

Application Note M004  
 Version 001  
 08 Dec 2016

## Desktop Computer RS-232 Serial Communications Using a Bell-202 Radio-Modem

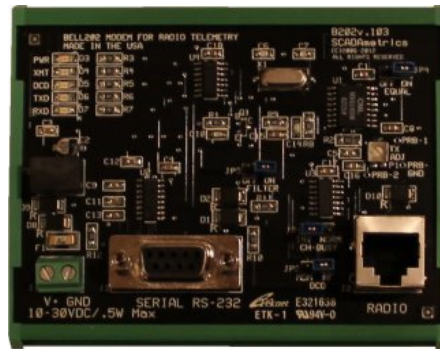
In many instances, it is desirable to connect a Desktop Computer to a Remote Host using an RS-232 Serial, Bell-202 Radio-Modem Assembly. If the Desktop Computer's communication software is written specifically to control a Bell-202 Modem, then compatibility should not be a problem.

However, a common roadblock exists wherein the Desktop Computer's communication software is written only for a hardwired serial or telephone modem connection. Generally, such limitations do not allow for the RTS flow control required when using a Bell-202 Modem. Fortunately, SCADAmetrics has developed a technique that overcomes this obstacle.

When the Perle IOLAN-DS1 Ethernet-based serial device server is utilized as a Desktop Computer's serial port (instead of a traditional USB-Serial Adapter, or a PCI/PCIe Serial Adapter), and the B202 Modem is connected to this serial port, then precise RTS pin control – and therefore PTT (push-to-talk) radio control – can be achieved to properly communicate using the Radio-Modem Assembly. This document details the procedures and settings required to set up such a connection.



**Perle IOLAN DS1 Serial Device Server**



**SCADAmetrics B202 Modem**

### Required Hardware & Software

1. SCADAmetrics Part No. B202  
 Bell-202 Modem for Radio-Telemetry Applications
2. Compatible Telemetry Radio
3. Perle Part No. 04030960  
 IOLAN DS1 Serial Device Server  
 Extended Temperature Version
4. Perle Part No. 04030030 (Optional)  
 Din-Rail Mount Kit for IOLAN DS1 Serial Device Server
5. Desktop Computer running Operating System = Windows (2000, XP, Vista, 7, 8, 10), AIX,  
 HP-UX, LINUX, UNIX, Solaris, SCO OpenServer, SCO UnixWare
6. Perle Free Software:  
 IOLAN\_EasyConfig\_v4.7.0.0.exe  
 TruePort Driver, TruePort Management Tool

## **IOLAN EasyConfig Setup**

Step 1. Connect a new IOLAN DS1 to the network LAN. This device will acquire an IP address from the network's DHCP server/Router.

Step 2. Install and Run the Perle program: **IOLAN\_EasyConfig\_v4.7.0.0.exe**

Step 3. The EasyConfig program will detect the IOLAN on the network. Assign this device a **NAME**, a permanent **LAN IP Address**, and make sure to include the **Netmask** and **IP Address of the Default Gateway**.

Step 4. Set the IOLAN for Port Profile: **TRUEPORT (VIRTUAL COM PORT)**.

Step 5. Enter information describing the Host PC: **NAME** and **LAN IP ADDRESS**.

Step 6. Enter information describing the serial comm parameters. In this application the Serial Interface Type is **RS232**, Baud is **1200**, Number of Data Bits is **8**, Number of Stop Bits is **1**, Parity Type is **None**, and Flow Control is **None**. The serial comm parameters in your case may vary slightly from these.

Step 7. When all parameters have been entered, press the "Download" button to store to the IOLAN device.

The aforementioned 7 steps are illustrated in Figures 1-6 below.

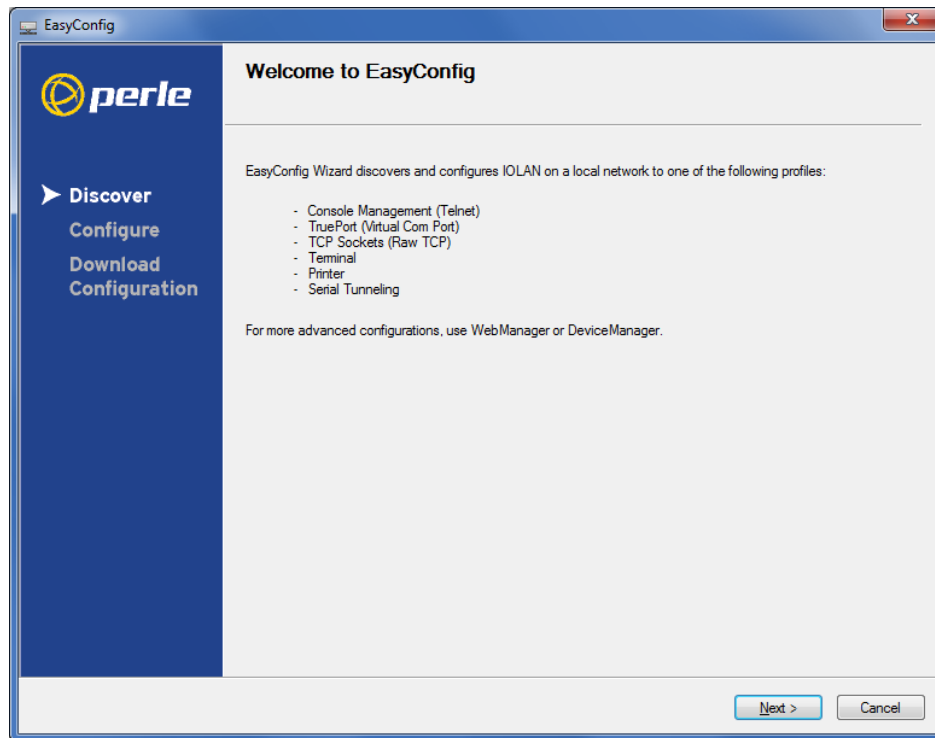


Figure 1.

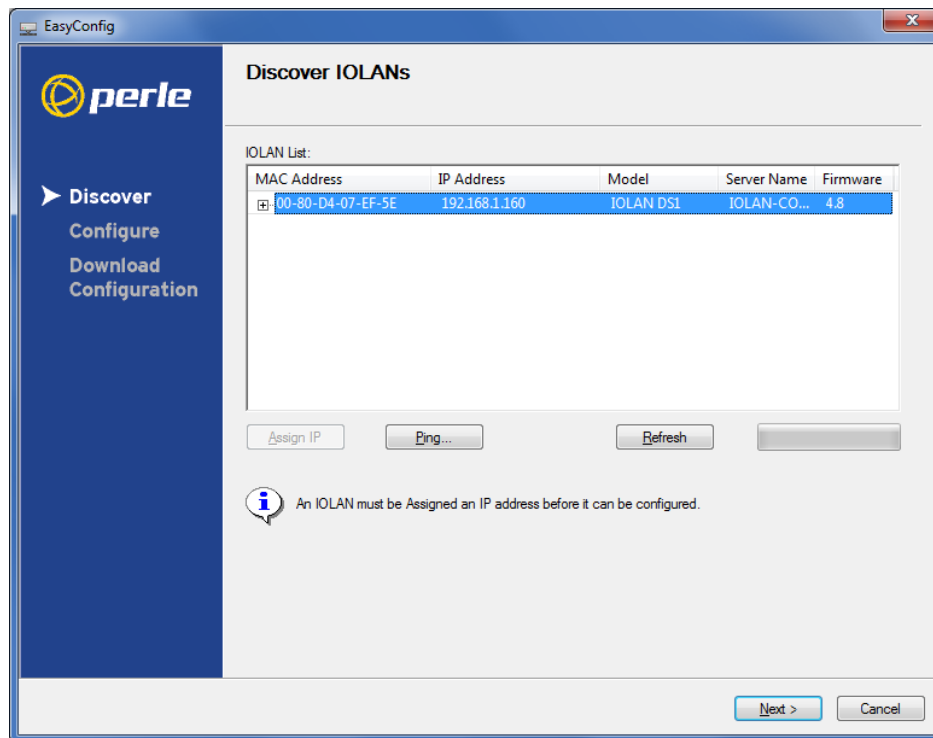


Figure 2.

