Windows XP Operating System

Device Driver Installation and Configuration

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Overview

Hyperlinks within the document are underscored and blue; URLs or external hyperlinks are underscored and red.

Driver Requirements

The RocketPort or RocketModem adapter (ISA, PCI, Universal PCI, or CompactPCI bus types supported) requires at least one host server running Windows® XP.

Locating Current Drivers

The latest driver can be located for your product by using the links to the web site or directly to the ftp site:

- *Downloads Page* on the web site (http://support.comtrol.com/download.asp)
- ftp://ftp.comtrol.com/RPort/Drivers/
- ftp://ftp.comtrol.com/RModem/Drivers/

You can also use the device driver on the Comtrol CD shipped with your product. To install the driver from the CD, use the menu program, and copy the driver files to your hard drive and then go to *Upgrading the Driver (Existing Installation)* on Page 9.

Note: *Always check the web or ftp sites to make sure that you have the current driver and documentation.*

Hardware Installation Documentation

For hardware specific information or the product overview, see the *Hardware Installation* documents that are available on the Comtrol CD shipped with your product or download the current version from the ftp/web site:

- *Downloads Page* on the web site (http://support.comtrol.com/download.asp)
- ftp://ftp.comtrol.com/**RPort**/HW_Doc/
- ftp://ftp.comtrol.com/**RModem**/HW_Doc/

Driver Features

This section provides information that you may need to install a device driver for a RocketPort or RocketModem adapter (ISA, PCI, Universal PCI, or CompactPCI bus types supported).

The driver supports up to 128 RocketPort and/or RocketModem ports per server.

Note: *The critical limit is the number of ports your server can support. In most applications, this is defined by the number of RAS port supported, which is typically 256 ports per primary server.*

The driver also allows you to intermix RocketPort and RocketModem ports within the same system.

Upgrading Your Operating System to Windows XP

If you are upgrading your operating system to Windows XP, follow these steps:

1. Before upgrading your operating system, remove the driver from the Windows 95/98, Windows NT, or Windows 2000 operating system using the appropriate manual (if necessary).
2. Turn off the system, remove the boards, and carefully set them aside.
3. Upgrade your system to the new Windows XP operating system.
4. Install the adapters and turn on the system. If you need information about re-installing adapters, see *Hardware Installation Documentation* on Page 5.
5. Go to the *Installation Procedures* on Page 7 to continue the installation.

Installing the Device Driver

The following subsections discuss driver installation and removal. It also discusses adapter and port configuration. If you have installation problems, see *Troubleshooting* on Page 45.

Installation Procedures

The following subsections discuss installation procedures for a variety of installations. In many installations, Windows XP detects the adapter and installs the default driver automatically. In some installations, you may need to upgrade the default driver in the Windows XP system with the driver shipped on the Comtrol CD to support a particular model.

Existing Installations

If you have a RocketPort or RocketModem installed and configured in your system, make sure that you upgrade the driver before installing any new RocketPort or RocketModem adapters. See *Locating Current Drivers* on Page 5 for the latest driver.

Use *Upgrading the Driver (Existing Installation)* on Page 9 to upgrade the existing driver in the system. After updating the driver, install the new hardware and the driver should automatically install the new adapter.

Install the Hardware

The first step to installing a PCI RocketPort or RocketModem adapter, is to install the adapter. For hardware installation procedures, see *Hardware Installation Documentation* on Page 5.

Note: *Make sure that you install new adapters one at a time to minimize installation problems.*

Automatic Driver Installation

If the driver installs automatically, you may need to configure the device or port properties for your applications using the appropriate subsections:

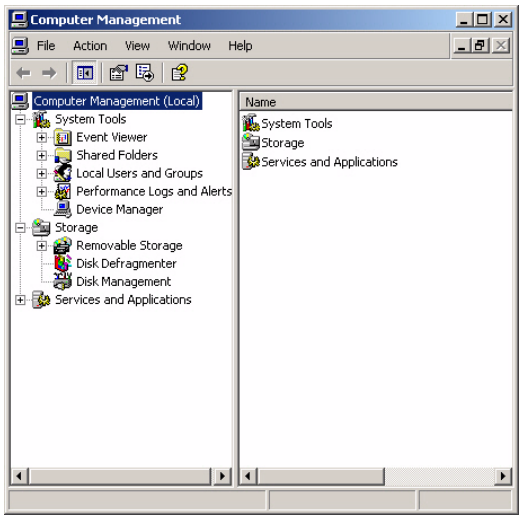
- *Configuring Device Properties (Comtrol Adapters)* on Page 20
- *Configuring Port Properties* on Page 21

Note: *If you are unsure as to whether the adapter has installed automatically, check the* ***Device Manager*** *to verify that the RocketPort or RocketModem adapter displays.*

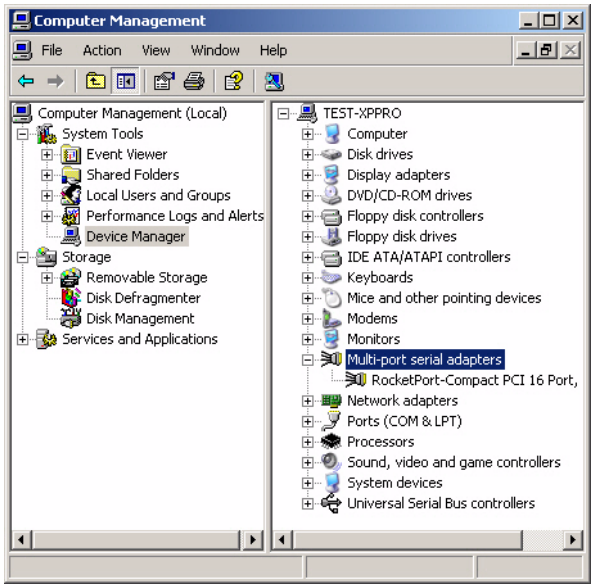
Access the Device Manager

You can access the Device Manager many different ways. If you are unfamiliar with accessing the Device Manager, you can use this method:

1. Open the **Start** button, right-click on **My Computer**, and select **Manage.**
2. Select the **Device Manager**.



3. Open the **Multi-port serial adapters** entry (click [+] to expand the list).



Manual Driver Installation

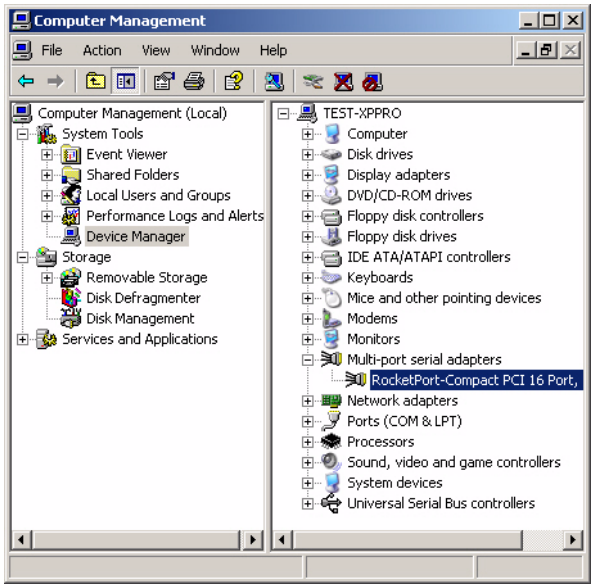
You may need to install a new driver version for a particular model because the **Found New Hardware Wizard** appears. If that is the case, a driver is available on the Comtrol CD shipped with the product or using *Locating Current Drivers* on Page 5. See *Found New Hardware Wizard Installation (Driver Not Found)* on Page 15, to continue the installation.

If you want to update the default driver to the latest released driver, use *Upgrading the Driver (Existing Installation)* on Page 9, to disable the default driver and install the latest released version.

