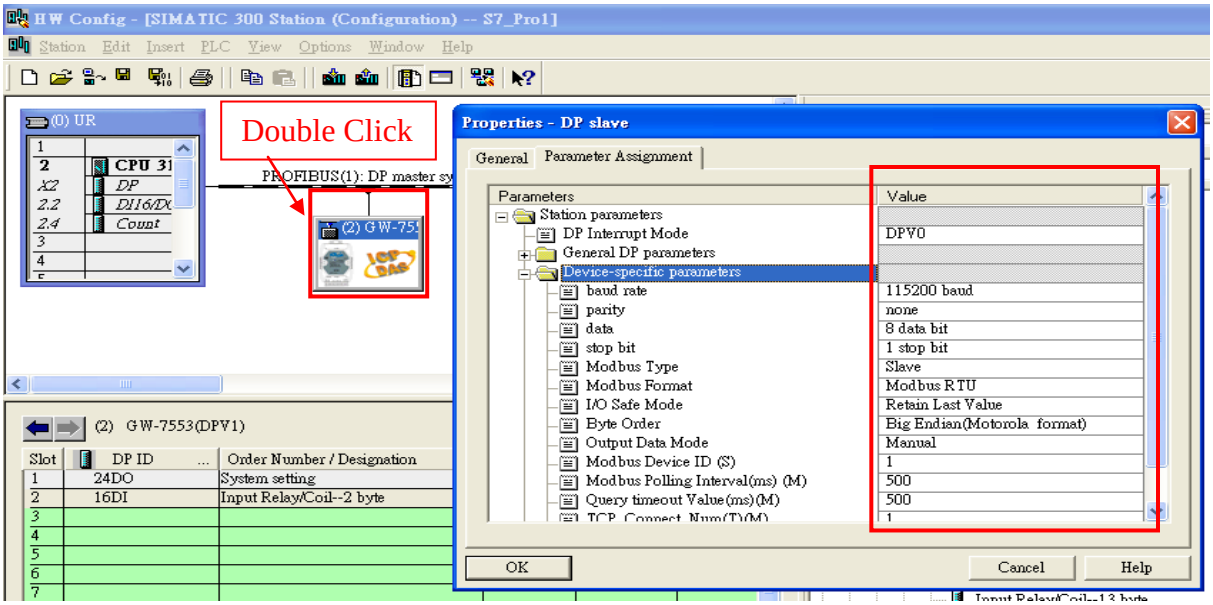
Example 2: PLC receives DO data from Modbus master.

SIMATIC STEP 7 Edit

1. HW Config. – configure GW-7553 (ex: System setting module x1, Input Relay/Coil – 2 byte module x1)

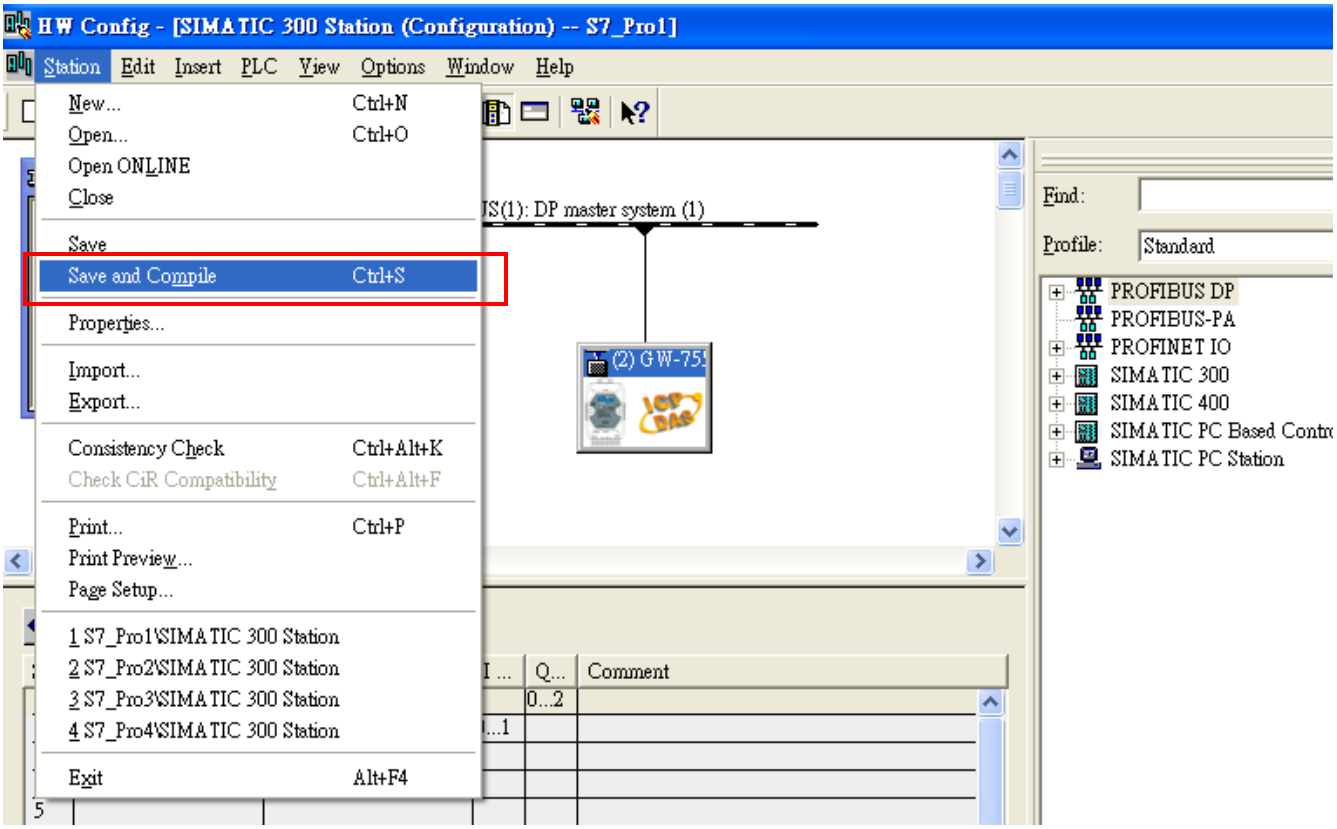


2. HW Config – Parameter assignment (ex: Com port settings, Modbus type: Slave, Modbus format: RTU, Byte Order: Big Endian). Confirm the GW-7553's Com Port setting is the same with MBRTU tool (ex: baud rate-115200, data bits-8, stop bits-1, parity-none). About the MBRTU tool, please refer to the "Communication test" in the below.

