

HMI to S7300 by Ethernet

Sample application

TABLE OF CONTENTS

1.	REQUIREMENTS	3
2.	ONLINE SIMULATION	4
3.	REFERENCE MANUALS	8
4.	OPC SERVER CONFIGURATION SCREENS	9
5.	HMI CONFIGURATION SCREENS	12
6.	RUN APPLICATION IN HMI	14
7.	OPC SERVER TESTING	16
8.	OPC CLIENT TESTING	17

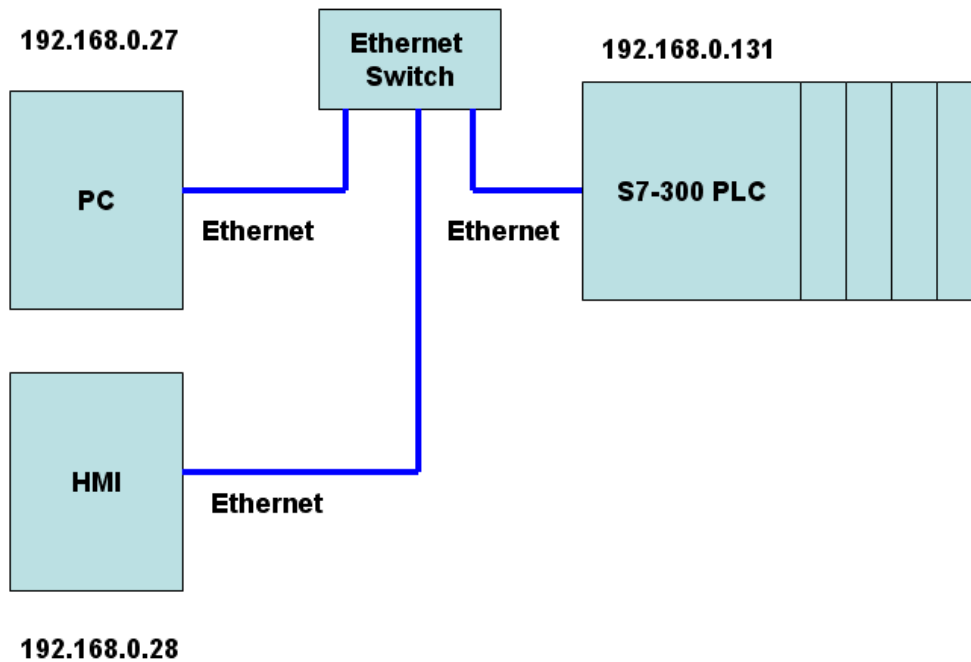
1. Requirements

Hardware

1. HMI 450
2. S7300 PLC with Ethernet Port
3. HMI to PC/PLC, Ethernet cable (Cross over or straight cable)

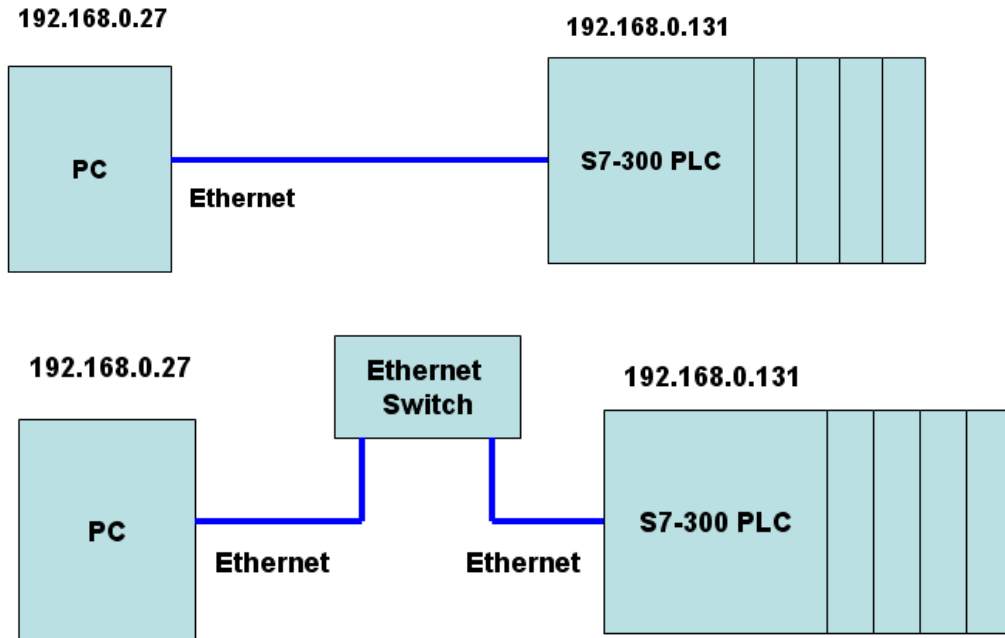
Software

Panel Studio pack V1.0 or later
Application program: HMI450_S7300_Ethernet
Simatic Manager, Siemens Software

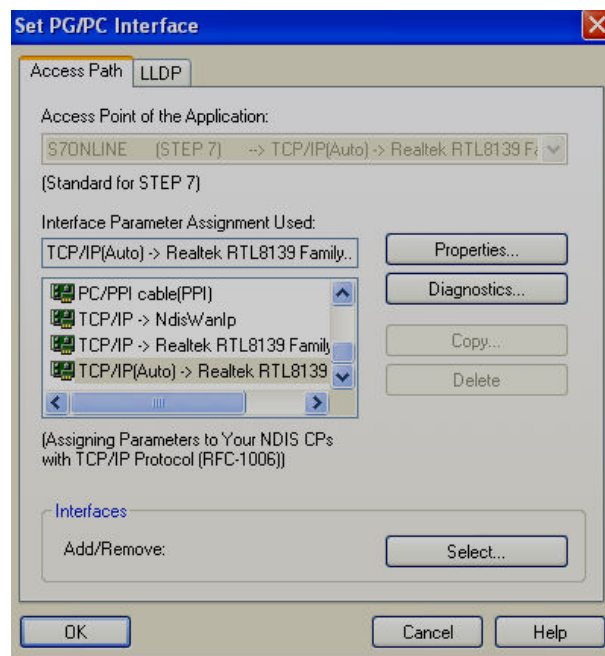


2. Online Simulation

This is to check application in PC itself by connecting PLC to PC directly. Online simulation works in PC for maximum 2 hrs. only



