7700PTX-AP

Network-Controlled Protocol Translator

User's Guide

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Revision History

Document Revision	Date	Notes	Applies To Firmware
1	July 14, 2005	Initial release.	1.00 Build 10
2	Sep 05	Updated	

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1 Overview

1.1 Ports

The 7700PTX-AP receives Andromeda protocol UMD text and tally information on a serial port and translates that information into a format suitable for transmission to PPVs/VIPs.

The 7700PTX-AP is an Andromeda (ASCII-plus) protocol converter that has the following external ports:

- 4 serial ports
- 1 monitoring & debug port
- 10/100 Ethernet port

1.2 Protocols

1.2.1 Incoming

The 7700PTX-AP accepts the Andromeda (ASCII-plus) protocol on any of its four serial ports.

1.2.2 Outgoing

The 7700PTX-AP transmits only the Image Video protocol.

1.3 Typical Usage

A typical network setup might consist of Figure 1-1, in which an Andromeda device is connected to serial 1 of the 7700PTX-AP that communicates with two PPVs distributed over two MVP chassis.

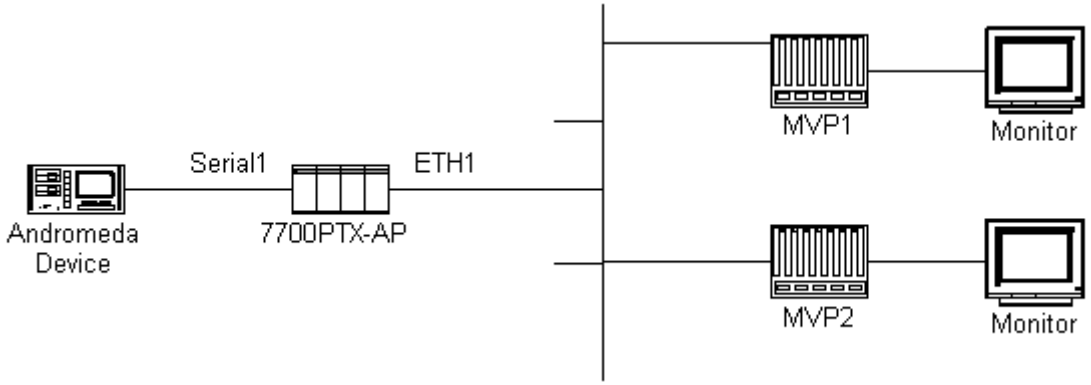


Figure 1–1: Typical Network Environment

2 Configuration

2.1 Configuration Steps

The basic steps to configuring the 7700PTX-AP are:

1. Connect a PC running a console application such as Windows *HyperTerminal* to the 7700PTX-AP debug/monitor port, which is the debug console, via the adapter cable
2. Power on the 7700PTX-AP
3. Configure the 7700PTX-AP network settings
4. Configure the parameters of each serial port to match those of the connected Andromeda equipment
5. Configure the IP address and TCP port of the peers that will receive the UMD protocol stream
6. Power off the 7700PTX-AP
7. Connect the Andromeda equipment to the 7700PTX-AP serial port(s)
8. Power on the 7700PTX-AP

For detailed instructions on configuring serial and network connections see Chapter 4

2.2 Card Edge Controls

2.2.1 Determining Current Settings

To read the current IP address during normal operation, press the front toggle switch DOWN. The IP address can be read on the four-character alphanumeric display.

2.2.2 Clearing Previous Settings

To clear ALL current settings, apply power to the card while holding the toggle switch UP. The Red LED (the left of the two LEDs) will light. When the Red LED is off and the Green LED (the right of the two LEDs) lights, the settings have been cleared, and you can enter your new settings.

2.2.3 Card Edge LEDs

LED 15 (when facing the card edge, on the left side; sixth from the top) is lit when Ethernet activity is detected.

All other card edge LEDs are for factory use only.