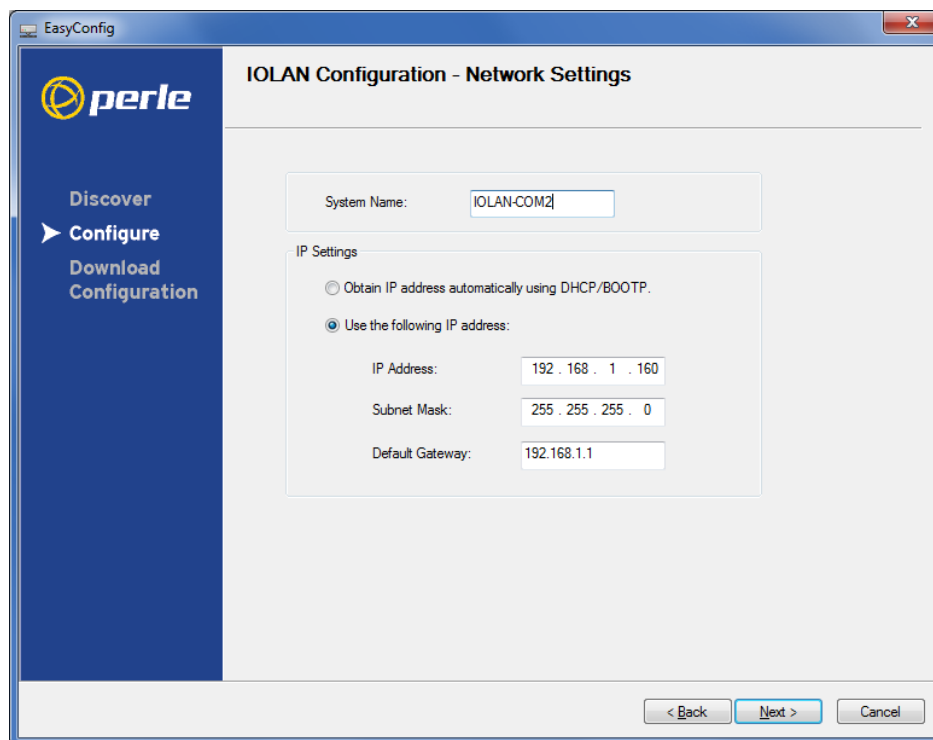


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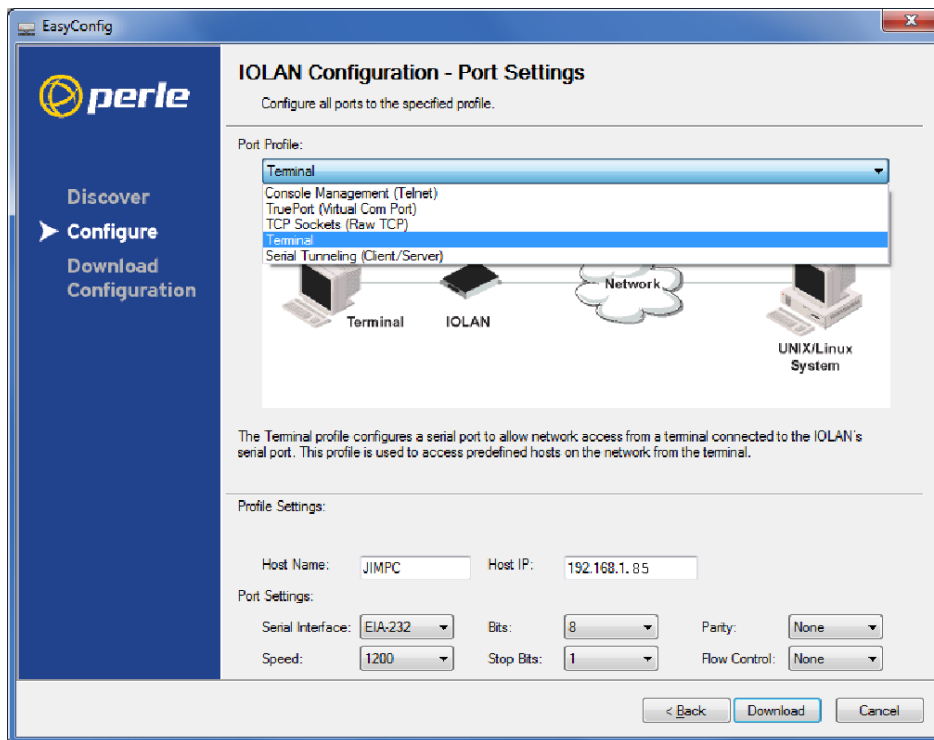


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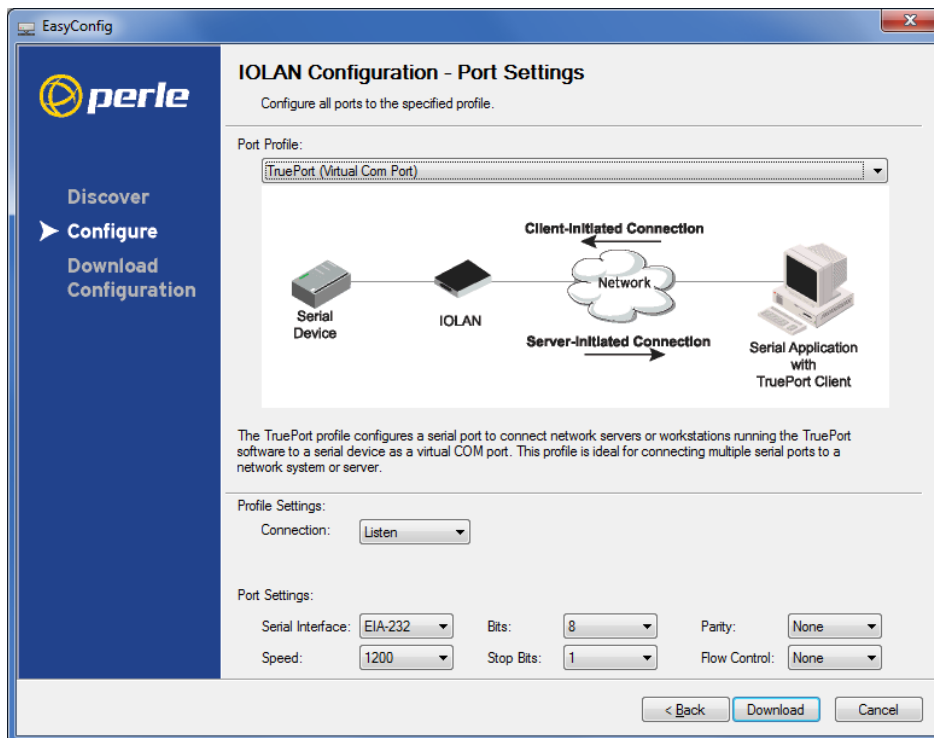


Figure 5.

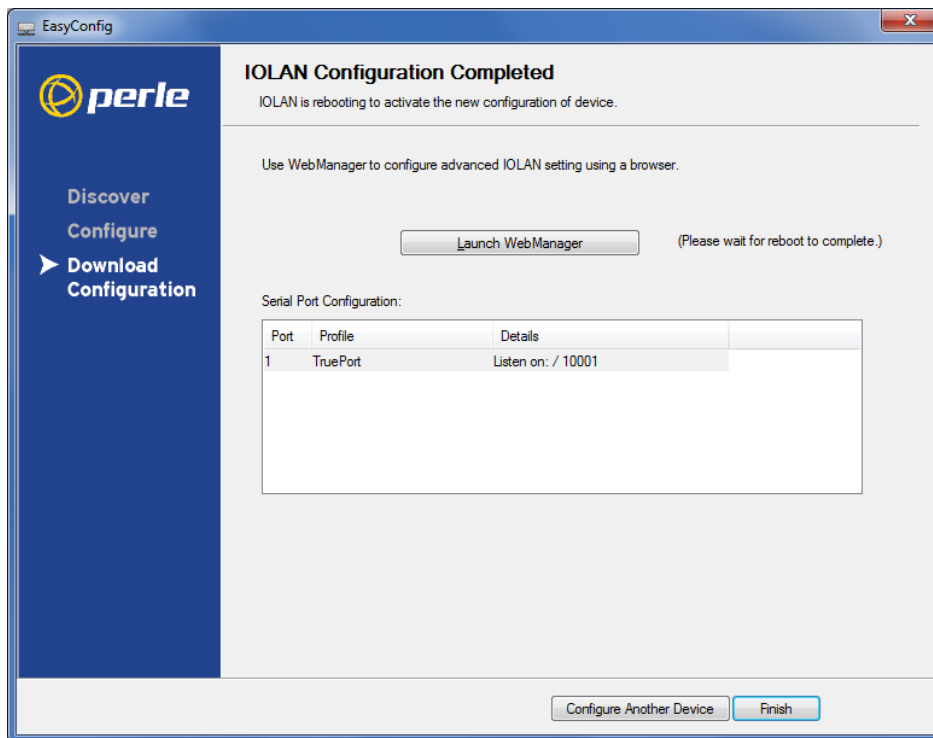


Figure 6.

### **WebManager Setup**

Step 1. On the last page of the EasyConfig program, press the **“Launch WebManager” Button**. Your Desktop Computer’s default web browser will launch and present the web-based login page of the IOLAN device. The default username/password is: **admin / superuser**

Step 2. On the main page, “Administration”, check to see which firmware version is installed into this IOLAN device (displayed in the upper right of the window). Then check with Perle to see which is the latest firmware available:

[https://www.perle.com/downloads/server\\_ds1.shtml](https://www.perle.com/downloads/server_ds1.shtml)

If there is a later firmware available, download the latest firmware .BIN file from Perle, and store the file on your hard drive. Then press the “Update Firmware” and complete the firmware update procedures.

Step 3. If a firmware update was required, you will be prompted to reboot the IOLAN device.

The Firmware Update procedures are illustrated in Figures 7-10.

Step 4. Complete the configuration of the IOLAN device. Figures 11-28 illustrate the required steps and settings. Please note especially the modem timing parameters entered in Figure 23.