1. Connect S7300 PLC to PC directly by Ethernet or via Ethernet switch.
2. Set PG/PC interface as below



```

C:\Documents and Settings\Mahi>ping 192.168.0.131

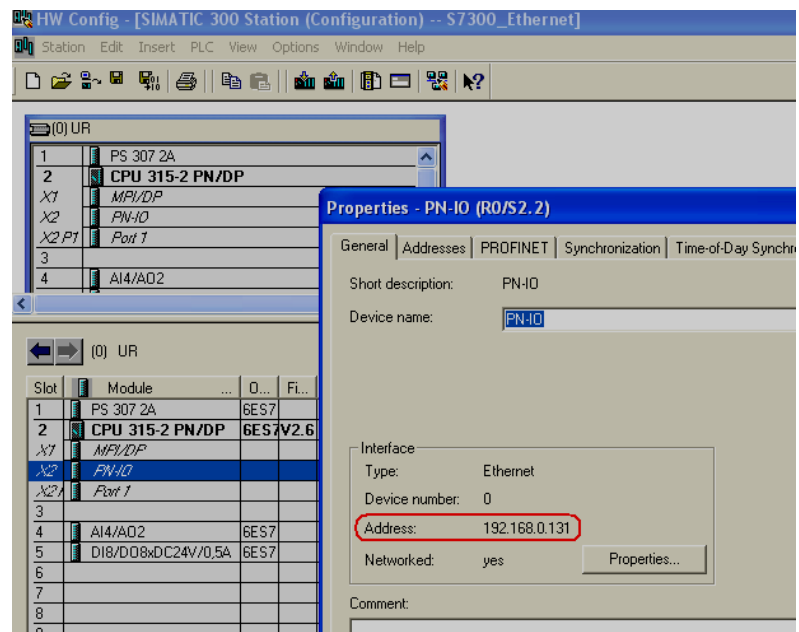
Pinging 192.168.0.131 with 32 bytes of data:

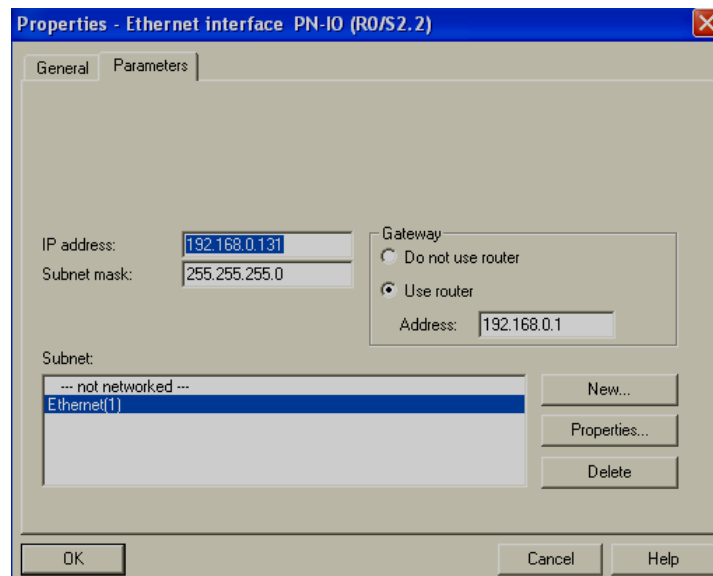
Reply from 192.168.0.131: bytes=32 time=3ms TTL=30
Reply from 192.168.0.131: bytes=32 time<1ms TTL=30
Reply from 192.168.0.131: bytes=32 time=2ms TTL=30
Reply from 192.168.0.131: bytes=32 time=1ms TTL=30

Ping statistics for 192.168.0.131:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

```

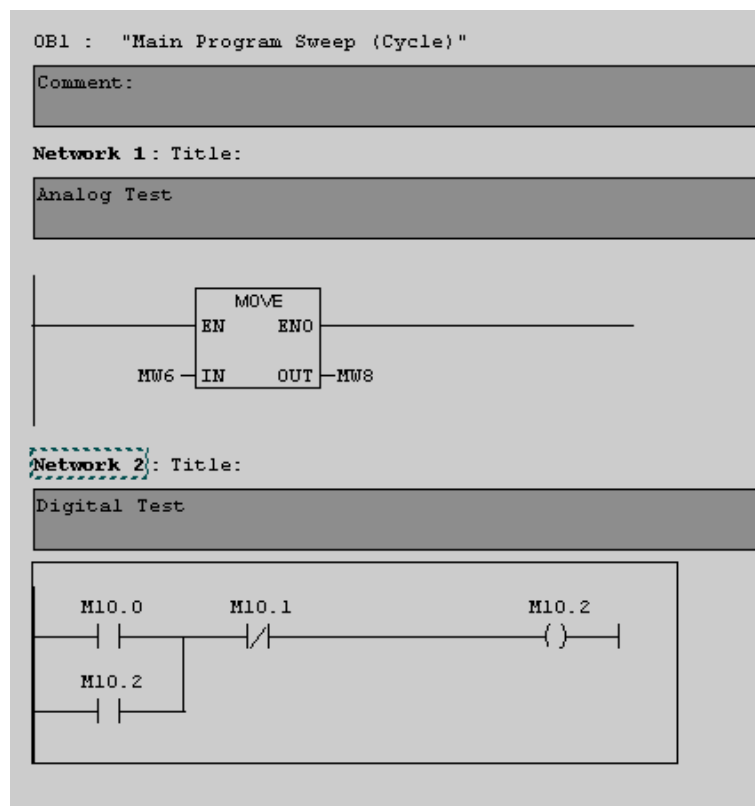
3. Set IP address in S7300 PLC as shown below



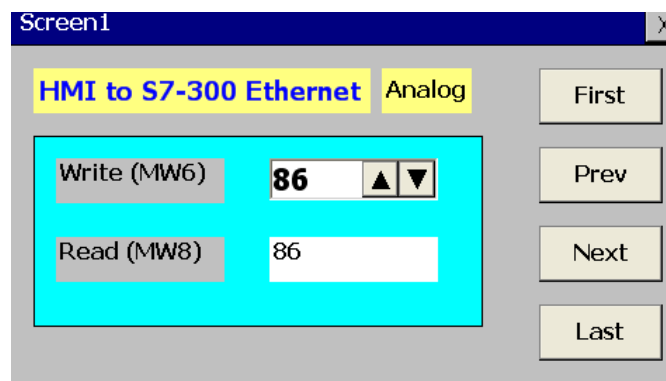
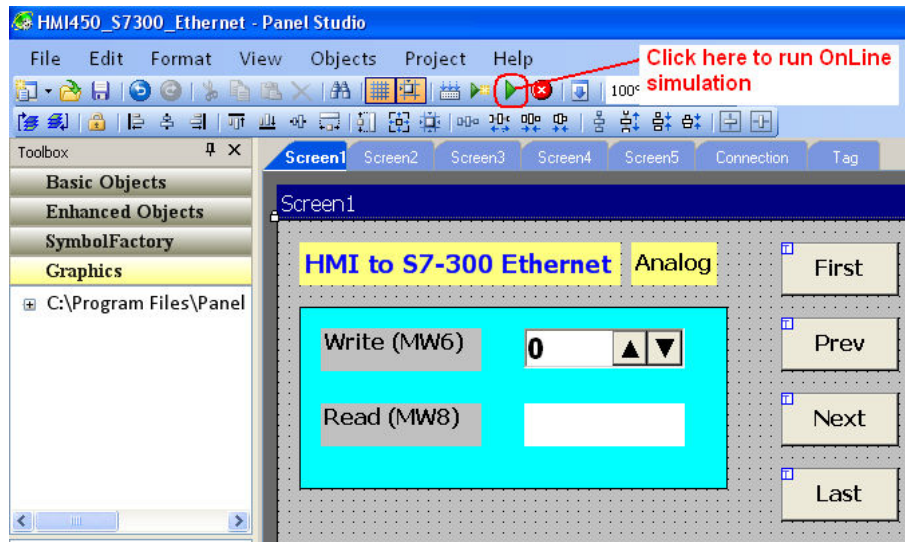


Note down IP address, this address must be set in OPC server configuration later.

