

Using DeviceMaster® Primo for Pair Connect and Raw Connect Methods

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URL References

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Second Edition, December 19, 2002

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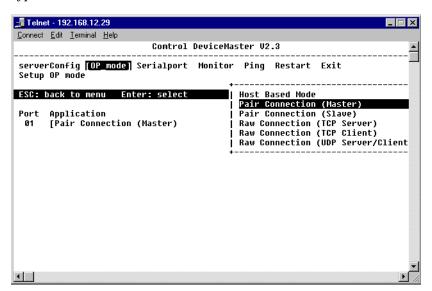
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Other documents related to this one are:

- DeviceMaster Primo Serial Port Server Hardware Installation (p1portHW.pdf).
- <u>DeviceMaster Primo Serial Port Server Device Driver Installation for Windows NT (p1pWinNT.pdf).</u>
- <u>DeviceMaster Primo Serial Port Server Device Driver Installation for Windows 98/Me (p1pWin9x.pdf).</u>
- <u>DeviceMaster Primo Serial Port Server Device Driver Installation for Windows 2000 (p1pWin2k.pdf).</u>
- <u>DeviceMaster Primo Serial Port Server Device Driver Installation for Windows XP (p1pWinXP.pdf).</u>

Red underscored items are links to URLs. Blue underscored items are links within this document or to another document on the media.

Note: If you copy this document from the ftp/Web or CD and do not use the procedure discussed on the CD, you will get an error message when selecting hyperlinks outside of this document.



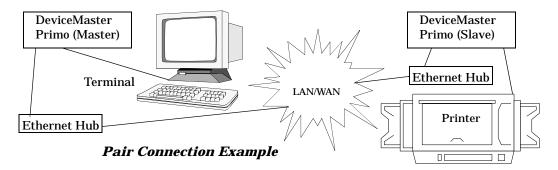
Operating Mode Short-cut Telnet Menu

This document discusses the following topics:

- Pair Connect overview that discusses configuration methods.
- How to configure two DeviceMaster Primo units using Pair Connect.
- How to configure the ports using Raw Connect TCP.
- How to configure the ports using Raw Connect UDP.
- Using Telnet.

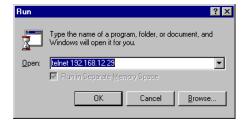
Pair Connection Mode

You use a combination of the Master and Slave Pair Connection operating modes to connect two DeviceMaster Primo units. Use the following two procedures.



Pair Connection (Master)

1. From the **Start** menu, select the **Run** command.



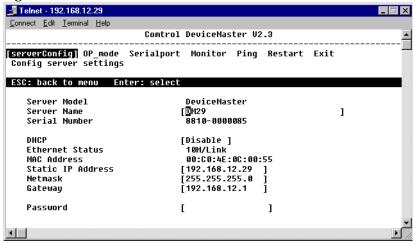
2. Type *Telnet* plus the master Primo IP address, and select the **OK** button.



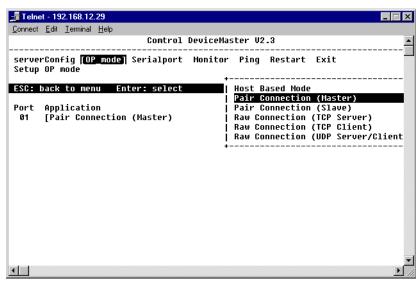
3. Confirm that it is a vt100 session, and press the **Enter** key.

4. Use the arrow keys to select the **serverConfig** menu item, and press the **Enter** key.

If you need to, use the **Server Name** field to change the name of your DeviceMaster. Then use the **arrow keys** to move to the next configurable setting.

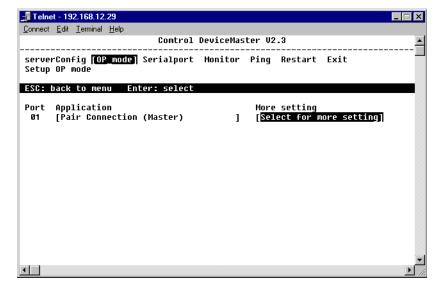


- 5. Press the **Esc** key to return to the menu. Use the arrow keys to select the **OP_mode** menu item, and press the **Enter** key
- 6. Select the item in the **Application** list, and press the **Enter** key to display connection options.



