

# 21. Ethernet Communication and Multi-HMI Connection

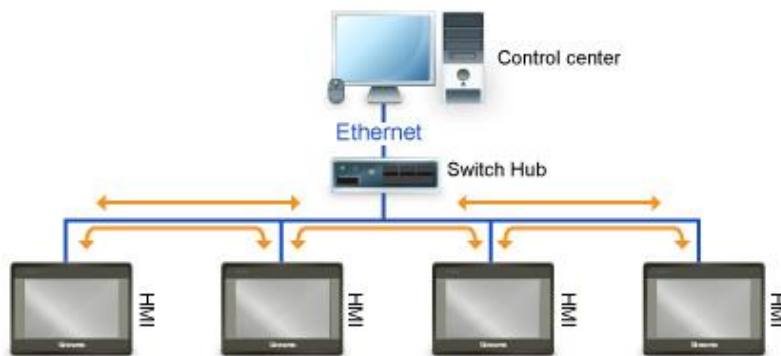
This chapter explains how to connect multiple devices via Ethernet.

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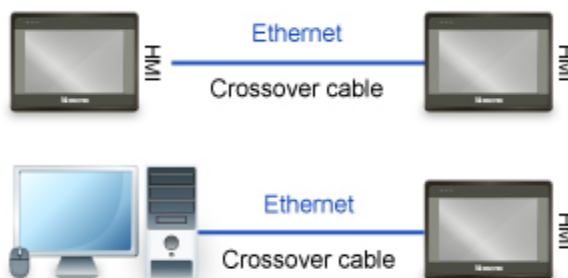
## 21.1. Overview

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).

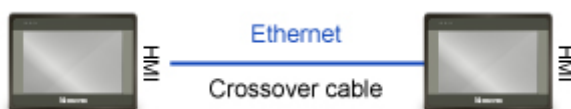


Through Ethernet network, the system provides the following methods for data transmission:

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

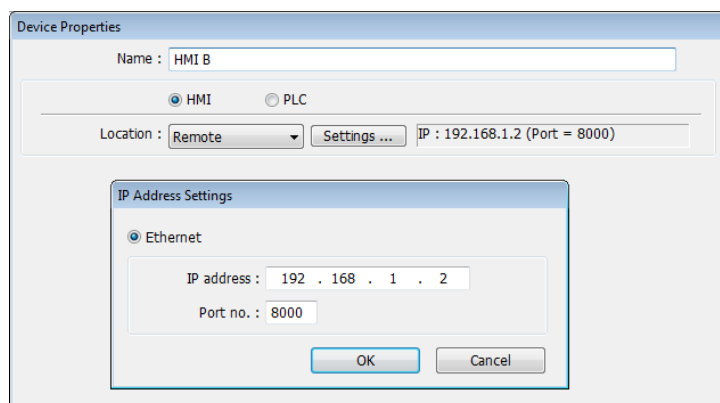
## 21.2. HMI to HMI Communication

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.