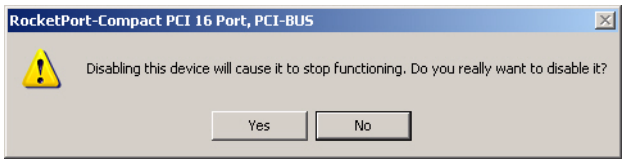
Upgrading the Driver (Existing Installation)

Use this procedure if you want to upgrade the driver in the Windows XP operating system in an existing installation.

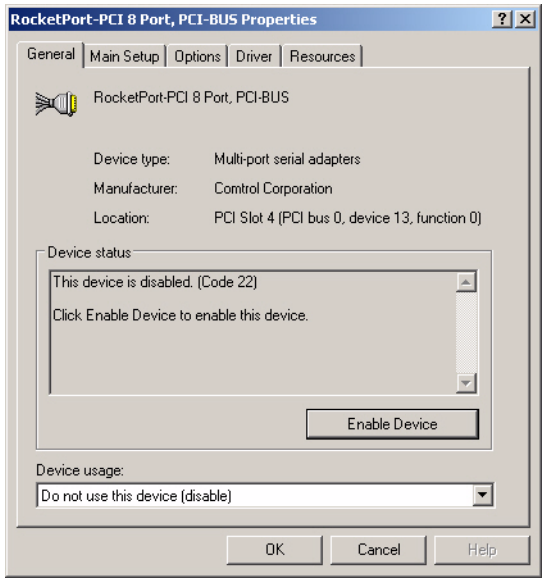
1. Unzip the file into a new subdirectory, for example: **Comtrol**. See *Locating Current Drivers* on Page 5 if you need a device driver.
2. *Access the Device Manager* (Page 8), open the **Multi-port serial adapters** entry, and right-click on the adapter that you want to disable.



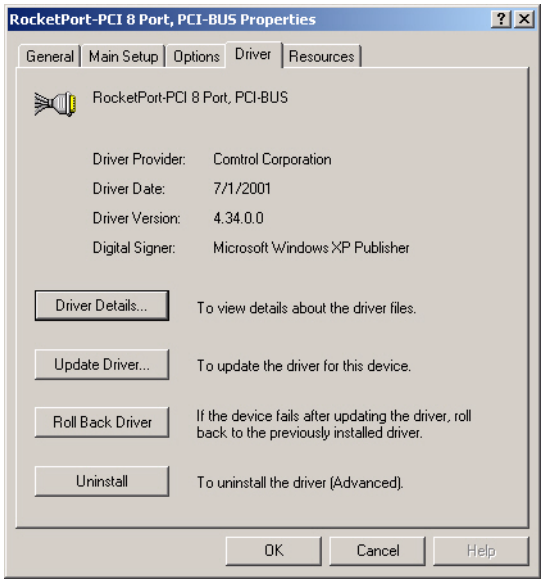
3. Select **Disable** from the list and then select **Yes** when queried, *Do you really want to disable it?*



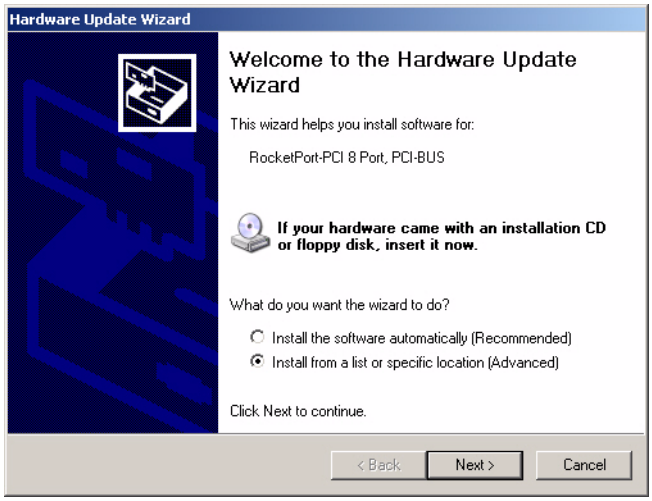
4. Double-click on the disabled device, and select the **Driver** tab.



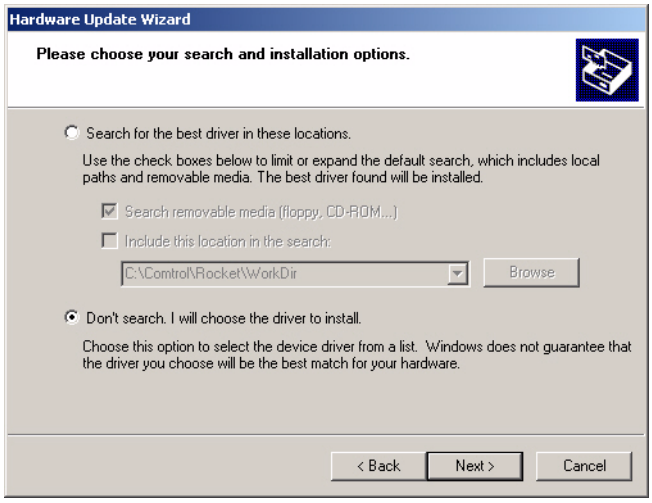
5. Select the **Update Driver** button.



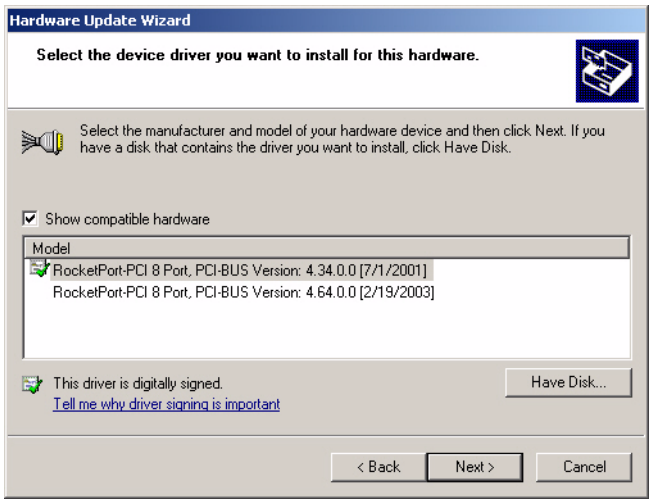
6. Select **Install from a list or specific location (Advanced)** and the **Next** button.



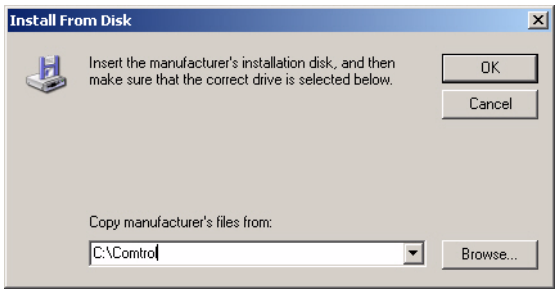
7. Select **Don't search, I will choose the driver to install** and the **Next** button.



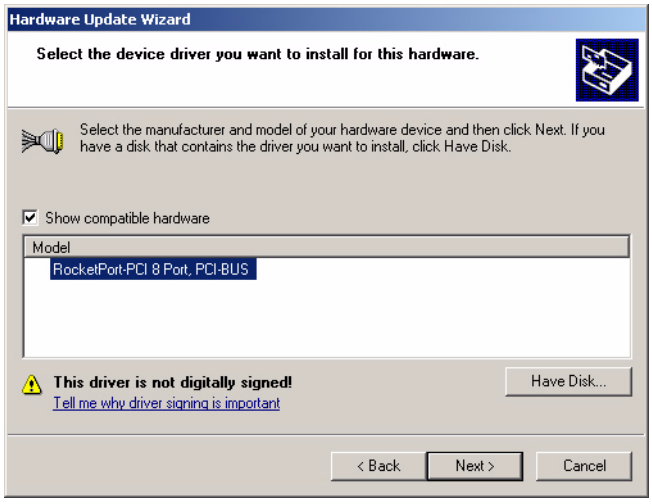
8. Select the **Have Disk** button.