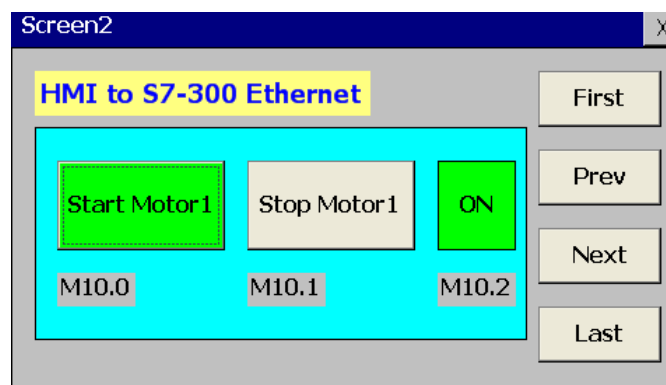
4. **Write a small PLC program in OB1 as shown attached and then download to PLC. Make sure PLC is in Run mode**



5. **Install Panel Studio pack in PC. Open HMI450_S7300_MPI.prj Panel Studio application in PC. Run Online simulation as shown below**



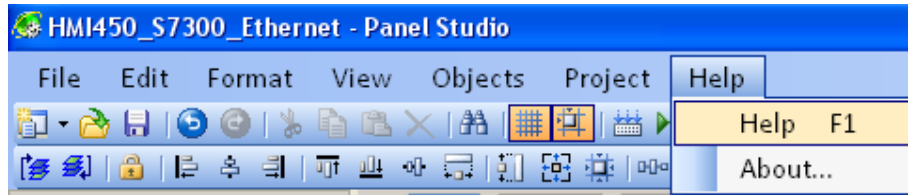
Use Up/Down arrows and change the value at MW6. It should change at MW8 also because Move instruction used in PLC program to copy contents from MW6 to MW8



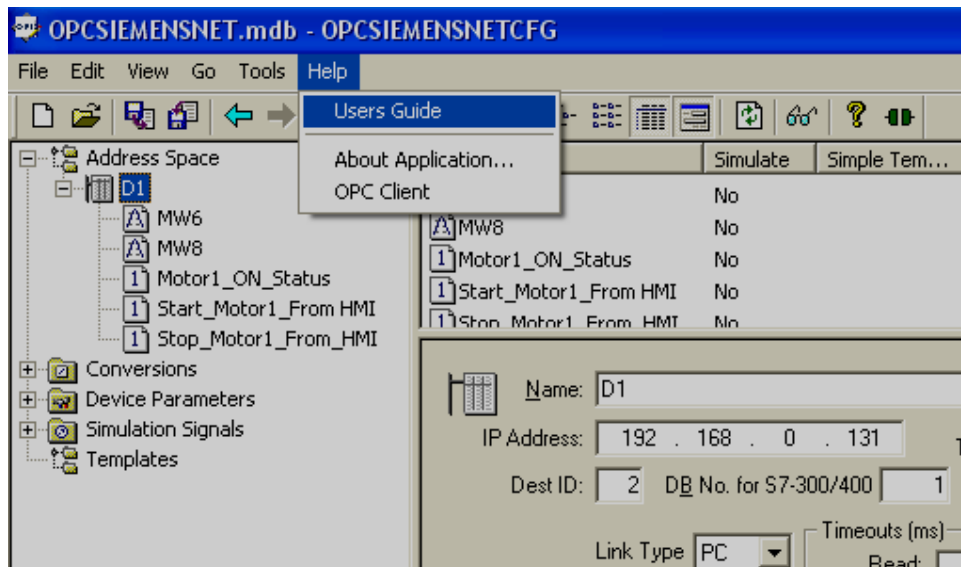
In Screen2, press “Start Motor1” button and check status at M10.2. Then, press “Stop Motor1” and observe status of M10.2. Please check PLC program for motor control

3. Reference manuals

1. HMI user manual

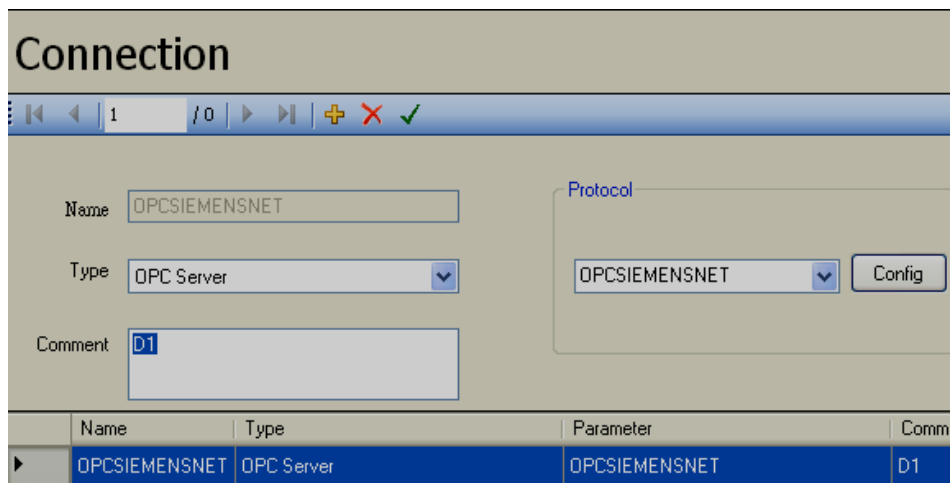
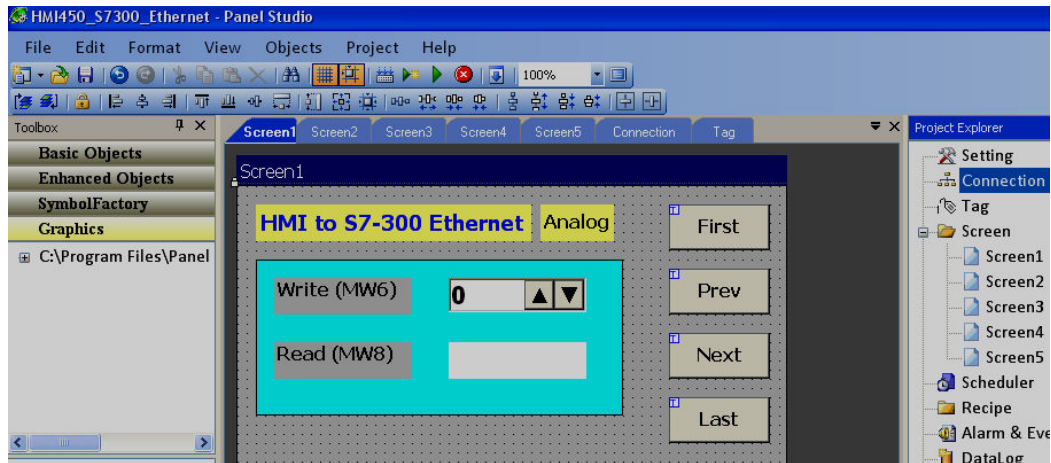