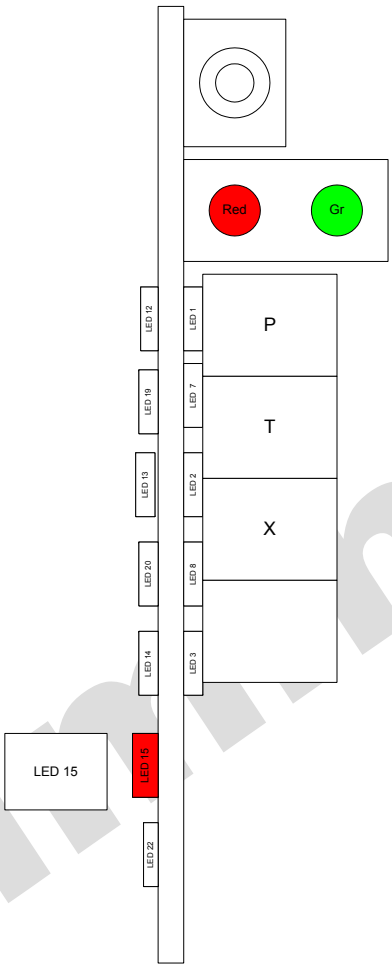


Figure2–1: PTX Upper Card Edge

2.3 Debug/Monitor Serial Port

The 7700PTX-AP is configured via a PC running a terminal emulation program, such as Windows *HyperTerminal*, over the 7700PTX-AP debug/monitor serial port, the header of which is labeled *J1*. The settings are given in Table 2-1.

Setting	Value
Baud rate	115,200
Number of data bits	8
Parity	None
Number of stop bits	2

Table 2–1: Debug/Monitor Serial Port Settings

2.4 Network Configuration

If DHCP is desired, then the *Use DHCP* field should be set to *TRUE*. Otherwise, the IP address, subnet mask, and gateway (if any) must be input and the *Use DHCP* field set to *FALSE*. These parameters are accessible via the debug console *Main Menu/Network Configuration*.

2.5 Serial Port Configuration

2.5.1 Wiring

Figure 2–2 shows the back plate connections available on the 7700PTX-AP.