7. Select the **Pair Connection (Master)** item from the pop-up list. Press the **Enter** key.

8. From the **More setting** list, highlight the **Select for more setting** item, and press the **Enter** key.

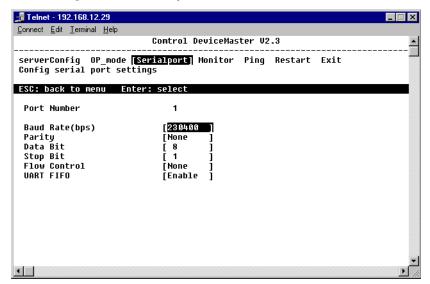




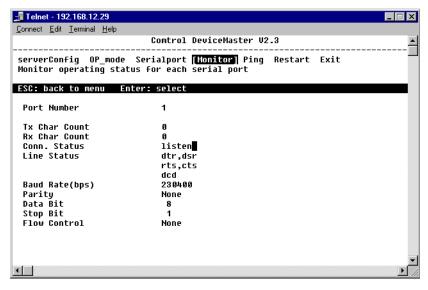
- 9. Review the following values, and make any changes if needed:
 - Remote IP Address
 Enter the IP address of the single remote Slave device.
 - TCP alive check time Amount of minutes that Telnet keeps the program active.

10. Press the **Esc** key twice to return to the menu. Select the **Serialport** option, and press the **Enter** key.

Review the options. Take note of the port information and compare the Master and the Slave parameters. They must be the same.



11. Press the **Esc** key to return to the main menu. Select the **Monitor** option. Review the options.



12. Press the **Esc** key to return to the menu. Select the **Restart** option to save any changes.

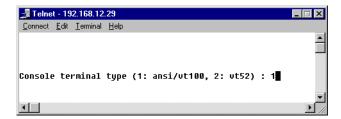
Pair Connection (Slave)

Setting the parameters for a Pair Connection requires two procedures. Use the previous procedure, Pair Connection (Master), to complete the connection.

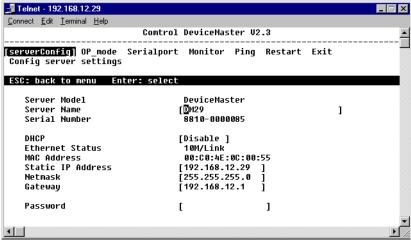
1. From the **Start** menu, select the **Run** command.



2. Type *Telnet* plus the slave Primo IP address, and select the **OK** button.

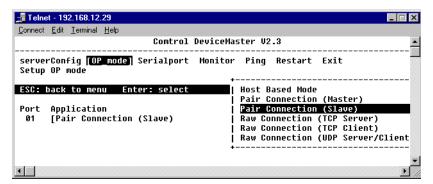


- 3. Confirm that it is a vt100 session, and press the **Enter** key.
- 4. Use the arrow keys to select the **serverConfig** menu item, and press the **Enter** key. Review the values.

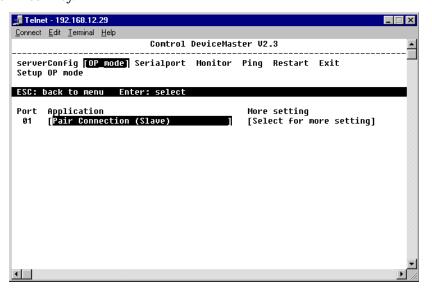


5. Press the **Esc** key to return to the menu. Use the arrow keys to select the **OP-mode** menu item and press the **Enter** key.

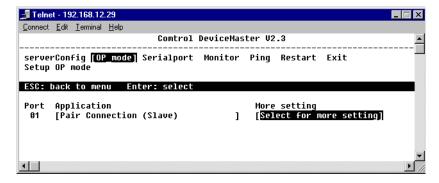
6. Select an item in the **Application** list, and press the **Enter** key to display connection options.

