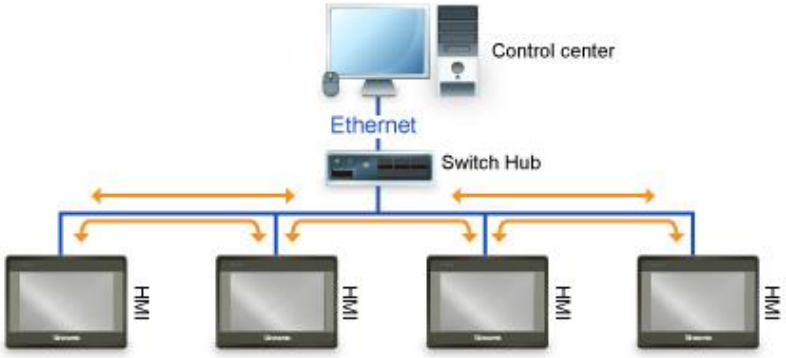
21. Ethernet Communication and Multi-HMI Connection

This chapter explains how to connect multiple devices via Ethernet.

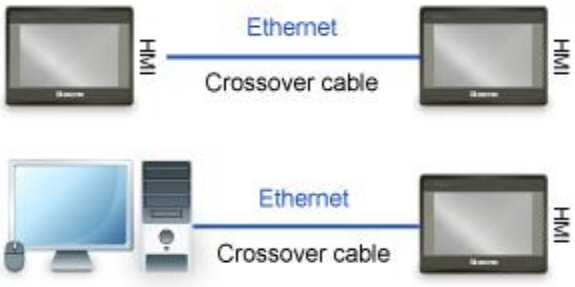
21.1. Overview

There are two ways of Ethernet communication:

- Use RJ45 straight through cable and hub.



- Use RJ45 crossover cable and without hub, but this is limited to point-to-point connection (HMI to HMI or PC to HMI).



Through Ethernet network, the system provides the following methods for data transmission:

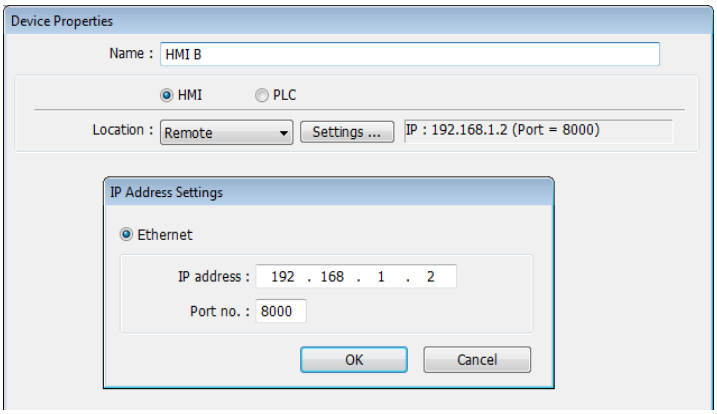
- HMI to HMI communication.
- PC to HMI communication.
- Operating the PLC connected to another HMI.

21.2. HMI to HMI Communication

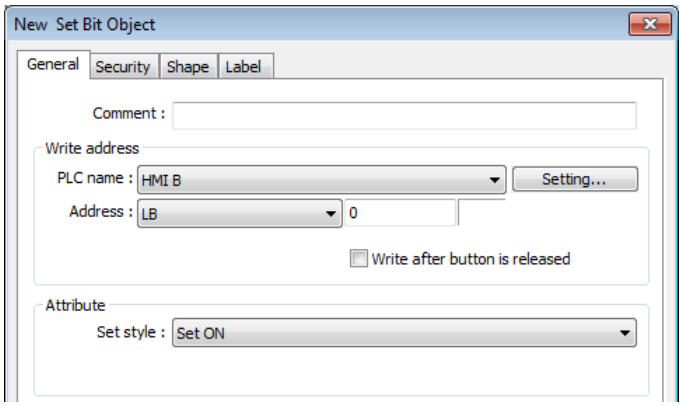
To exchange data between one HMI and another HMI, add a new remote HMI device in [System Parameter Settings]. If there are 2 HMIs (HMI A and HMI B), in order to use a Set Bit object on HMI A to control [LB-0] on HMI B, the setting of the project of HMI A is explained in the following part.