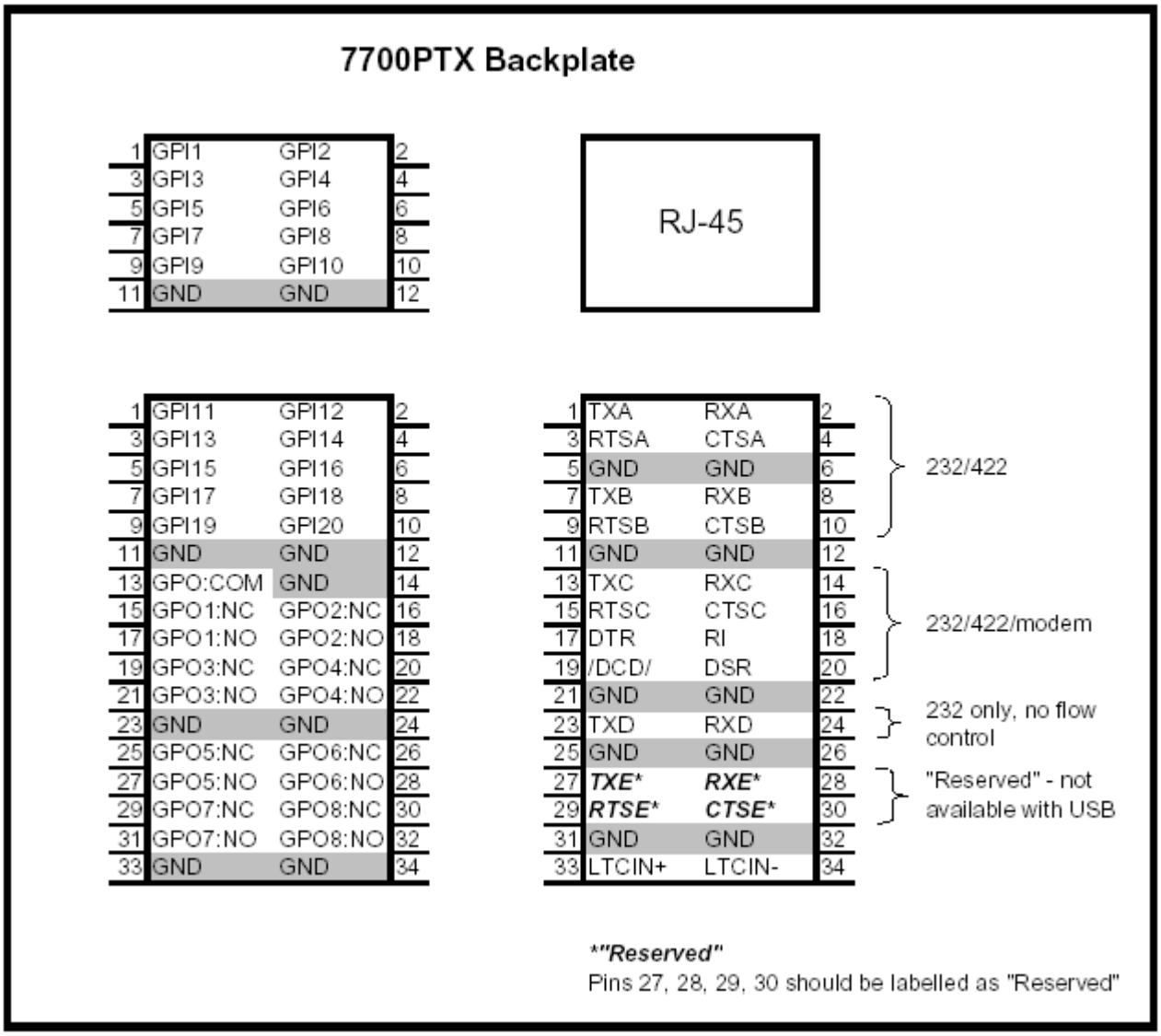


Figure 2–2: 7700PTX-AP Back Plate Connections

Table 2–2 shows how to connect the 7700PTX-AP to a standard 9-pin D-sub RS-232 connector.

DB9 Pin	7700PTX-AP Pin
2 (rx)	Tx
3 (tx)	Rx
5 (gnd)	Gnd

Table 2–2: RS-232 Connection

Table 2–3 shows how to connect the 7700PTX-AP via RS-422.

RS-422 Signal	7700PTX-AP Pin
Tx-	Rx (rx-)
Tx+	Cts (rx+)
Tx Common	Gnd
Rx-	Tx (tx-)
Rx+	Rts (tx+)
Rx Common	Gnd

Table 2–3: RS-422 Connection

2.5.2 Parameter Configuration

Table 2–4 lists the parameters associated with configuring the serial ports. Unless otherwise noted, the parameters apply to all serial ports. These parameters must match those of the Andromeda-based equipment being connected to the serial port(s) of the 7700PTX-AP. These parameters are accessible via the debug console's *Main Menu/Serial Port Setup*.

Parameter	Notes
Baud Rate	
Data Bits	
Parity	
Stop Bits	
Standard	For serial port 4, only RS-232 is valid.

Table 2–4: Serial Port Parameters

2.6 UMD Peer Configuration

Suppose we have the setup of Figure 2–3

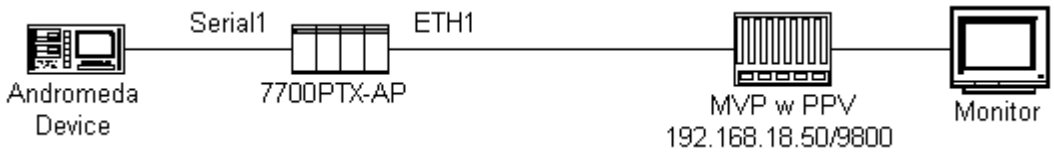


Figure 2–3: UMD Peer Configuration

Where:

- An Andromeda device is connected to Serial port 1 of the 7700PTX-AP
- The 7700PTX-AP communicates with a PPV with IP address 192.168.18.50, configured to listen for Image Video UMD data on TCP port 9800

- Via the debug console *Main Menu/Under Monitor Display Peer Setup/UMD Peer Setup via Ethernet 1,* configure peer 1 IP address as 192.168.18.50, and its TCP port as 9800.

3 Monitoring

3.1 UMD Peer Connections

When the 7700PTX-AP is rebooted and after its UMD configuration information is saved, it attempts to establish a TCP connection with each of its configured UMD peers. Once these connections have been established, UMD protocol data can be exchanged. The status of these connections can be accessed via the debug console *Main Menu/Show task state*. Consider the following example:

UMD peer status...

Port	Dst Address	Tcp Port	Status
****	**********	********	**********
E1	192.168.18.50	9800	ready
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set
E1	0.0.0.0	0	no address set

For this case a single UMD peer is configured on the 7700PTX-AP. The *status* column lists the TCP connection status between the 7700PTX-AP and the peer with address 192.168.18.50 and TCP port 9800. Table 3–1 lists the possible statuses and their meaning.

Status	Meaning
initializing	The TCP connection is being initialized.
no address set	No IP address/TCP port has been configured for this peer entry.
req sock alloc	The TCP connection is being initialized.
sock alloc fail	TCP connection initialization has failed.
req sock conn	A TCP connection request has been sent to the peer. The 7700PTX-AP is waiting for a response.
sock conn fail	The TCP connection request attempt has failed.
sock tx fail	A TCP connection is established but the last attempt to transmit data over it failed.
ready	The TCP connection is active and ready to send UMD data.

