Kepware Technologies
Digi One IA or SP Configuration Guide

June, 2015
Version 1.000

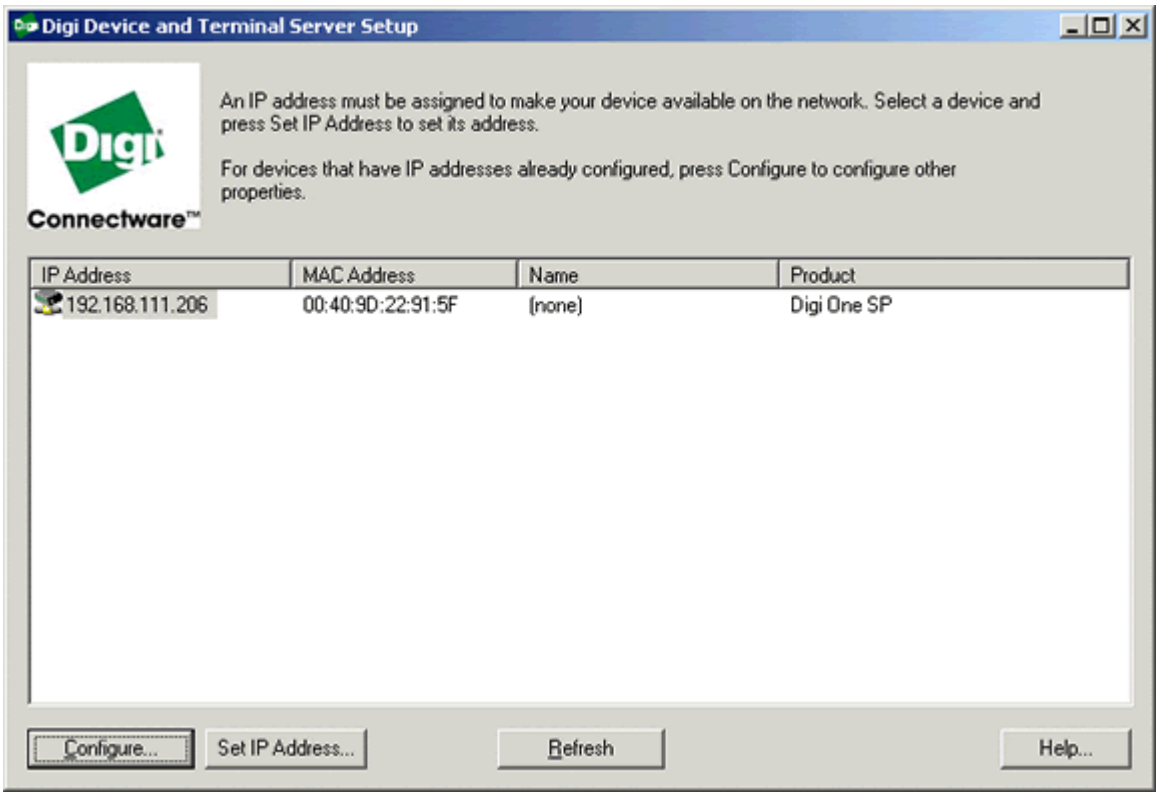
1. Overview

This document provides instructions on configuring a project using the Digi One SP Ethernet-to-Serial converter with AutomationDirect and KEPServerEX V4. Although this document uses a Koyo project as an example, the instructions are applicable for any serial driver using Ethernet Encapsulation. These instructions assume that Digi Real Port emulation software is not installed.