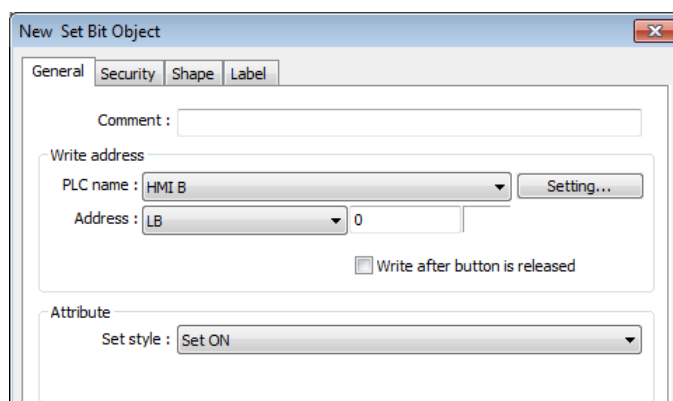


1. Set the IP address of the two HMIs, for example, HMI A: 192.168.1.1, HMI B: 192.168.1.2.

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



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

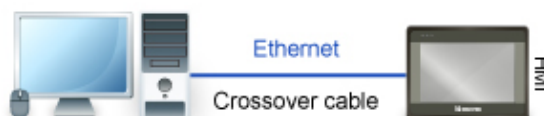


### Note

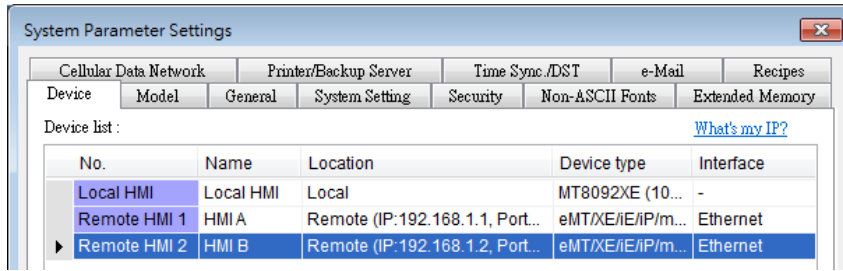
- One HMI can handle requests from a maximum of 64 HMIs simultaneously.
- One cMT / cMT X Series model can handle requests from a maximum of 32 HMIs simultaneously.

## 21.3. PC to HMI Communication

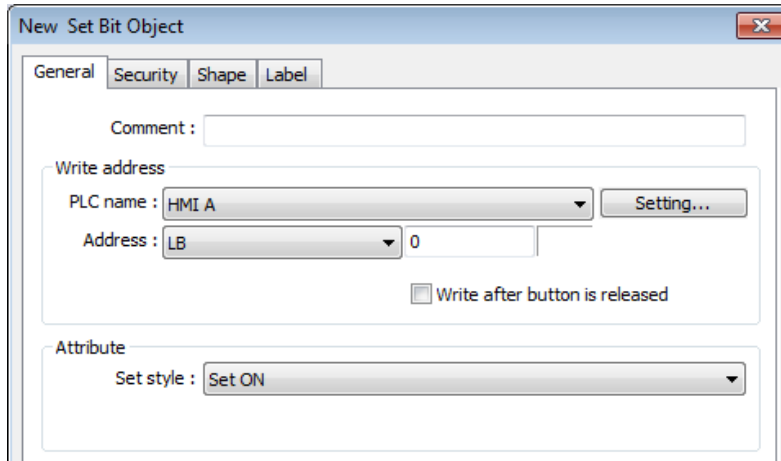
With On-line Simulation, PC can collect data from HMI through Ethernet network and save the data files to PC. To connect PC with two HMIs (HMI A and HMI B), the setting of the project on PC is explained in the following part.



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

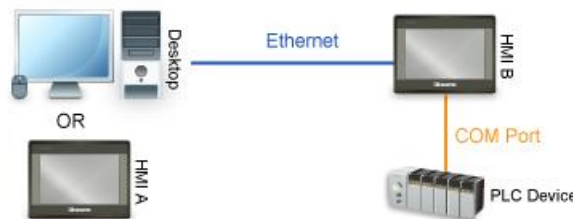


**Note**

- 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 1 of 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