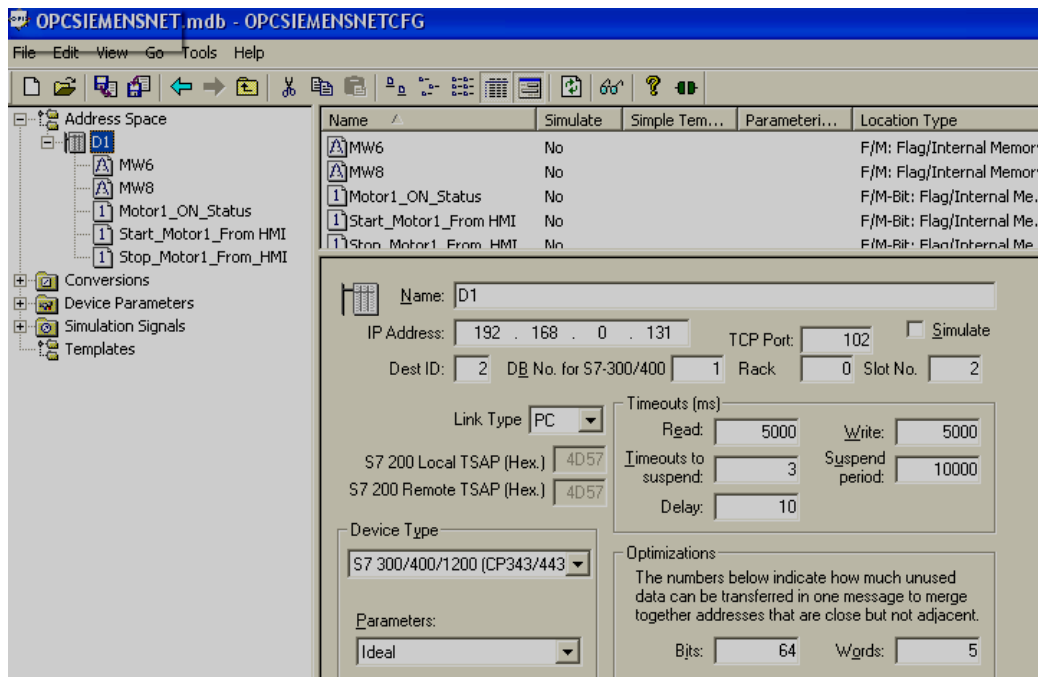
2. Siemens OPC server user manual (This can be accessed from OPC server configuration menu itself as shown below)



4. OPC Server configuration screens

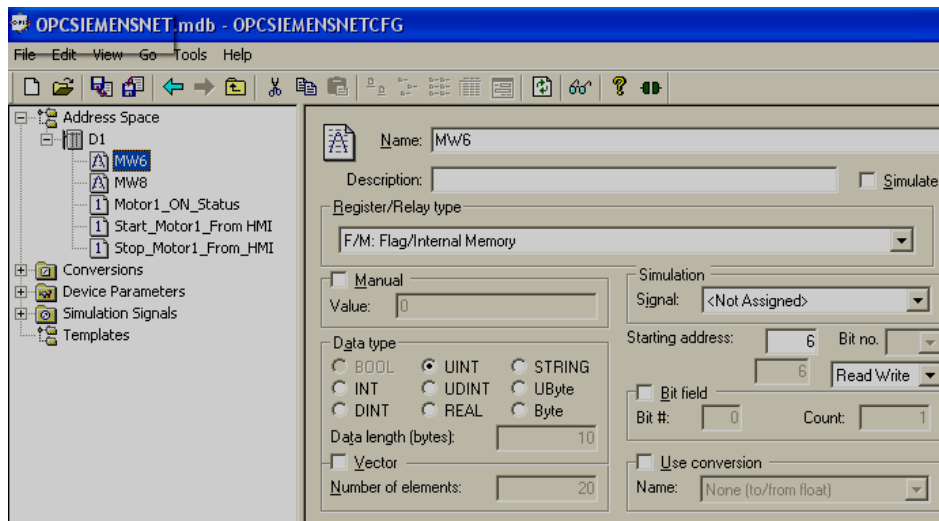
(This is already done in sample application program-all the following pages is for user information only when creating new project)