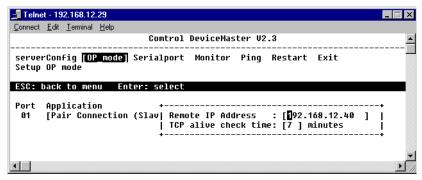


7. Use the arrow keys to select the **Pair Connection (Slave)** item, and press the **Enter** key.



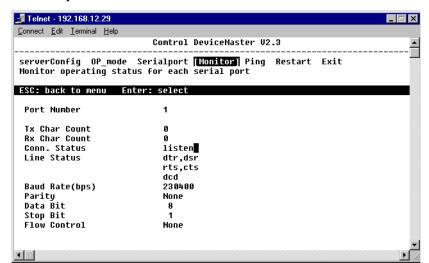
8. From the **More setting** list, highlight the **Select for more setting** item, and press the **Enter** key.





- 9. Review the following values:
 - Remote IP Address
 Enter the IP address of the single remote Master device. You can leave this field blank if you want to connect to multiple servers.
 - TCP alive check time
 Amount of minutes that Telnet keeps the program active.
- 10. Press the **Esc** key to return to the main menu. Select the **Serialport** option. Review the values. The values must be the same as the Master device.



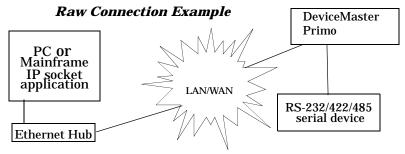


11. Press the **Esc** key to return to the menu. Select the **Monitor** option. Review the options.

12. Press the **Esc** key to return to the menu. Select the **Restart** option to save any changes.

Raw Connection Mode

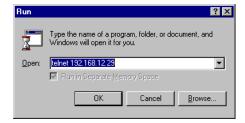
This operation mode is used to transmit "raw" data between a remote network card and a DeviceMaster Primo and then to a serial device. The word "raw" in this case simply refers to the fact that DeviceMaster Primo does not strip away any of the transmitted packets' layers of data, but simply passes it on "as is." You must use either a Telnet Console or Console Terminal connection to set up this mode.



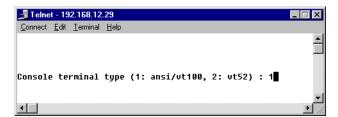
This Raw connection acts as a passive server (TCP Server) that listens for TCP connection requests from client hosts. The host reads or writes the serial data bi-directionally after the TCP connection has been established.

TCP Server

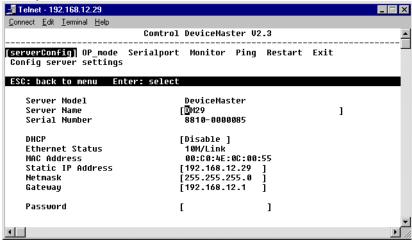
1. From the **Start** menu, select the **Run** command.



2. Type *Telnet* plus the Primo IP address, and select the **OK** button.



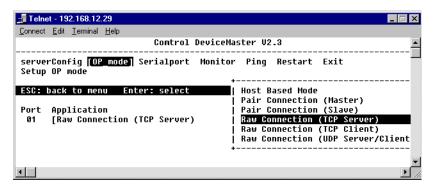
- 3. Confirm that it is a vt100 session, and press the **Enter** key.
- 4. Use the arrow keys to select the **serverConfig** menu item, and press the **Enter** key. Review the values.



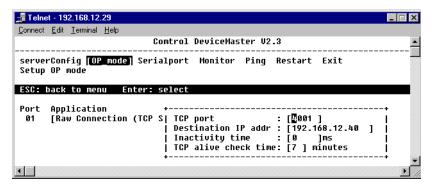
5. Press the **Esc** key to return to the menu. Use the arrow keys to select the **OP_mode** menu item, and press the **Enter** key.



6. Select the an item on the **Application** list, and press the **Enter** key to display the connection options.



- Select the Raw Connection (TCP Server) item from the pop-up box. Press the Enter key.
- 8. From the **More Setting** list, highlight the **Select for more setting** item, and press the **Enter** key.