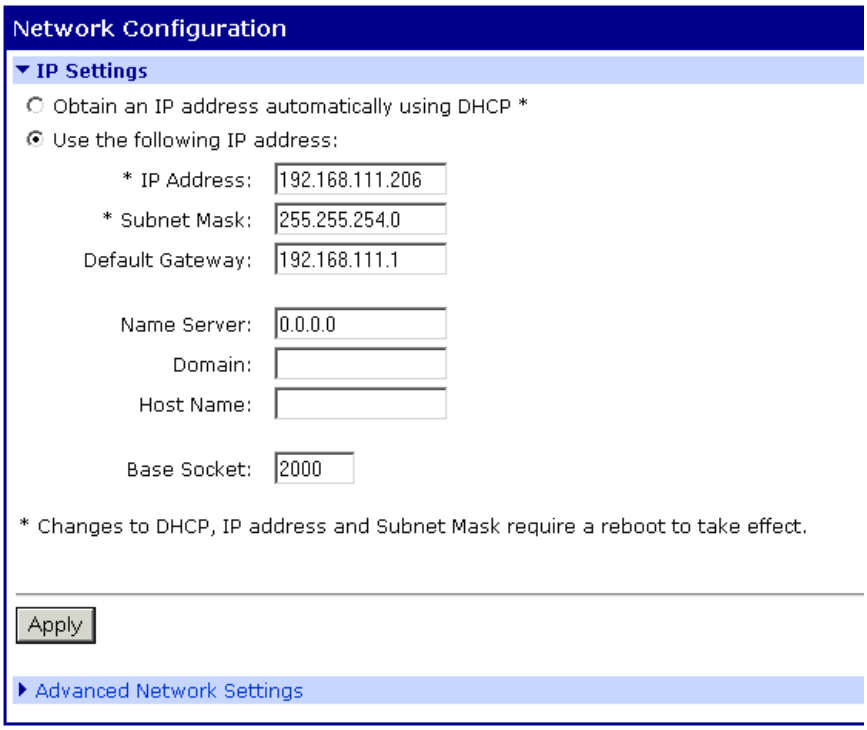
Note: This configuration guide can be used with a Digi One IA by substituting "SP" with "IA".

1.1 Configuring the Digi One SP

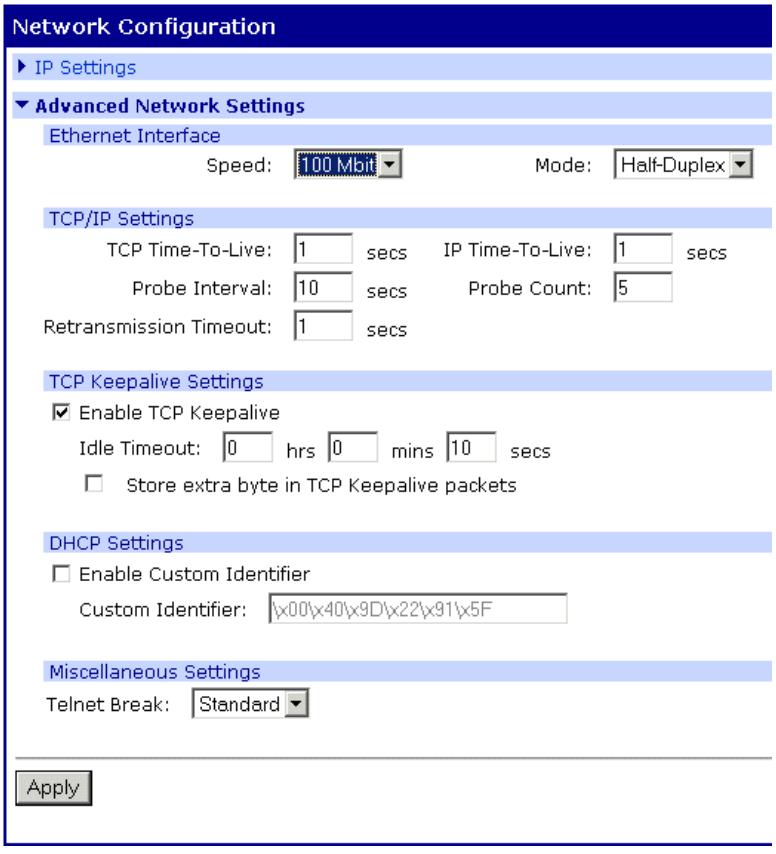
1. To start, launch the **Digi Device and Terminal Server Setup** utility. This utility will automatically find any Digi devices attached to the network.