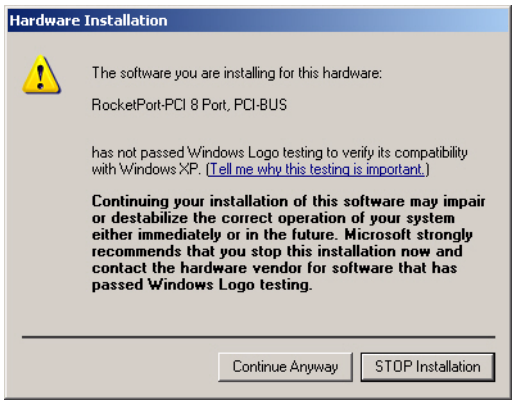
9. Browse to the location of the driver file that you extracted in Step 1 and then select the **OK** button.



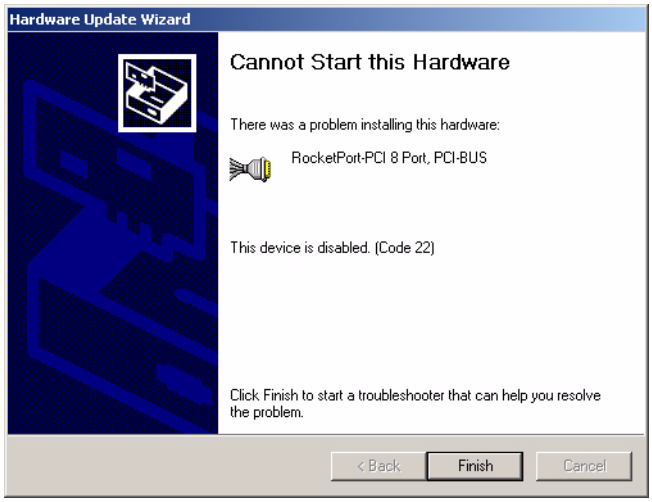
10. Select the device from the list and select the **Next** button to install the driver with the default settings.



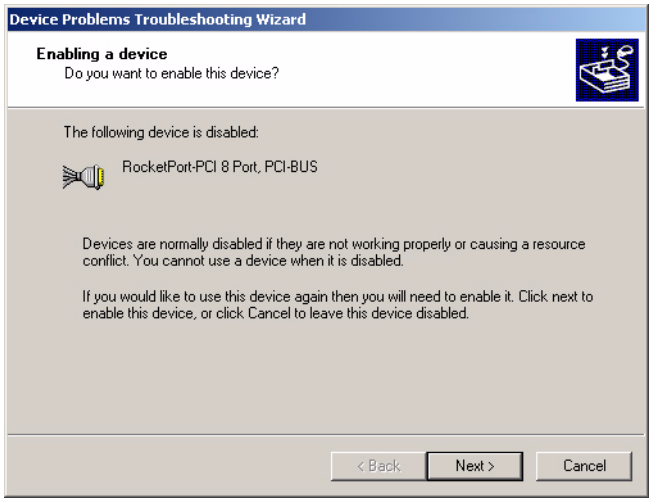
11. Select the **Continue Anyway** button on the Hardware Installation dialog box.



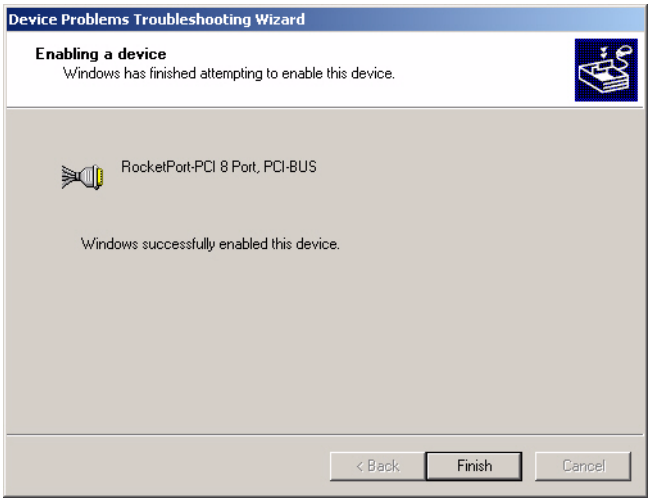
12. Select the **Finish** button to complete the driver installation process.



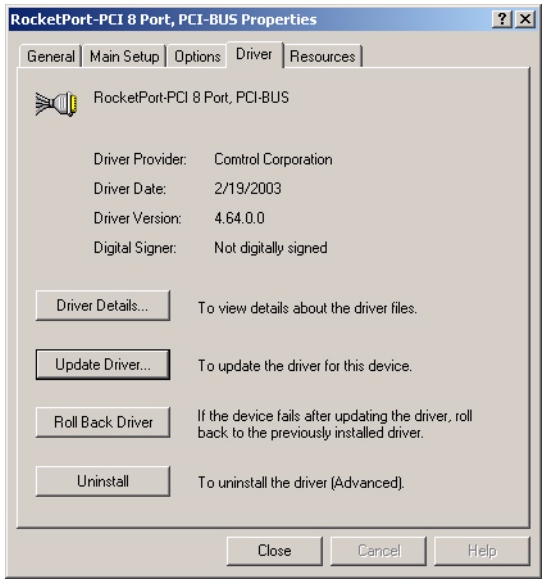
13. Select **Next** if you want to enable the adapter.



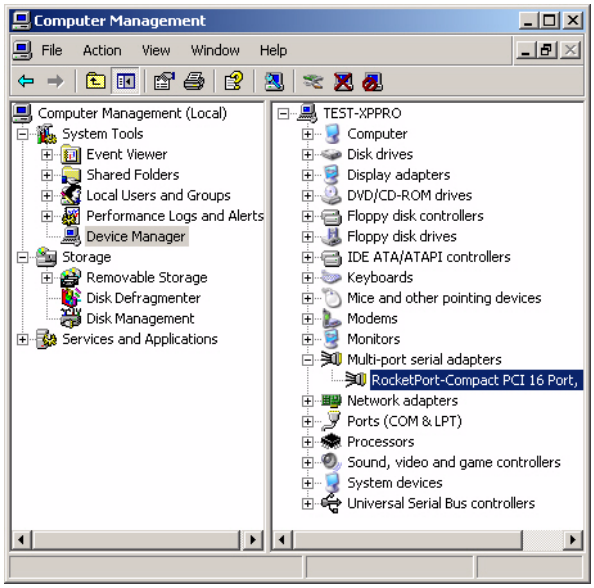
14. Select **Finish** to complete the process of enabling the adapter.



15. You can close this window or configure adapter or COM port properties using the **Main Setup** and **Options** tabs. For configuration procedures, see *Changing or Configuring Device Properties* on Page 19 or *Configuring Port Properties* on Page 21.



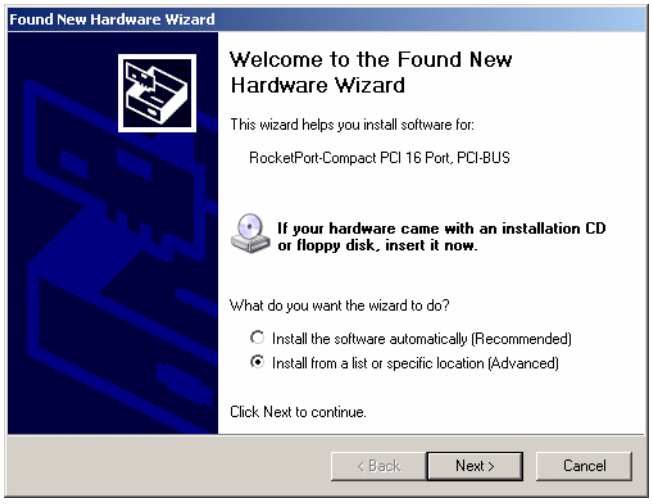
16. Close the Device Manager.