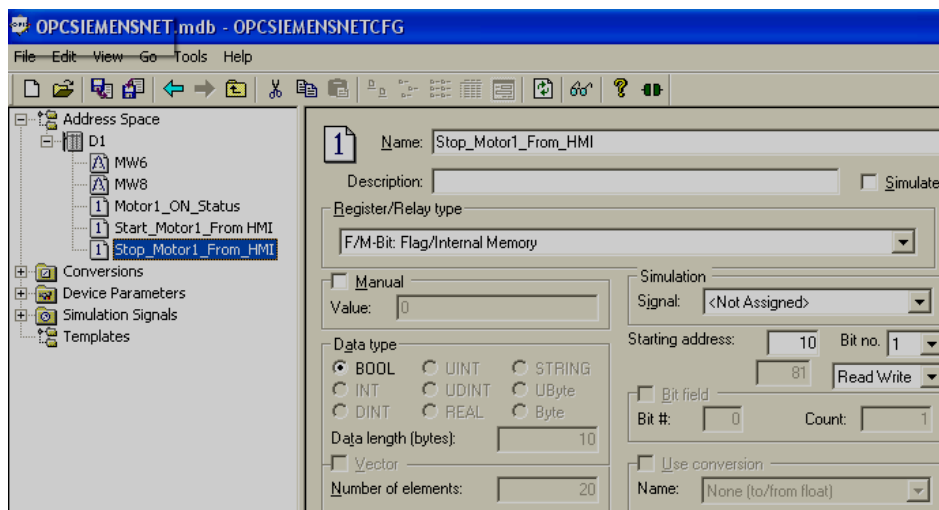
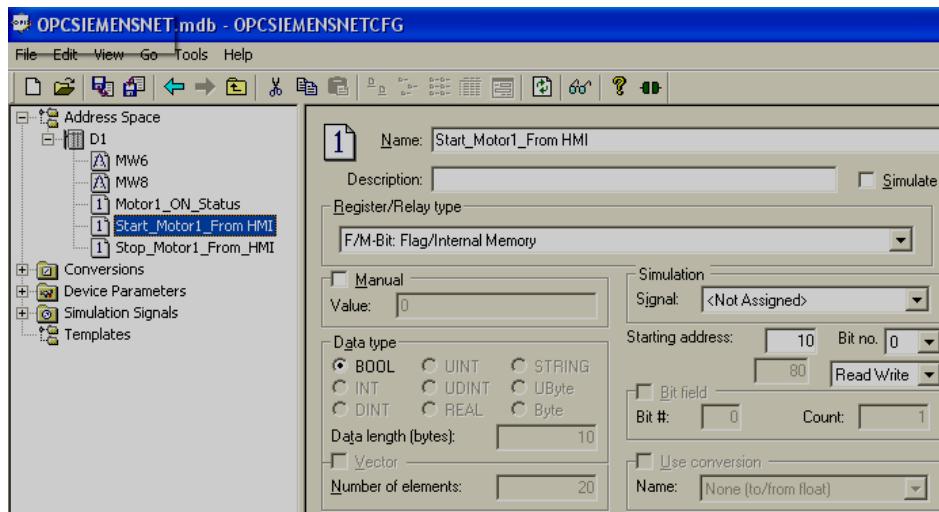
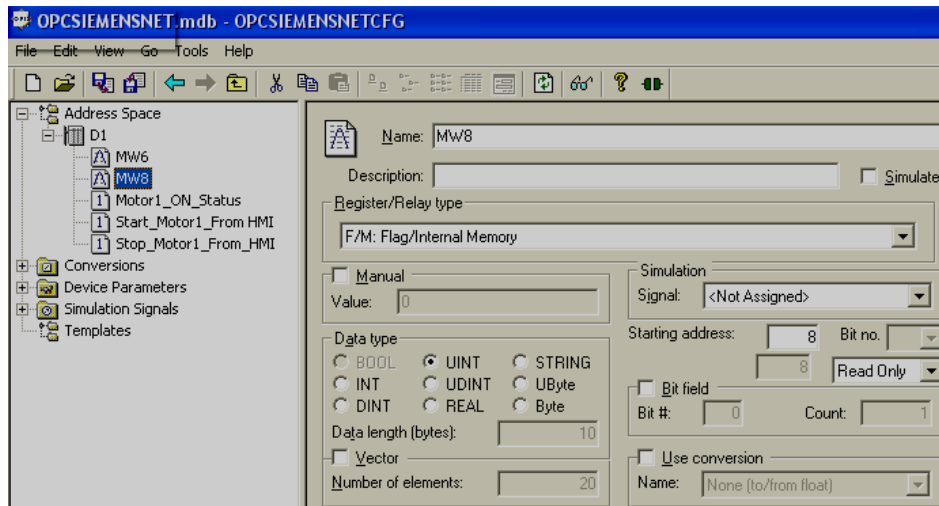




IP address: It is IP address of PLC

Dest ID: Enter PLC address (MPI) here same as set at PLC configuration





Tag

User Define

System

5

/ 0

+

×

✓

Connection

OPCSIEMENSNET

Register

D1.Stop_Motor1_Frc

Name

D1_Stop_Motor1_From_HMI

Gain

1

Type

Digital

Read/Write

Read & Write

Offset

0

Scan mode

Always

Scan rate

100

ms

Comment

	Connection	Name	Type	Scan mode	Scan rate	Register
	OPCSIEMENSNET	D1_Motor1_ON_Status	Digital	Always	100	D1.Motor1_ON_Status
	OPCSIEMENSNET	D1_MW6	Analog	Always	100	D1.Mw6
	OPCSIEMENSNET	D1_MW8	Analog	Always	100	D1.Mw8
	OPCSIEMENSNET	D1_Start_Motor1_From_HMI	Digital	Always	100	D1.Start_Motor1_From_HMI
▶	OPCSIEMENSNET	D1_Stop_Motor1_From_HMI	Digital	Always	100	D1.Stop_Motor1_From_HMI

Fig: Tag data base in Panel Studio software. Once OPC server configuration is completed, please close OPC server configuration screen and then check tags. All tags defined at OPC server should appear as shown above

5. HMI Configuration screens

(This is already done in sample application program-all the following pages is for user information only when creating new project)

Screen1

HMI to S7-300 Ethernet

Analog

Write (MW6)

0

▲▼

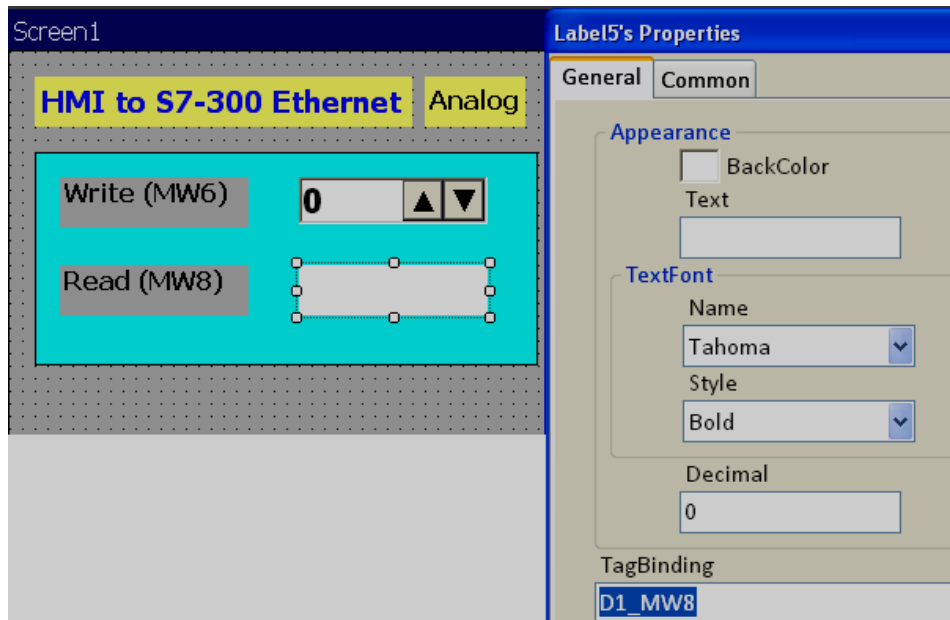
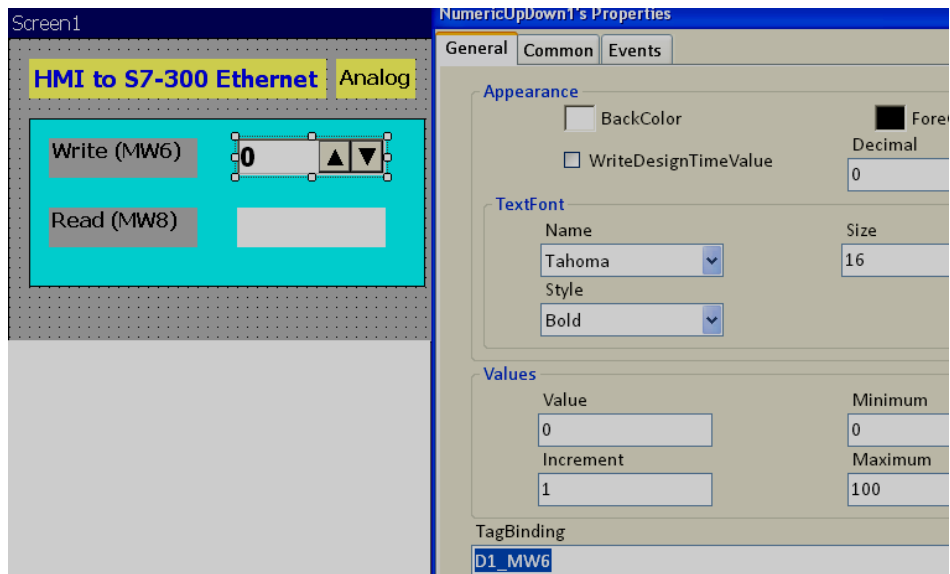
Read (MW8)