1. Set the IP address of the two HMIs, for example, HMI A: 192.168.1.1, HMI B: 192.168.1.2.

2. In [System Parameters] » [Device list], add a remote HMI B (IP: 192.168.1.2).



3. Create a Set Bit Object, select “HMI B” in [PLC name] to control the address of the remote HMI.

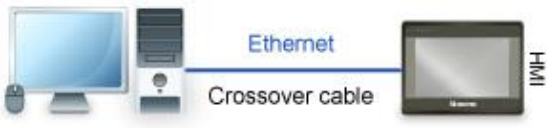


Note

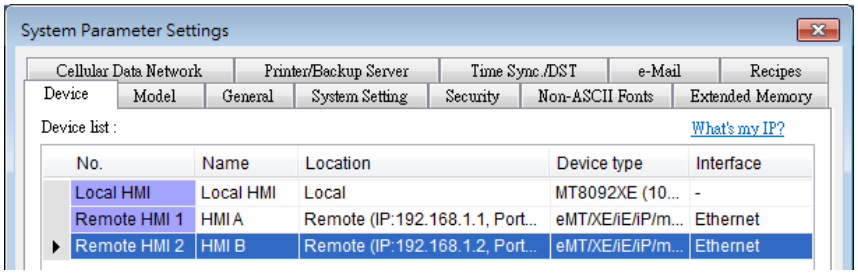
- One HMI can handle requests from a maximum of 64 HMIs simultaneously.

21.3. PC to HMI Communication

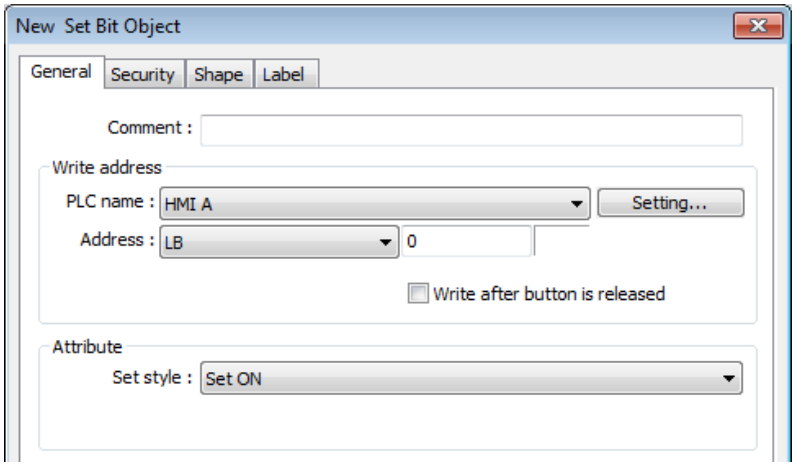
With On-line Simulation, PC can collect data from HMI through Ethernet network and save the data files to PC. To connect PC with two HMIs (HMI A and HMI B), the setting of the project on PC is explained in the following part.



1. Set the IP address of the two HMIs, for example, HMI A: 192.168.1.1, HMI B: 192.168.1.2.
2. In [System Parameter Settings] » [Device list], add a remote HMI A (IP: 192.168.1.1) & HMI B (IP: 192.168.1.2).



3. Create a Set Bit Object, select “HMI A” in [PLC name] to control the address of the remote HMI A. Same for the HMI B.

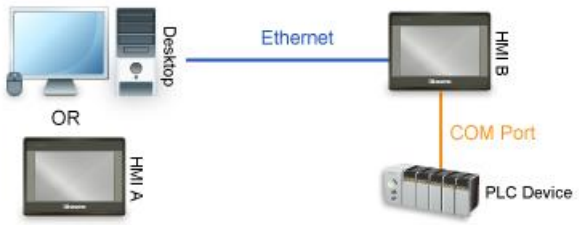


Note

- A PC can control at most 64 HMIs simultaneously.
- As shown above, HMI can also control PC. PC can be seen as another HMI, that is, adding a remote HMI in the project of HMI A / HMI B, and the IP of the remote HMI is set to the IP of PC.