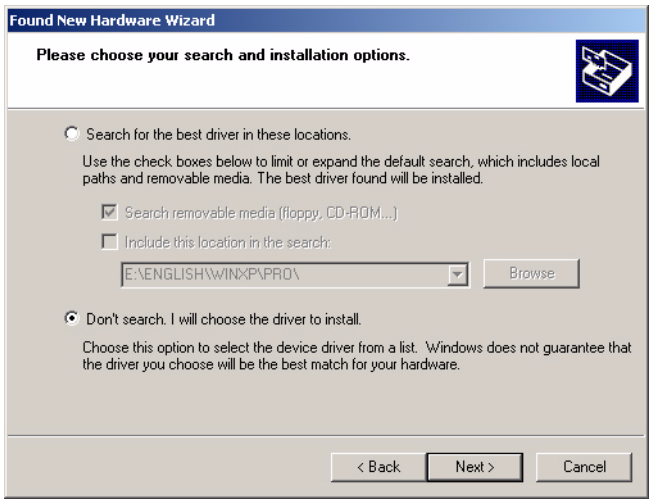
Found New Hardware Wizard Installation (Driver Not Found)

If the operating system finds the adapter but not the driver, use the following procedure when the **Found New Hardware Wizard** appears.

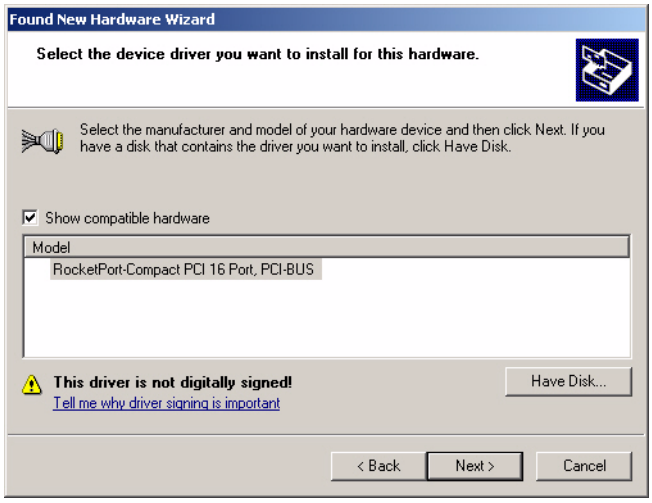
1. Copy the latest device driver to your hard drive and unzip it to a temporary location. If you want to use the latest released device driver, see *Locating Current Drivers* on Page 5.
2. Select **Install from a list or specific location (Advanced)** and the **Next** button.



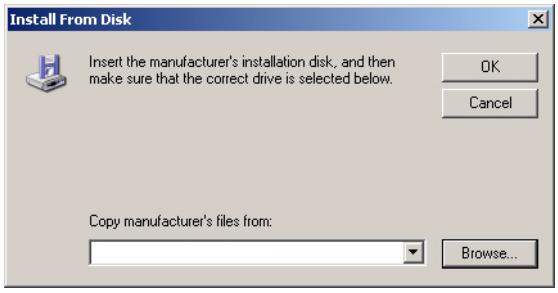
3. Select **Don't Search, I will choose the driver to install** and the **Next** button.



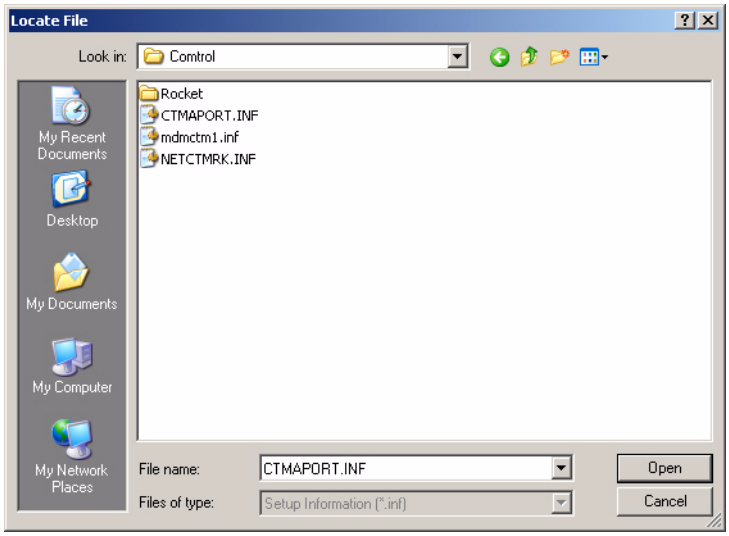
4. Select the **Have Disk** button.



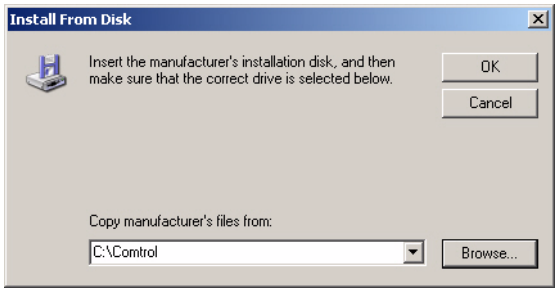
5. Select the **Browse** button.



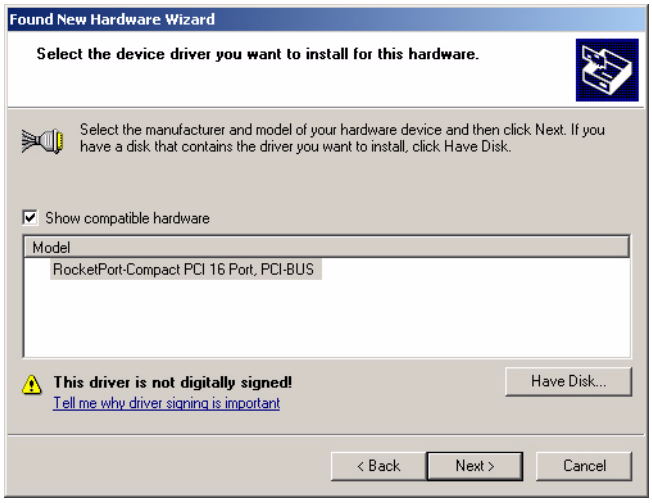
6. Locate the directory where the driver files are located and select **Open**.



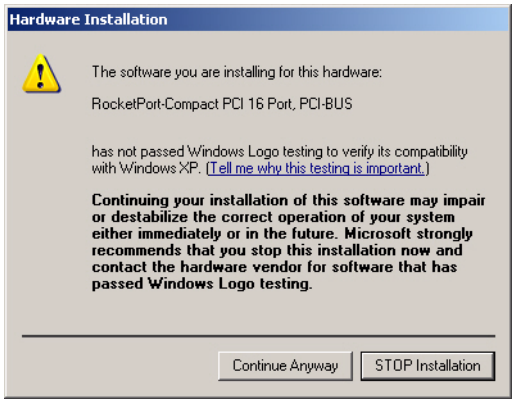
7. Select the **OK** button.