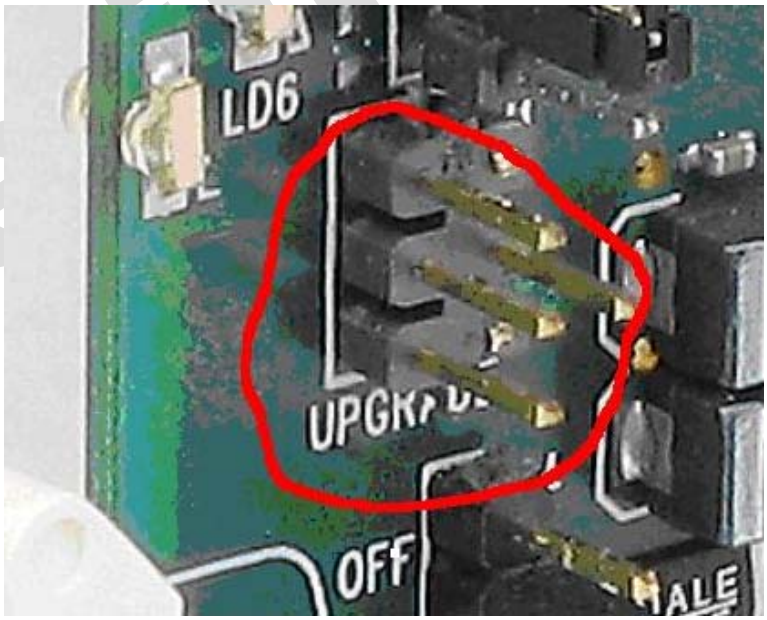
Table 3–1: UMD Peer TCP Connection Statuses

4 Configuring Network and Serial Connections

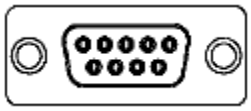
4.1 Making the Serial Connection

1. Take the small, keyed, four–pin end of the upgrade cable provided by Evertz

2. Connect it to the four-pin interface (J1) near the front of the 7700PTX, directly above the card unlock latch.



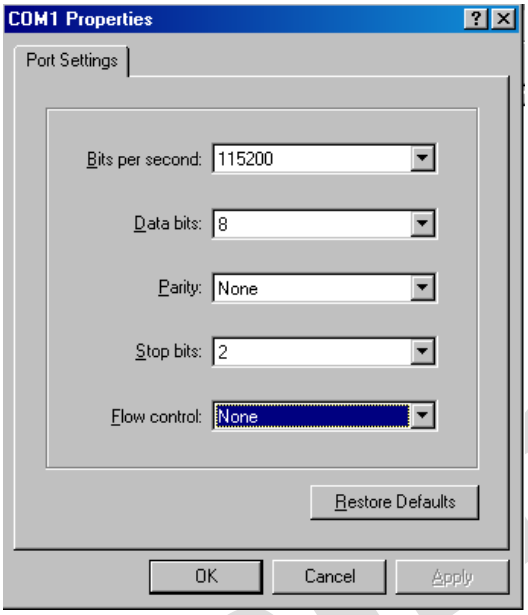
3. Connect the other end of the upgrade cable to the serial or COM port of the computer. This is commonly called a DB-9 connector.



4.2 Configuring the Serial Connection

1. On the Windows computer, click “Start”. A menu opens.
2. Click “Programs”. A menu opens.
3. Click “Accessories” A menu opens.
4. Click “Communications”. A menu opens.
5. Click “HyperTerminal”. A window opens.
6. Enter a name for your connection. Example: “PTX”.
7. Press the <Enter> key. A new “Connect To” window opens.

8. Enter country and area code details in the appropriate spaces. If COM1 is already taken for another device, choose COM2.
9. Press the <Enter> key or click OK. “HyperTerminal” and “Properties ”windows open.

