## Summary

Maple Systems HMIs can be configured to operate in Serial or Ethernet Pass-Through mode. In this mode, data being sent from a PC is routed through the HMI to a PLC or controller. The *Utility Manager* (installed by default alongside EBPro) is used to configure Pass-Through operation.

## Pass-Through (Analysis & Testing)

The pass-through mode allows serial communications from the PC to the PLC, through the HMI. This can eliminate the need to disconnect the PLC from the HMI when it is necessary to configure either the HMI or the PLC. Pass-through mode is only available on HMIs with an Ethernet port. An Ethernet connection from the PC to the HMI is required to initiate pass-through mode, even when using serial pass-through mode.
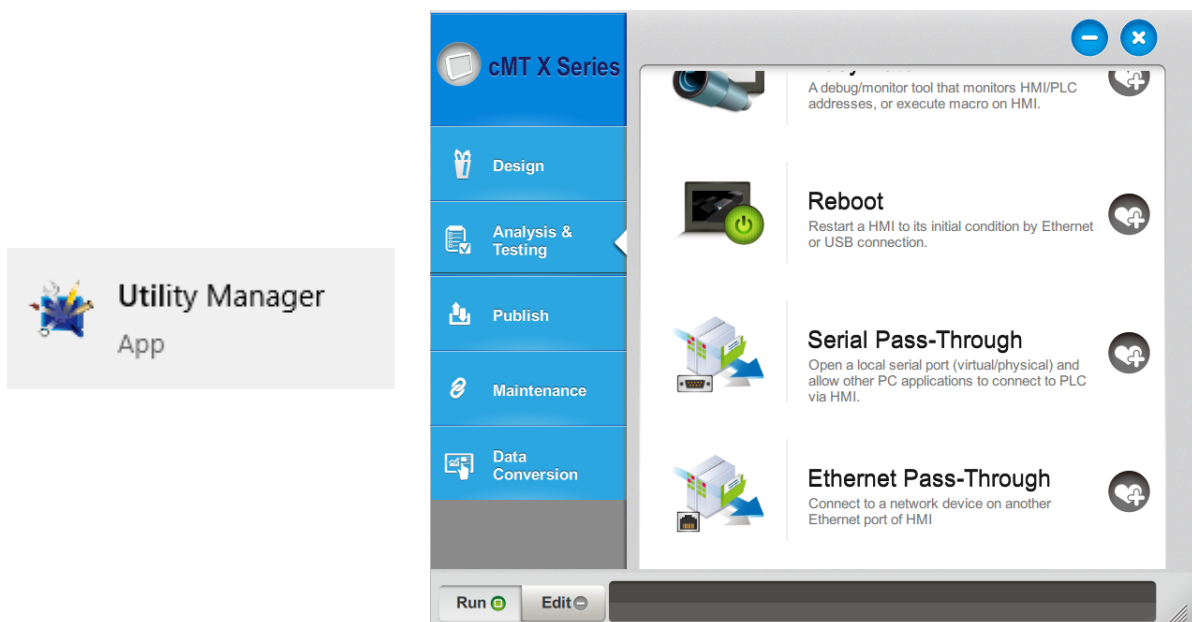
Modes of Operation:

➢ Serial pass-through mode
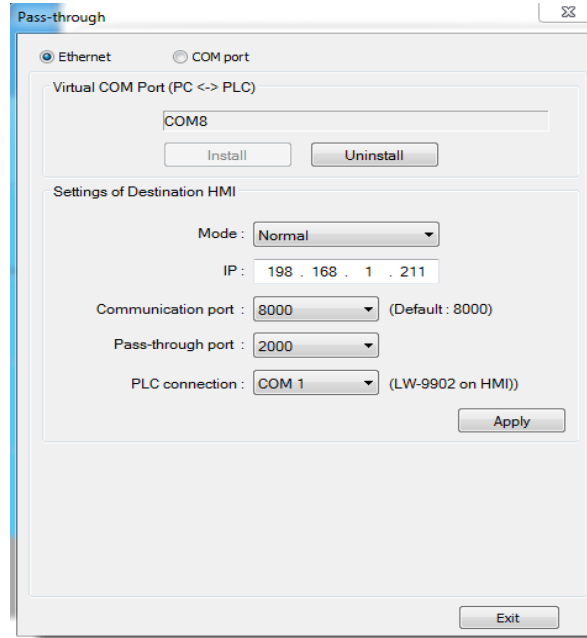➢ Ethernet pass-through mode