8. Select the **Next** button to start the installation process.



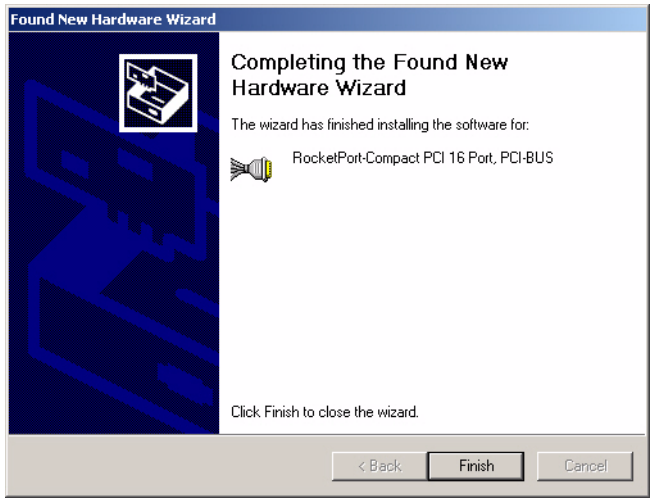
9. Select the **Continue Anyway** button to continue the driver installation.



10. Select the **Finish** button and refer to the appropriate product.

RocketPort:
The new driver is now installed and the system will start to configure the default COM Ports. When it is done, you may need to use the following subsections to configure the adapter for your environment**.**

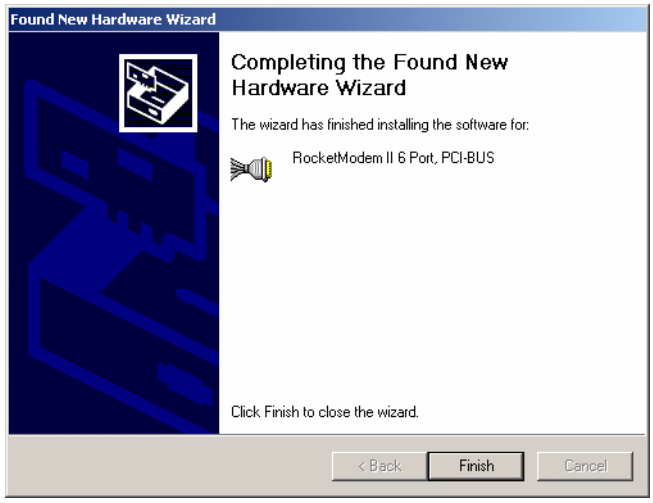
- *Configuring Device Properties (Comtrol Adapters)* on Page 20
- *Configuring Port Properties* on Page 21



RocketModem:
The new driver is now installed and the system will start to configure the default modem ports. Windows XP notifies you of these actions in the lower right hand side of the screen.

When it is done, you may need to use the following subsections to configure the RocketModem for your environment**.**

- *Configuring Device Properties (Comtrol Adapters)* on Page 20



- *Configuring Port Properties* on Page 21
- To use this modem or modems with RRAS, see the *RRAS Configuration Overview for Windows XP* document, which can be located in the **RRAS_Doc** subdirectory.

11. Connect the serial devices to the ports. If the device is a plug and play device, Windows XP will automatically detect and install the driver or drivers for your devices.

    If the device connected to the RocketPort serial ports is not a plug and play device, see *Configuring Non-Plug and Play Devices* on Page 25.

Changing or Configuring Device Properties

You can change the adapter's name and starting COM port number by accessing the **Main Setup** tab. To change device properties, see *Changing the Adapter Name or the Starting COM Port Number* on Page 20.

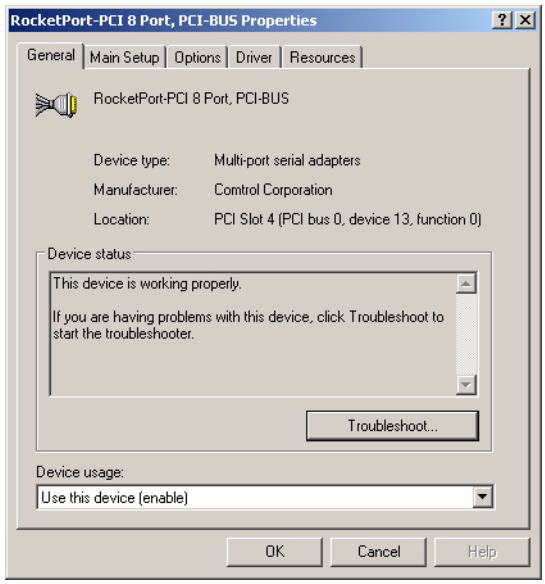
In addition, you can configure the following device properties using the **Options** tab. See *Configuring Device Properties (Comtrol Adapters)* on Page 20 for the procedure.

- Verbose event log for diagnostic purposes
- Scan rate to adjust latency for timing-critical applications
- Enable RS-485 mode (if an RS-232/485 convertor is attached)

Access the Main Setup Tab

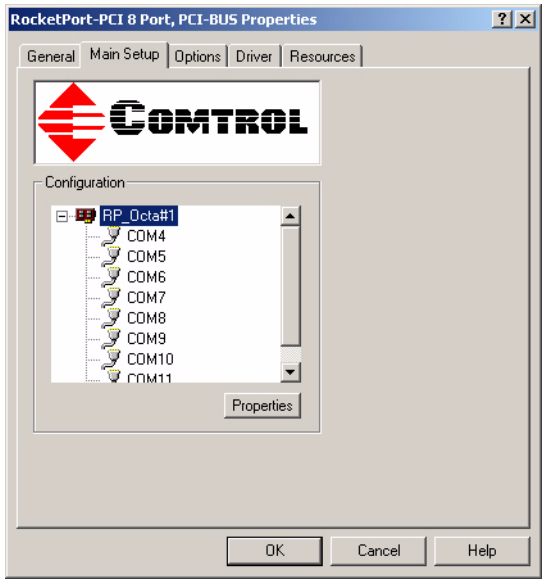
Before you can change or configure any port or device properties, you must access the **Main Setup** tab.

1. *Access the Device Manager* (Page 8), right-click the adapter that you want to access, and, select **Properties**.



2. Select the **Main Setup** tab.

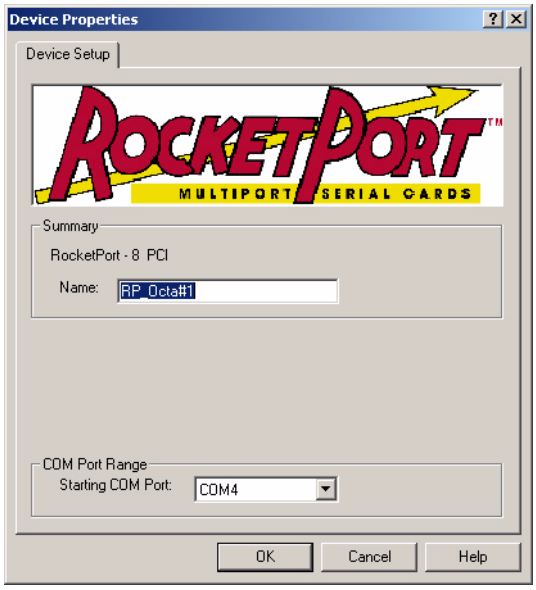
Note: *Select the **Help** button if you need detailed information about procedures or use context-sensitive help for any field.*



Changing the Adapter Name or the Starting COM Port Number

Use the following procedure to change the adapter name or the starting COM port number for the adapter.

