Cyberlogic Knowledge Base

KB2012-02: ADDING MODBUS PLUS/MODBUS TCP TO A MODBUS-ONLY APPLICATION

Many legacy applications are written to only communicate using a serial connection to plant-floor devices. This article explains how to use virtual serial ports and the Cyberlogic MBX Bridge to allow these Modbus-only applications to communicate over Modbus Plus or Modbus TCP networks.

Applies To:

Applications that only communicate over serial Modbus connections but need to communicate to devices on Modbus Plus or Modbus TCP networks.

Requirements:

- Cyberlogic MBX Bridge Suite

- Virtual Serial Port Kit (http://www.virtual-serial-port.com/) by FabulaTech LLP

- A Modbus-Plus adapter if communication will be to a Modbus Plus network

- A network adapter if communication will be to a Modbus TCP network

Note	Third-party products mentioned in this document are posted for informational purposes only. Cyberlogic is not affiliated with FabulaTech LLP. Cyberlogic does not endorse, promote or warrant the operation of the Virtual Serial Port Kit software, or any other products or services offered by FabulaTech LLP, for any purpose or fitness. Other software or hardware products with similar or equivalent features and functions may be available on the market.

Objective:

Set up a system to allow a Modbus-only application to communicate on a Modbus Plus or Ethernet network.

Procedure:

Note	The following procedure describes how to allow a Modbus-only application to communicate on a Modbus Plus network. Instructions will also be given on how to modify it to communicate over Modbus TCP instead

To accomplish the objective, a pair of virtual serial ports will be created. A pair of virtual serial ports acts like a pair of physical serial ports connected by a serial cable. Messages sent on one port are immediately received on the second. Virtual serial port 1 will be used by the Modbus application to send requests. Virtual serial port 2 will be monitored by the MBX Bridge. When it receives a message on the port, the Bridge will forward the message to the Modbus Plus adapter and then transmit the reply back to the port.
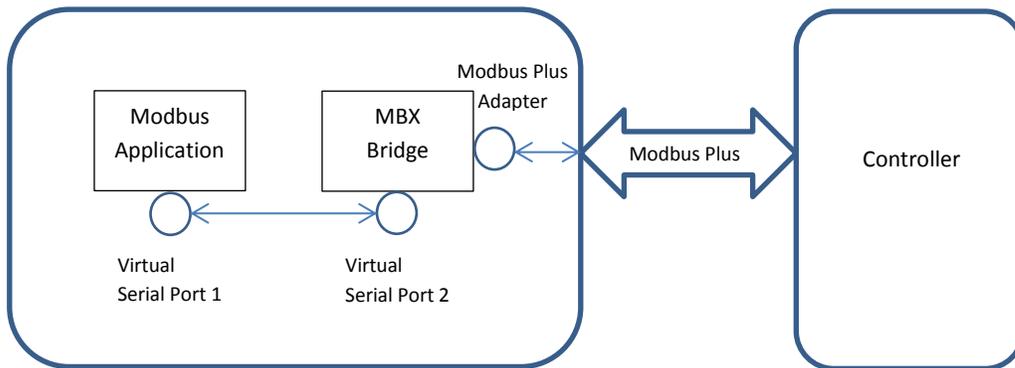
The following steps will walk you through the process of setting up the required software.

It will be assumed that there is already a properly configured and functioning TSXCUSBMBP adapter in the system, and that it is configured as MBX Device 0. (For more help on installing and configuring a Modbus Plus adapter, see the help for the MBX Driver.)

Note

In this example, the two virtual serial ports will use COM3 and COM4 and will communicate using ASCII mode. The Modbus Plus connection will be a USB TSXCUSBMBP adapter, and the controller will have a Modbus Plus address of 1.

These example settings can be modified to fit your specific needs. For example, to communicate over Modbus TCP instead of Modbus Plus, create and use an Ethernet MBX device in place of the TSXCUSBMBP.