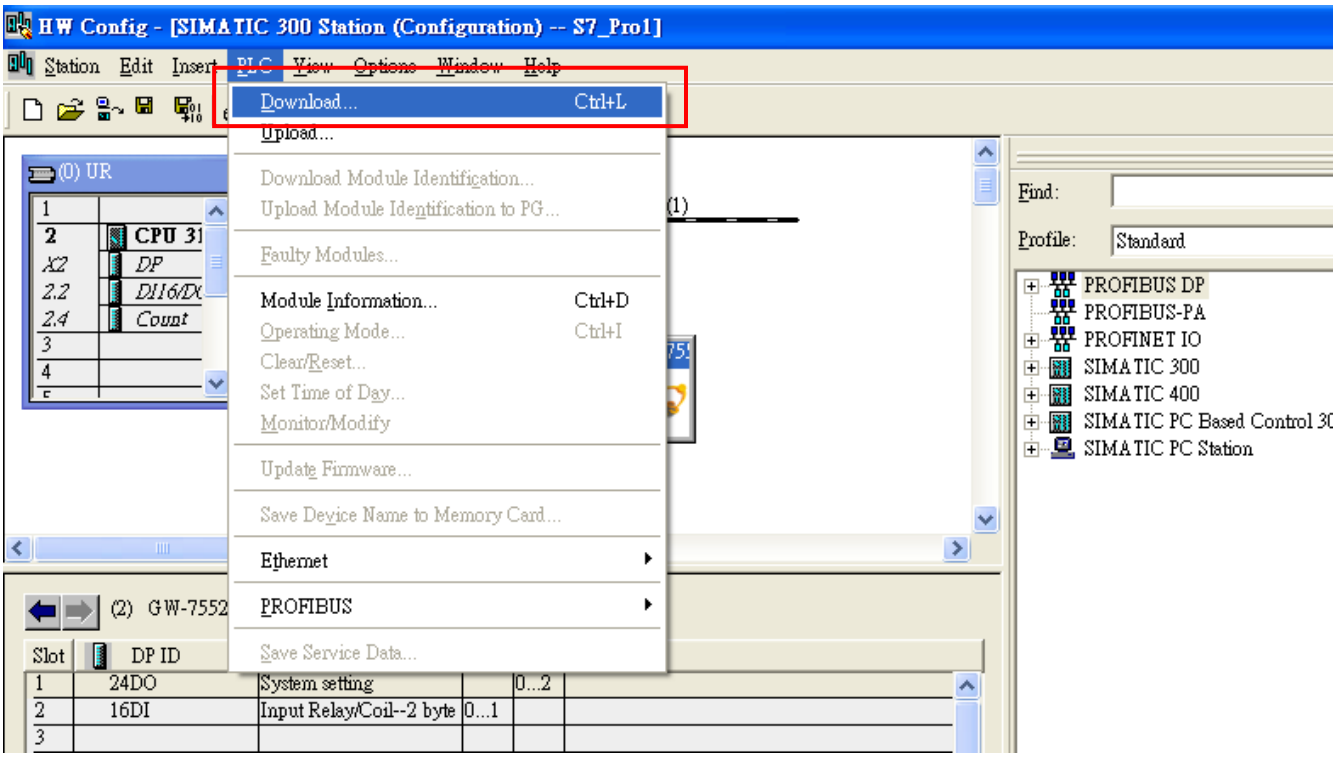


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3. Save and Compile

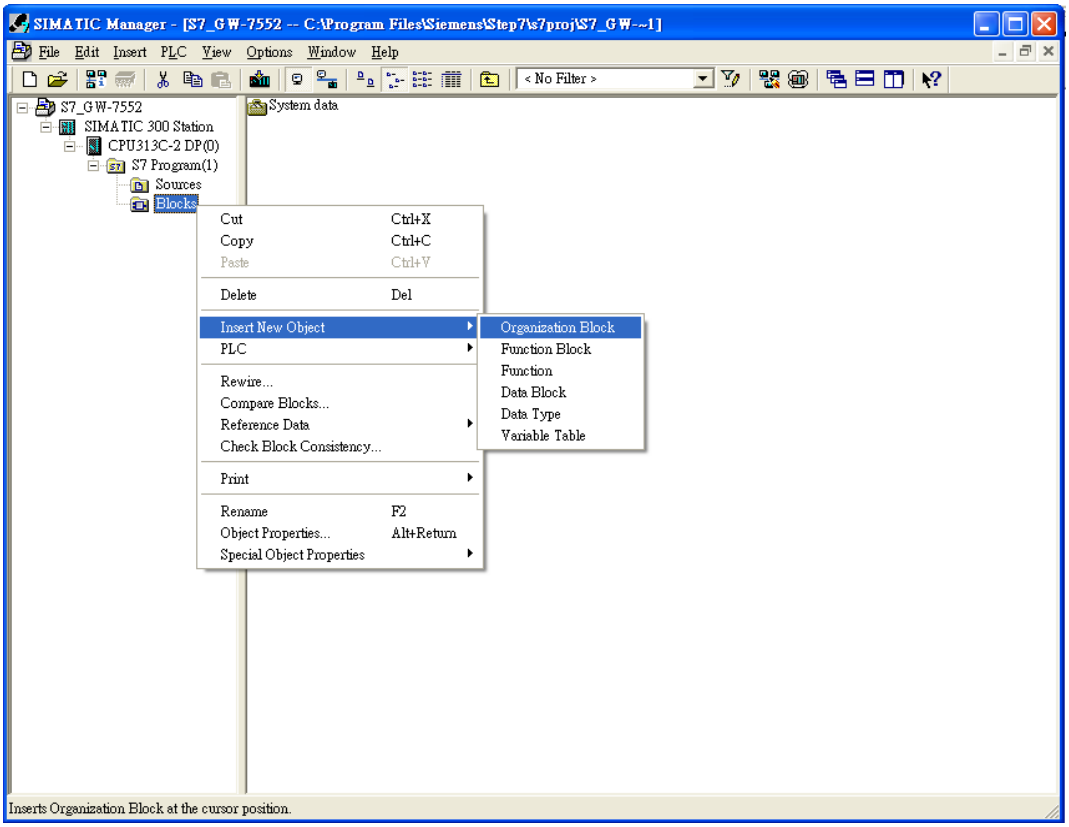


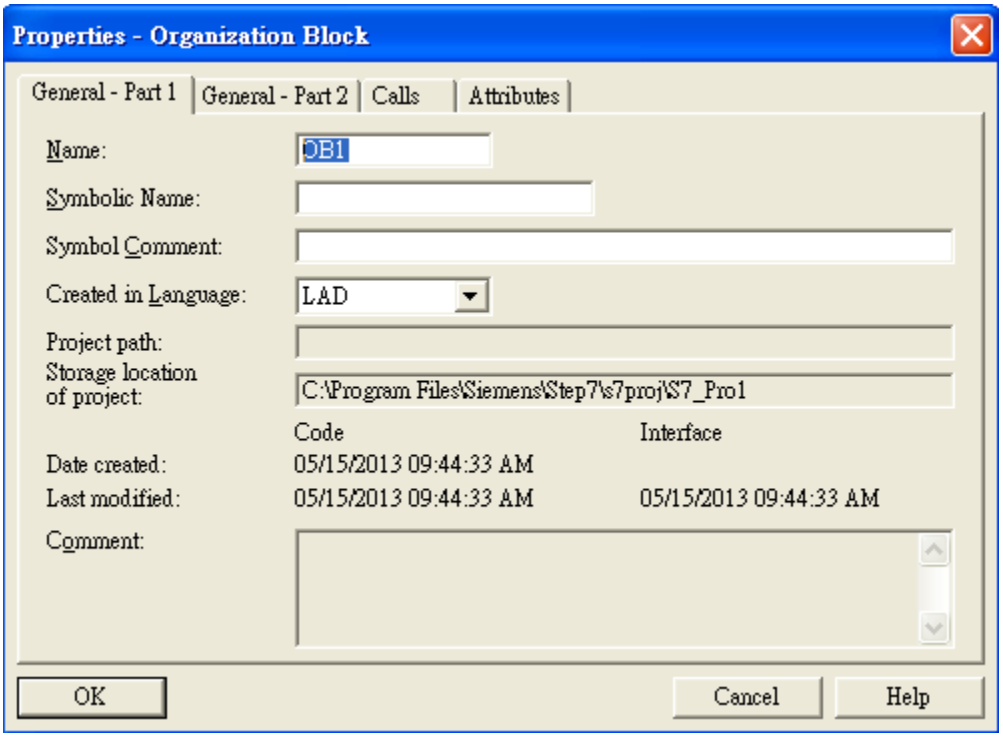
4. Download setting into STEP 7



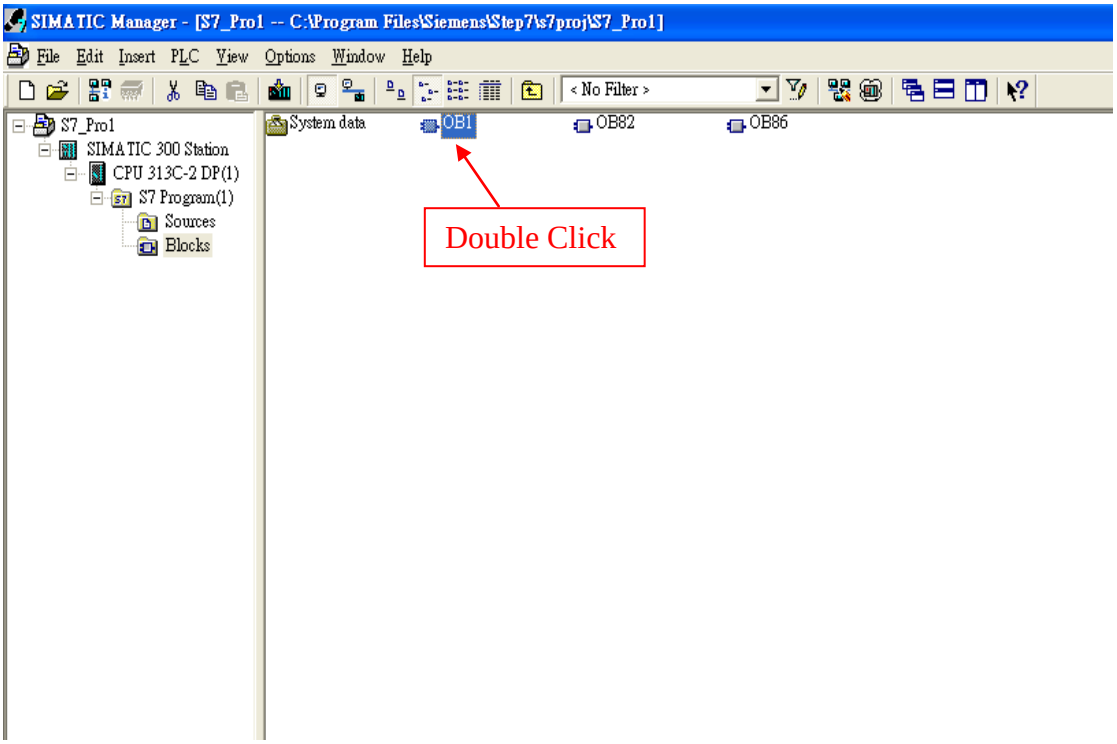
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5.Insert a new Organization Block (OB1,OB82,OB86)





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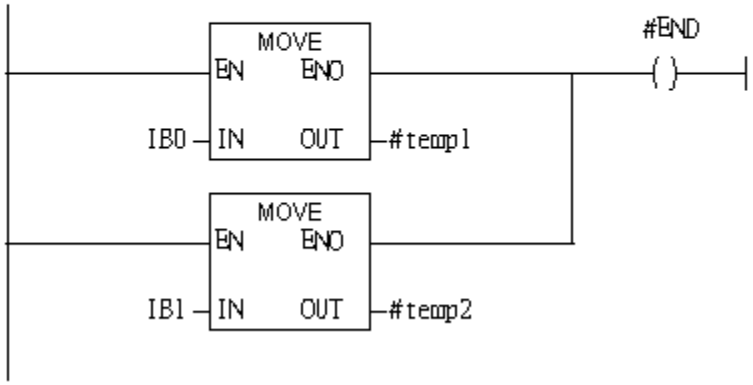
6. S7 program edit

Variables used in the example LD Program:

	Name	Data Type	Address	Comment
	OB1_DAT...	Date_...	12.0	Date and time OB1 started
	END	Bool	20.0	
	temp1	Byte	21.0	
	temp2	Byte	22.0	

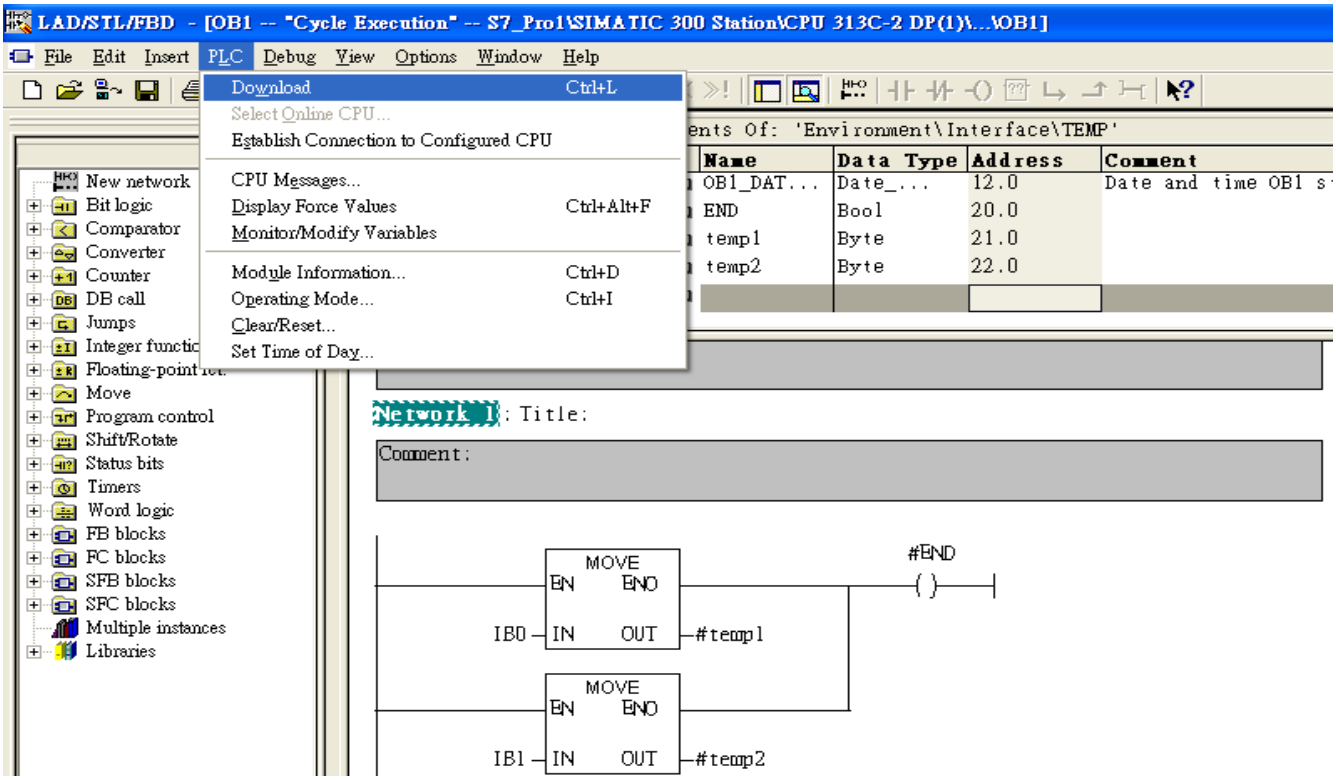
Network 1: Title:

Comment:



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7. S7 program download



8. Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.

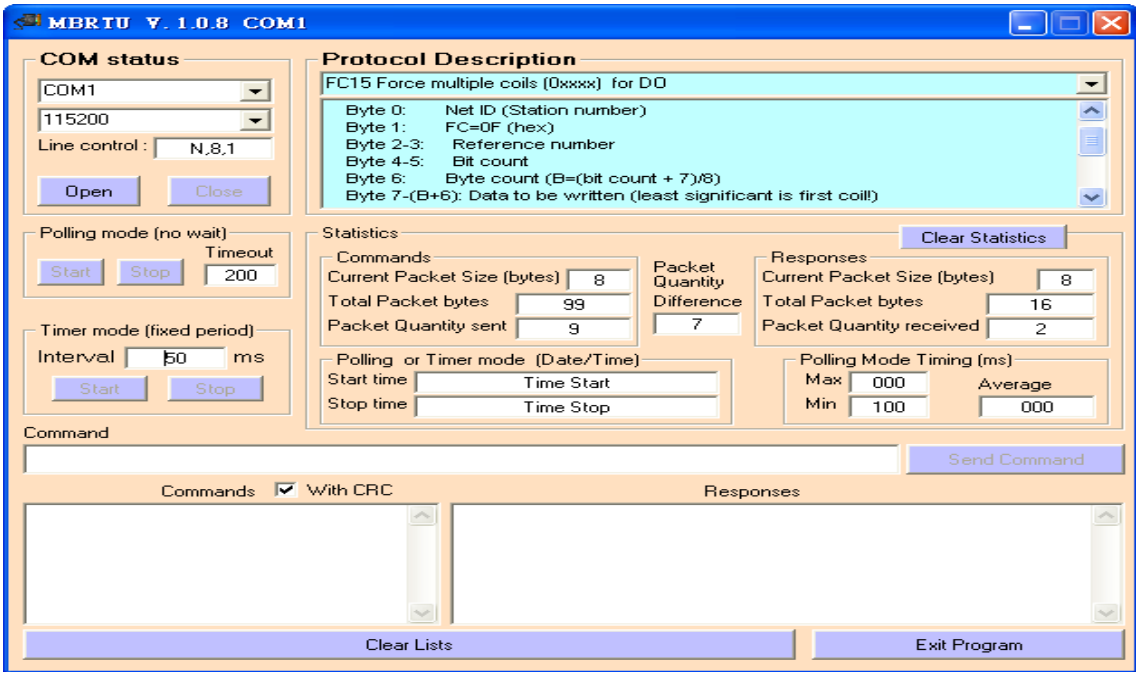


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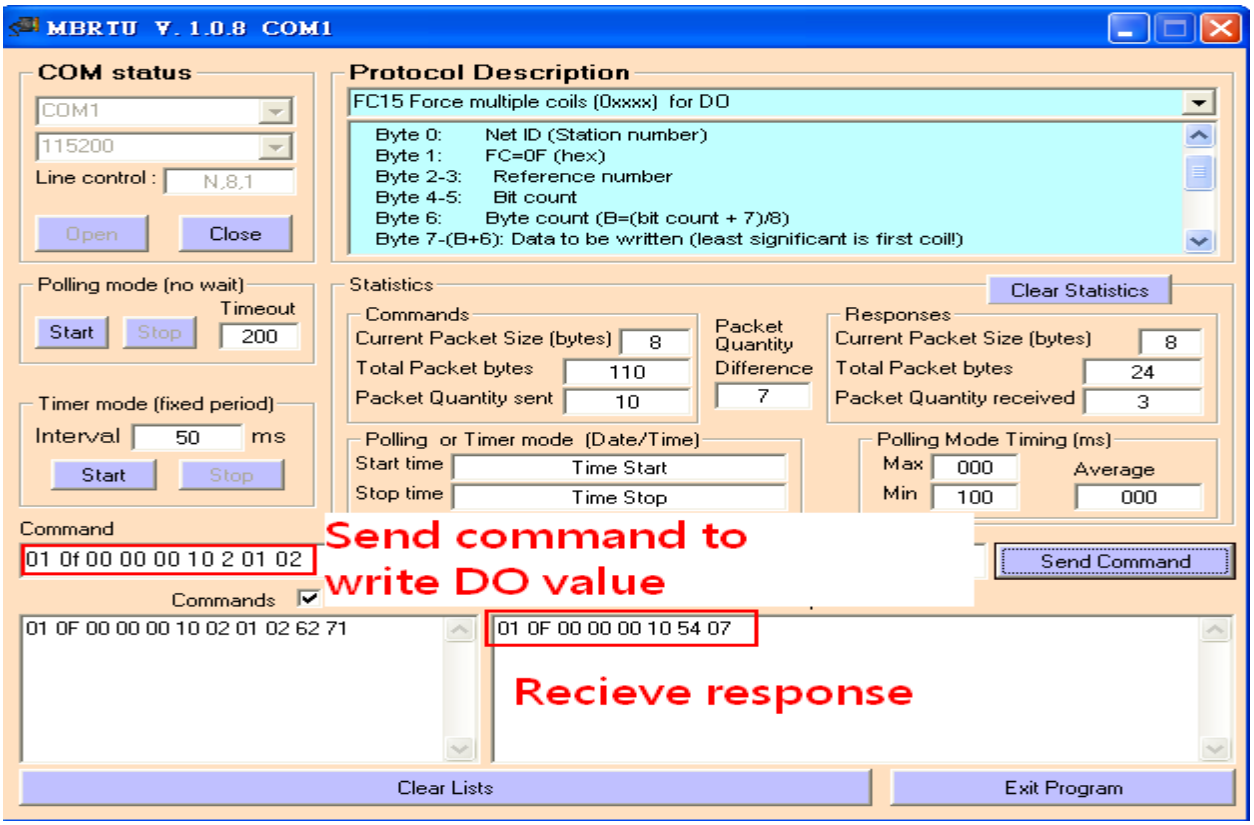
Communication test

1. Confirm the GW-7553's Com Port setting is the same with Modbus Master tool (ex: MBRTU, you can download MBRTU from http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus_utility/)