9. Set up a **TCP port** number, **Destination IP address**, **Inactivity time**, and **TCP alive check time**, as the following describes.

TCP port

Enter the desired TCP port number.

Destination IP address

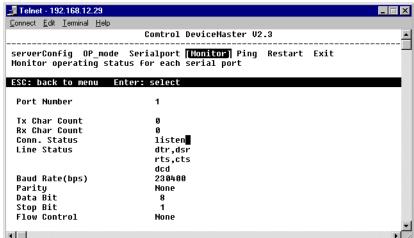
Enter the IP address of the remote network card which will be sending raw data to your DeviceMaster Primo. To allow access for all hosts, leave the IP address blank.

Inactivity time

Enter the amount of time, in milliseconds, that will be allowed to expire before an inactive connection is shut down. Inactive connection stands for no data in/out via a serial port during the period, after that amount of time the system software will reset the serial port.

Alive timeout

Enter the amount of time, in minutes, that will be allowed to expire before a TCP/IP connection is shut down.



10. Press the **Esc** key twice to return to the main menu. Select the **Monitor** option.

11. Review the options and make any desired changes.

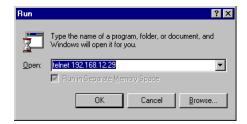
Note: The Connection Status is set to listen. After you restart the device, the TxChar Count and the Rx Char Count fields display data transfer activity.

12. Press the **Esc** key to return to the menu. Select the **Restart** option to save any changes.

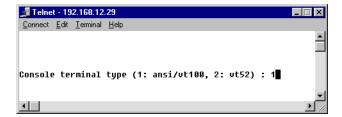
TCP Client

This Raw connection is an active client (TCP Client) that requests the TCP connection to the specific host for data transmission. The host reads or writes the serial data bi-directionally after the TCP connection has been established.

1. From the **Start** menu, select the **Run** command.

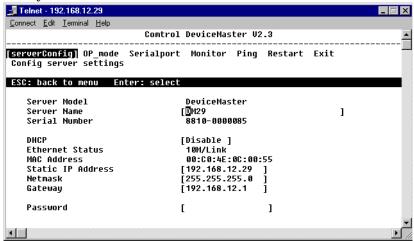


2. Type *Telnet* plus the Primo IP address, and select the **OK** button.



3. Confirm that it is a vt100 session, and press the **Enter** key.

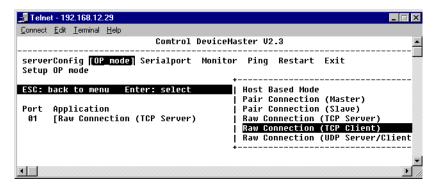
4. Use the arrow keys to select the **serverConfig** menu item, and press the **Enter** key. Review the values.



5. Press the **Esc** key to return to the menu. Use the arrow keys to select the **OP_mode** menu item, and press the **Enter** key.

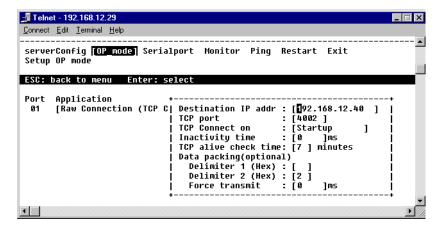


6. Select an item on the **Application** list and press the **Enter** key to display the connection options.



7. Select the **Raw Connection (TCP Client)** item from the pop-up box. Press the **Enter** key to display the port parameters.

8. From the **More Setting** list, highlight the **Select for more setting** item, and press the **Enter** key.



9. Set up a **TCP port** number, **Destination IP address**, **Inactivity time**, and **TCP alive check time**, as the following describes.

Destination IP address:

Enter the IP address of the remote network card which will be sending raw data to your DeviceMaster Primo. Leave the IP address blank to allow access for all hosts.

TCP port:

Enter the desired TCP port number.