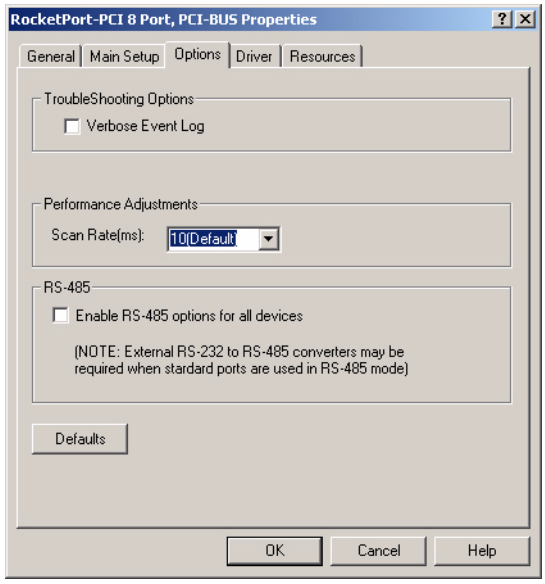
1. *Access the Main Setup Tab* (Page 19).
2. Highlight the device name and select the **Properties** button.
3. After making your changes, select the **OK** button and follow any other driver prompts.



Configuring Device Properties (Comtrol Adapters)

Use the following procedure to configure the adapter Device Properties.

1. *Access the Main Setup Tab* (Page 19) and select the **Options** tab.
2. Enable the features you want to use.



   a. **Verbose Event Log**. Select this check box to cause longer messages to be sent to the Windows XP Event Log. This added information can be useful when debugging communications and configuration problems.

   b. **Scan Rate**. Use this droplist to set the driver servicing rate. As a general rule this is changed only if you are driving ports at rates in excess of 230.4 Kbps. For example, if you are using a RocketPort OctaCable running at 460.8 Kbps, select **4** ms. If you are running a RocketPort *Plus* at 921.6 Kbps, select **2** ms.

   c. To use RS-485 mode, you must have an external RS-232/485 convertor attached to the RocketPort adapter port. Otherwise, leave this box blank.

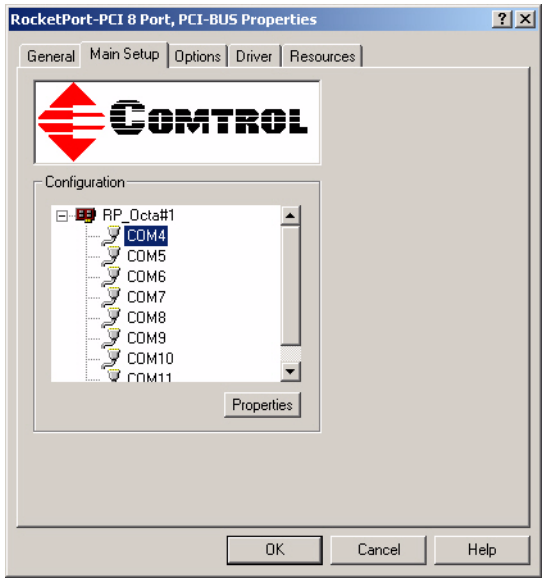
Configuring Port Properties

You can configure specific port properties for this adapter with these options:

- Override and lock baud rate to a specific value
- Timeout on transmit data on port close
- Map CD to DSR
- Map 2 stop bits to 1
- Wait on physical transmission before completing write
- Emulate modem hardware RING signal
- Clone all Comtrol ports for board

Use the following procedure to access the *Port Properties*.

1. *Access the Main Setup Tab* (Page 19), select the port you want to configure from the *Configuration* list, and select **Properties**.

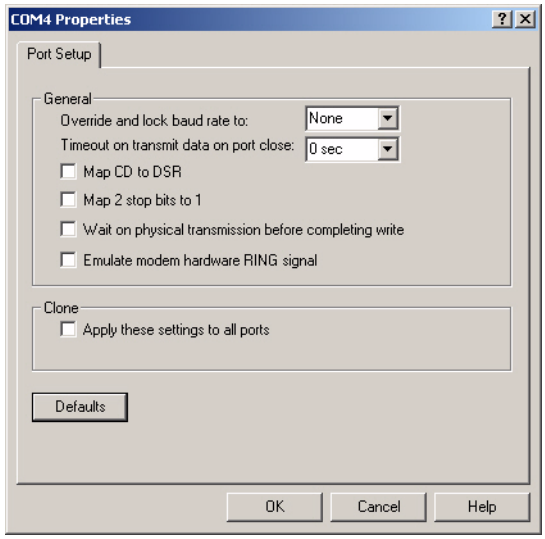


2. Enable the features you want to use.

   a. **Override and lock baud rate to**: This option lets you lock selected ports to specific baud rates.

   You can select a value from the drop list or enter the appropriate value.

   After you do so, no matter what baud rate is selected in a host application, the *actual* rate used is the rate specified here.



   Note: *Not all rates are supported by all Comtrol products. See the hardware documentation to determine if the adapter supports the desired rate. To use rates above 230.4 Kbps, you must also reset the scan rate (Page 20).*

b. **Timeout on transmit data on port close**: Use this droplist to select the length of time to wait for data to clear the transmit buffer after a host application has closed the port. This is typically used with peripheral devices such as printers, to give the data sufficient time to flush through the system.

c. **Map CD to DSR**: This option is used in installations where there is no connection to the port's DSR input. Select this check box to cause the CD input to appear as DSR to the host application, and to perform hardware handshaking with CD rather than DSR. This is ignored if flow control is not enabled via **IOCTL_SERIAL_SET_HANDFLOW**.

d. **Map 2 stop bits to 1**: If the application you use is hard-coded to use two stop bits and you receive framing errors, select this check box to map 2 stop bits to 1 bit. Otherwise, leave this box unchecked.

e. **Wait on physical transmission before completing write**: This option forces all write packets to wait until the transmit data has physically completed the transmission before returning completion to the host application. The default mode (check box not selected) is to buffer the data in the transmit hardware buffer, and return completion as soon as the packet is in the buffer.

f. **Emulate modem hardware RING signal**: Select this check box to emulate the ring indicator signal. If this feature is enabled, the driver monitors the data stream and outputs a software RI whenever the RING AT command is received.

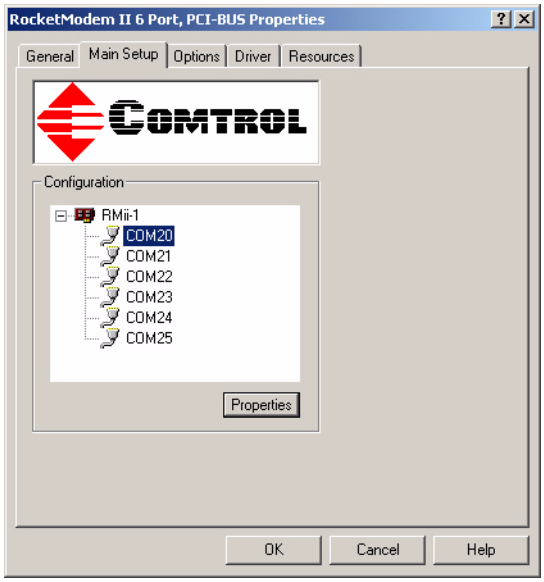
g. **Clone**: If this check box is not selected, changes apply to the selected port only. If this check box *is* selected, changes apply to all ports on this board.

h. **Defaults**: Select this to return to the driver default values.

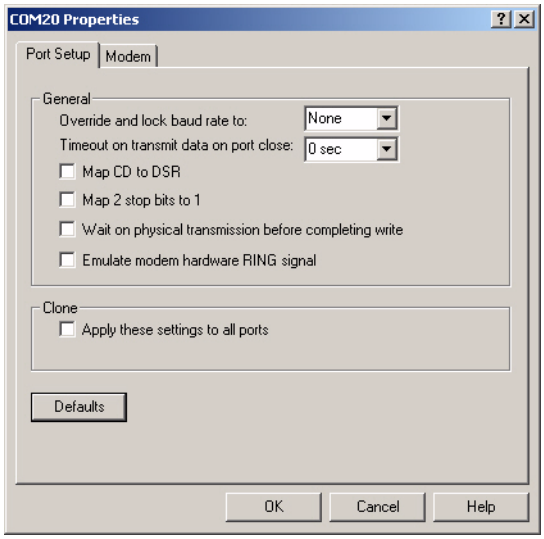
3. Select the **OK** button after configuring this port or select the **Clone** check box to set all of the port to these characteristics.