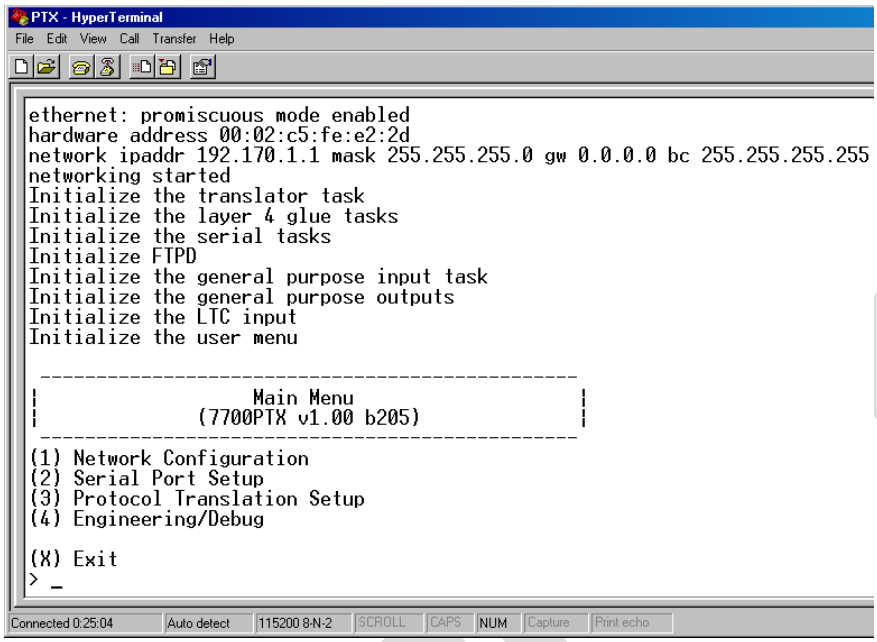


10. Enter the information as listed in the illustration above, the same as in the table below.

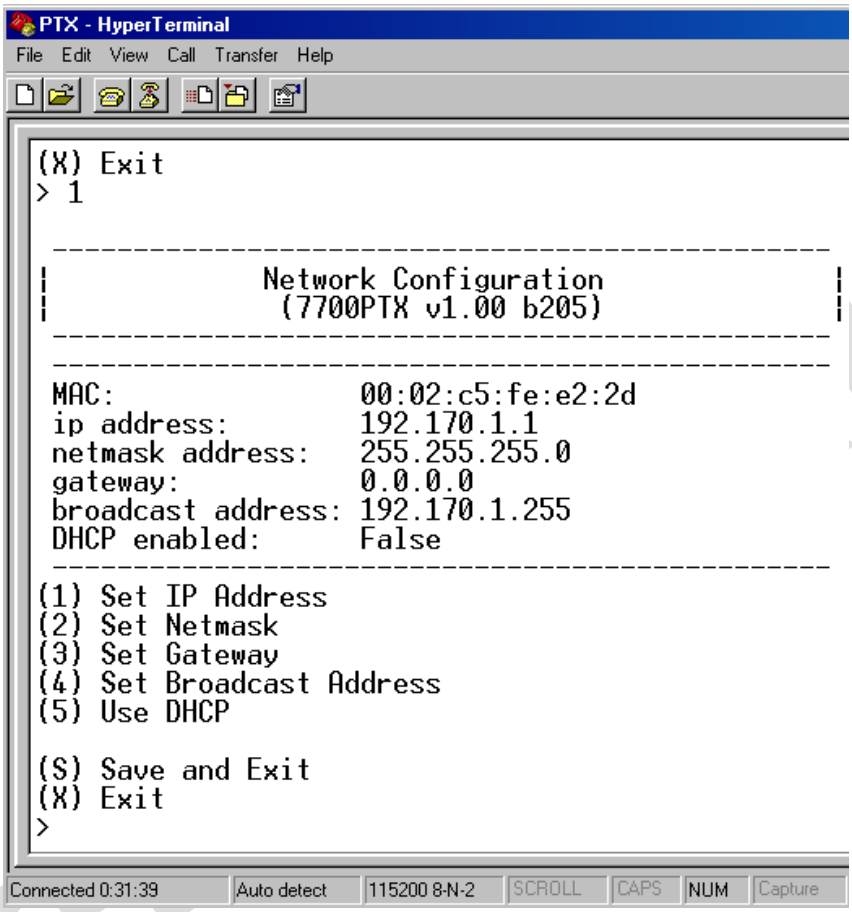
Baud	115200
Data bits	8
Parity	None
Stop bits	2
Flow Control	None

11. Press the <Enter> key or click OK. The "Properties" window closes, leaving the HyperTerminal window open.

12. Apply power to the card. The boot sequence is displayed in the HyperTerminal window.



13. Use the numbered menu on the HyperTerminal window to change settings. For example, press 1 and <Enter> to change the Network Configuration, including IP address, Net Mask, Gateway, and Broadcast Address, or to use DHCP.



4.3 Finding the Computer IP Address

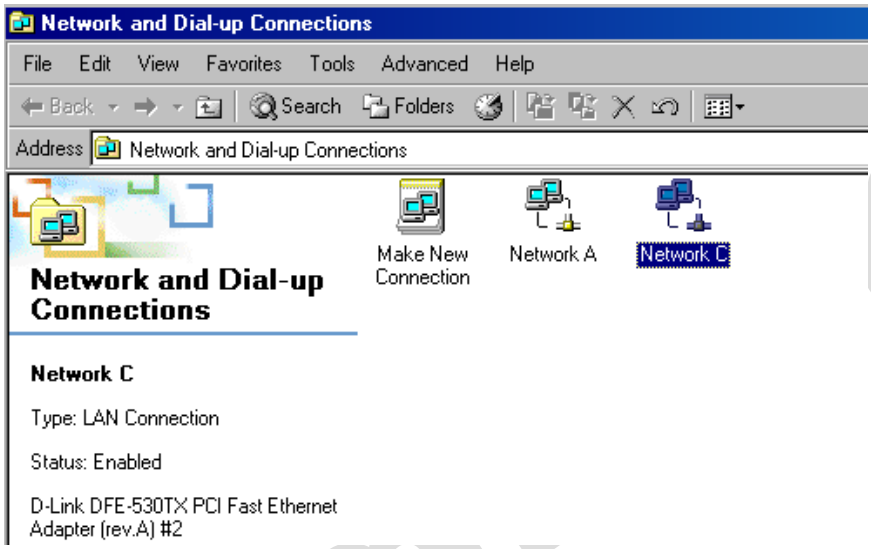
On a network, you might not have any control over what the IP address of your computer is. The following example is for Windows 2000, which may differ from other operating systems.