21.4. Operating the PLC Connected with Other HMI

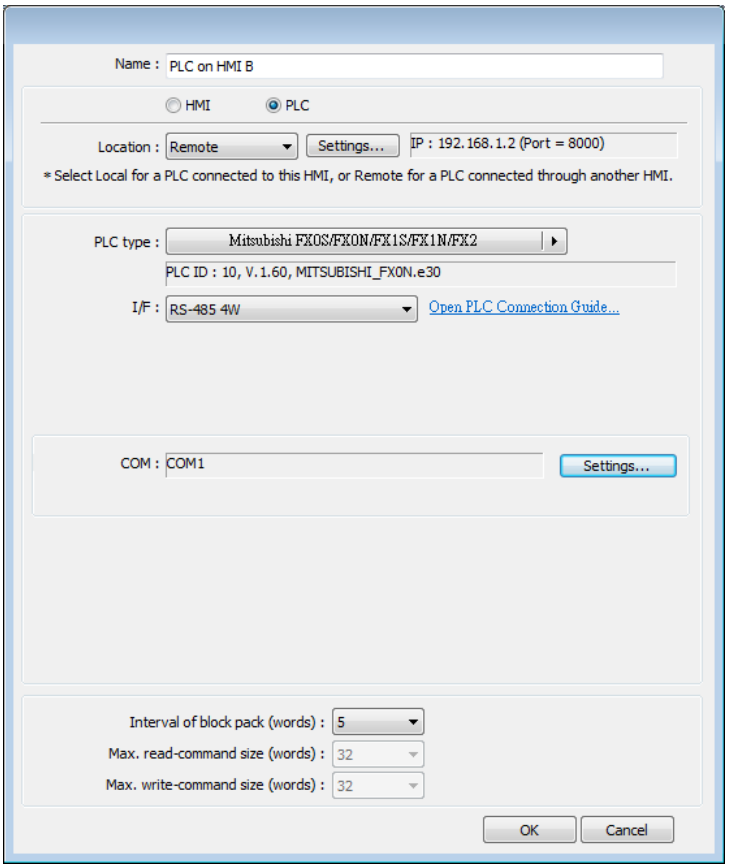
Through Ethernet network, PC or HMI can operate the PLC that is connected to another HMI. If PLC is connected to COM 1of HMI B, when using PC or HMI A to read PLC data, the setting of the project of PC or HMI A is explained in the following part.



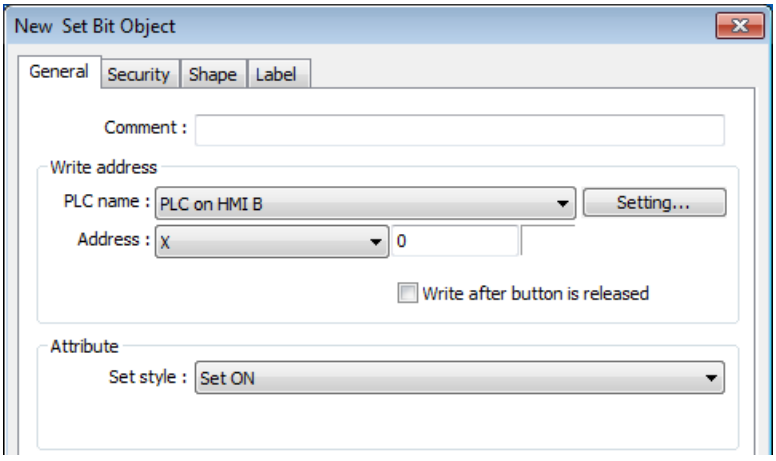
21.4.1. Settings of eMT / iE / XE / mTV / iP Series

1. Set the IP address of HMI B, for example, 192.168.1.2.

2. In [System Parameter Settings] » [Device list], add a remote PLC, and set [Name] to “PLC on HMI B”. Set correct parameters. Since this PLC is connected to remote HMI B, set the IP address to HMI B (IP: 192.168.1.2).