1. Install the Virtual Serial Port Kit software.

2. Install the MBX Bridge Suite.

3. Run the Virtual Serial Port Kit.

4. Under the **Port** menu, choose **Add Pair…**.

5. Use COM3 for Virtual Serial Port 1 and COM4 for Virtual Serial Port 2.
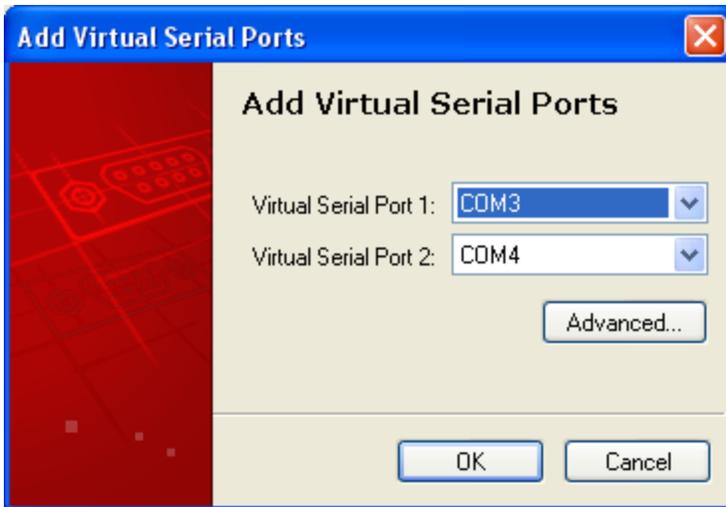
| Note	If COM3 and COM4 are already in use on your system, select different ports that are available.

6. Click **OK**.

7. Start the MBX Driver Configuration editor.

8. Create a new Serial Slave device and configure it to use COM4. (If you used a different COM port in step 5, use that instead of COM4). In the Port Settings, select 115200 for Bits Per Second, None for Parity, ASCII for Modbus Mode, and uncheck Hardware Flow Control. (For more help on creating and configuring a Serial Slave device, see the help for the Serial MBX Driver.)
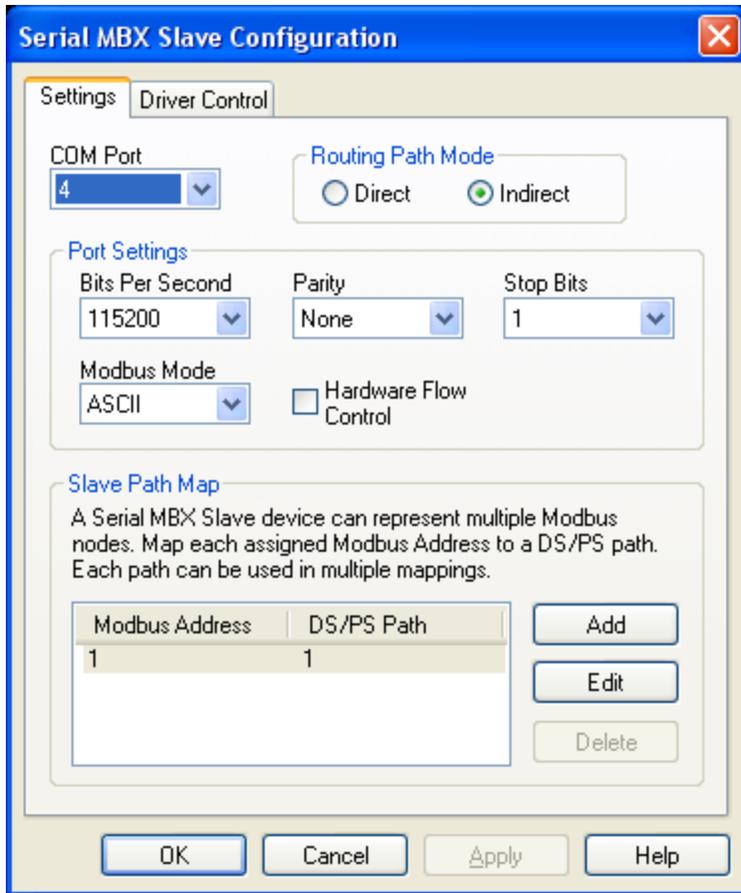
9. By default, the Serial Slave device is configured to accept messages addressed to Modbus address 1. If the Serial Slave device should accept messages addressed to other Modbus addresses, they need to be added to the Slave Path Map. For example, to accept messages addressed to Modbus address 5, click **Add**, set the Modbus Address to 5, and set the DS/PS Path to 1. This needs to be done for each Modbus address to be added.