To learn the IP address of your computer in MSFT Windows 2000:

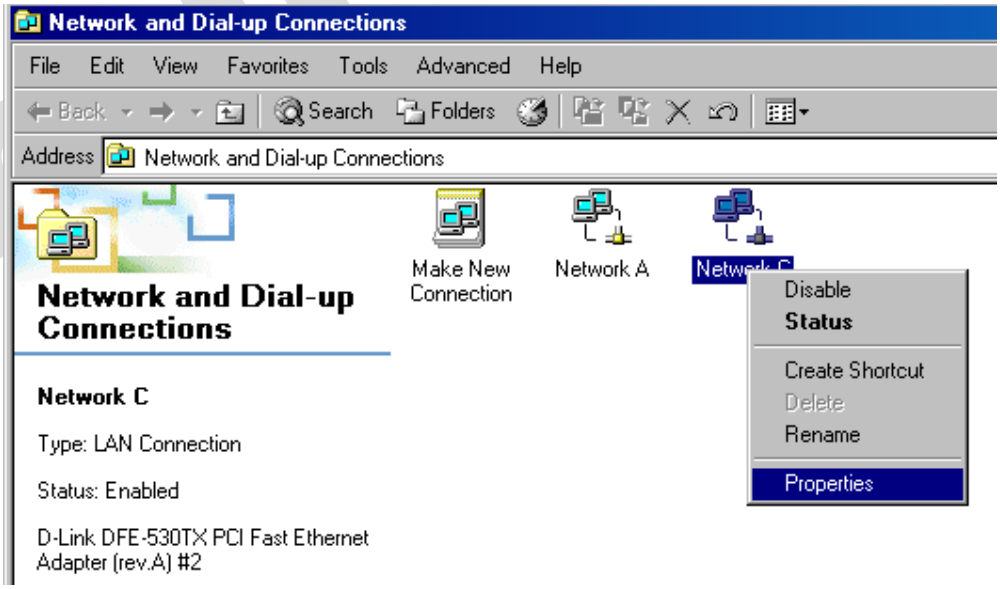
1. Click “Start”. A menu opens.
2. Click “Programs”. A menu opens.
3. Click “Accessories” A menu opens.
4. Click “Communications”. A menu opens.
5. Click “Network and Dial-up Connections”. A new pane opens. In the new pane will be icons, including one titled “Make a New Connection”. Your network card icon(s) should also be visible there.

If there is no network card icon, or none configured in the computer, please see your IT staff

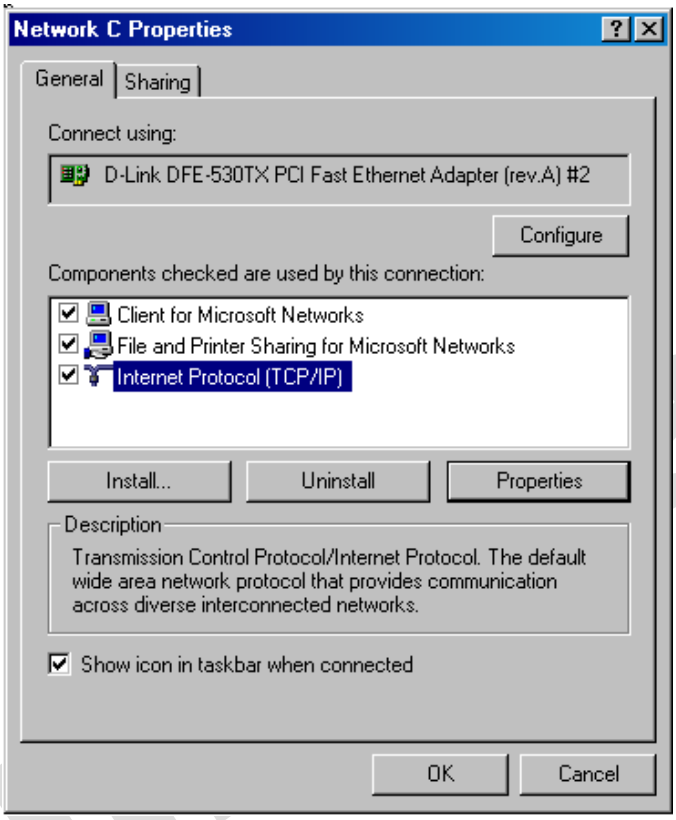
In the example below there are two Network Interface Cards. Network A is the corporate network, which we won't change. Network C is what we'll use to connect to the PTX.