First

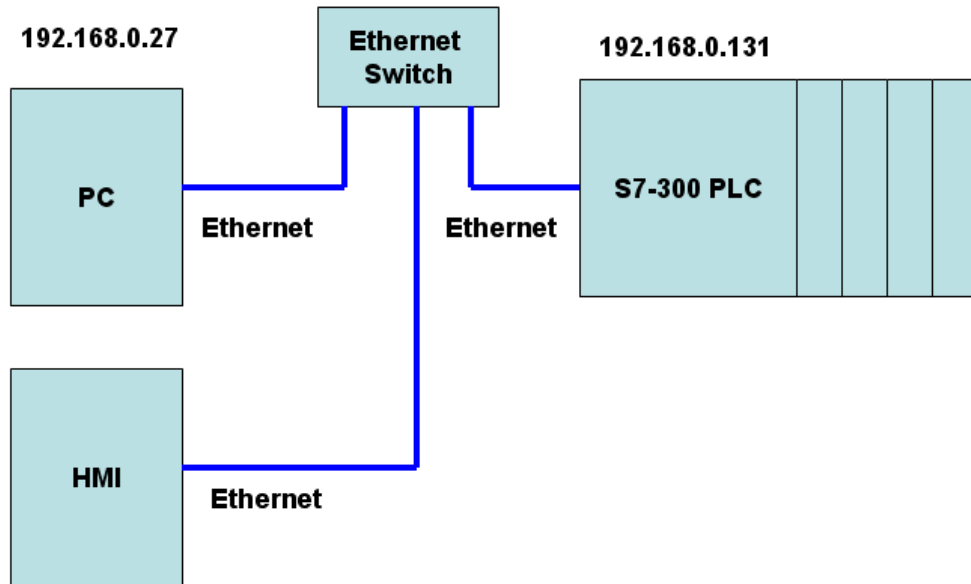
Prev

Next

Last

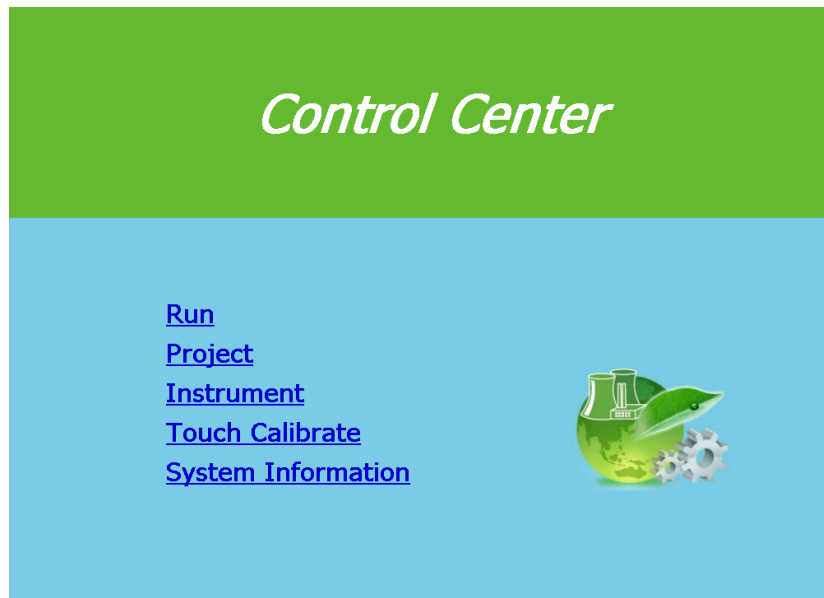


6. Run application in HMI



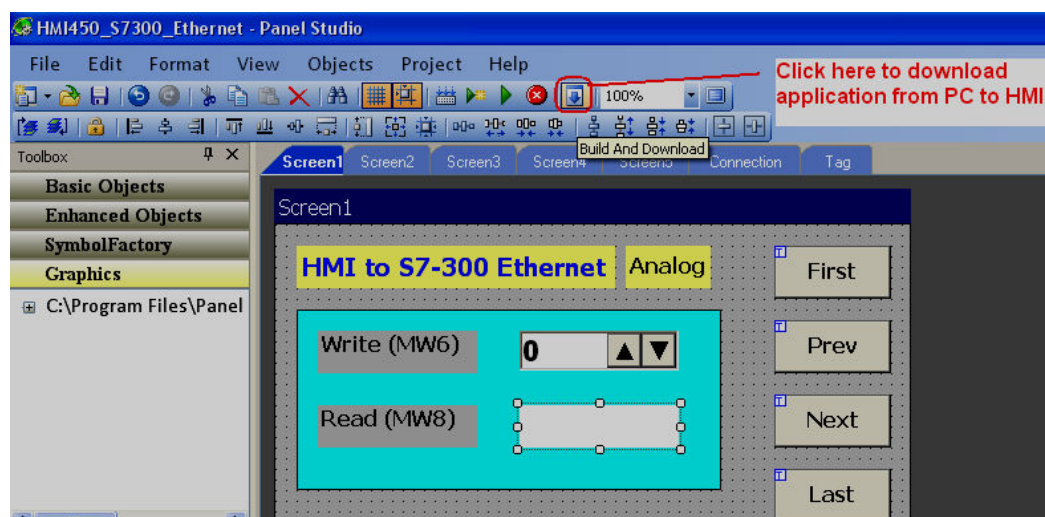
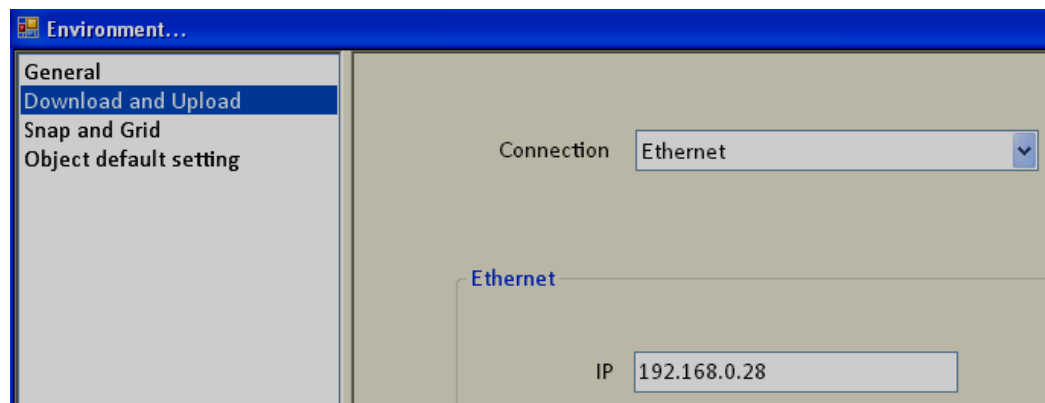
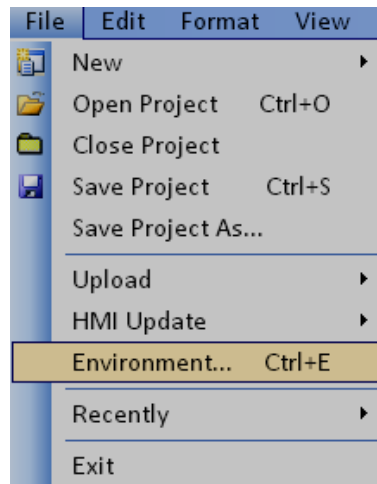
192.168.0.28

1. Hold your finger at any touch area in HMI and Power on HMI. It should show control center screen



2. Connect HMI to PC directly via Ethernet or via Ethernet switch