10. Click **OK**.
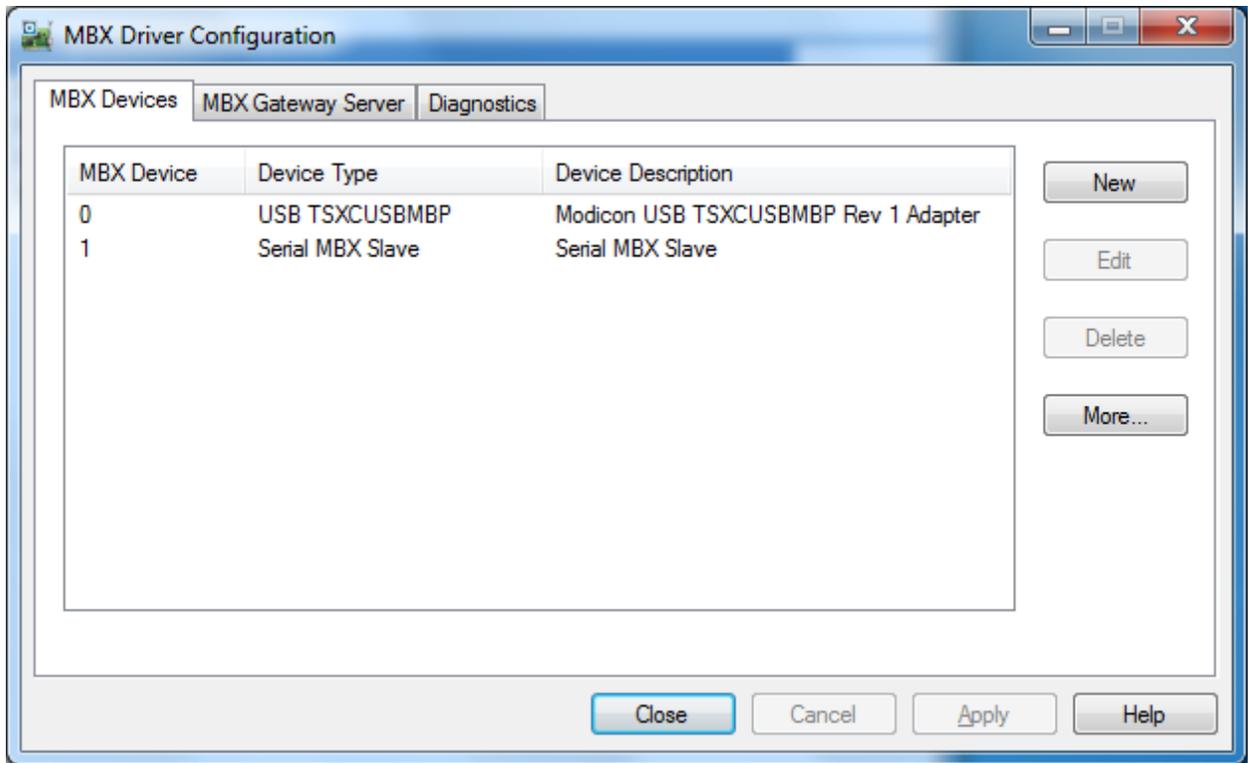
11. Start the MBX Bridge configuration editor, and allow it to automatically generate routing records. (For more information on configuring the MBX Bridge, see the MBX Bridge help and Cyberlogic's Knowledge Base article KB2010-10: MBX Bridge Tutorial.)
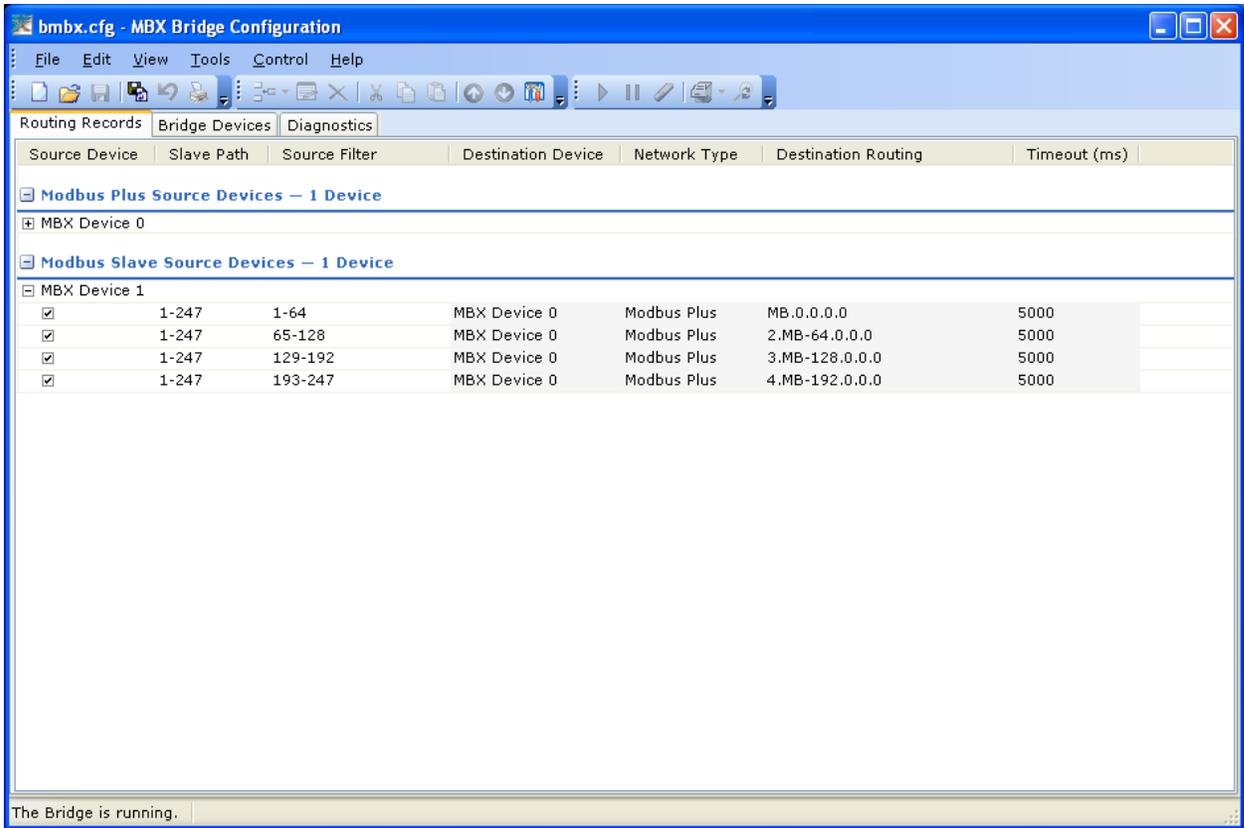
12. At this point, the MBX Bridge will be configured to route any messages sent to Modbus node 1 to Modbus Plus node 1, Modbus node 2 to Modbus Plus node 2, etc.

13. Start your Modbus application, and configure it to send messages to COM3. (If you used a different COM port in step 5, use that instead of COM3).

Technical Support

You can get detailed information on how to install, configure and use the MBX family of drivers by referring to the help files for each specific driver.

Cyberlogic's website, www.cyberlogic.com, has information on related products, news, software downloads and contact information.

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