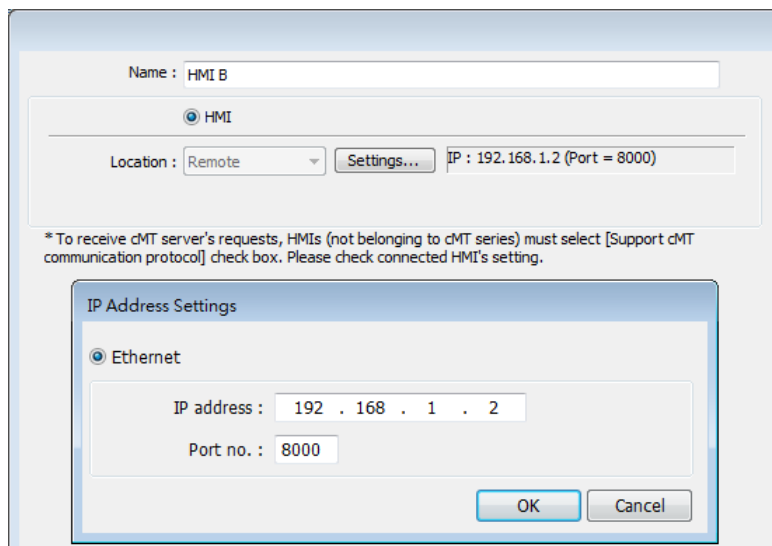
1. Set the IP address of HMI B, for example, 192.168.1.2.

- 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).

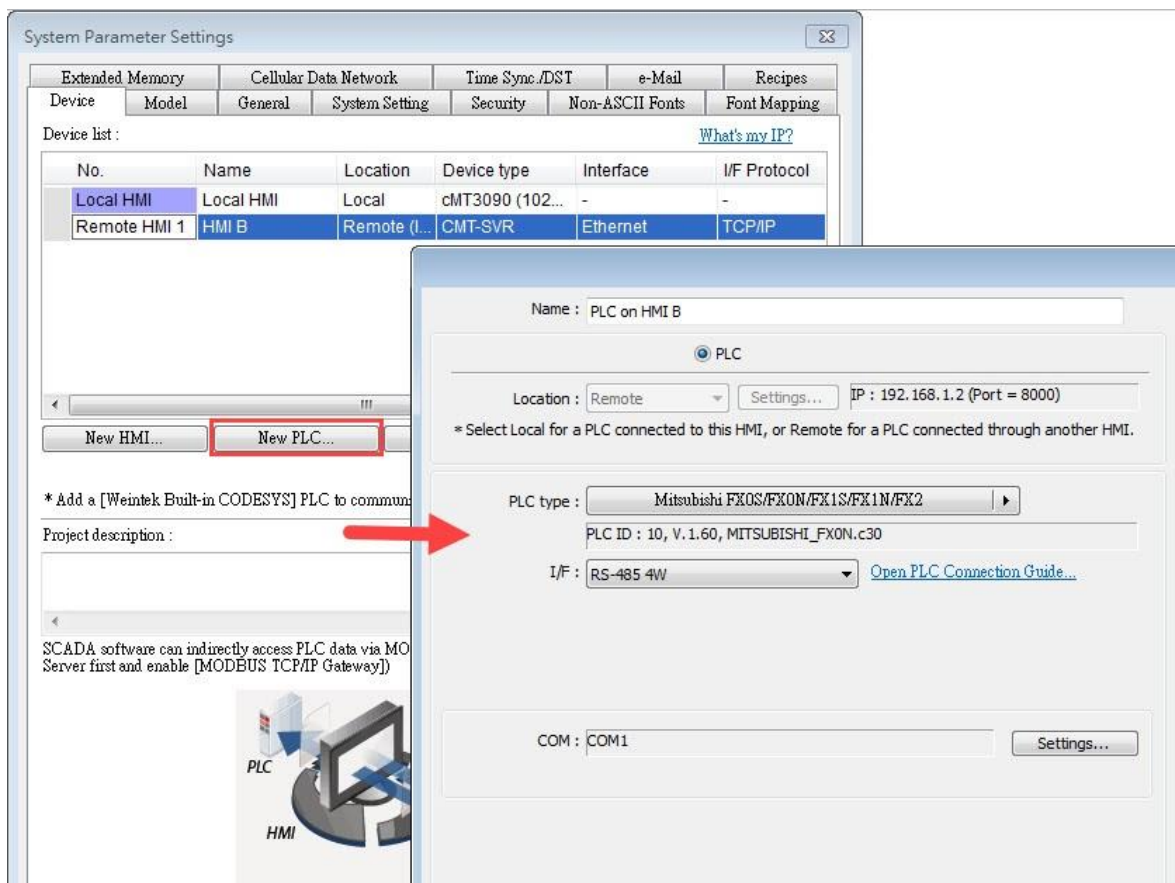
- Create a Set Bit Object, select “PLC on HMI B” in [PLC name] to control the PLC connected with the remote HMI B.