Resetting RocketModem Modems

1. *Access the Main Setup Tab* (Page 19), select the port you want to reset from the *Configuration* list, and select **Properties**.



The **Modem** tab appears if the selected port is a Comtrol modem product.

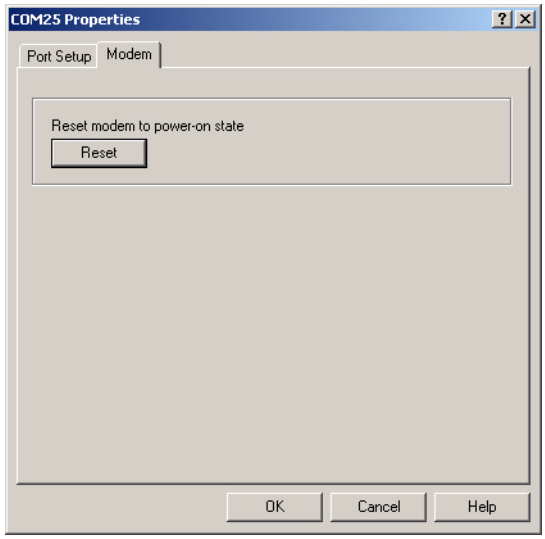


2. Select the **Modem** tab.

3. Select the **Reset** button to reset the selected modem to its default (power-on) state.

   Note: *This resets only the modem on the selected modem port, on the selected adapter. This option cannot be used to reset non-Comtrol modems.*

4. To use this modem or modems with RRAS, see the *RRAS Configuration Overview for Windows XP* document, which can be located in the **RRAS_Doc** subdirectory.



Removing the Adapter and Driver

Use the following procedure to remove the existing device driver in your operating system.

1. *Access the Device Manager* (Page 8) and open the **Multi-port serial adapters** entry.
2. Right-click on the adapter that you want to uninstall.
3. Select **Uninstall** and **Yes** to completely remove the adapter.
4. Exit the Device Manager, turn off the system, and ***REMOVE*** the adapter from the system before re-applying power.

Configuring Non-Plug and Play Devices

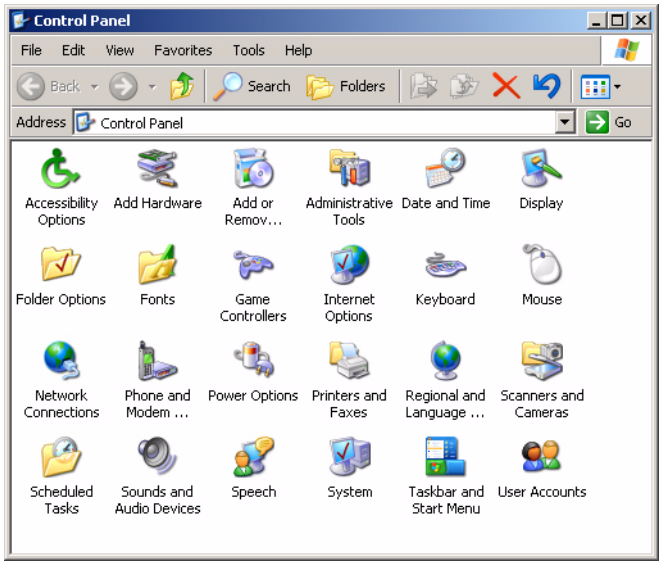
After installing the hardware and driver for Windows XP, you can use this discussion to configure non-plug and play modem COM ports.

Note: *RocketModem models install automatically because they are plug and play devices. Other plug and play modems will install automatically.*

Installing Non-Plug and Play Devices

Use the following procedure to install non-plug and play devices.

1. If you have not so yet, connect the device to a RocketPort port and turn on the device.
2. Open the **Control Panel**.



3. Go to the appropriate subsection to install non-plug and play modems or printers:
   - *Installing Modems* on Page 26
   - *Installing Printers* on Page 30

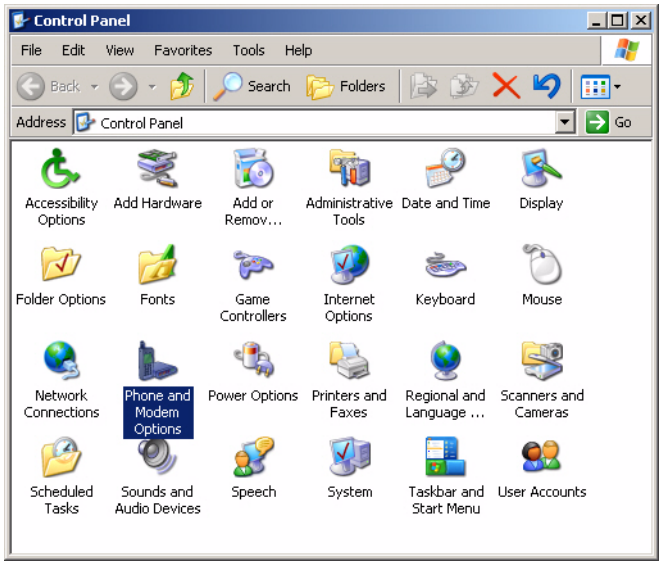
Installing Modems

Use the following procedure to install non-plug and play modems.

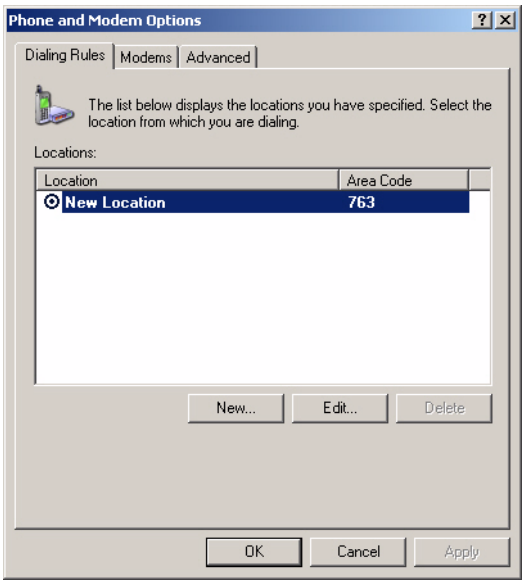
1. If you have not done so yet, connect the modem (or modems) to the desired RocketPort port (or ports) and turn on the modem (or modems).

   Note: *This may take a few minutes, depending upon your system and the number of modems you are installing.*

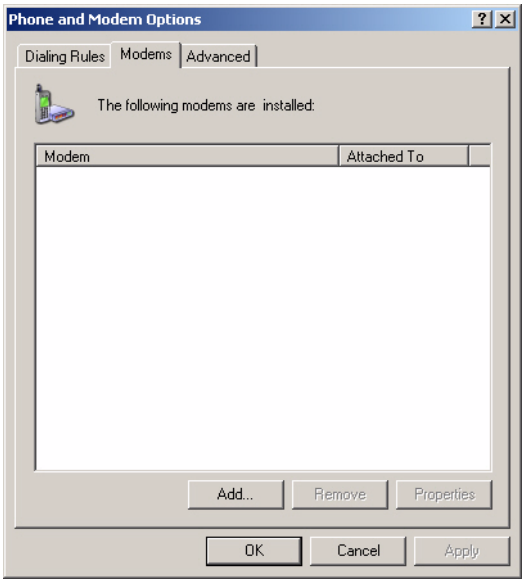
2. Open the **Control Panel** and select the **Phone and Modem Options** icon.