Com Port Settings: baud rate-115200, data bits-8, stop bits-1, parity-none

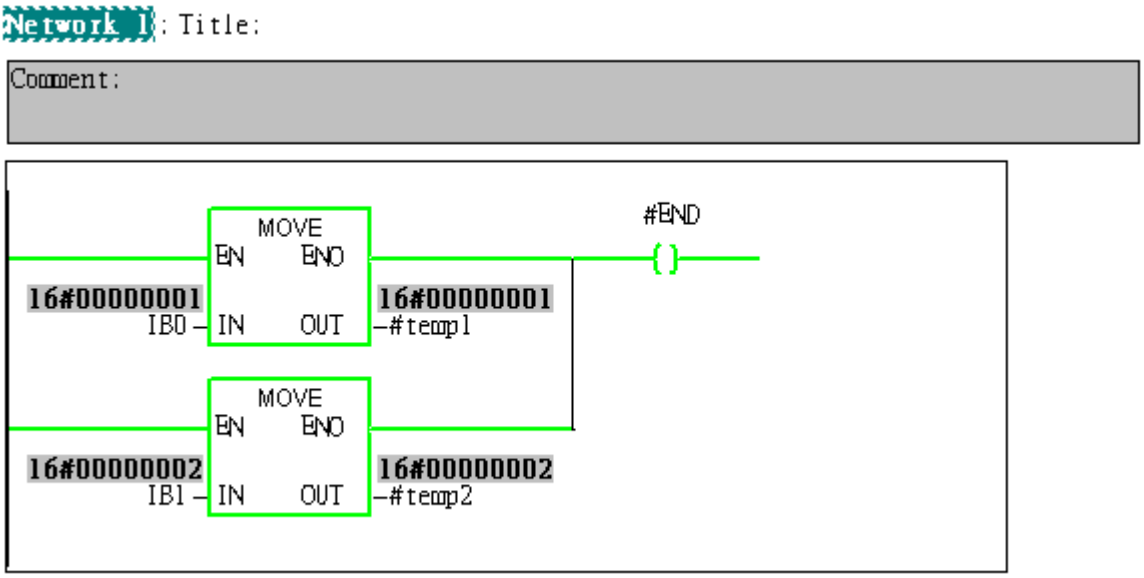


2. Click "Send Command" button to wirte DO value (0x0102,)



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3. PLC will receives the “DO Value (0x01, 0x02)” at PLC address IB0&IB1

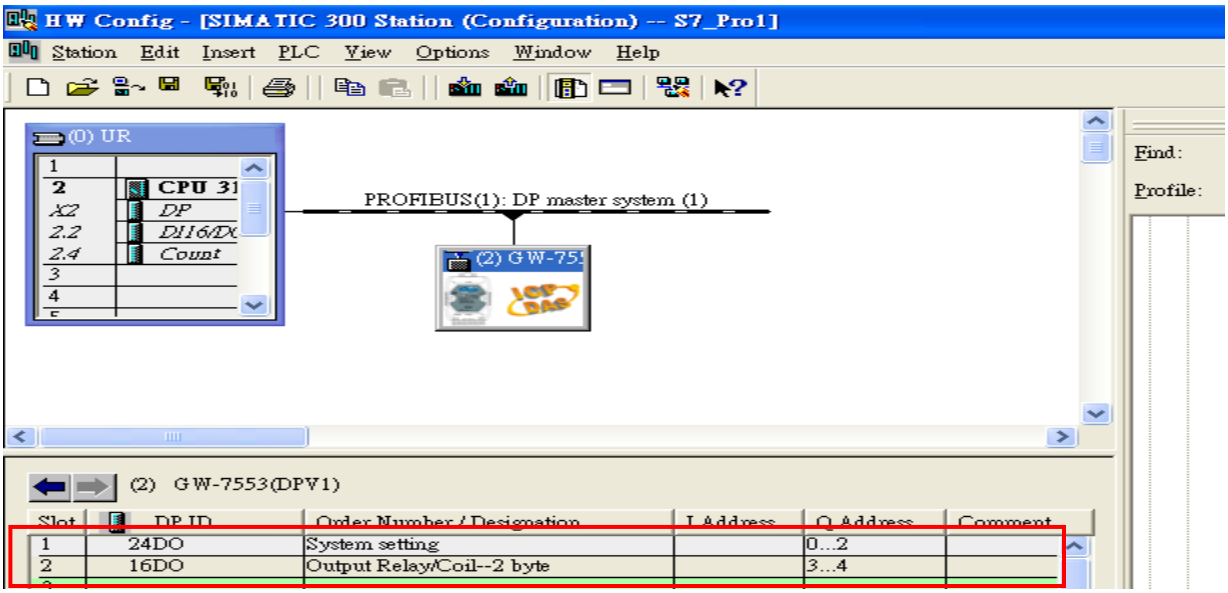


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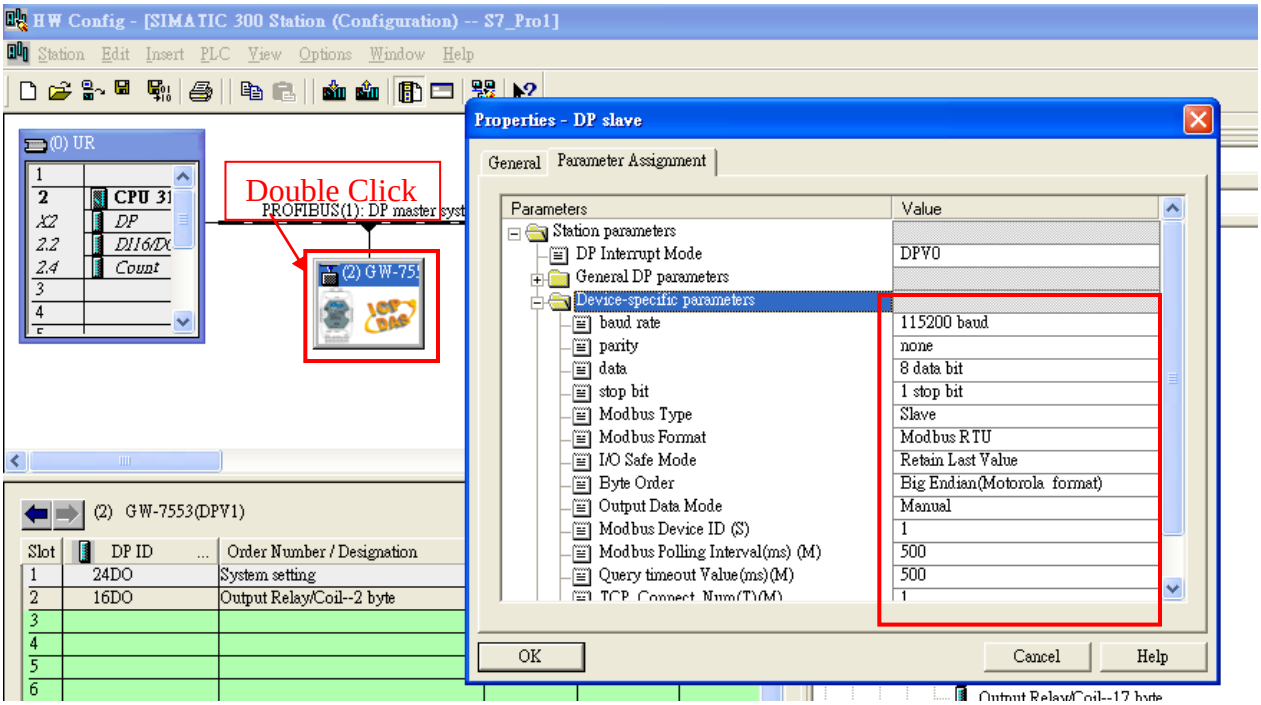
Example 3: PLC refreshes DI data to Modbus master.

SIMATIC STEP 7 Edit

1.HW Config. – configure GW-7553 (ex: System setting module x1, Output Relay/Coil—2 byte module x1)

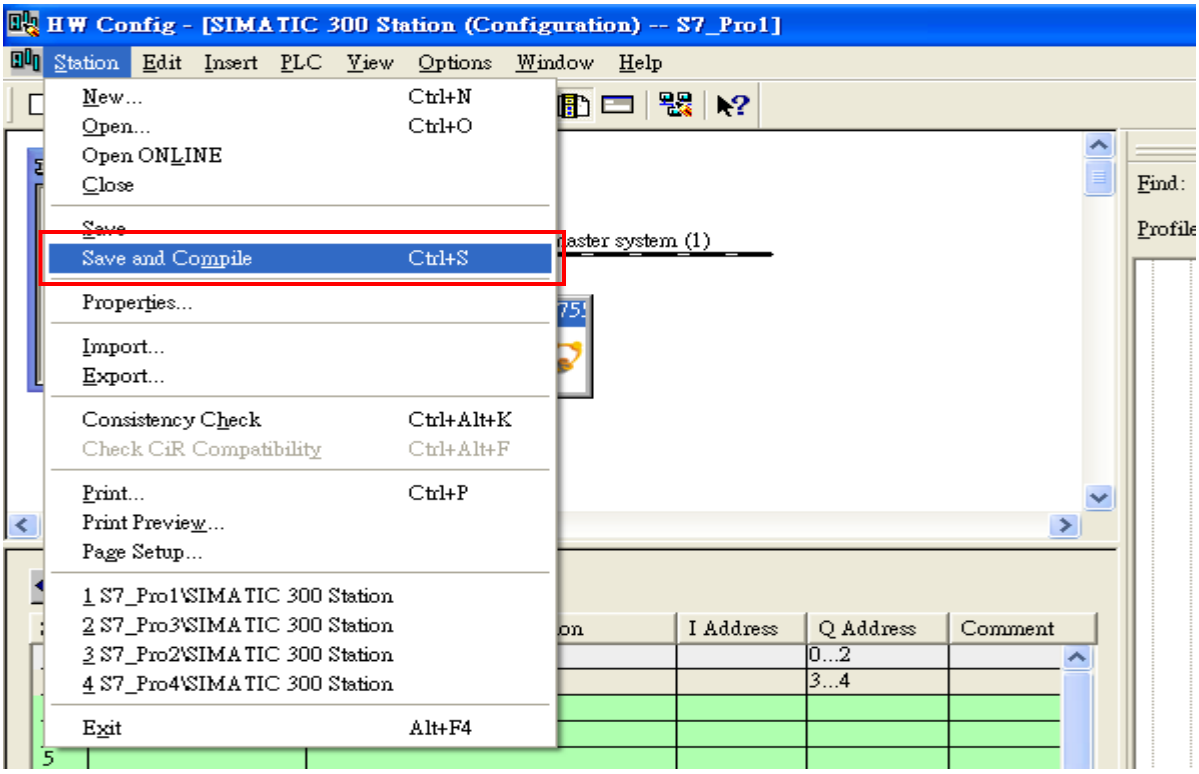


2. HW Config – Parameter assignment (ex: Com port settings, Modbus type: Slave, Modbus format: RTU, Byte Order: Big Endian). Confirm the GW-7553's Com Port setting is the same with MBRTU tool (ex: baud rate-115200, data bits-8, stop bits-1, parity-none). About the MBRTU tool, please refer to the "Communication test" in the below.