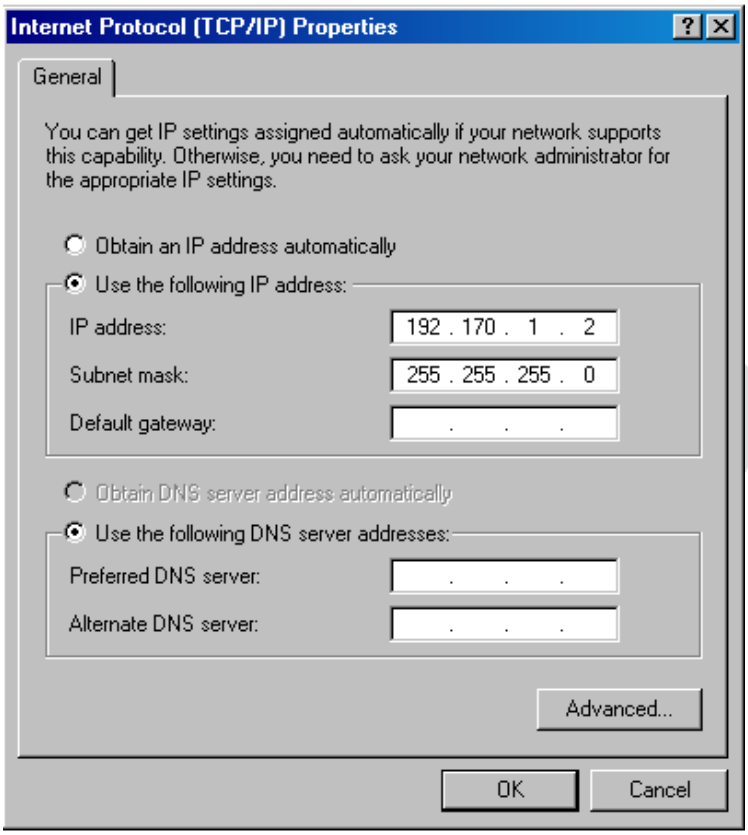
6. Highlight the icon of the NIC you wish to use to connect with the PTX.
7. Right click the icon. A menu opens.



8. Click "Properties". A Network Properties window opens.



9. Ensure a box next to "Internet Protocol (TCP/IP)" is checked, meaning it is installed. If TCP/IP is not installed in the computer, please see your IT staff.
10. Highlight "Internet Protocol (TCP/IP)"
11. Click on the PROPERTIES button. A TCP/IP Properties window opens.



12. View the IP Address provided. If no IP address is present, you must enter one, as you cannot obtain one automatically from the PTX.

4.4 Setting the Computer IP Address

13. In the "Properties" window, click the round box next to "Use the following IP address".
14. Enter the IP address desired. Example: 192.170.1.2
15. Your PTX and NIC must be on the same subnet. If no number is already specified, enter 255.255.255.0 as the Subnet Mask.
16. Click OK. The TCP/IP Properties window closes.
17. Click OK. The Network Properties window closes.