TCP Connect on:

Select **Startup** for automatic TCP connecting to destination host after startup and ready. Select **Any character** for building up a TCP connection after receiving a serial character.

Inactivity time:

Enter the amount of time, in milliseconds, that will be allowed to expire before an inactive connection is shut down. Inactive connection stands for no data in/out via a serial port during the period. After that amount of time expires, the system software will reset the serial port.

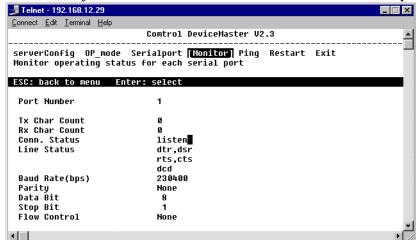
TCP alive check time:

Enter the amount of time, in minutes, that will be allowed to expire before a TCP/IP connection is shut down.

Data packing (optional):

- **Delimiter 1 (Hex)**: Keep the field blank if you do not want to use a trail delimiter, or enter a character in hex.
- **Delimiter 2 (Hex)**: Keep the field blank if you do not want to use a second trail limiter, or enter a character in hex.
- **Force transmit**: The system sends the serial data to the Ethernet. Keep it blank if you do not need force transmit.

DeviceMaster adds the **Delimiter** (Hex) and **Force transmit** (ms) options for customized data format. Once the user starts up with one or two of these settings, DeviceMaster will automatically send the data from serial port to Ethernet after receiving the delimiter character or receiving serial data time out. This option could meet your specified application requirements like a card reader, copy machine, scanner, and so on.



10. Press the **Esc** key twice to return to the menu. Select the **Monitor** option.

11. Review the options, and make any desired changes.

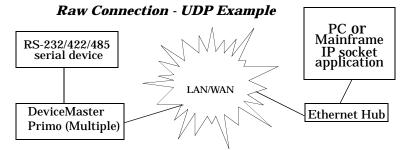
Note: The Connection Status is set to listen. After you restart the device, the TxChar Count and the Rx Char Count fields display data transfer activity.

12. Press the **Esc** key to return to the menu. Select the **Restart** option to save any changes.

Raw Connection - UPD

UDP Server

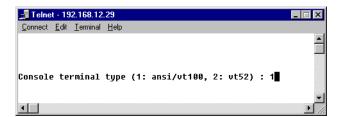
Setting the parameters for a UDP Raw Connection requires two procedures. Follow the UDP Server procedure first, then complete the UDP Client procedure.



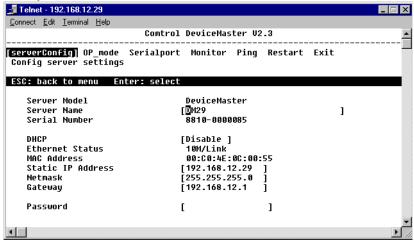
1. From the **Start** menu, select the **Run** command.



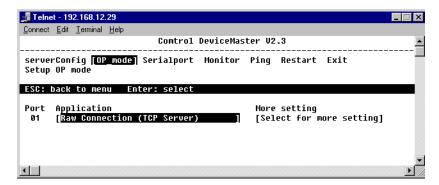
2. Type *Telnet* plus the Primo IP address, and select the **OK** button.



- 3. Confirm that it is a vt100 session, and press the **Enter** key.
- 4. Use the arrow keys to select the **serverConfig** menu item, and press the **Enter** key. Review the values.



5. Press the **Esc** key to return to the menu. Use the arrow keys to select the **OP_mode** menu item, and press the **Enter** key

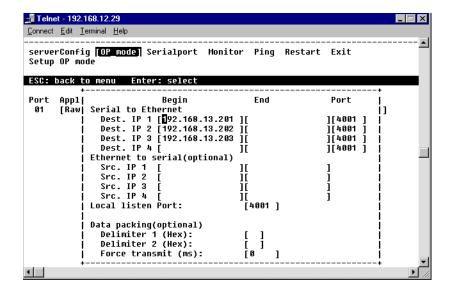


6. Select the an item on the **Application** list, and press the **Enter** key to display the connection options.



- Select the Raw Connection (UDP Server/Client) item from the pop-up box. Press the Enter key.
- 8. Highlight the **Select for more settings** item in the **More setting** list, and press the **Enter** key to display the port parameters





9. Consider the following parameters. When you finish entering the desired parameters, press the **Enter** key to return to the previous window.