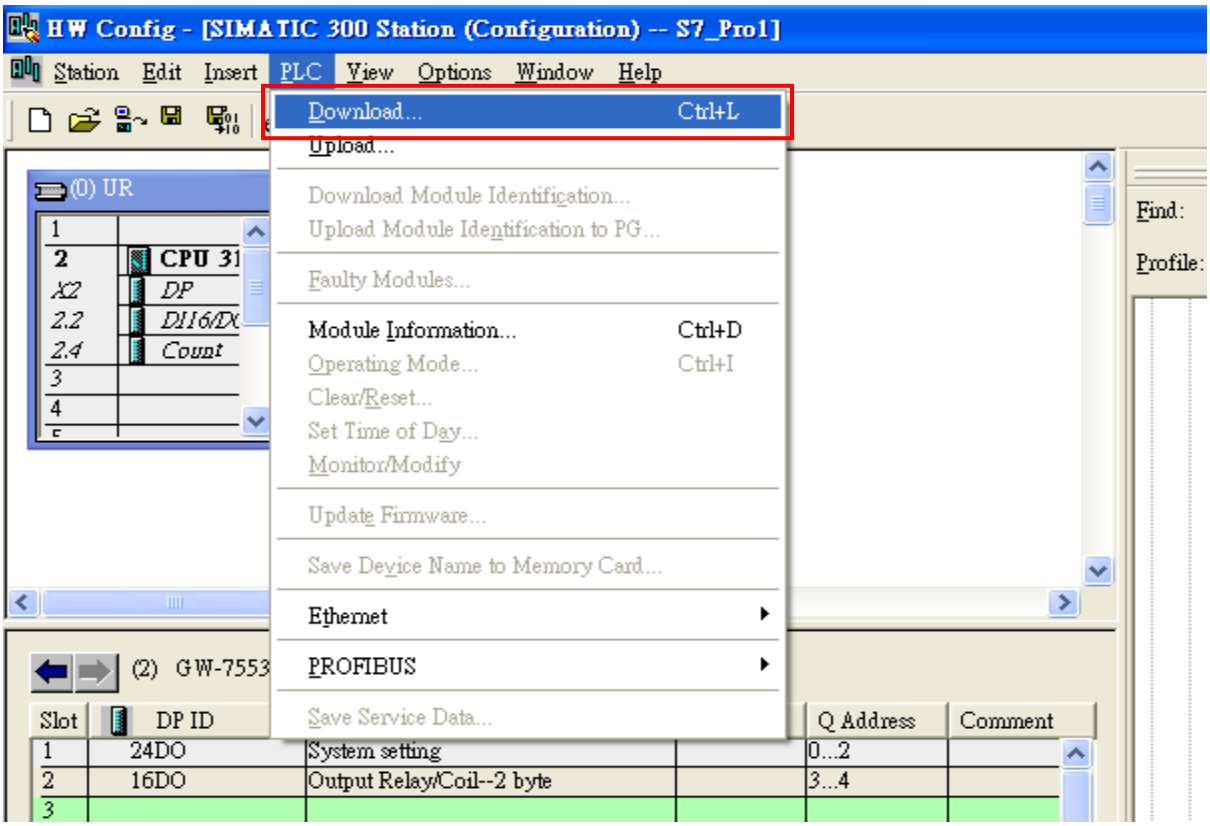


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3. Save and Compile

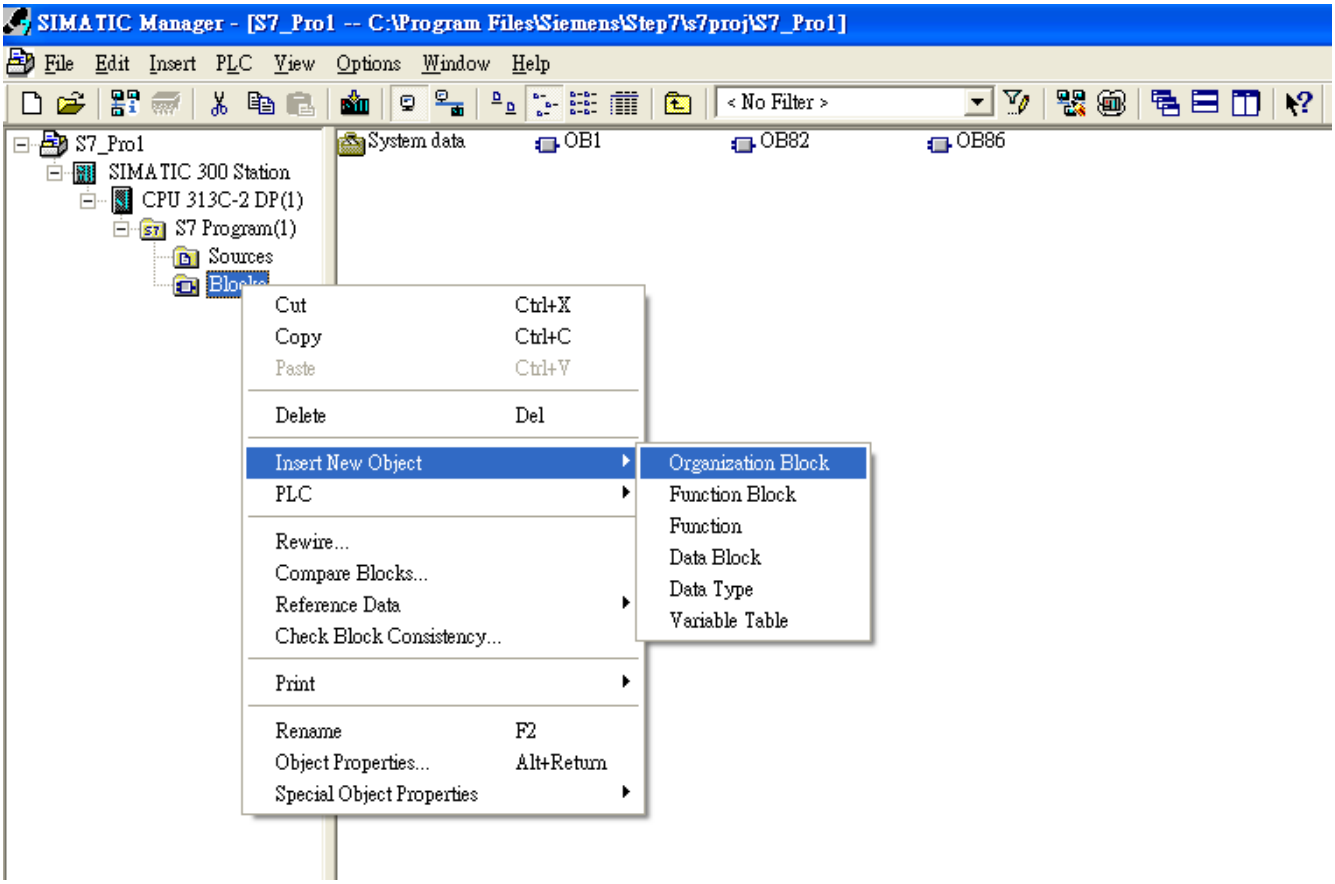


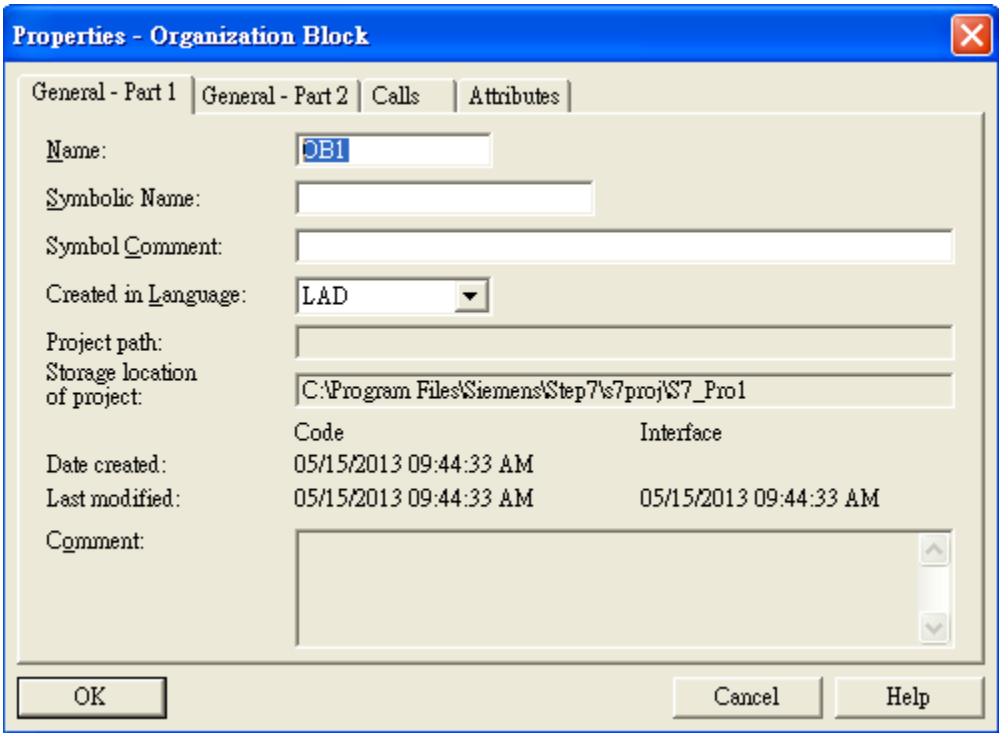
4. Download setting into STEP 7



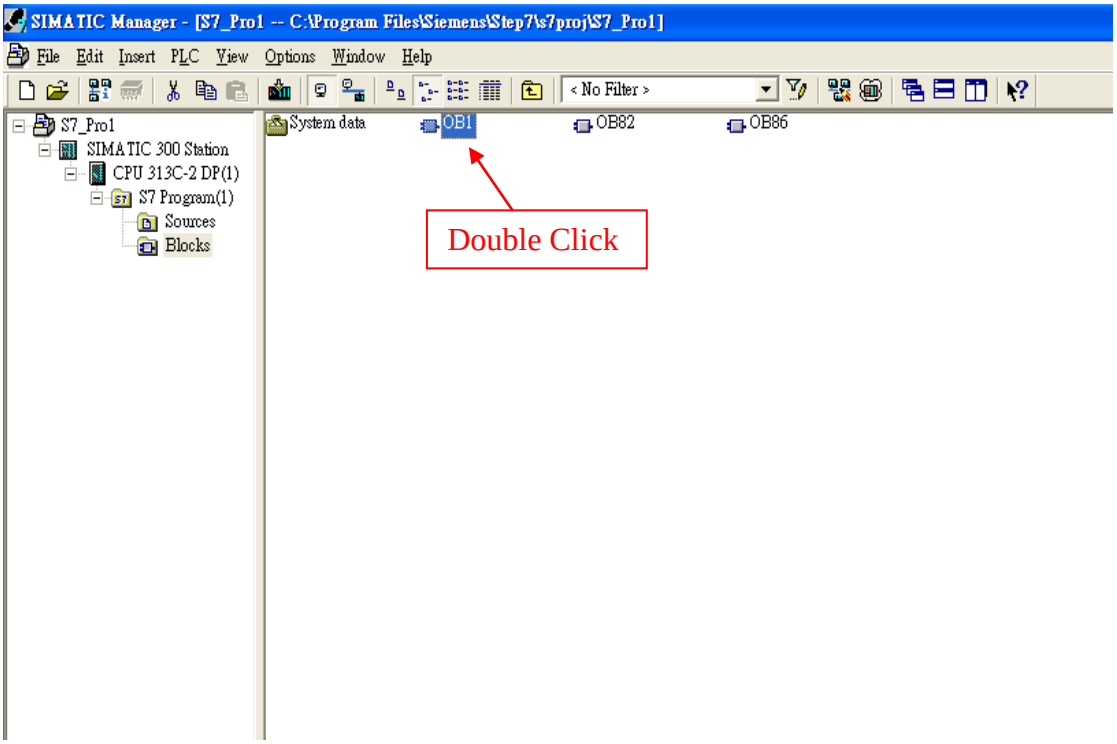
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5.Insert a new Organization Block (OB1,OB82,OB86)





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6.S7 program edit

Variables used in the example LD Program:

	Name	Data Type	Address	Comment
	OB1_MAX...	Int	10.0	Maximum cycle time of OB1 (milliseconds)
	OB1_DAT...	Date_...	12.0	Date and time OB1 started
	END	Bool	20.0	
	Init	Bool	20.1	
	tri	Int	22.0	

Network 2: Initial Cl

Initial Cl



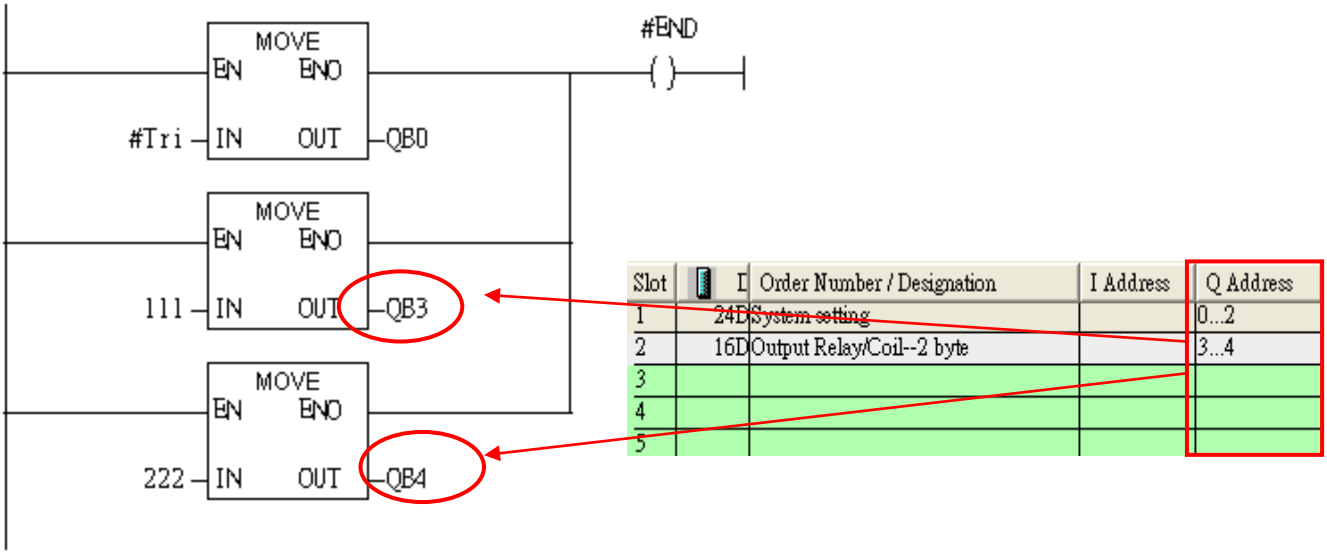
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OB1 : "Main Program Sweep (Cycle)"

```
PROFIBUS slave
Modbus   slave
```

Network 1: QB0 add "1" refresh DO value

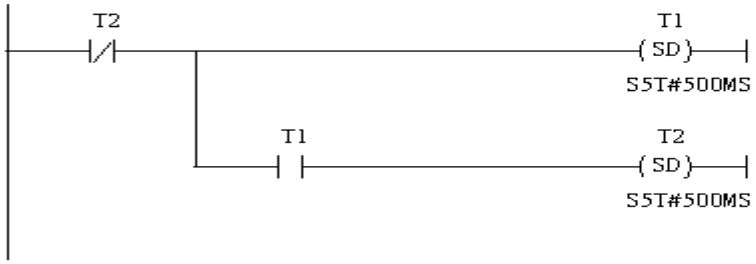
```
2 byte 16 DO
```



Using T2 trigger T1 .C1 and Tri will add 1 every 1s.

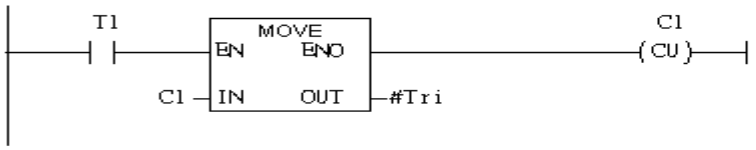
Network 2 : Timer T1 & T2

```
Using T2 triggle T1
```



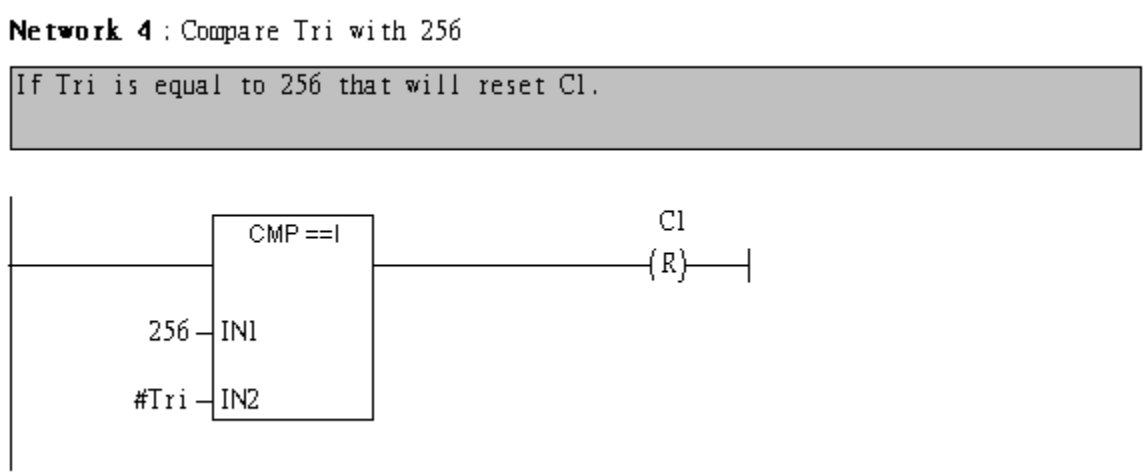
Network 3 : T1 triggle Counter(C1)

```
Counter(C1) add "1" and Tri add "1" , too.
```