2. Press **Set IP Address** and enter the IP Address that will be used. Then, press **Configure** to invoke a password dialog for accessing the **Digi Configuration and Management**. Use the default user name "root" and the default password "dbps."
3. Press **Network** to invoke the **Network Configuration**. Verify that the **IP Address** previously entered in the configuration utility is correct. Then, verify that the **Base Socket** is 2000.



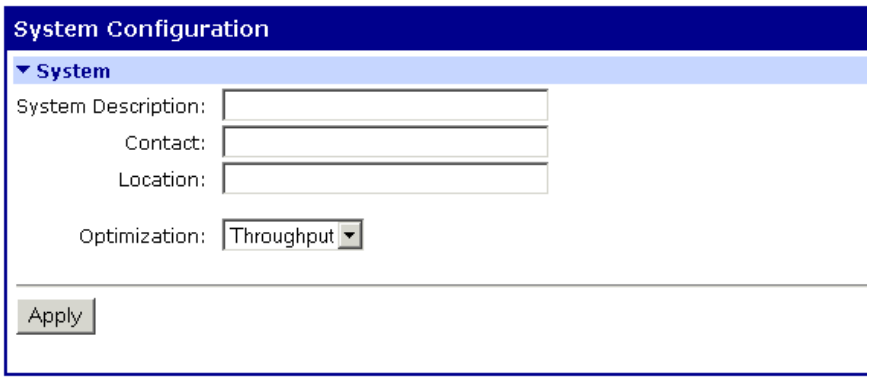
4. Next, select **Advanced Network Settings**.
5. Locate the **TCP Keepalive** parameter. Although disabled by default, it is recommended that users enable and set it to 10 seconds. If left disabled, it will not allow the Digi to drop the Winsock port in the event of a forced disconnection. This, in turn, will not allow KEPServerEX to reconnect. Setting the Keepalive to 10 seconds will allow the Digi to drop the Winsock port, and allow KEPServerEX to reconnect.



Note: Changing the Keepalive parameter may require a soft reboot of the Digi device.

6. Next, select **Serial Port** in the Configuration menu and verify that the serial settings (baud rate, data bits, and so forth) match the settings on the PLC's serial port. Make any changes necessary and then click **Apply**.
7. Finally, click **System** located in the Configuration menu and set the **Optimization** for the connection. Options include Throughput and Latency. Descriptions of the options are as follows:

    - Throughput allows better network performance at higher throughput.
    - Latency allows fast access to time-sensitive devices. More network bandwidth is required.



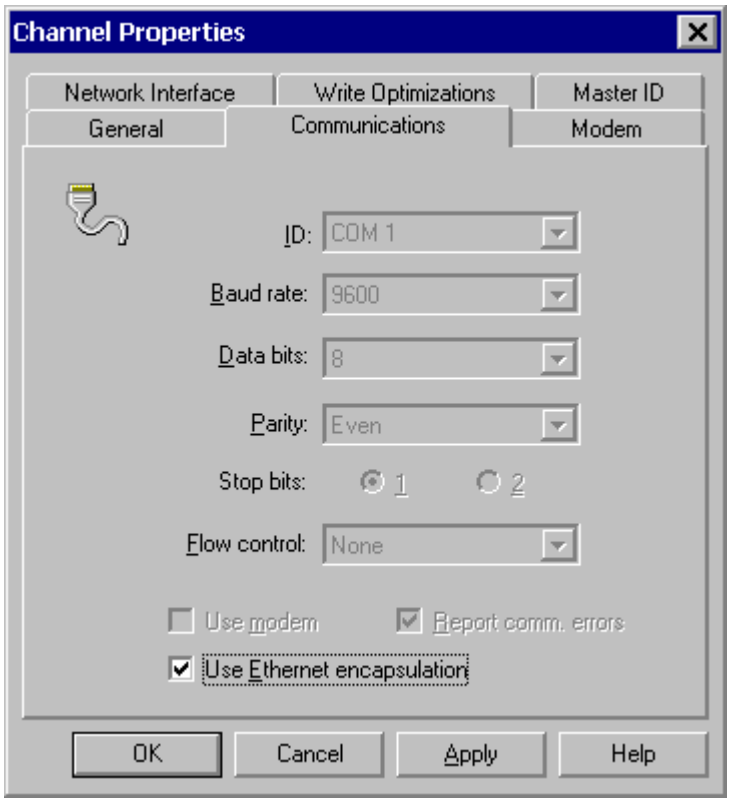
Note: Users connecting to a device that requires very responsive data turnaround (like Siemens PLCs) may want to select Latency.