Serial to Ethernet

Destination IP: A list of client IP addresses (for example; your primo) to which DeviceMaster transmits serial data (This can be the address of any device).

Begin and **End** fields allow for a range of IP addresses. To identify only one IP address, use the **Begin** field.

Port: The default Port number is 4001. If you change a range of Port numbers, they should be the same number.

Ethernet to Serial (Optional)

Src (Source) IP: A list of source IP addresses which DeviceMaster accepts data from and transmits it to the serial port. If you want to accept all hosts, keep the fields blank.

Local listen Port: The default Port number is 4001.

Data packing (Optional)

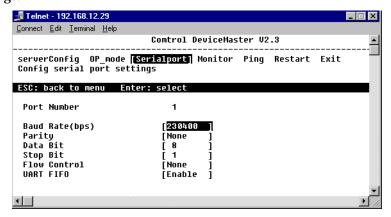
Delimiter 1 (Hex): Keep this field blank if you do not want to use a trail delimiter, or enter a character in hex.

Delimiter 2 (Hex): Keep this field blank if you do not want to use a second trail limiter, or enter a character in hex.

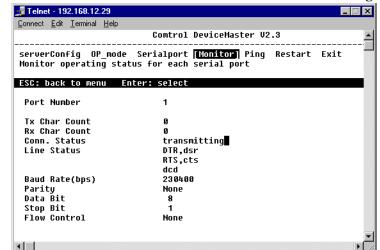
Force transmit: The system sends the serial data to the Ethernet. Keep the field blank if you do not need to use force transmit.

DeviceMaster adds the **Delimiter** (Hex) and **Force transmit** (ms) options for customized data format. Once the user starts up with one or two of these settings, DeviceMaster will automatically send the data from serial port to Ethernet after receiving the delimiter character or receiving serial data time out. This option could meet your specified application requirements like a card reader, copy machine, scanner, and so on.

10. Select the **Serialport** menu item, and press the **Enter** key. Review the parameters. Make sure that all your devices have the same port settings.



- 11. Press the **Esc** key to return to the main menu.
- 12. Select the **Monitor** menu item, and press the **Enter** key.



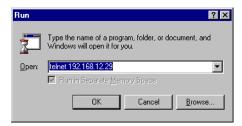
Note: The Connection Status states that the device is transmitting.

- 13. Press the **Enter** key to return to the main menu. Select the **Restart** menu item to restart and save the changes.
- 14. You have to repeat this procedure for each client device.

UDP Client

Setting the parameters for a UDP Raw Connection requires two procedures. Follow the UDP Server procedure first then complete the following UDP Client procedure.

1. From the **Start** menu, select the **Run** command.

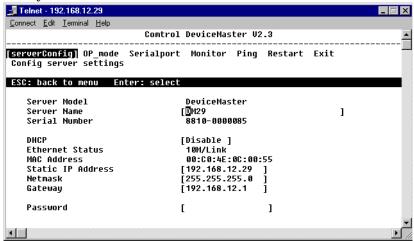


2. Type *Telnet* plus the first client Primo IP address and select the **OK** button. You have to repeat this procedure for each client device.



3. Confirm that it is a vt100 session, and press the **Enter** key.

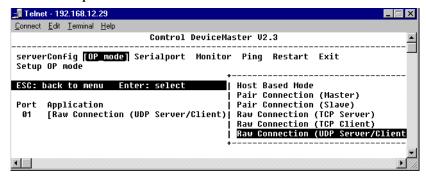
4. Use the arrow keys to select the **serverConfig** menu item, and press the **Enter** key. Review the values.