3. In HMI, Press at "System information" and check IP address of HMI from Control Center. For ex: 192.168.0.28

4. From Panel Studio software, enter IP address of HMI as shown below and then download HMI450_S7300_Ethernet application from PC to HMI via Ethernet



5. From Control center at HMI, press "Run"

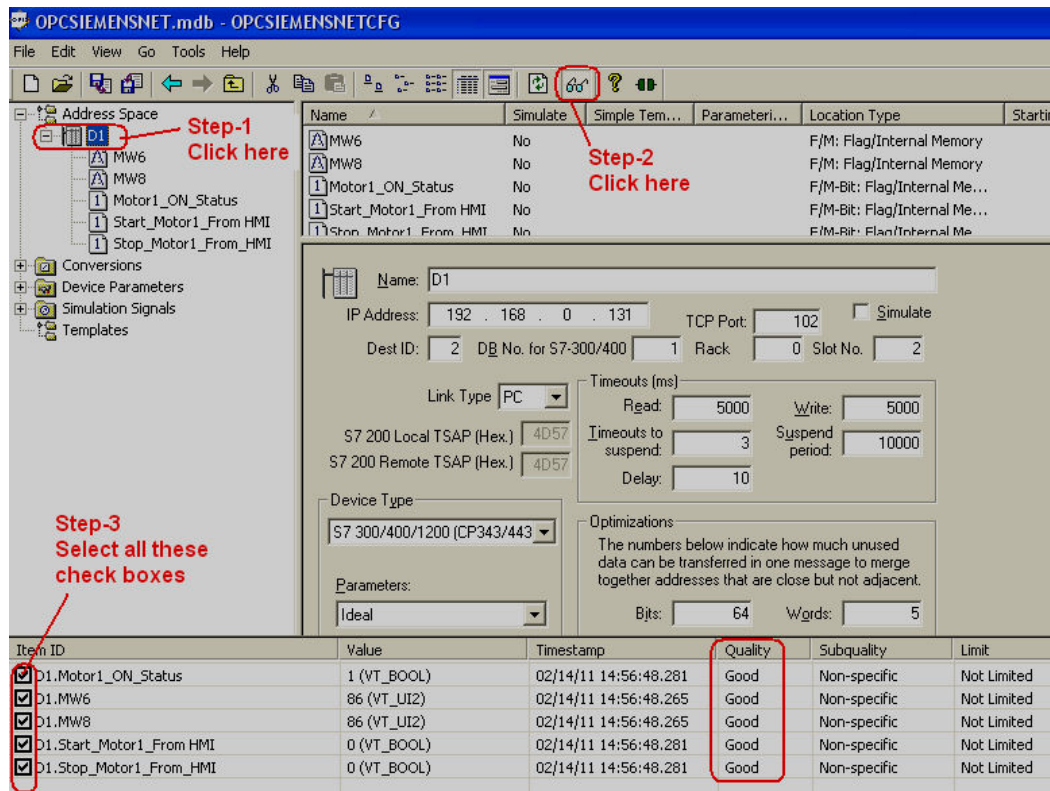
7. OPC server testing

(This is for advance users only)