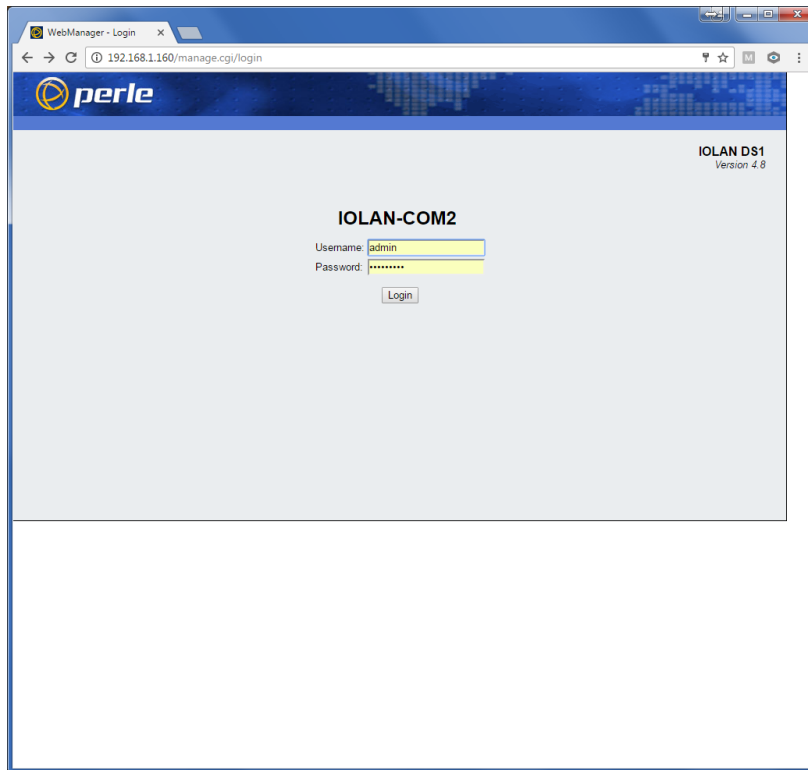


Figure 7.

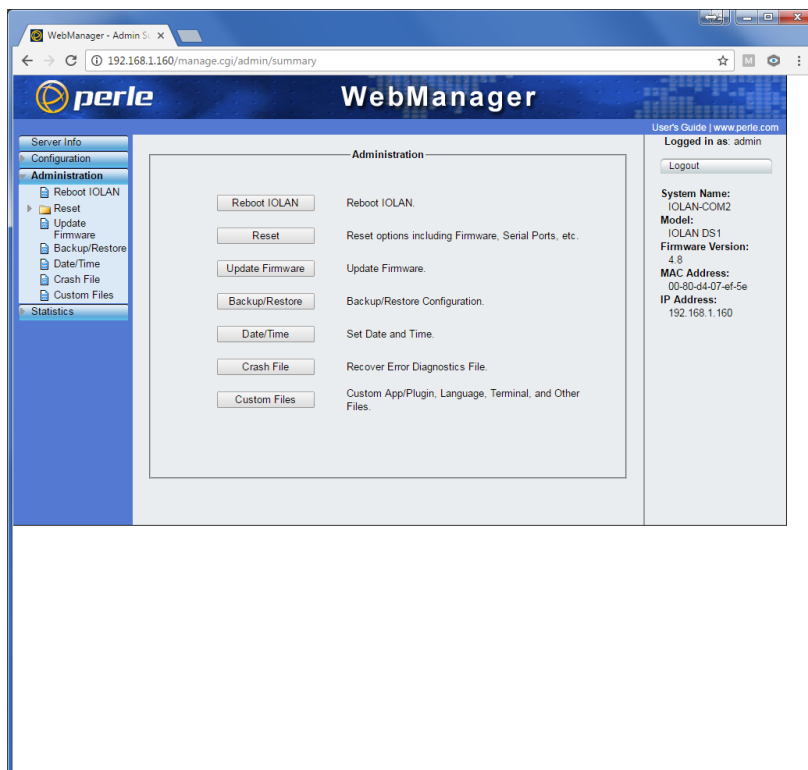


Figure 8.

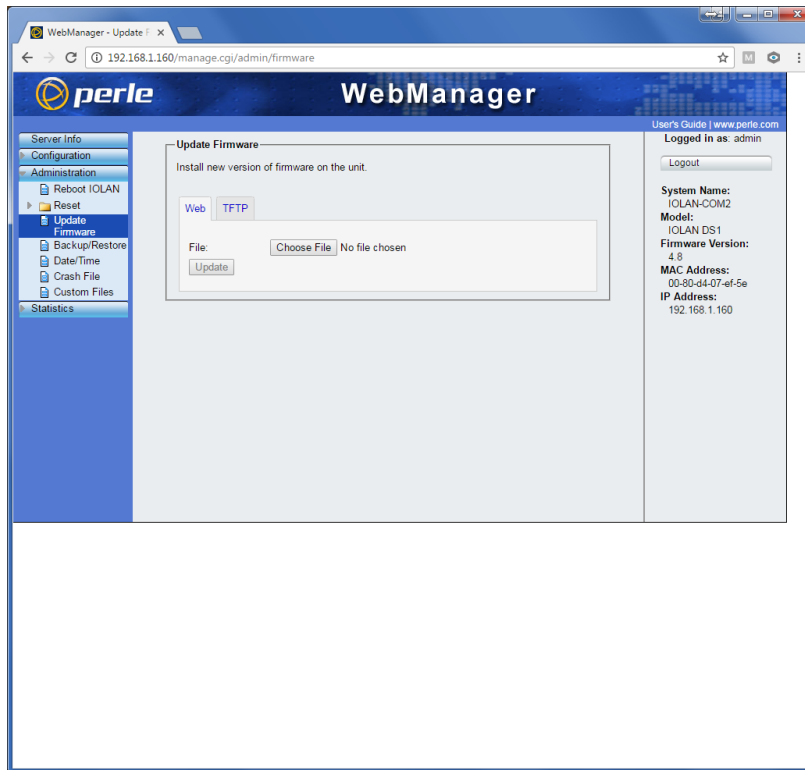


Figure 9.

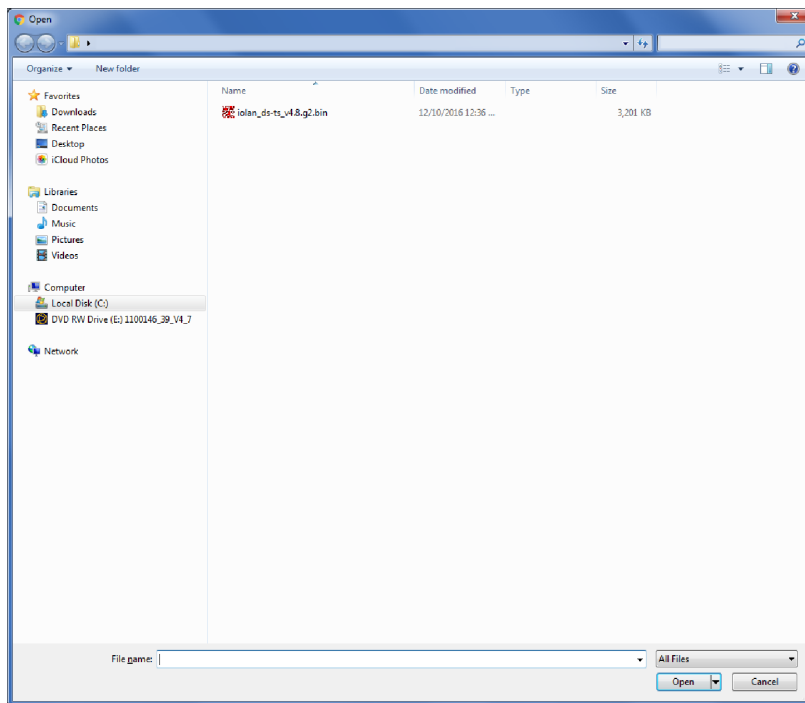


Figure 10.

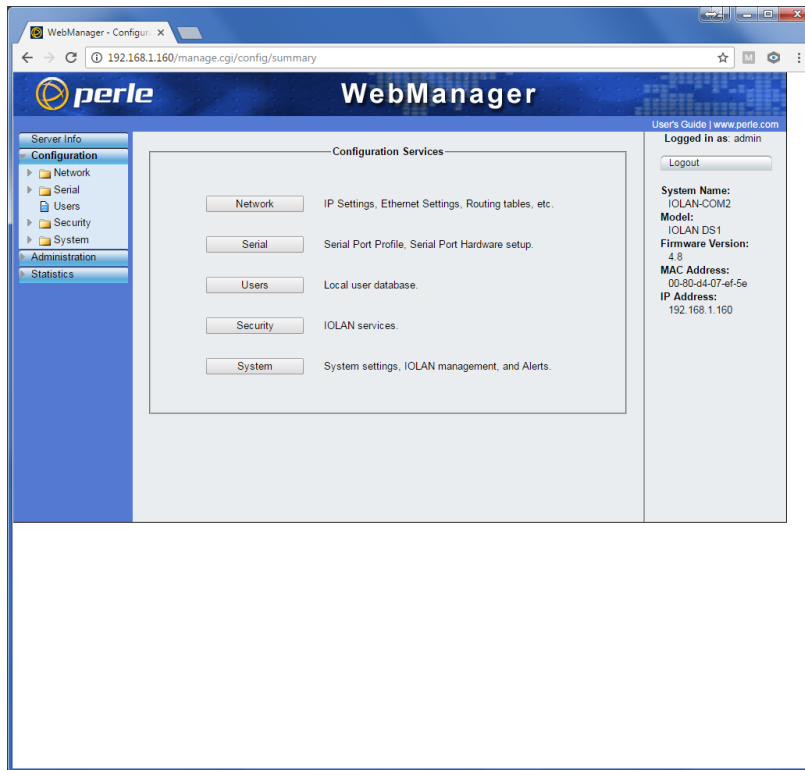


Figure 11.