5. Press the **Esc** key to return to the menu. Use the arrow keys to select the **OP_mode** menu item, and press the **Enter** key



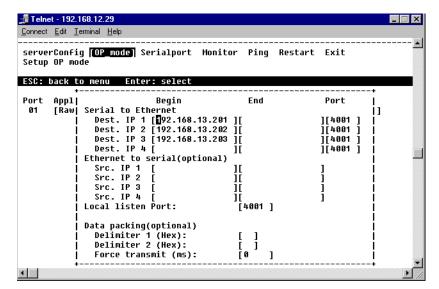
6. Select the an item on the **Application** list, and press the **Enter** key to display the connection options.



7. Select the **Raw Connection (UDP Server/Client)** item from the pop-up box. Press the **Enter** key to display the port parameters.

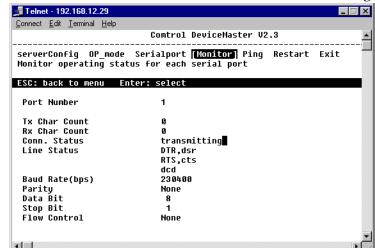
8. From the **More setting** list, highlight the **Select for more settings** item, and press the **Enter** key to display the port parameters.





- 9. Clear all the fields except for the **Port** and **Local listening Port** fields which you can keep at the default setting.

 You can enter the server DeviceMaster IP address if you want to transmit data from the client to the server.
- 10. Press the **Esc** key to return to the main menu.
- 11. Select the **Monitor** menu item, and press the **Enter** key.



Note: The Connection Status states that the device is transmitting.

- 12. Press the **Enter** key to return to the main menu. Select the **Restart** menu item to restart the device, and save the changes.
- 13. You have to repeat this procedure for each client device.

Telnet Console

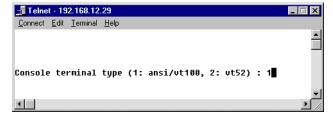
This section instructs you on how to use the Telnet Console Interface. The following discussion and examples were generated by running Telnet from a Windows NT host, although they apply equally well to all other Windows operating systems.

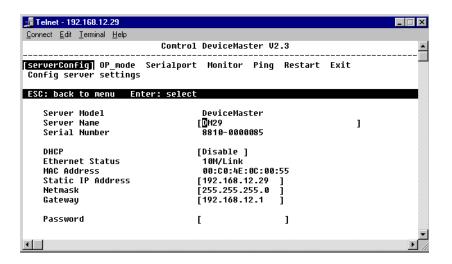
Starting Telnet

1. From the Windows desktop toolbar, select **Start** and then select **Run**. Type telnet 192.168.127.254 in the **Open** text box (change the IP address if it is different from the default address). Select **OK** to begin the Telnet session.



2. Select option 1 for ansi/vt100, and press the **Enter** key. This starts the Telnet Console Interface utility program, and displays the console's main menu.





Navigating the Telnet Console

After activating the Telnet Console, use the keyboard keys to maneuver about the vt100 window.

- While in the main menu, the left and right arrow keys move the cursor between menu headings, and pressing the Enter key activates whichever menu heading that is currently selected.
- After pressing the Enter key when you are in the main menu, use the Tab
 key, and the up and down arrow keys, to move between configurable options.
 Use the left and right arrow keys to move through certain configurable
 settings without making any changes. To modify a setting, such as a device
 name or IP address, use the appropriate letter and number keys on the
 keyboard.

Use the **Enter** key to open a menu containing a small number of options (for example, Yes and No) for configurable settings which have only a limited number of possible settings. The up and down **arrow keys** move the cursor between options, and the **Enter** key is used to select the option that is selected.

Use the Esc key to maneuver backwards. For example, if you have made
modifications to the settings listed under the serverConfig menu, press the
Esc key to return to the main menu.

Note: When you first activate the Telnet Console Utility's main menu, you may find that the arrow keys on your keyboard initially have no effect on the cursor. If this is true, on the Telnet menu bar:

1. Select **Preferences** on the **Terminal** menu.



- 2. Select the **VT100 Arrows** check box if it is blank.
- 3. Select **OK** to return to the Telnet Console window.