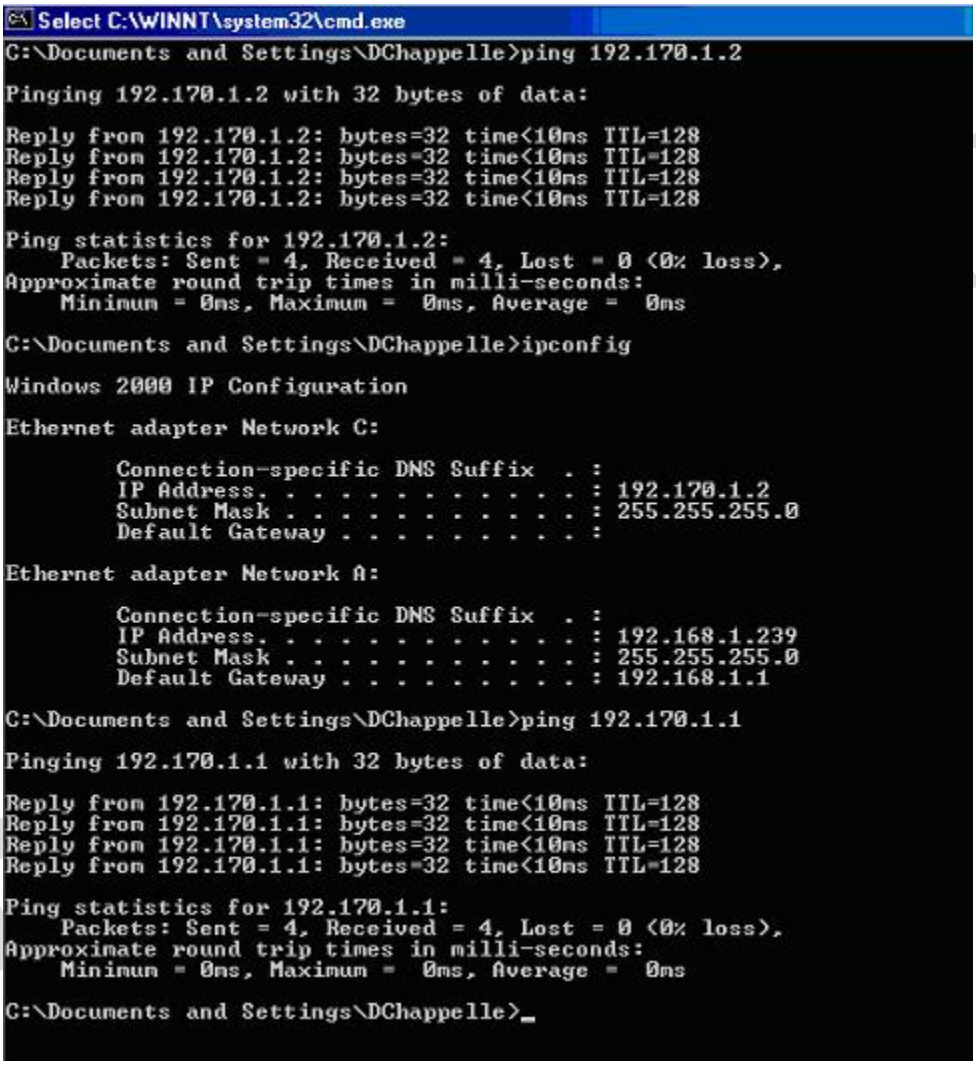
During normal operation, press down the card edge toggle switch to view the IP address on the card edge LCD.

4.5 Testing an Ethernet Connection

Ping is a method of determining if a device is connected to a network. You can ping the addresses of your PTX and computer network interface cards.

1. Click Start. A menu opens
2. Click Run. A windowpane opens

3. Type “Cmd” and press enter. The Command Prompt windowpane opens.
4. At the Command Prompt, type *ping*, space, and the IP address of the device you are pinging. Press Enter. You should see the results of your ping in the command prompt window.



Once your computer NIC IP Address is correctly configured you can communicate with other devices on the network.

5 Performing a Firmware Upgrade

There are two ways to upgrade PTX firmware:

1. Using a terminal application such as *HyperTerminal* to perform the upgrade via a serial connection
2. Using FTP to perform the upgrade via TCP/IP

FTP is recommended, as it is much quicker.

5.1 FTP

Suppose the PTX IP address is 192.168.18.22, its firmware file is called ptx.bin, and the firmware file is located in c:\temp.

1. Open a command prompt window (in Windows: Start/Programs/Accessories/Command Prompt)
2. Enter the command: *cd c:\temp*.
3. Enter the command: *ftp –A 192.168.18.22*.
4. Enter the FTP command: *put ptx.bin*.
5. When the transfer is complete enter the FTP command: *bye*.
6. Step 5 begins the process of saving the firmware to the non-volatile flash of the PTX. The save process is displayed as a percentage on the PTX LCD. Once the process is complete, the PTX LCD again displays the product name and firmware version.
7. Power off the PTX.
8. Power on the PTX.

5.2 Serial

Suppose the firmware file is called ptx.bin:

1. Power off the PTX.
2. Connect an adapter cable to a PC running a console or terminal application, such as Windows *HyperTerminal*, to the PTX debug/monitor port.
3. Set the terminal application serial port settings to 115200 8 N 2.
4. Set the PTX run/upgrade jumper to the upgrade position.
5. Power on the PTX.
6. After a few moments, the prompt *PPCBOOT>* will appear. Enter the command "*upload"*.
7. Start the firmware upload on the terminal application (for instance, in *HyperTerminal* select Transfer/Send File…), use Xmodem as the transfer protocol, and select firmware file ptx.bin.
8. Once the upload is complete the message *upload okay* is displayed.
9. Power off the PTX.
10. Set the PTX run/upgrade jumper to the run position.
11. Remove the serial adapter cable.
12. Power on the PTX.