Enabling Ethernet Encapsulation

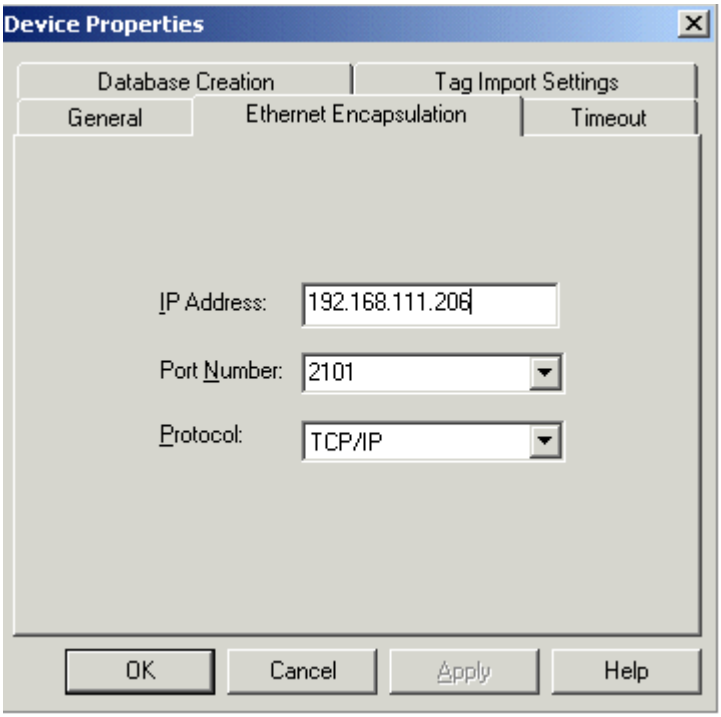
Ethernet Encapsulation allows the KEPServerEX driver to communicate with serial devices attached to an Ethernet network using a terminal server or serial-to-Ethernet converter. For information on enabling Ethernet Encapsulation, refer to the instructions below.

Note: The examples below are from a project utilizing the K-Sequence Driver connecting to a DL-05 PLC.

1. Start and configure a new KEPServerEX project using a driver that supports Ethernet Encapsulation. Most of Kepware's serial drivers support this protocol.
2. After the project is configured, right-click on the channel and click **Properties** | **Communications**.
3. Select the **Use Ethernet Encapsulation** checkbox. Doing so will disable all serial configuration parameters.



4. Next, right-click on the device and select **Properties** | **Ethernet Encapsulation**.
5. Then, enter the Digi One SP's IP Address.
6. Locate the Port Number. It should always be 101 higher than the Base Socket set in the Digi Configuration. This number is set to 2101 by default.



7. Next, open the OPC Quick Client and verify communications with the PLC. Users should be able to read tags on the device using Ethernet Encapsulation through the Digi.

1.3 Common Problems and Solutions

1.3.1 Problem One

Users trying to communicate with a PLC receive "Device not responding" errors in KEPServerEX. This is generally a configuration error. Users should do the following:

1. Verify that the serial port settings in the Digi match the settings on the PLC.
2. Ensure that the port number in KEPServerEX is set to 101 higher than the Digi base socket setting.
3. Verify all cabling is connected and all devices are powered.
4. Confirm that the Digi device can be pinged successfully.

1.3.2 Problem Two

When the connection between KEPServerEX and the Digi drops, users have to reboot the Digi to regain communications. This means that the "TCP Keep Alive" setting in the Digi configuration is disabled, which forces the Digi device to keep its TCP port open and does not allow KEPServerEX to reconnect. It is recommended that users enable the “TCP Keep Alive” parameter with an idle timeout of 10 seconds. This will force the Digi to drop the idle port after 10 seconds, and allow KEPServerEX to reconnect.