Telnet Console Menu Functions

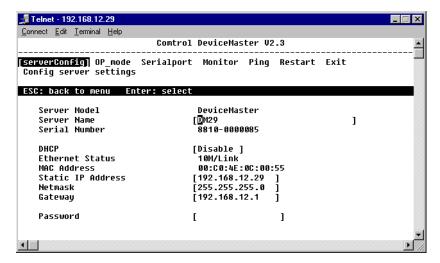
In this discussion, we outline the six main menu categories: **serverConfig**, **Op_mode**, **Serialport**, **Monitor**, **Ping**, **Restart**, and **Exit**. Note that the setting names are listed in the left column, with the current settings given to the right of each name.

Settings that can be edited are enclosed in square brackets, and those that can not be edited are not enclosed in brackets.

serverConfig Options

Using the **arrow keys**, maneuver the cursor so that **serverConfig** is selected, and press the **Enter** key to display the DeviceMaster attributes.

Use **Server Name** to change the name of your DeviceMaster. Use the **arrow keys** to select the first character of the current name, and type in the new name. Then use the **arrow keys** to move to the next configurable setting.

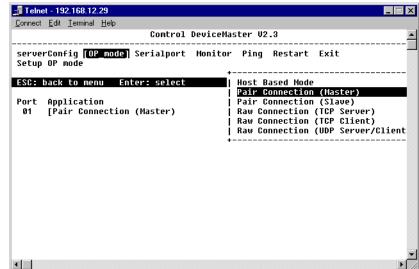


Op_Mode

Use the **Op_Mode** category to move between the six operating options. Use the **arrow keys** and position the cursor so that the current **Operating Mode** is selected; for example, **Host Based Mode**.

Press the **Enter** key to activate the short-cut menu that displays the six **Operating Mode** options: **Host Based**, **Pair Connection (Master)**, **Pair Connection (Slave)**, **Raw Connection (TCP Server)**, **Raw Connection (TCP Client)**, **and Raw Connection (UDP Server/Client)**. Use the up and down **arrow keys** to select the desired setting, and then press the **Enter** key. The new setting, enclosed in square brackets will appear in the **Application** list.

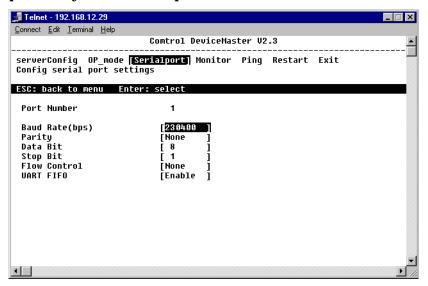
If you find that you have chosen the wrong setting, simply press the **Enter** key again to reactivate the short-cut menu, and select the correct setting.



When all the settings are correct, press the **Esc** key to return to the main menu.

Serialport Options

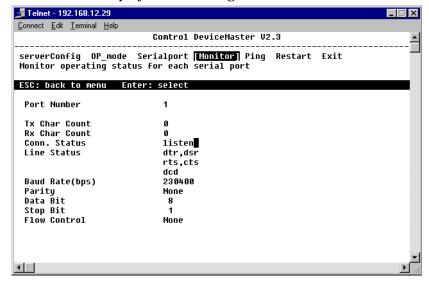
Using the left and right **arrow keys**, maneuver the cursor so that **Serialport** is selected, and press the **Enter** key to display the options **Port Number**, **Baud Rate (bps)**, **Parity**, **Data Bit**, **Stop Bit**, **Flow Control**, and **UART FIFO**.



Note that the **Serialport** window displays additional settings if the **Operating Mode** is set to **Raw Connection** in the **Op_mode** window.

Monitor

The Monitor window displays the following information.



Ping

Ping is a standard network testing function that checks to see if a computer with a particular IP address is logged into the network.



Restart and Exit

When you are sure that all of your settings are correct, return to the main menu, and select **Restart**. You will be prompted with a warning that your settings are going to change. Press the **Enter** key to confirm your changes.

If you decide to reject all of your modifications which you have made, return to the main menu and select **Exit**.

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U UDP Client 22 UDP Raw Connection 18