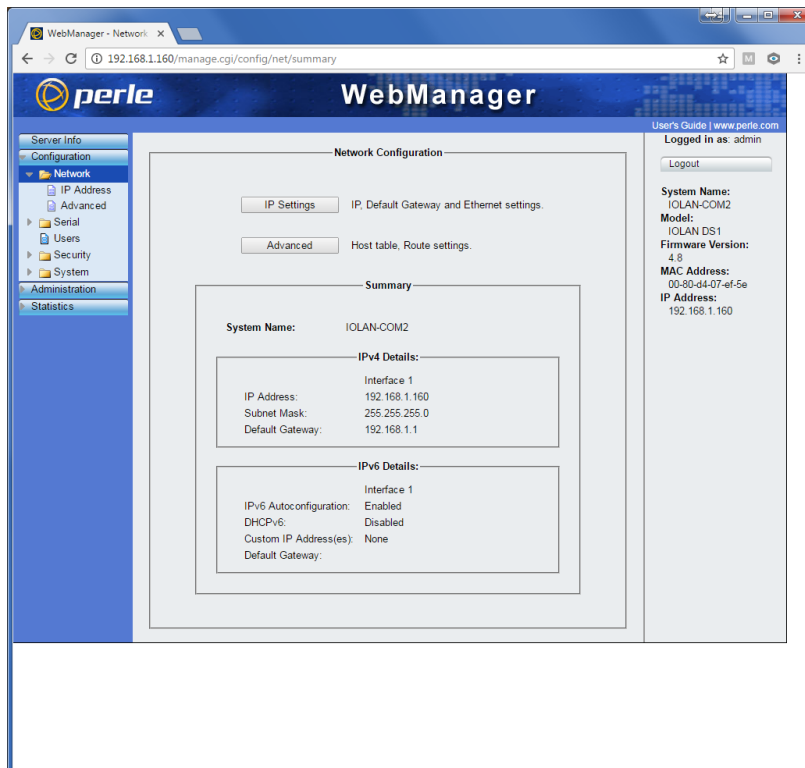


Figure 12.

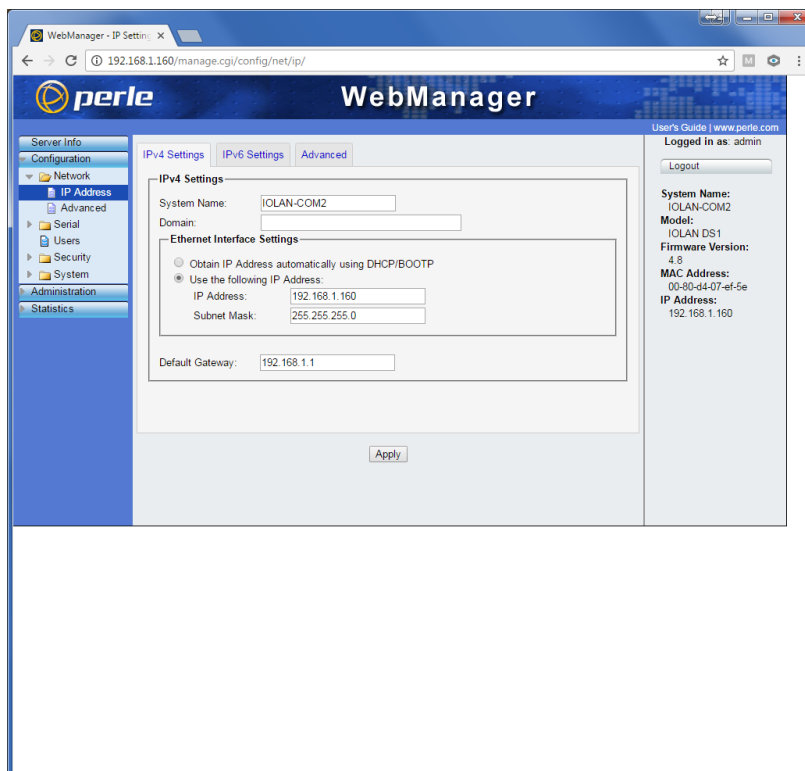


Figure 13.

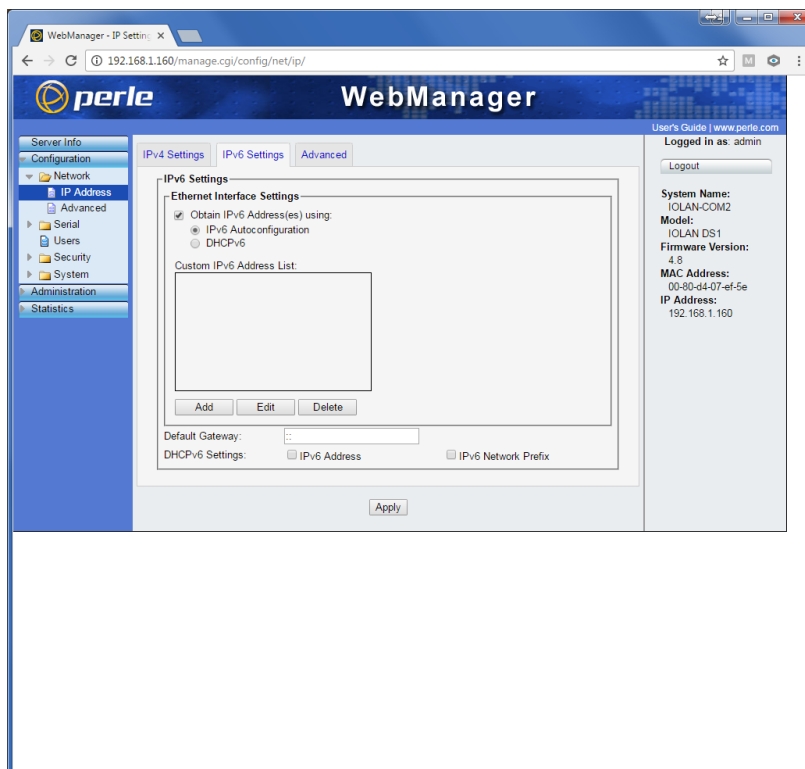


Figure 14.

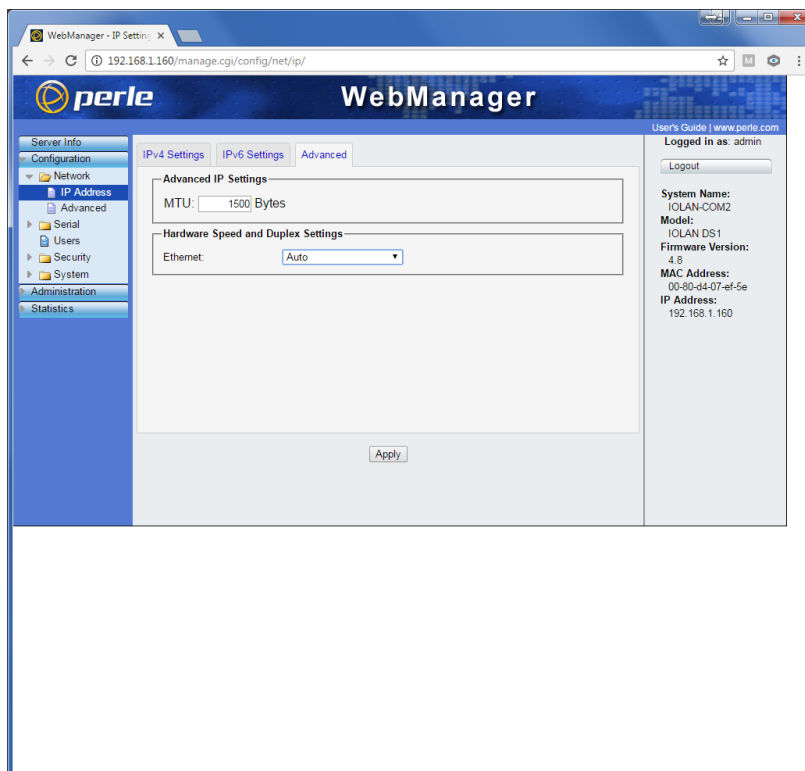


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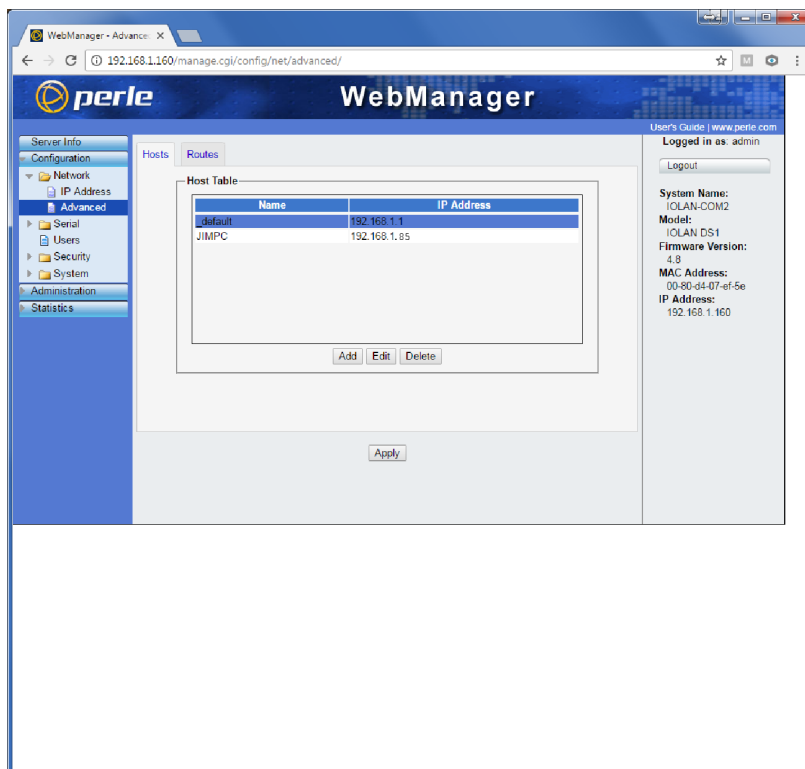