Connect PLC to HMI by Ethernet

Make sure PLC is in Run mode

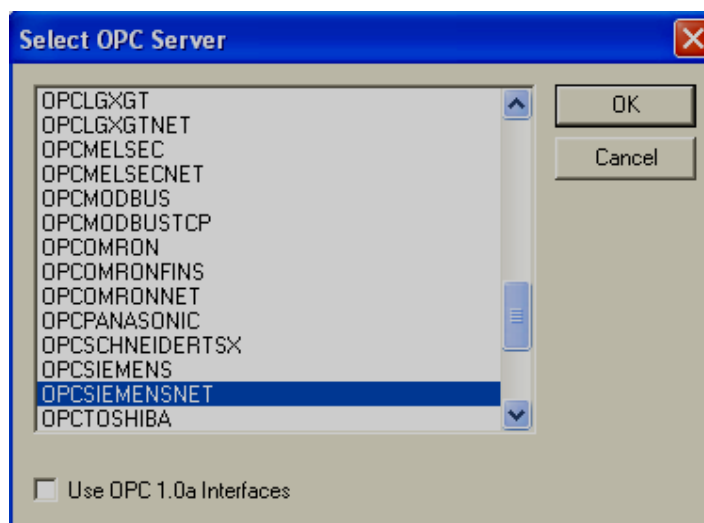
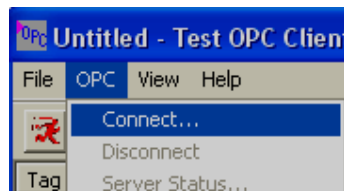
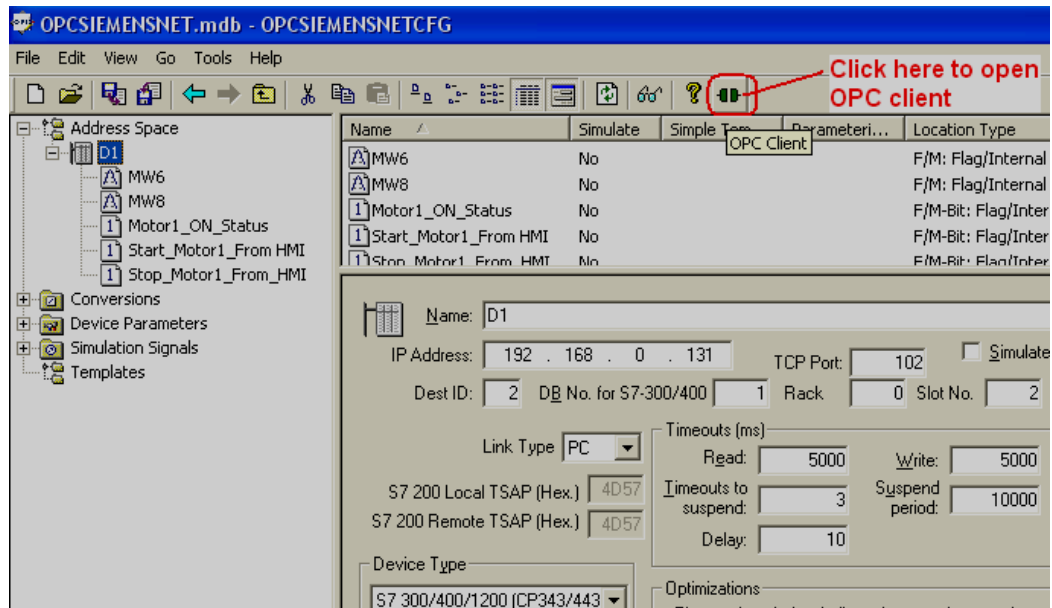
Open OPCSIEMENSNET Configuration screen

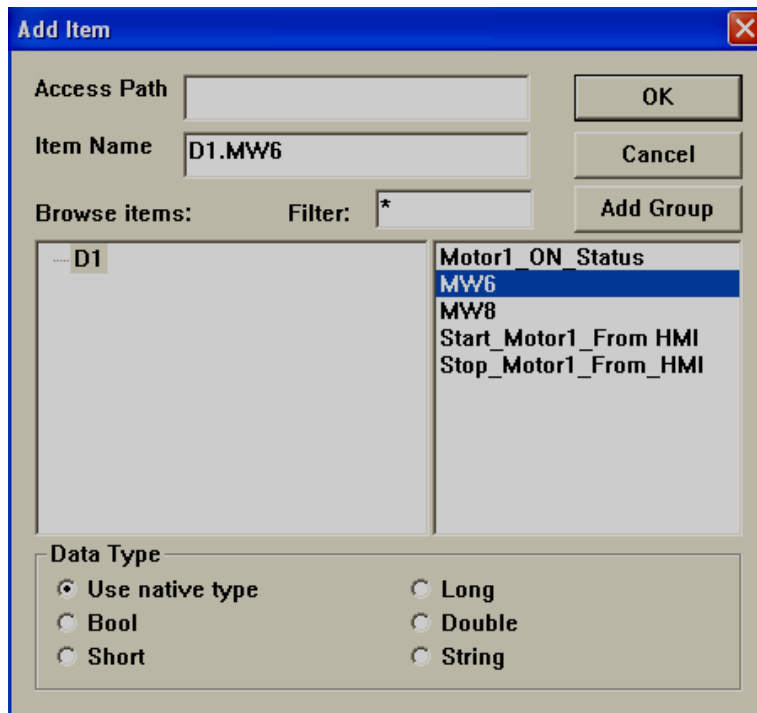
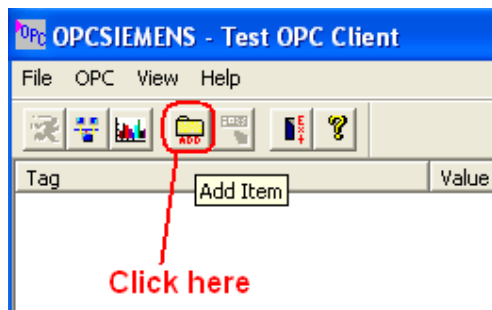


Select the check box then, it should show status of tag in Real time. If quality is good, then, communication is OK. If it is showing "Bad", then, you need to check cable, communication settings in both PLC and OPC server etc.

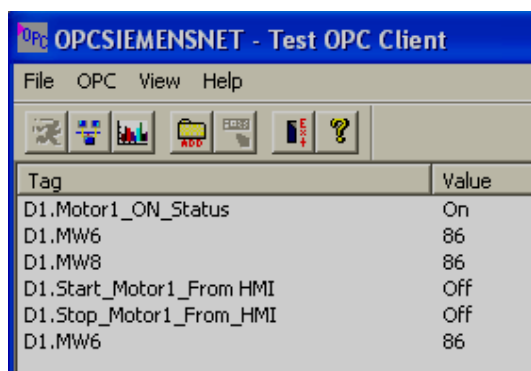
8. OPC Client testing

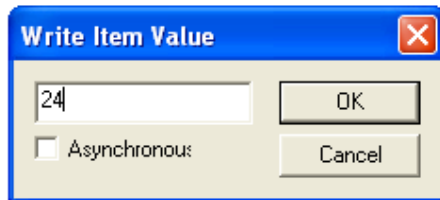
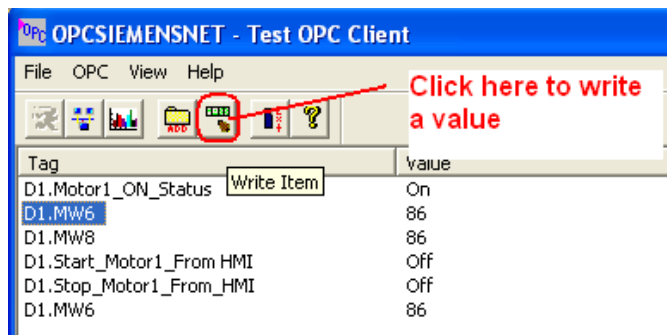
(This is for advance users only)





Select device D1 on left side, click at first Tag say MW6 and then click at "Add group", then click OK, it will add all the tags of PLC in OPC client for testing purpose





Note: Please be careful while working with Digital IO's. You need to follow the PLC program.

In this case

To Start a Motor

D1.Start_Motor1_From _HMI→ Turn ON (Write 1)
 D1.Start_Motor1_From _HMI→ Turn OFF (Write 0)

To Stop a Motor

D1.Stop_Motor1_From_HMI→ Turn ON (Write 1)
 D1.Stop_Motor1_From_HMI→ Turn OFF (Write 0)