#### 21.4.2. Settings of cMT / cMT X Series models

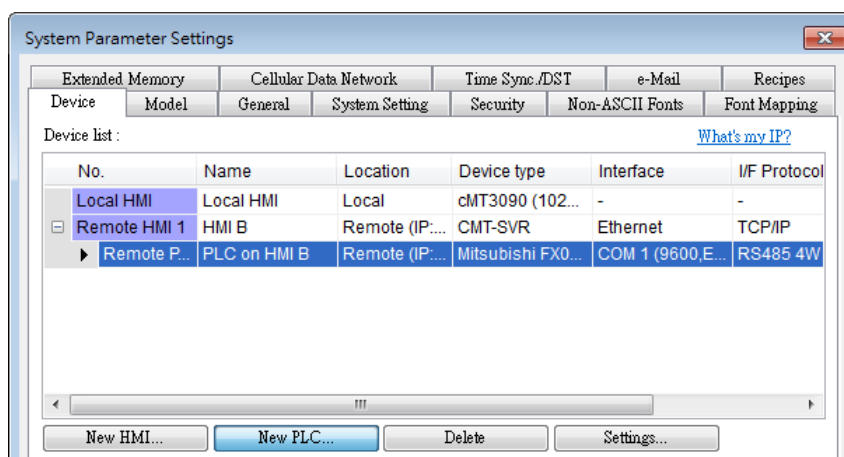
- Set the IP address of HMI B, for example, 192.168.1.2.
- In [System Parameters] » [Device list], click [New HMI]. Set the IP address to HMI B (IP: 192.168.1.2).



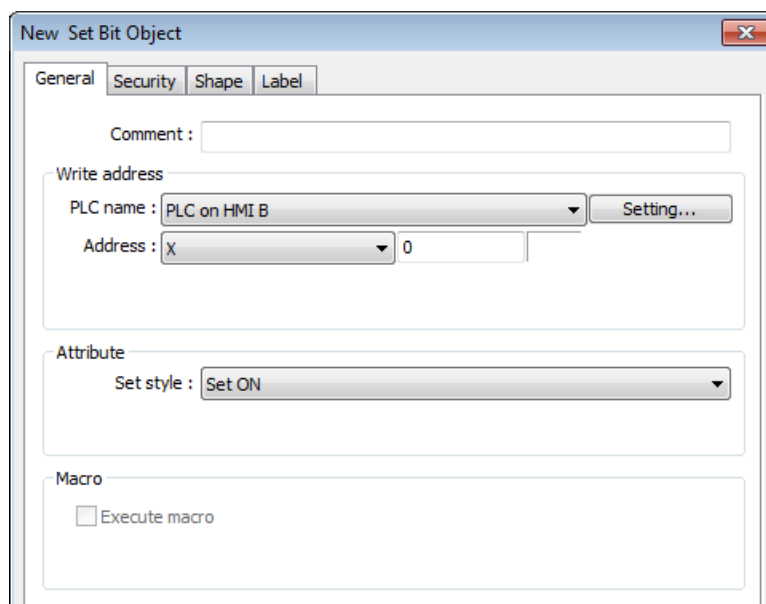
3. In the project of HMI B, go to [System Parameter Settings] » [Device list], click [New PLC], set [Name] to “PLC on HMI B”. Set correct parameters.



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.