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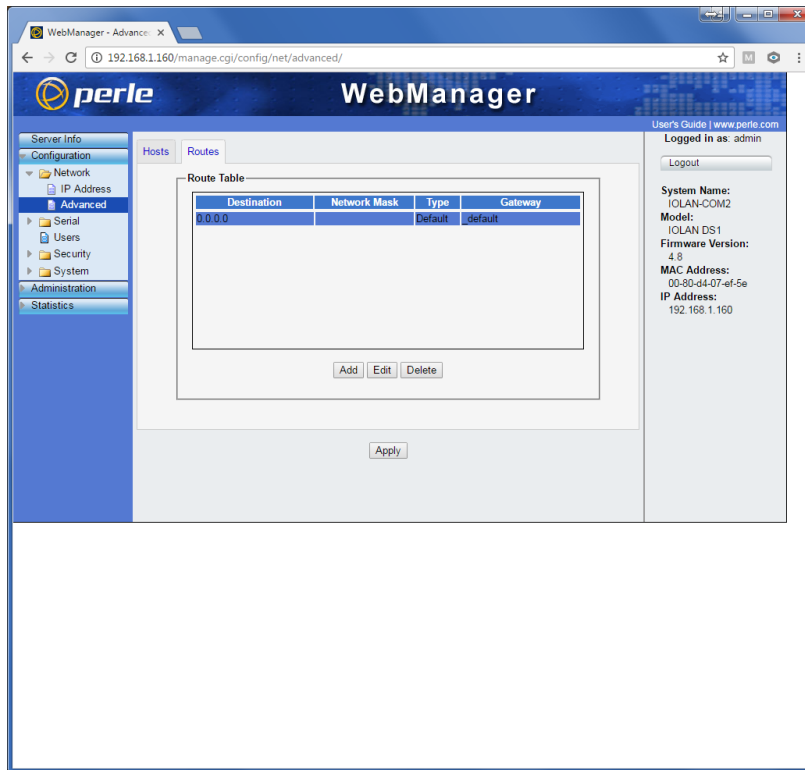


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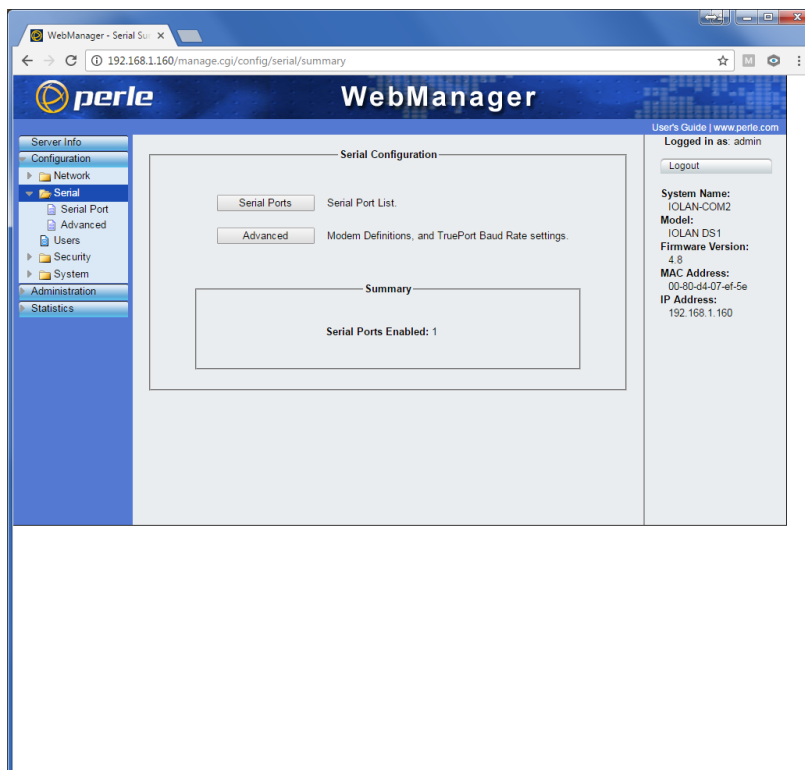


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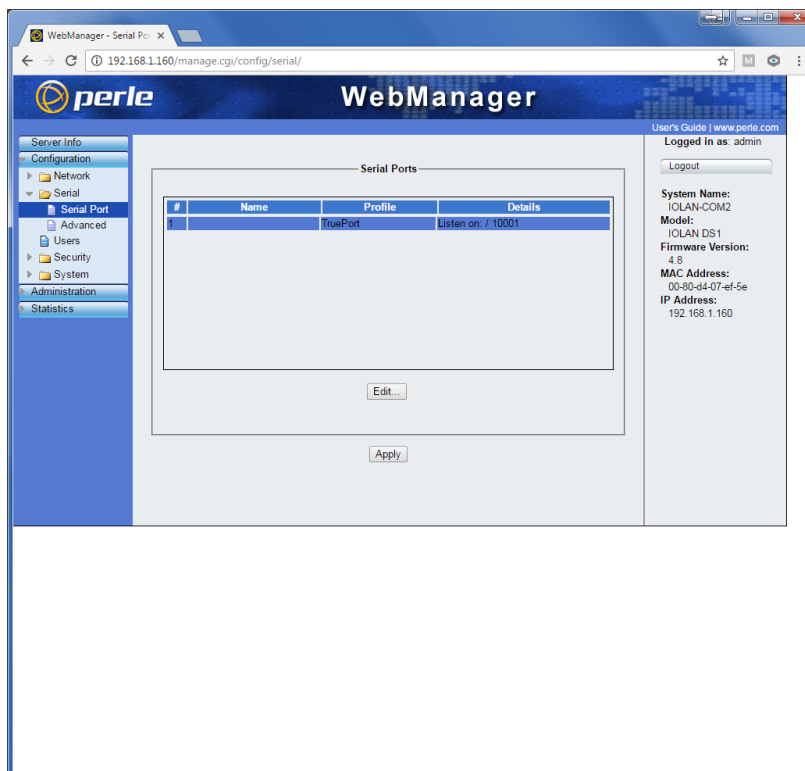


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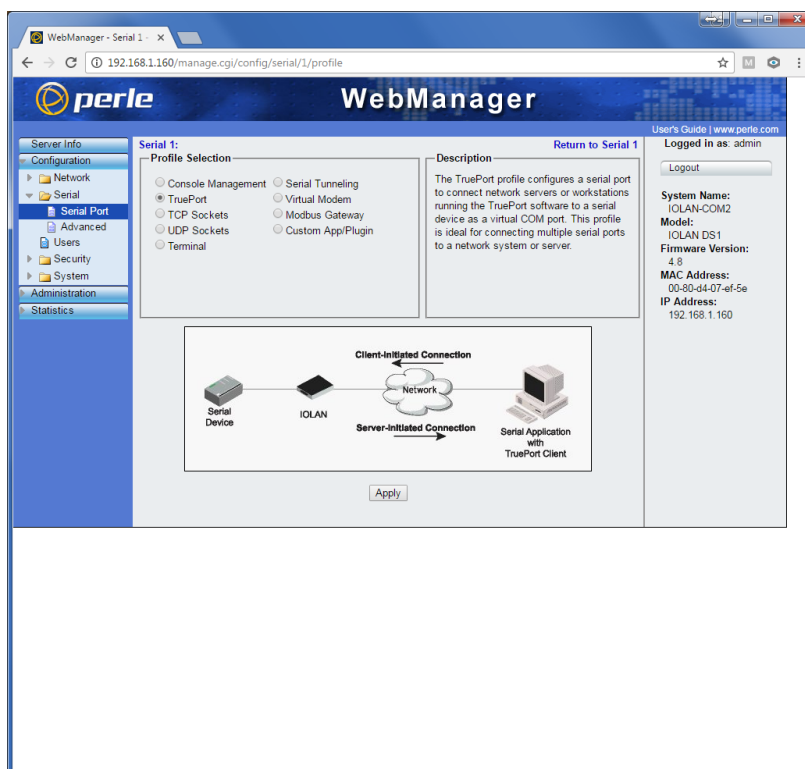


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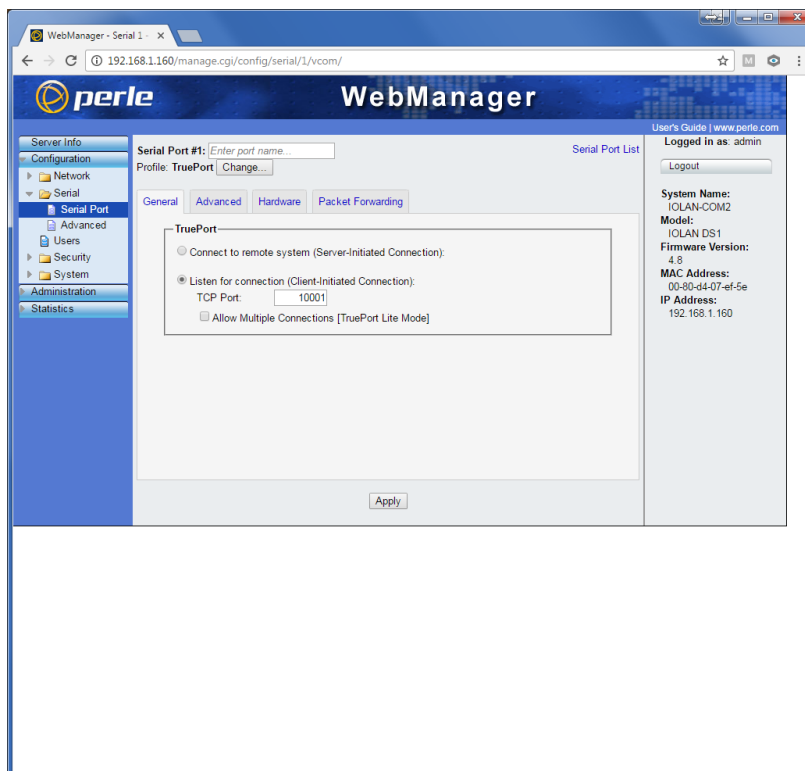