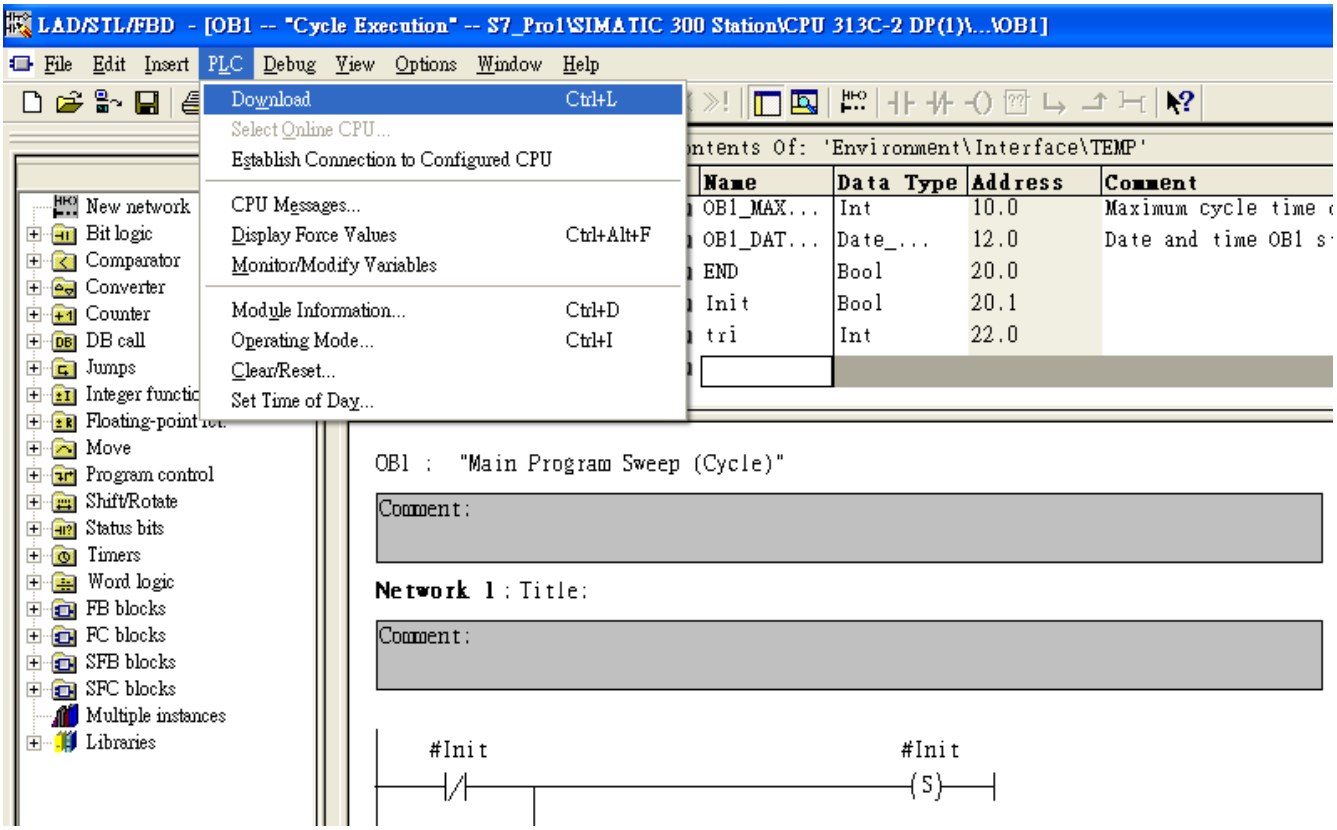


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If Tri is equal to 256, reset counter (C1)



7. S7 program download



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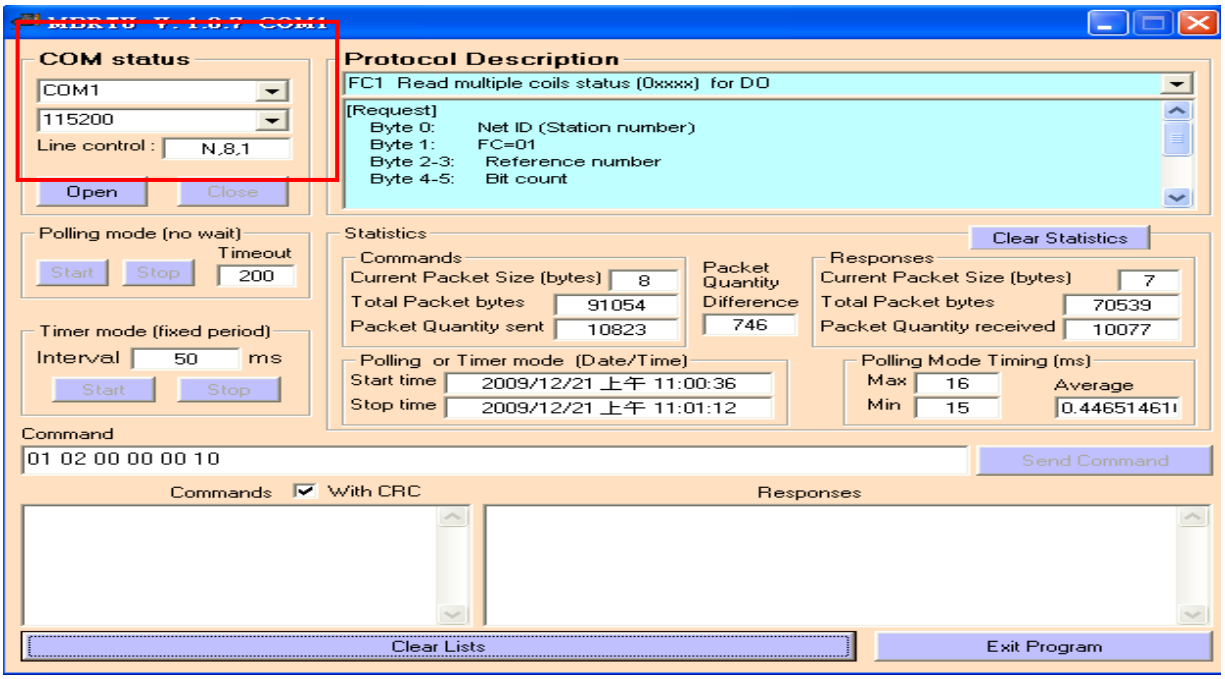
8. Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



Communication test

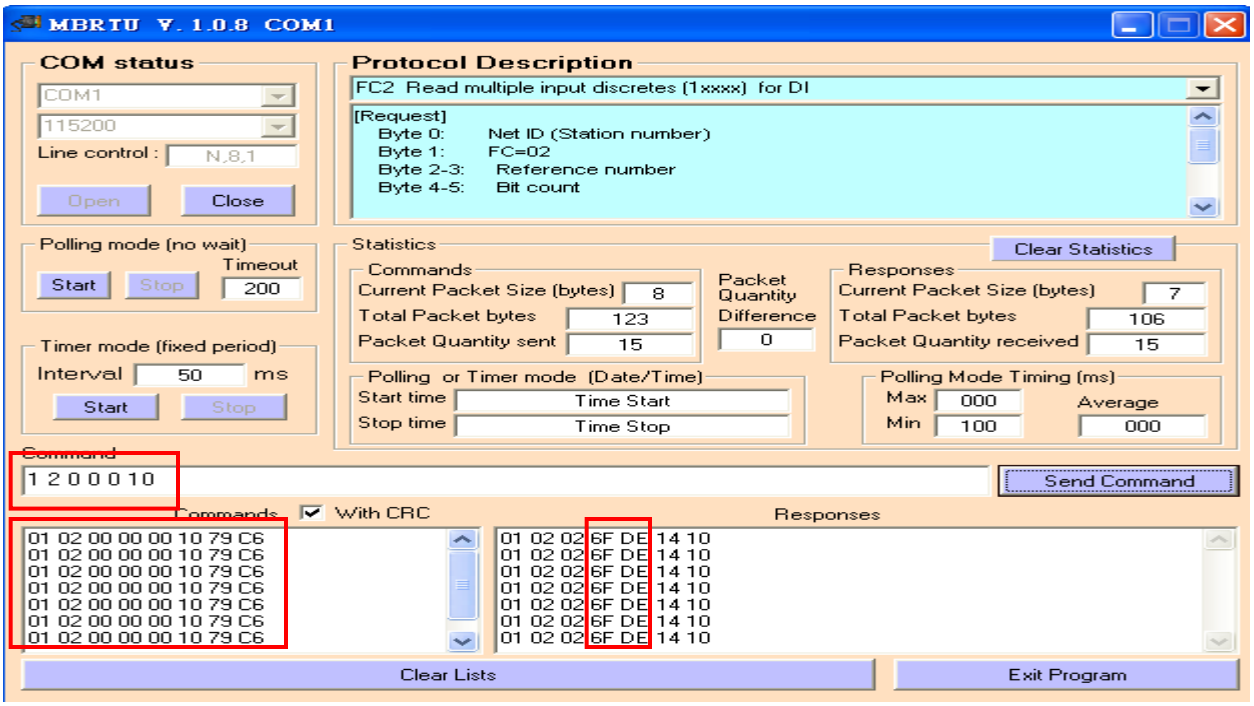
1. Confirm the Com Port setting of Modbus Master tool is the same with GW-7553's (ex: MBRTU, you can download MBRTU from http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus_utility/)

Com Port Settings: baud rate-115200, data bits-8, stop bits-1, parity-none

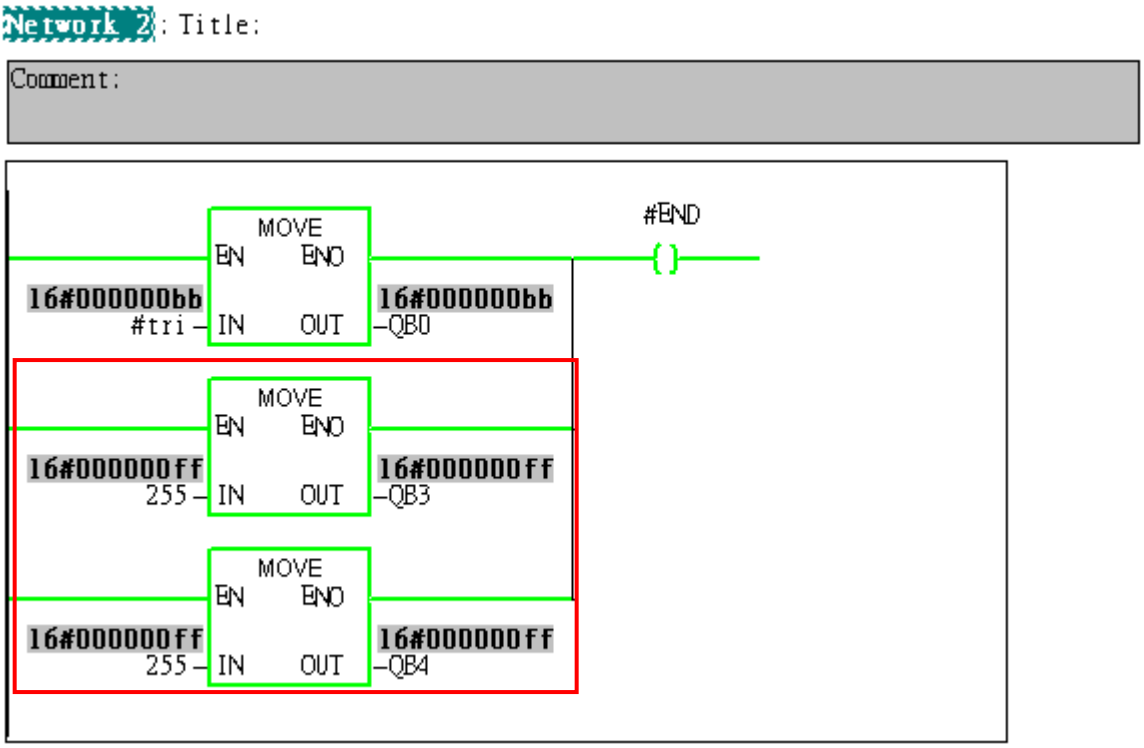


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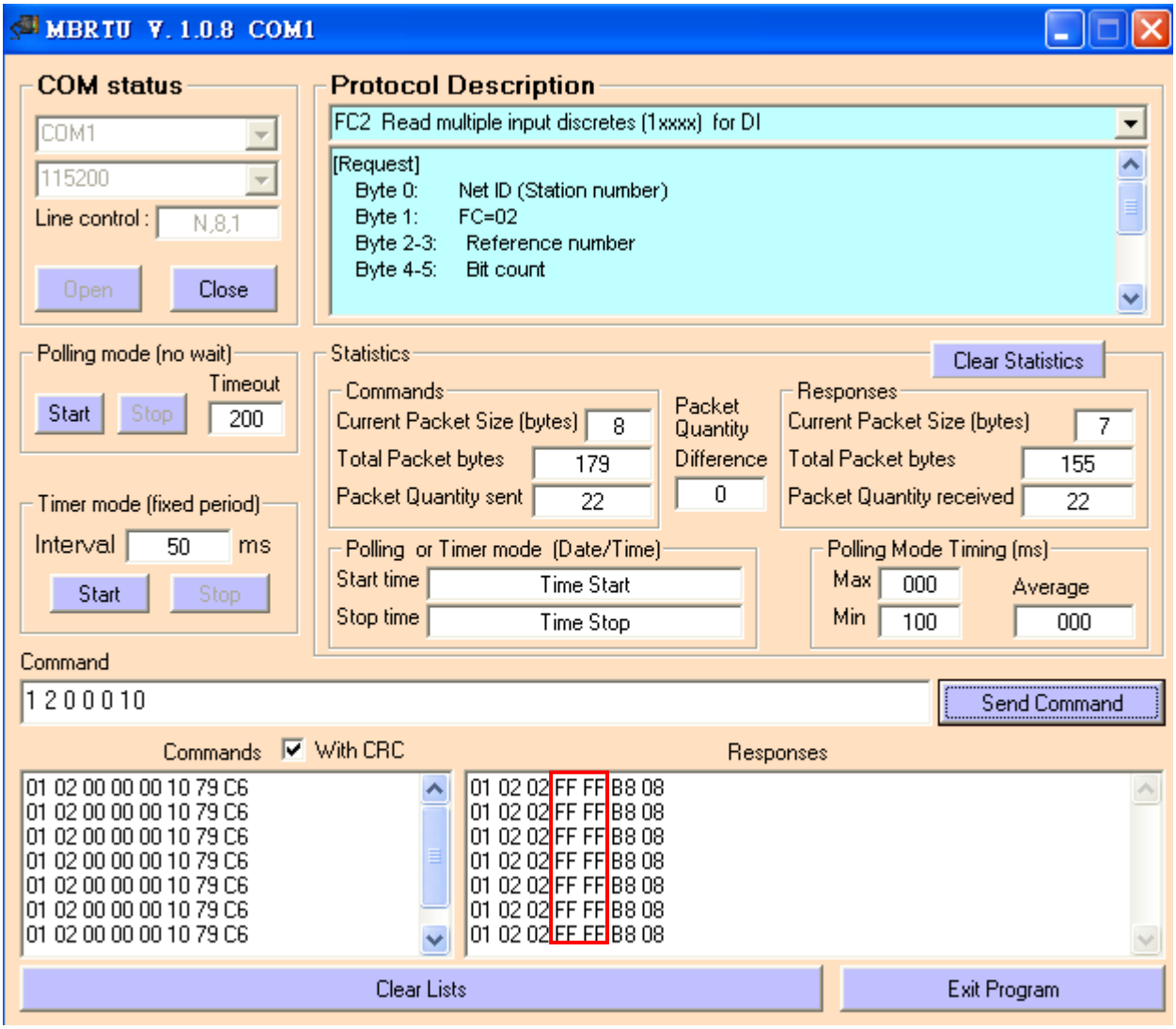
2. Input command (" 01 02 00 00 00 10") in MBRTU and click <Send Command> button to send Modbus command: "01 02 00 00 00 10 79 C6". We can get the DI value (0x6F, 0xDE) from the response message.