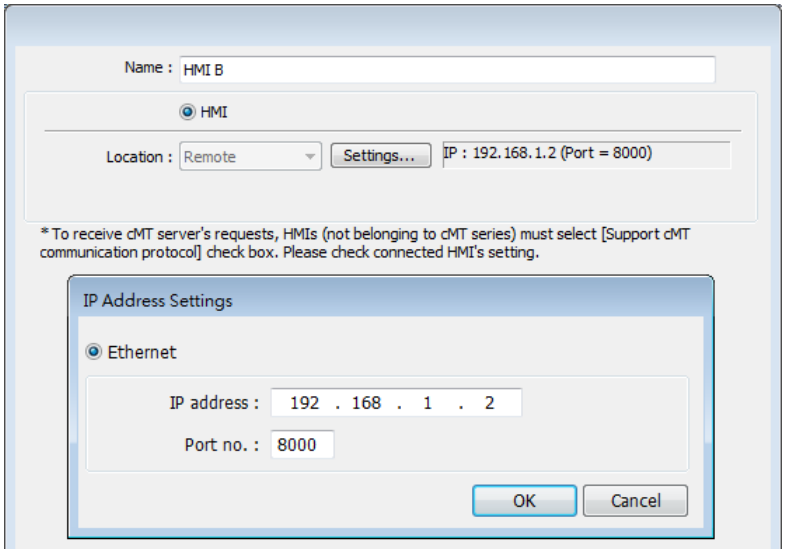


3. Create a Set Bit Object, select “PLC on HMI B” in [PLC name] to control the PLC connected with the remote HMI B.

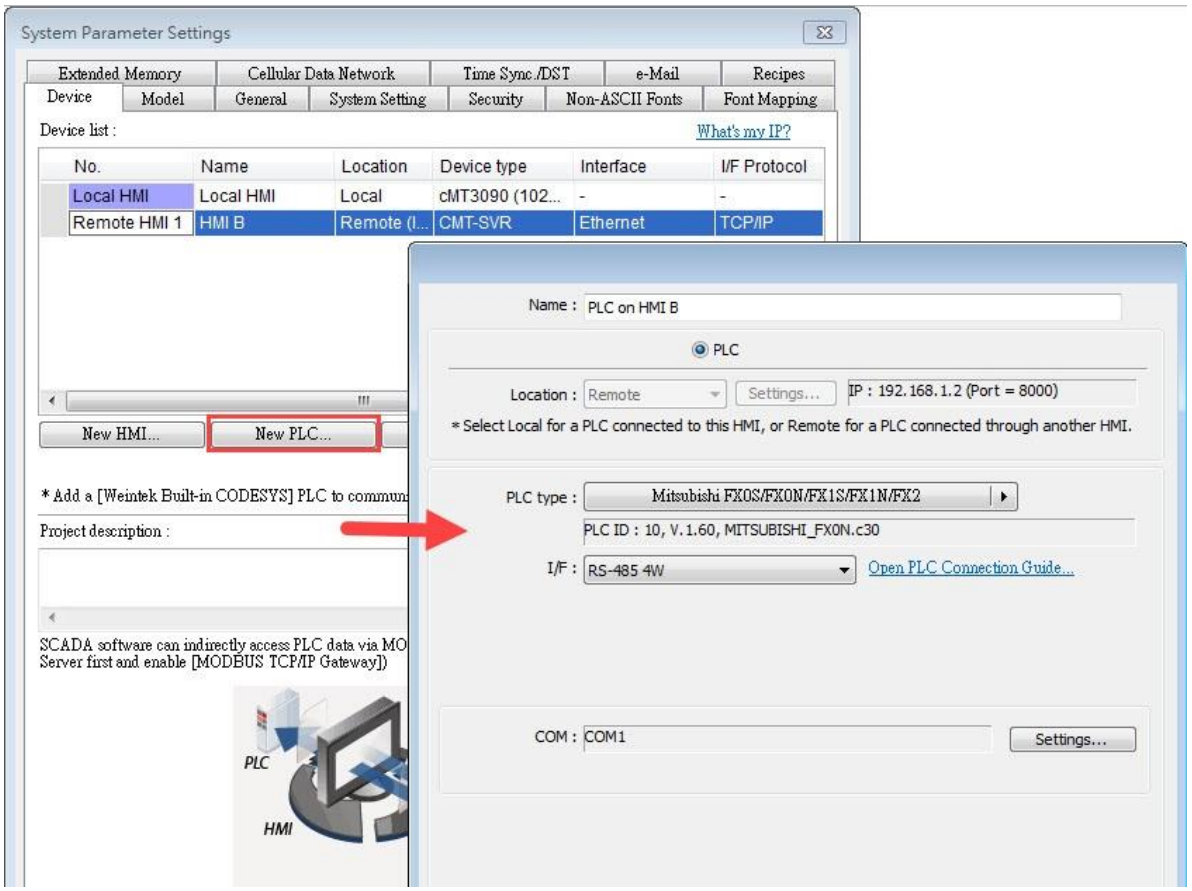


21.4.2. Settings of cMT / cMT X Series models

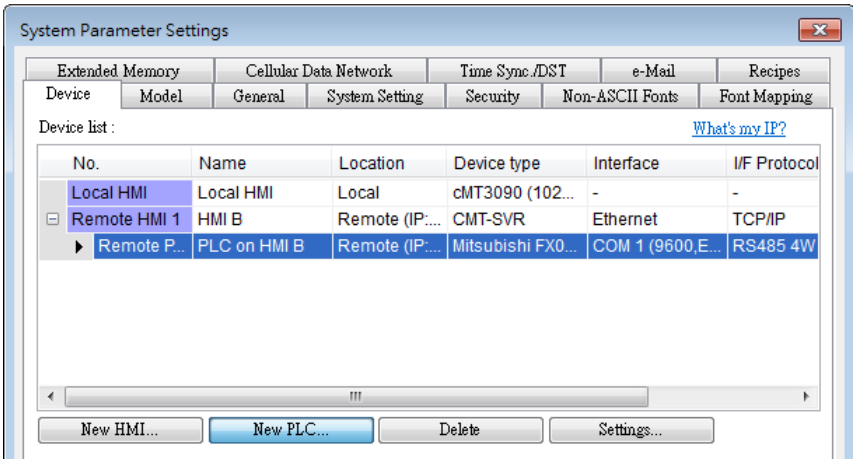
1. Set the IP address of HMI B, for example, 192.168.1.2.
2. In [System Parameters] » [Device list], click [New HMI]. Set the IP address to HMI B (IP: 192.168.1.2).



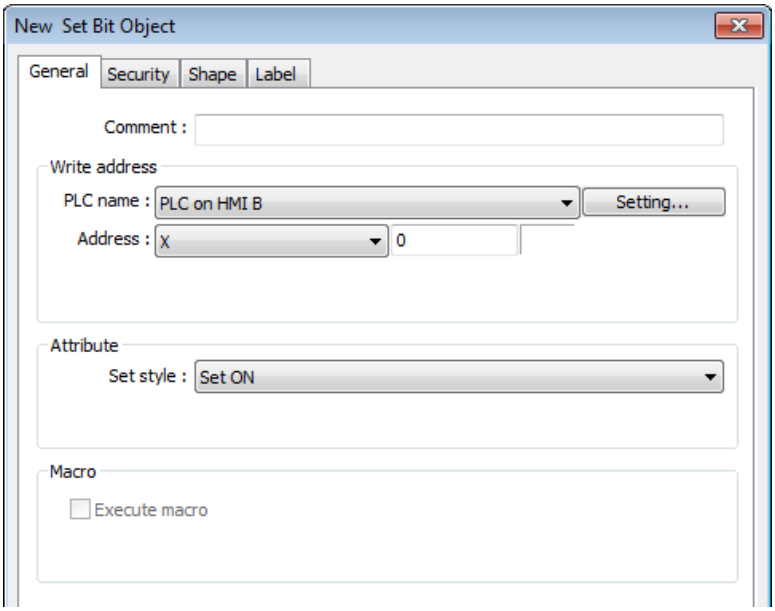
3. In the project of HMI B, go to [System Parameter Settings] » [Device list], click [New PLC], set [Name] to “PLC on HMI B”. Set correct parameters.



4. When finished, a remote PLC can be found under Remote HMI 1. Local HMI 1 stands for HMI A, Remote HMI 1 stands for HMI B, and Remote PLC 1 is connected with HMI B.



5. Create a Set Bit Object, select “PLC on HMI B” in [PLC name] to control the PLC connected with the remote HMI B.



Note

- When the remote HMI in a cMT/cMT X Series project is an eMT/iE/XE/mTV model, please select [Support iE/XE/eMT/mTV HMI communication protocol and EasyWatch] check box in the [Model] tab in [System Parameters]. Similarly, when the remote HMI in an eMT/iE/XE/mTV project is a cMT / cMT X Series model, please select [Support cMT communication protocol] to establish communication between cMT/cMT X and eMT/iE/XE/mTV models.