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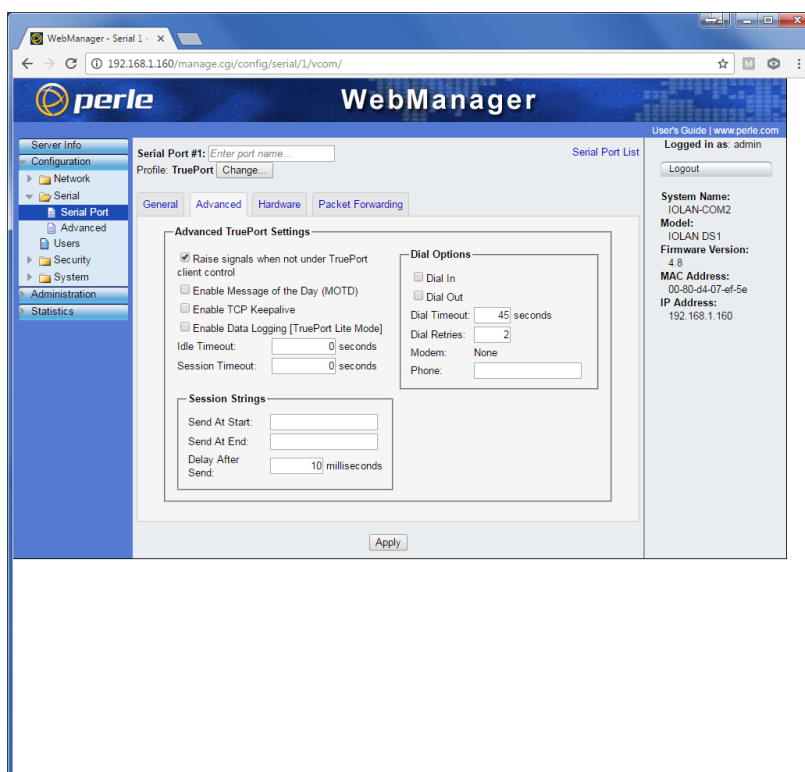


Figure 22.

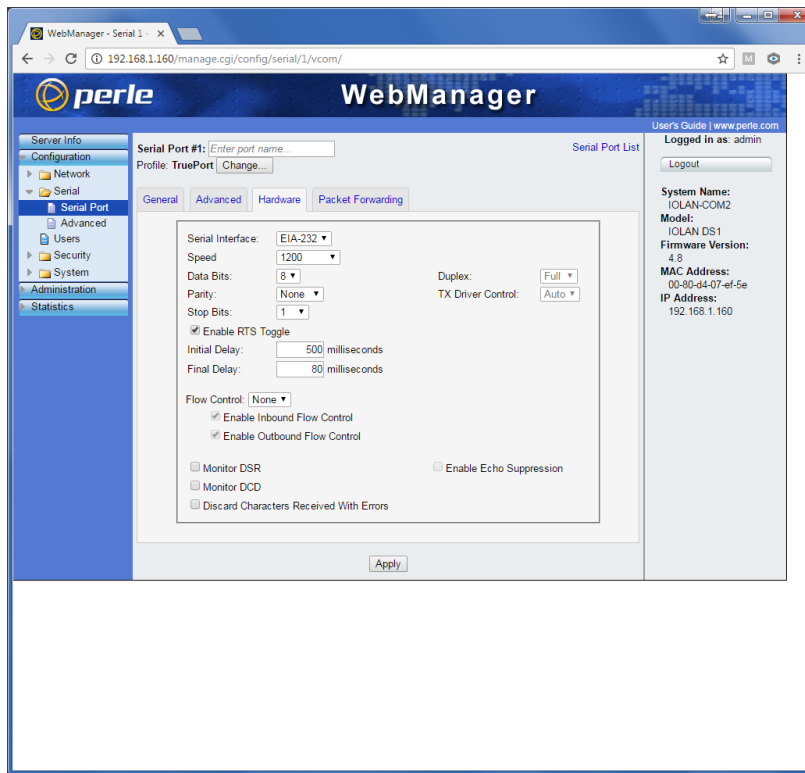


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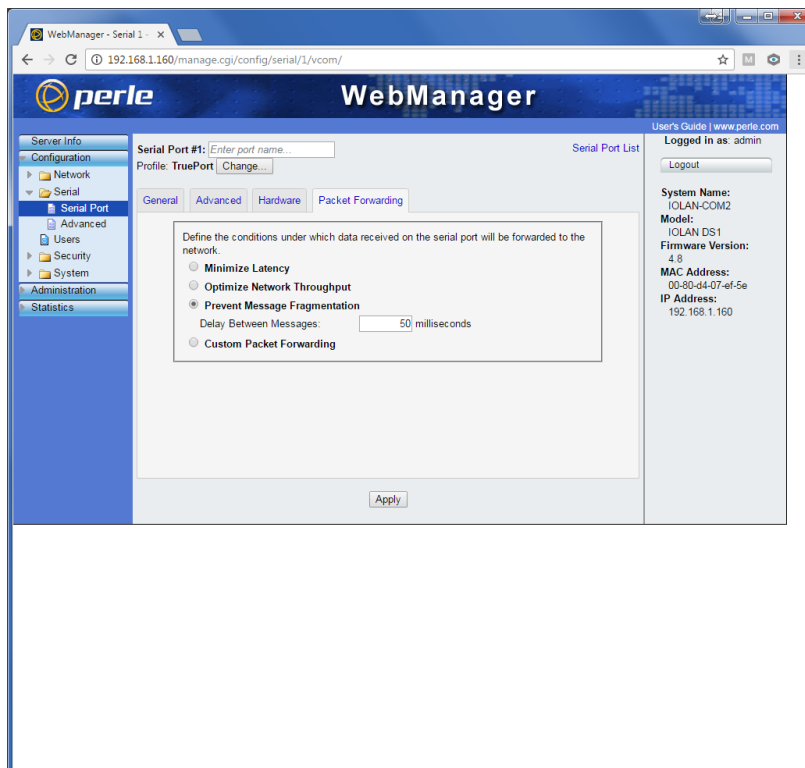


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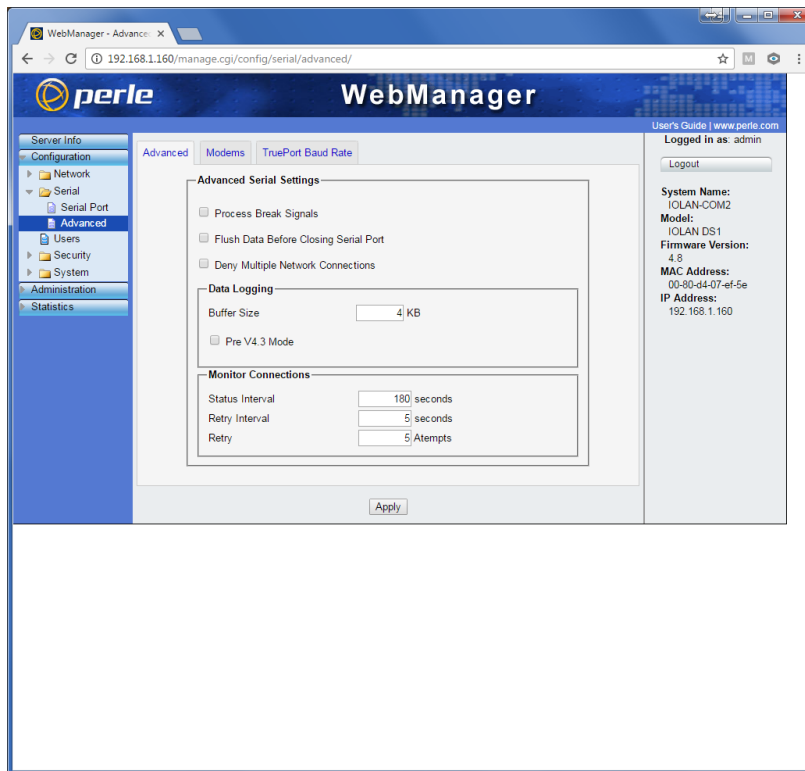


Figure 25.