To use the Serial pass-through mode:
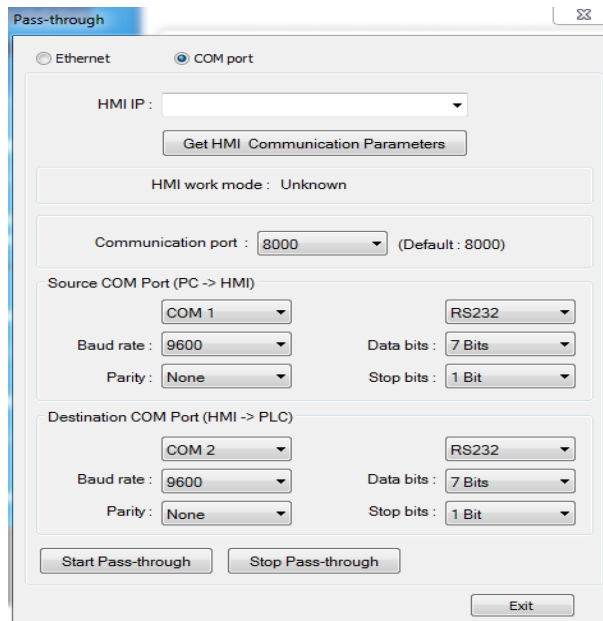
1. Select COM port. In the serial pass-through mode, data coming in on one serial port on the HMI is re-transmitted out another serial port to the PLC.

2. HMI/IP: Specify the IP Address of the HMI that is to be used in pass-through mode and click Get HMI Communication Parameters to read the current communication settings for the HMI. If the HMI is connected directly to the PC's Ethernet port, you should use a crossover Ethernet cable.

3. HMI work mode: Indicates the current mode of the HMI. After the communication parameters have been received, the mode will be either Normal (HMI set to communicate with PLC) or Pass-through (HMI is in pass-through mode).

4. Source COM Port (PC → HMI): Set COM settings for the HMI COM port that will be connected to the PC.

5. Destination COM Port (HMI → PLC): Set COM settings for the HMI COM port that will be connected to the PLC.

6. Click Start Pass-through to begin pass-through communication. Click Stop Pass-through to end or click Exit to exit pass-through mode.

While the HMI is in serial pass-through mode, the HMI may suspend communications with the PLC and the application in the HMI may not run, depending on the PLC and PLC programming software used.

To use the Ethernet pass-through mode:

In the Ethernet pass-through mode, the HMI acts as an Ethernet-to-Serial bridge.

A virtual COM port driver is installed on the PC (in this example, COM8), which provides the connection between EBPro (or the PLC programming software) and the Ethernet port connected to the HMI.

The virtual COM port uses the next available port on the PC.

1. Click Install to install the virtual COM port driver.

2. The Virtual COM Port (PC <-> PLC) indicates the virtual COM port used on the PC.

3. To change to another port, use the COM ports section of Device Manager on the PC.

4. PLC Connection Port (HMI <-> PLC): For most PLCs, set the mode to Normal. Some Siemens PLCs will use MPI ISOTCP.

   ▪ Enter the IP address of the HMI.
   ▪ Select the TCP Port to use.
   ▪ This must have the same setting as the Pass-Through Port Number set in the EBPro project, on the Model tab of the System Parameters dialog.

- Set the COM port on the HMI connected to the PLC.

5. Click Apply to accept the settings.

6. Click Stop Pass-through to end.

7. Click Uninstall to uninstall the virtual COM port driver on the PC.

8. The HMI must be powered and connected to the PC or Windows will not recognize the virtual port as an available serial port.

- System tags for pass-through mode: LW-9901: pass-through source COM port (1-3 = COM1-COM3)
- LW-9902: pass-through destination COM port (1-3 = COM1-COM3)
- LW-9903: pass-through control (0=normal, 1=pause, 2=stop communications between HMI and PLC when executing pass-through)

Other Uses of the Ethernet Pass-Through

EBPro Online Simulation:

In the Online Simulation mode, the PLC must be directly connected to the PC. If the PLC connection is RS485, appropriate communications hardware must be present on the PC. However, the Ethernet Pass-Through can act as an RS485 device. Configure the Ethernet Pass-Through for RS485 as described above and use the COM port assigned to the virtual COM port driver as the COM port in EBPro. During online simulation, simulator will communicate via the virtual port driver to the PLC.

Configure Other Devices:

Other devices may be connected to available COM ports on the HMI. Even though the HMI project may not communicate with those devices, they are still available via the Ethernet-to-Serial Bridge.