3. We change QB3 to 0xFF and QB4 to 0xFF, and then we can click <Send Command> button to read DI again at MBRTU and we will get the new DI value (0xFF, 0xFF) from the response message.



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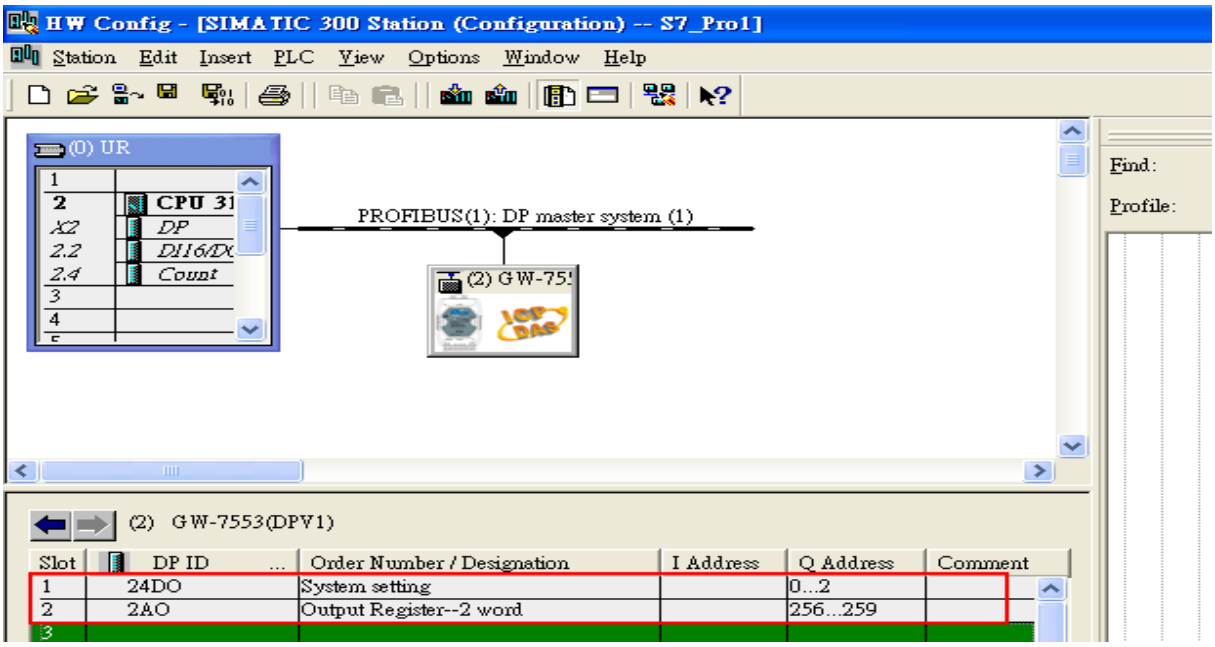


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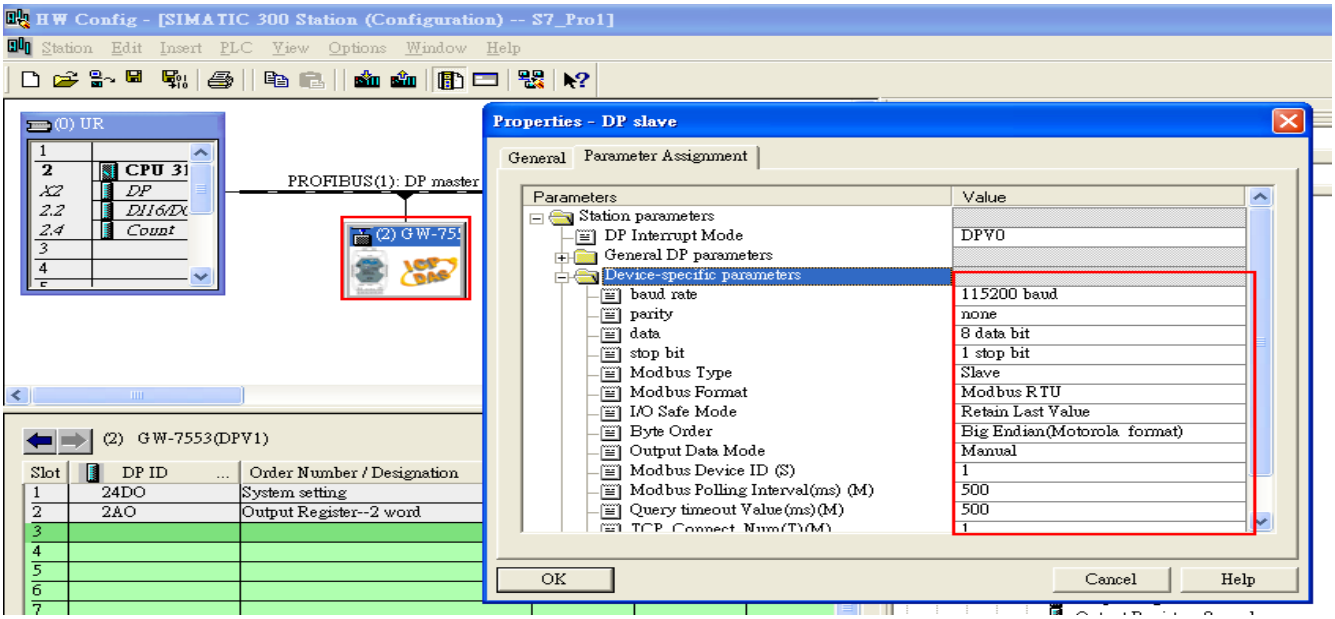
Example 4: PLC refreshes AI data to Modbus master.

SIMATIC STEP 7 Edit

1.HW Config. – configure GW-7553 (ex: System setting module x1, Output Register—2 word module x1)

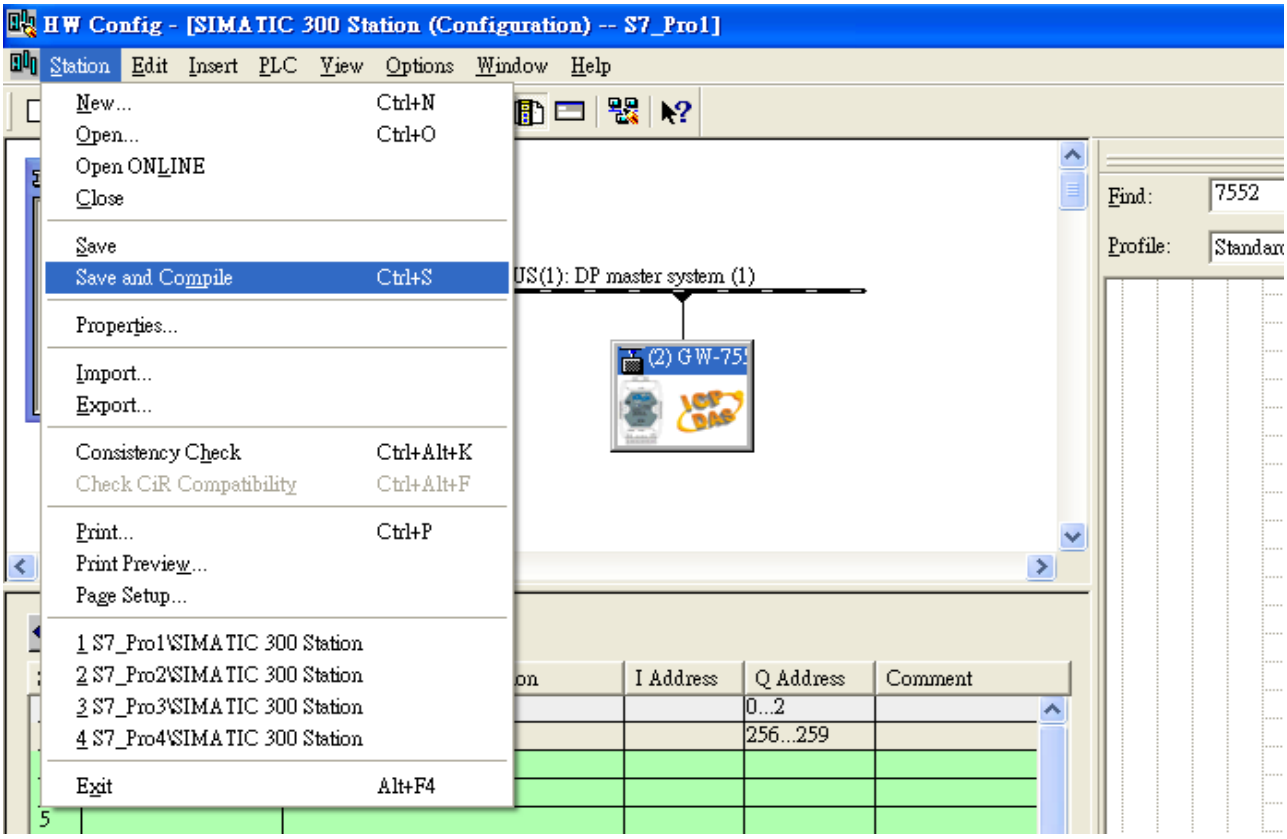


2. HW Config – Parameter assignment (ex: Com port settings, Modbus type: Slave, Modbus format: RTU, Byte Order: Big Endian). Confirm the GW-7553's Com Port setting is the same with MBRTU tool (ex: baud rate-115200, data bits-8, stop bits-1, parity-none). About the MBRTU tool, please refer to the "Communication test" in the below.