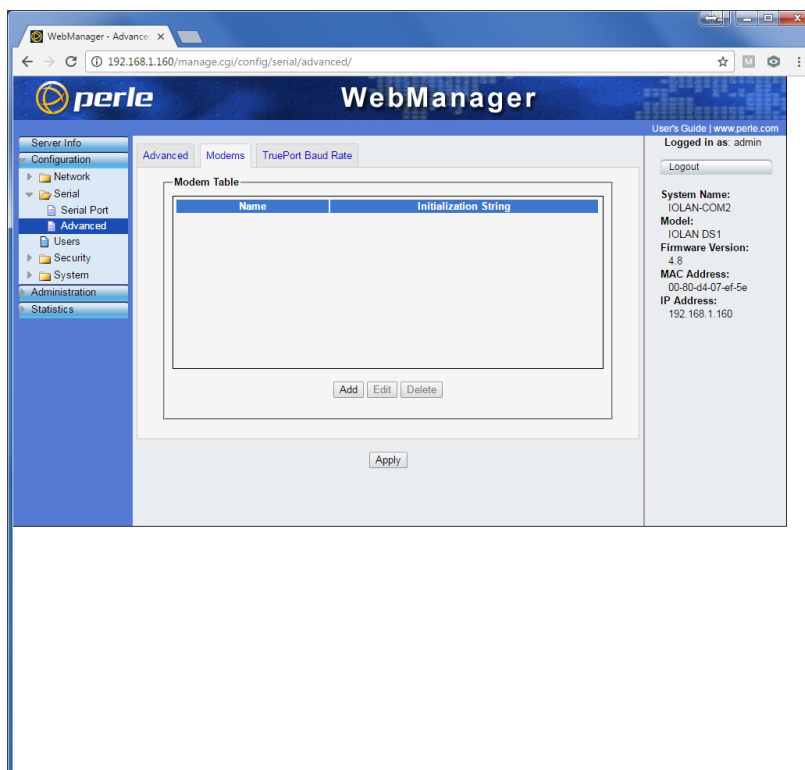


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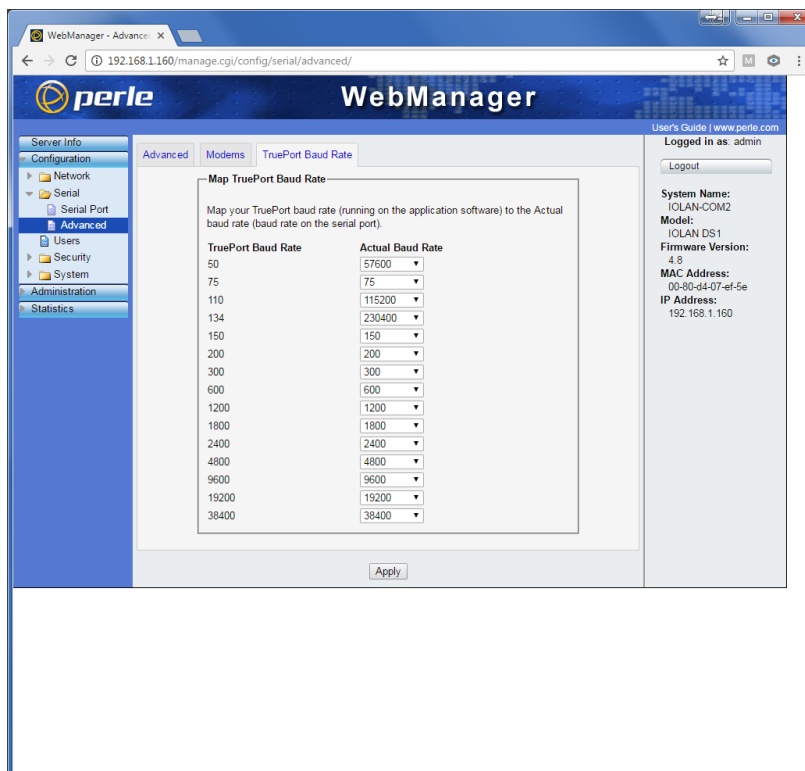


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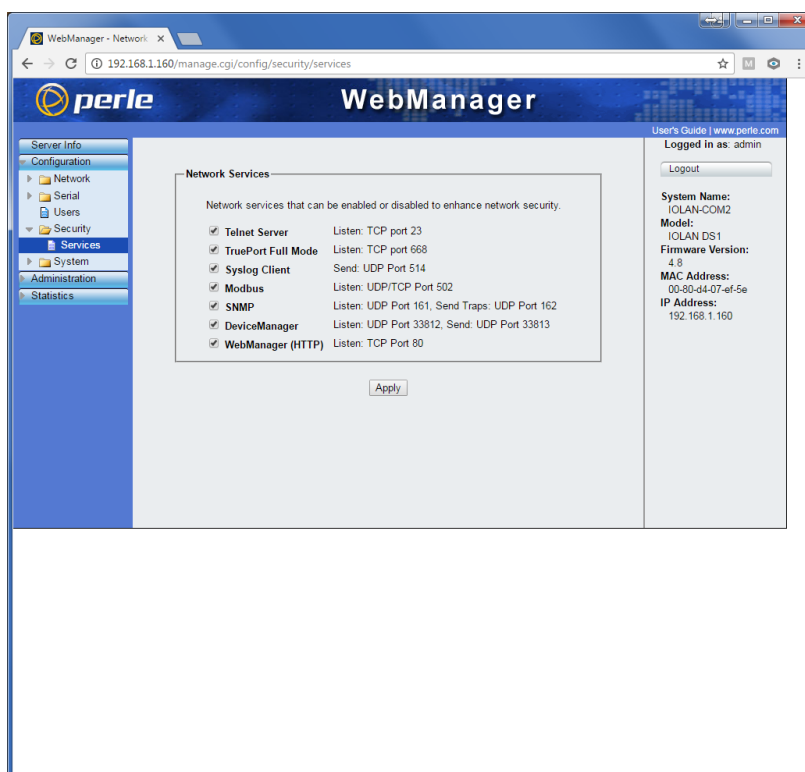


Figure 28.

## **TruePort Device Driver Installation and Configuration**

**TruePort** – the free device driver software provided by Perle – runs on the Desktop PC and provides a virtual serial port to the operating system. In essence, TruePort is the software that makes the IOLAN device appear to be an ordinary serial port that is physically attached to the PC via PCI, PCIe, or USB.

Step 1. Install the TruePort Driver software. The IOLAN device ships with a CD that contains this software, but it is recommended that the latest software be downloaded from Perle's website:

[https://www.perle.com/downloads/server\\_ds1.shtml](https://www.perle.com/downloads/server_ds1.shtml)

It is important to note that the TruePort software is available for Windows, Linux, and many flavors of Unix.

Step 2. After the TruePort device driver software is installed, launch the **TruePort Management Tool**.

Step 3. Enter the IP Address of the IOLAN device, and provide the IOLAN device with a COM Port Number. For example, COM2, COM3, COM4, et cetera.

Step 4. Perform either a hard reboot (or a soft reboot) of the IOLAN device.

The IOLAN device is now ready to be used for serial communication, just as an ordinary serial port.

The TruePort Device Driver Installation and TruePort Management Tool procedures are illustrated in Figures 29-33.

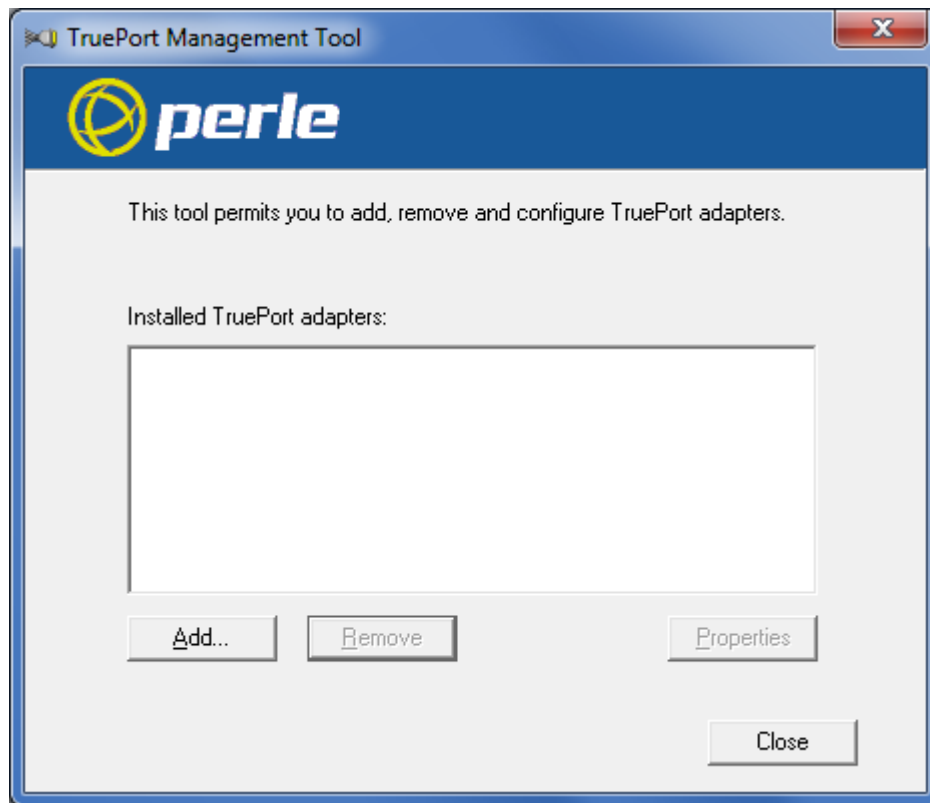
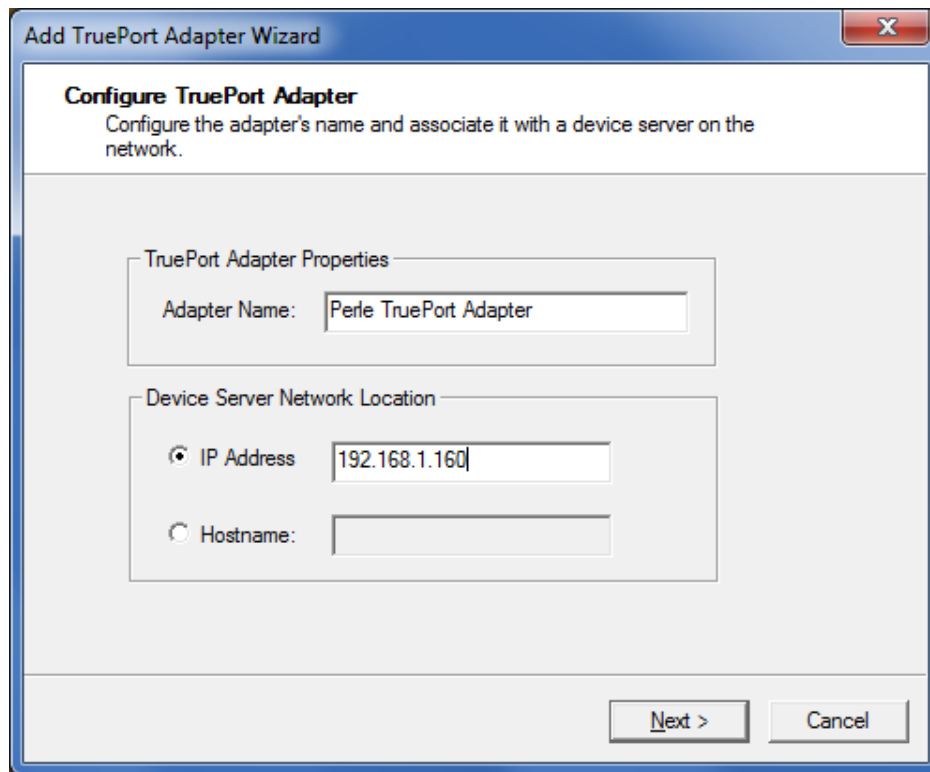