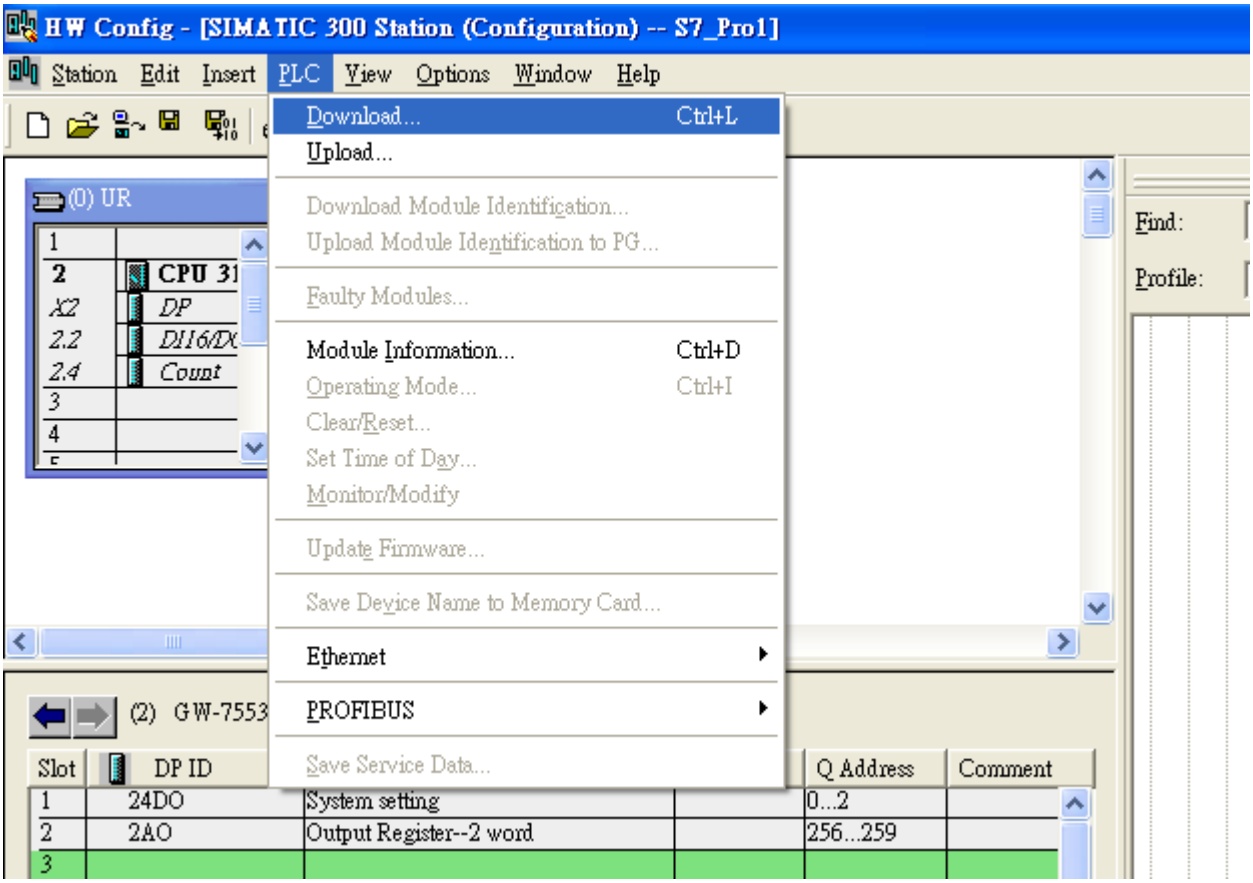


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3. Save and Compile

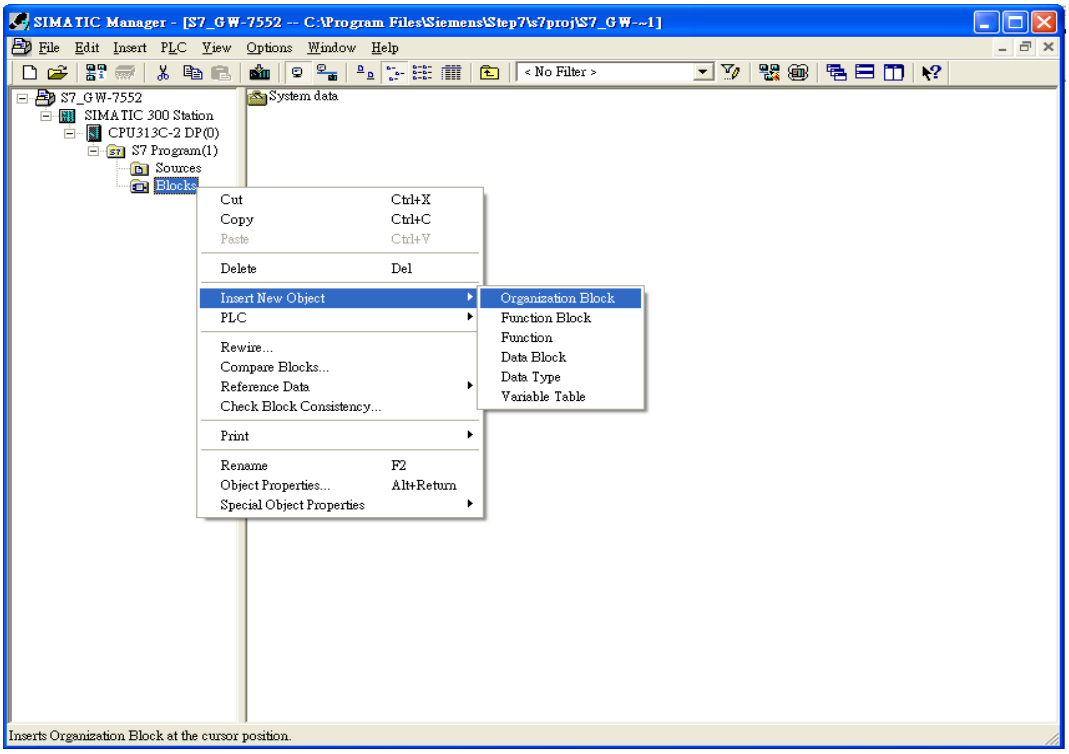


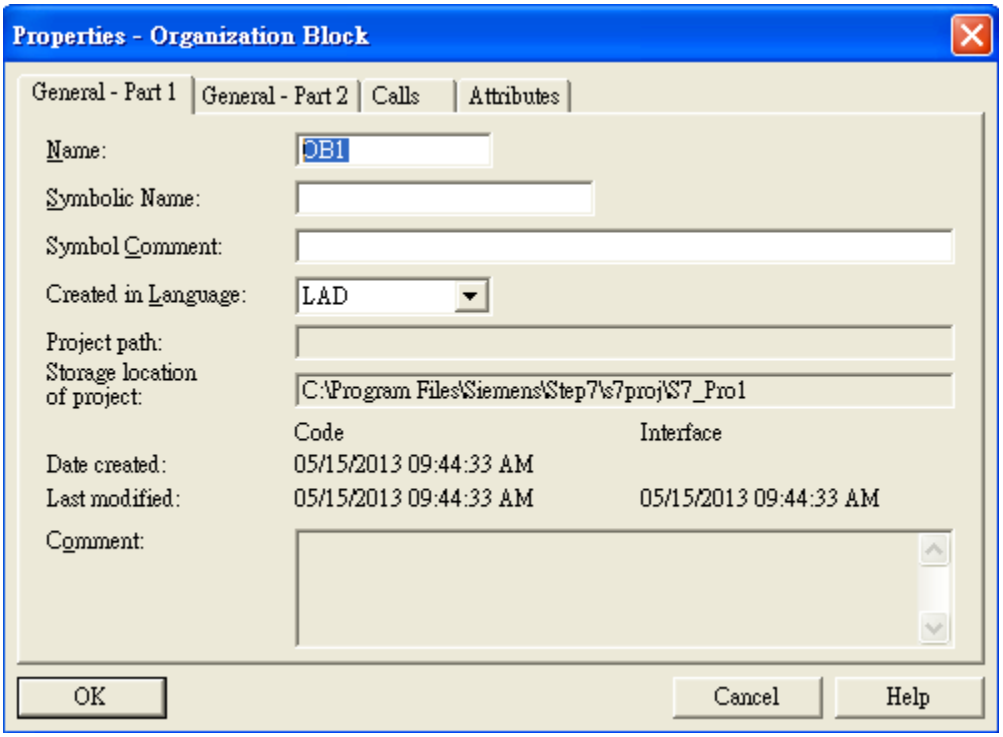
4. Download setting into STEP 7



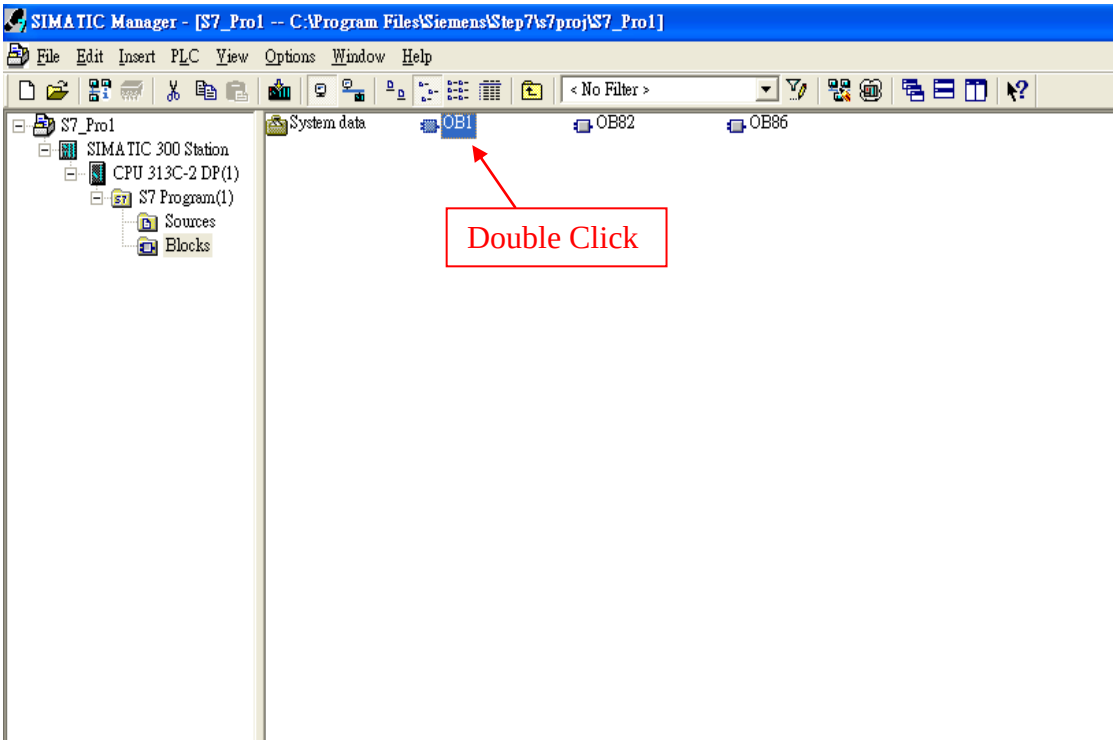
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5.Insert a new Organization Block (OB1,OB82,OB86)





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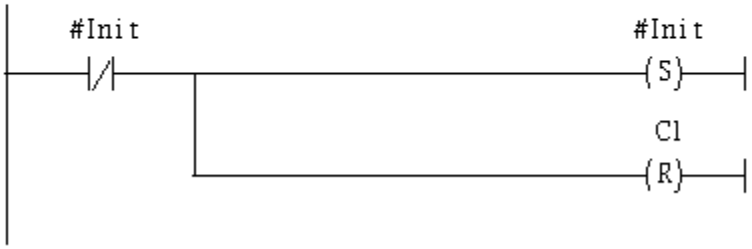
6.S7 program edit

Variables used in the example LD Program:

	Name	Data Type	Address	Comment
	OB1_DAT...	Date_...	12.0	Date and time OB1 started
	END	Bool	20.0	
	Tri	Int	22.0	
	Init	Bool	24.0	

Network 1: Initial Cl

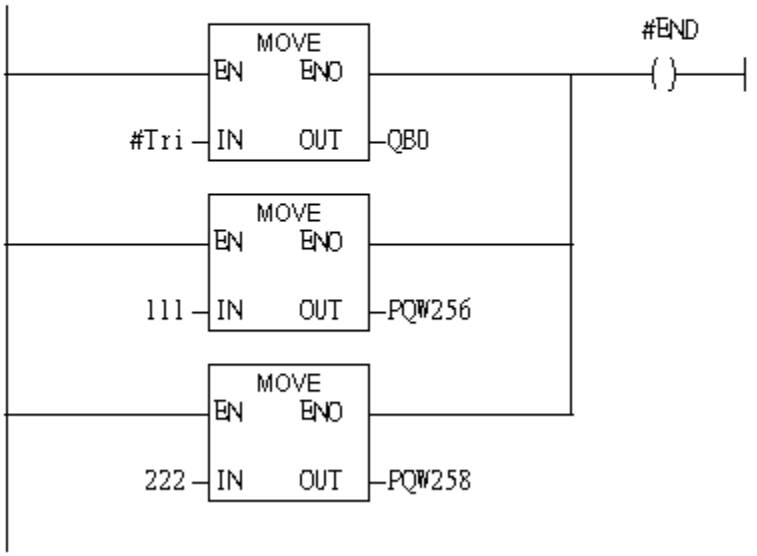
Initial Cl



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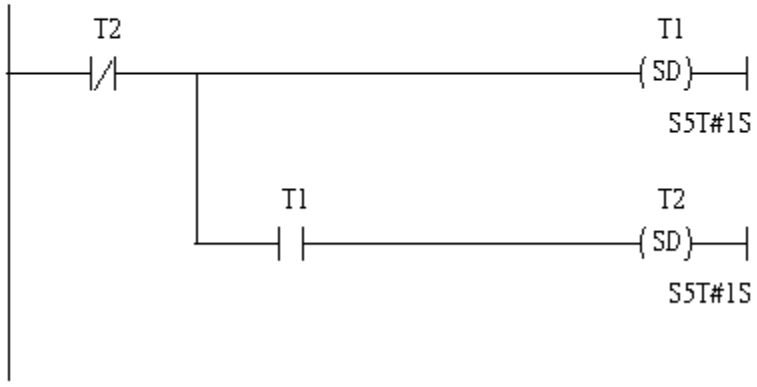
Network 2 : QB0 add "1" refresh AO value

2 word 2AO



Network 3 : Timer T1 & T2

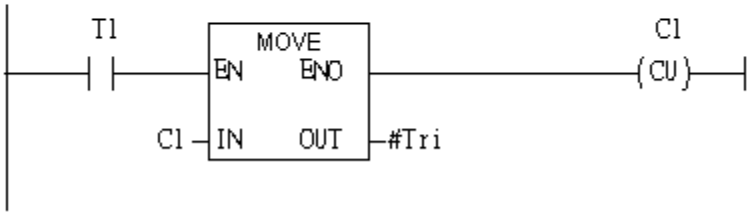
Using T2 trigger T1



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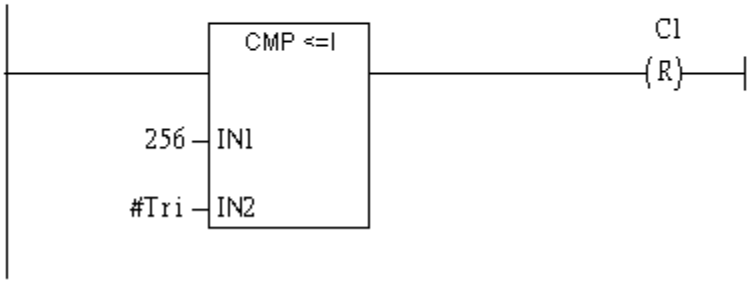
Network 4 : T1 trigger C1

Counter(C1) add "1" and Tri add "1" ,too.