Figure 29.



**Add TruePort Adapter Wizard**

**Configure TruePort Adapter**  
Configure the adapter's name and associate it with a device server on the network.

TruePort Adapter Properties

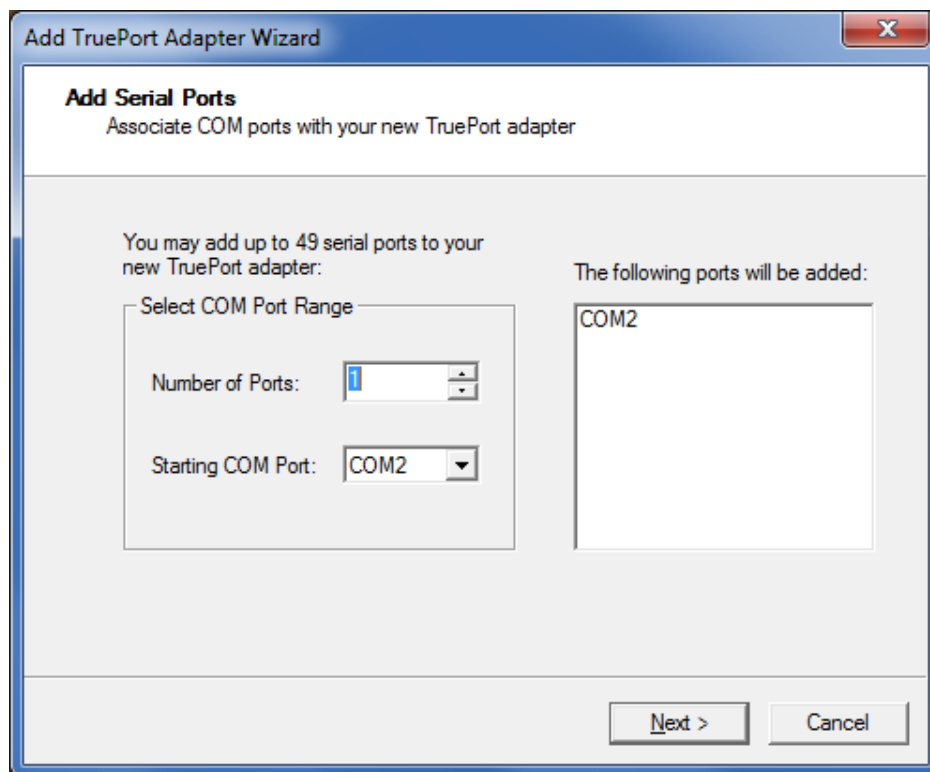
Adapter Name:

Device Server Network Location

☒ IP Address

☐ Hostname:

Figure 30.



**Add TruePort Adapter Wizard**

**Add Serial Ports**  
Associate COM ports with your new TruePort adapter

You may add up to 49 serial ports to your new TruePort adapter:

Select COM Port Range

Number of Ports:

Starting COM Port:

The following ports will be added:

Figure 31.

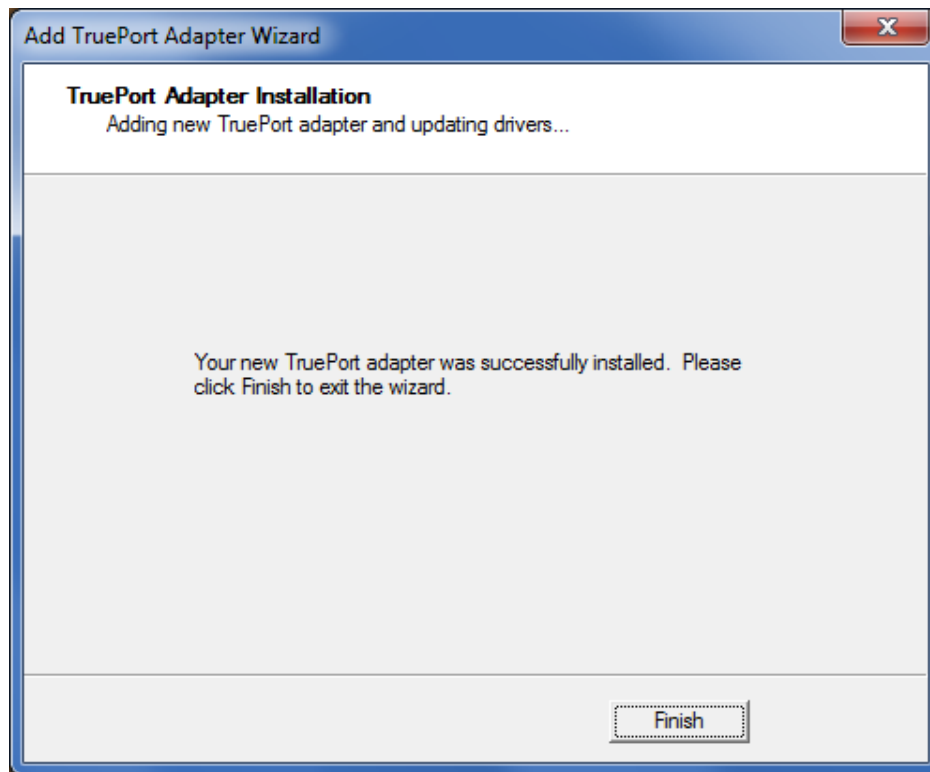


Figure 32.

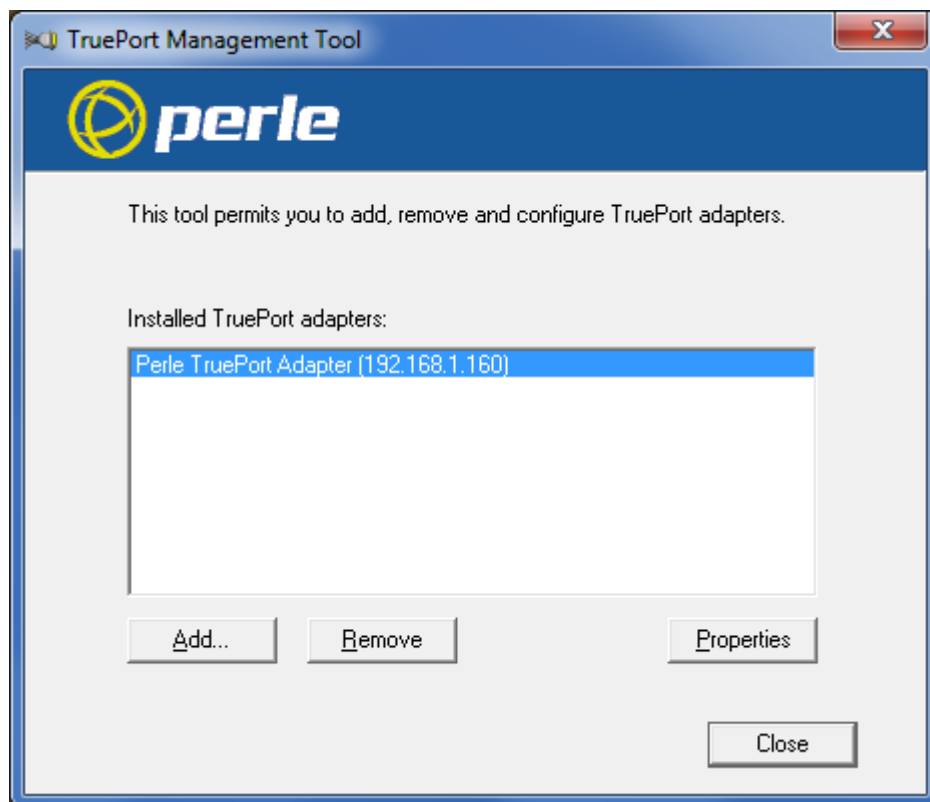


Figure 33.