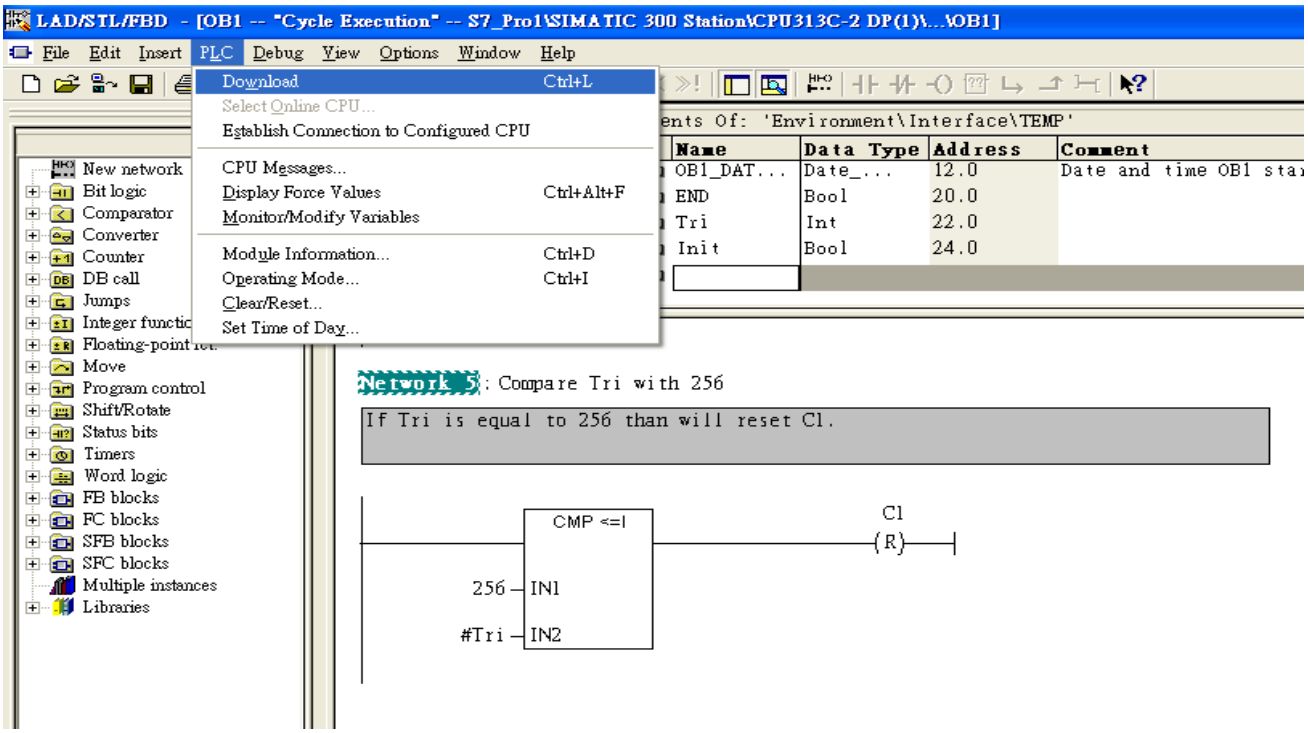


Network 5 : Compare Tri with 256

If Tri is equal to 256 than will reset C1.



7. S7 program download



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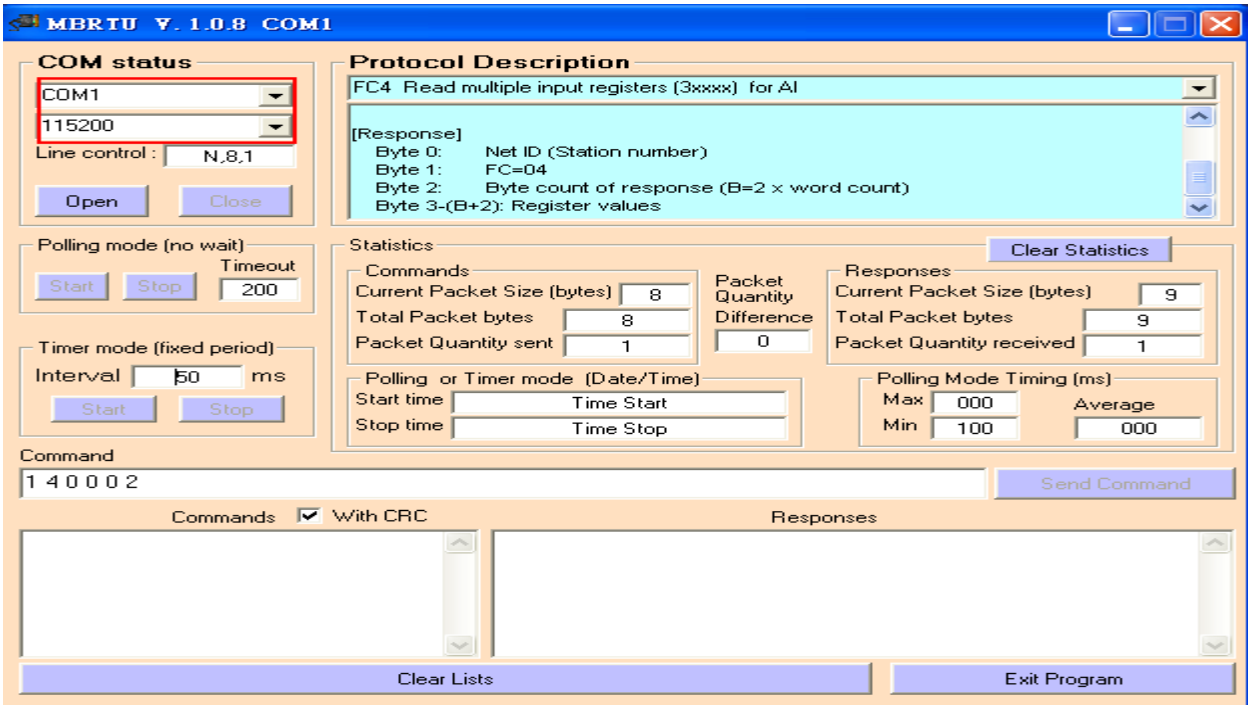
8. Make sure the RUN LED of the GW-7553 is on and the switch of the GW-7553 is at Normal mode.



Communication test

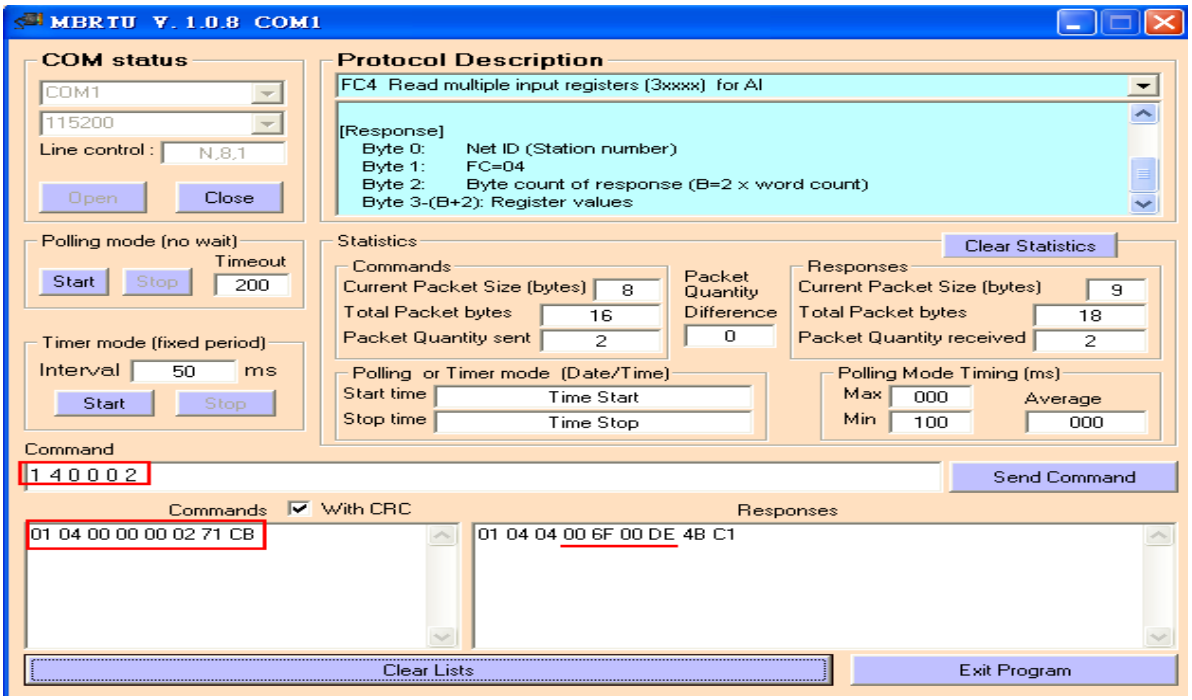
1. Confirm the Com Port setting of Modbus Master tool is the same with GW-7553's (ex: MBRTU, you can download MBRTU from http://ftp.icpdas.com.tw/pub/cd/8000cd/napdos/modbus/modbus_utility/)

Com Port Settings: baud rate-115200, data bits-8, stop bits-1, parity-none

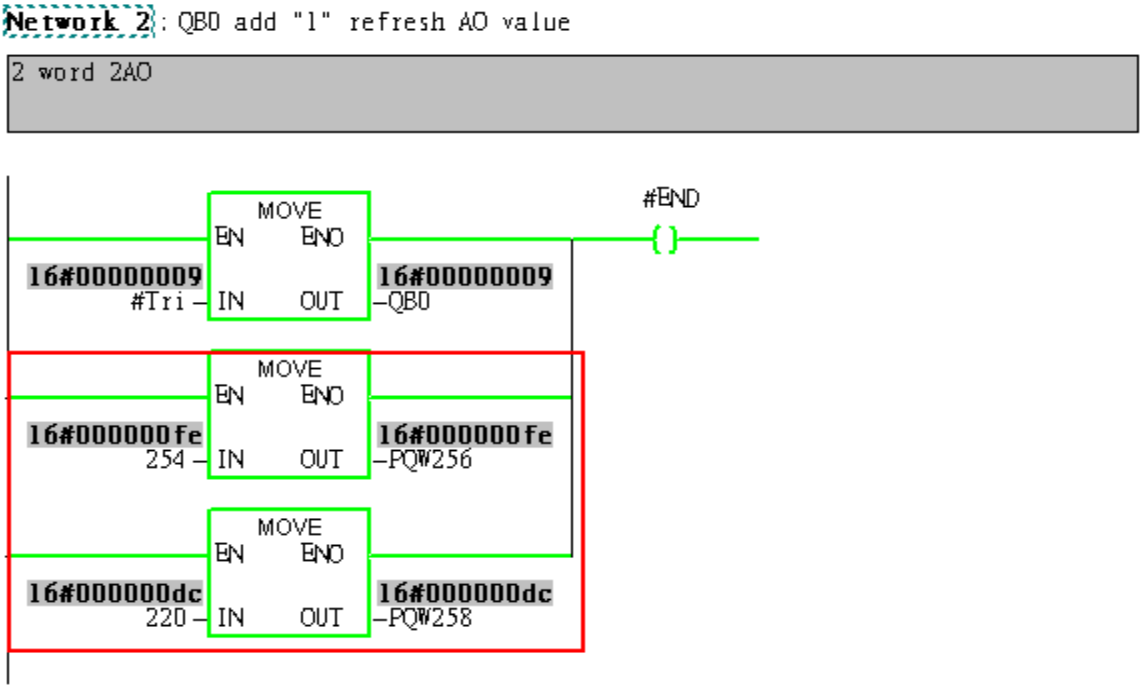


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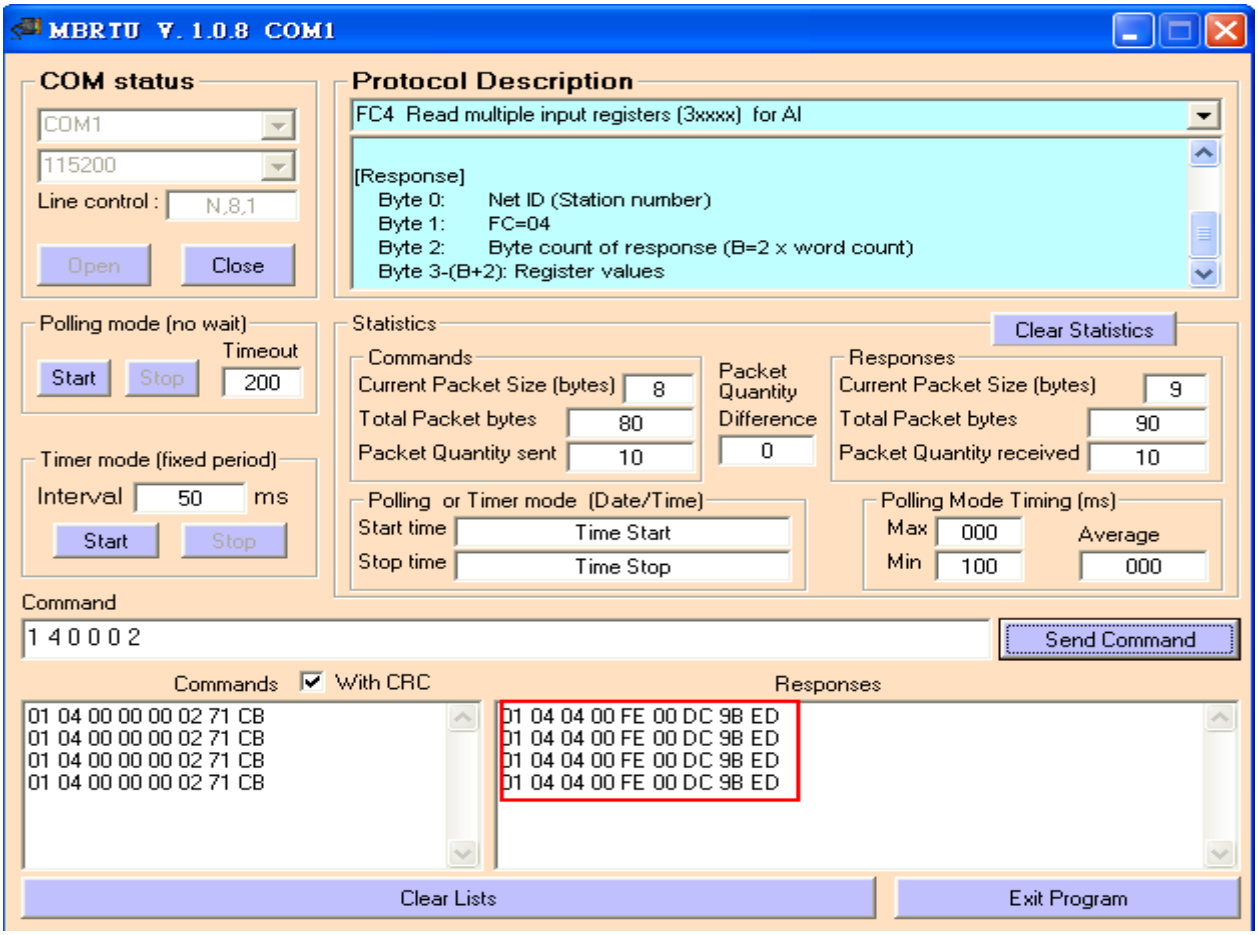
2. Input command (" 01 04 00 00 00 02") in MBRTU and click <Send Command> button to send Modbus command: "01 04 00 00 00 02 71 CB". We can get the AI value (0x006F, 0x00DE) from the response message.



3. We change PQW256 to 0x00FE and PQW258 to 0x00DC, and then we can click <Send Command> button to read AI again at MBRTU and we will get the new AI value (0x00FE, 0x00DC) from the response message.



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