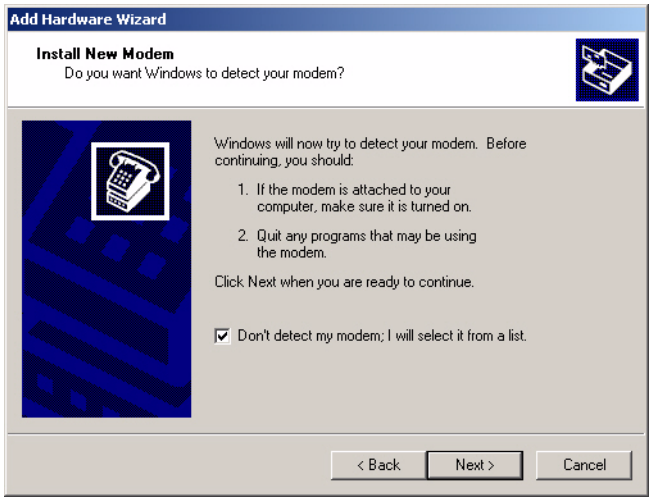
3. Select the **Modems** tab.



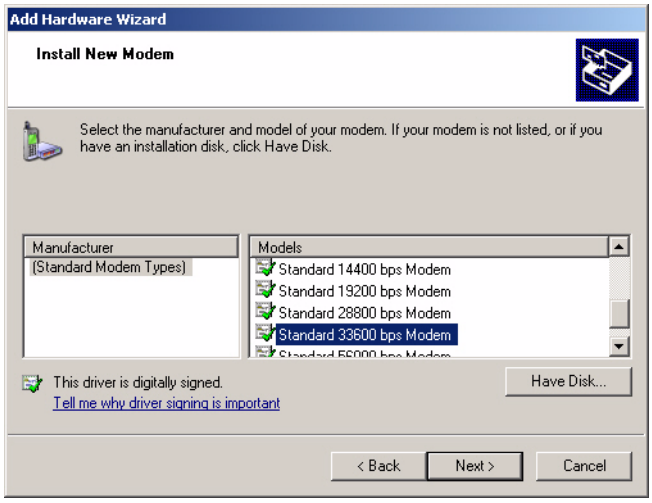
4. Select the **Add** button.



5. Select **Don't detect my modem. I will select it from a list** and **Next**.

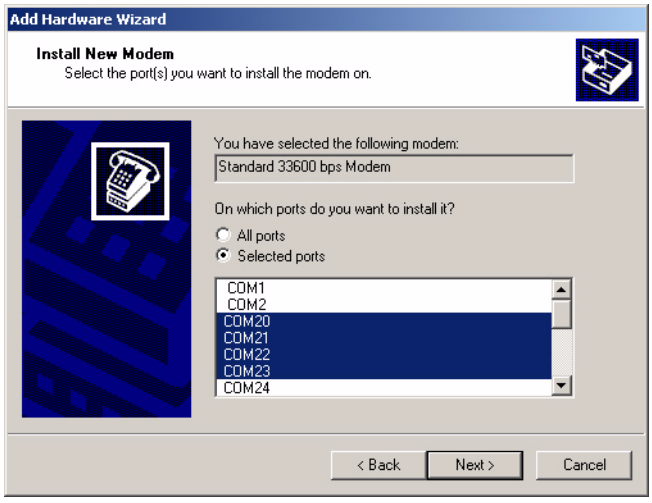


6. Select an appropriate standard modem model and the **Next** button.

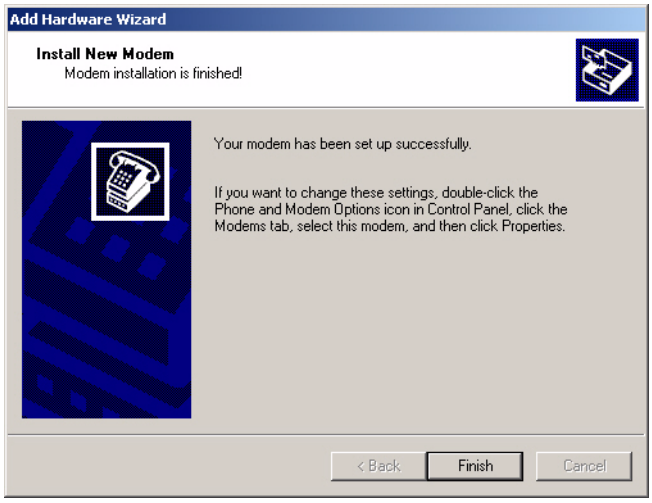


Note: *If you have a driver from the modem manufacturer, select* ***Have Disk*** *and browse to the location of the driver.*

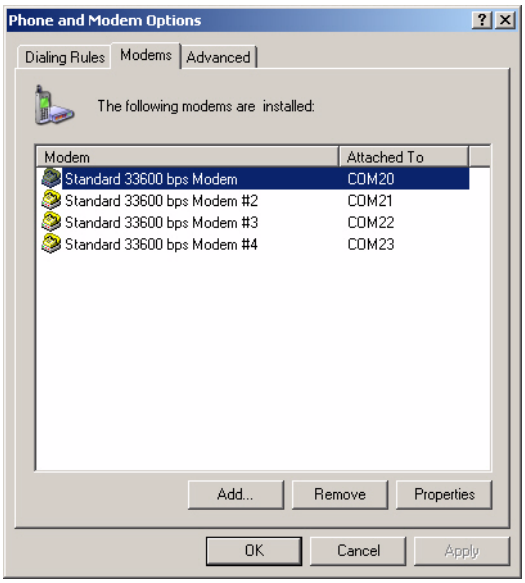
7. Highlight the port or ports on to which you have connected modems.



8. Select the **Finish** button to complete the modem installation.



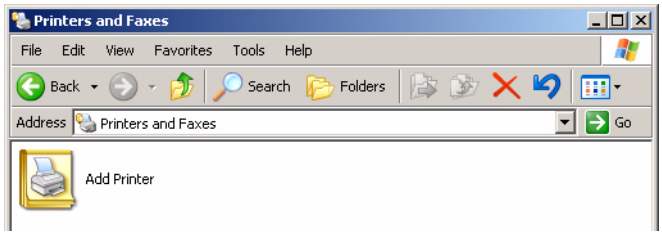
9. Configure modem properties as necessary. For assistance, use the Windows XP help system.



10. To use this modem or modems with RRAS, see the *RRAS Configuration Overview for Windows XP* document, which can be located in the RRAS_Doc subdirectory.

Installing Printers

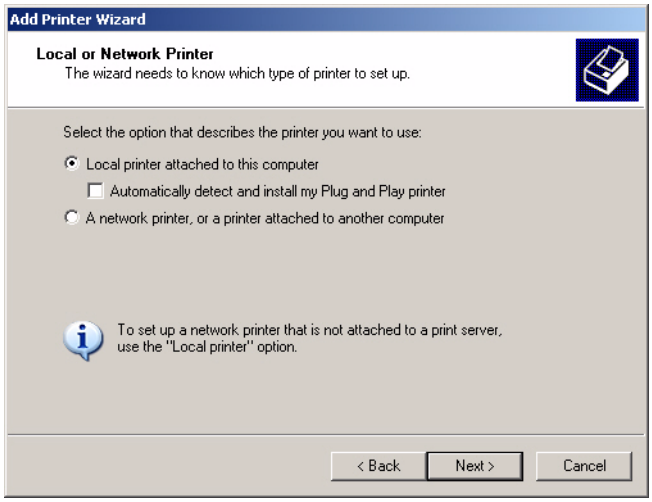
Use the following procedure to install a non-plug and play printer.



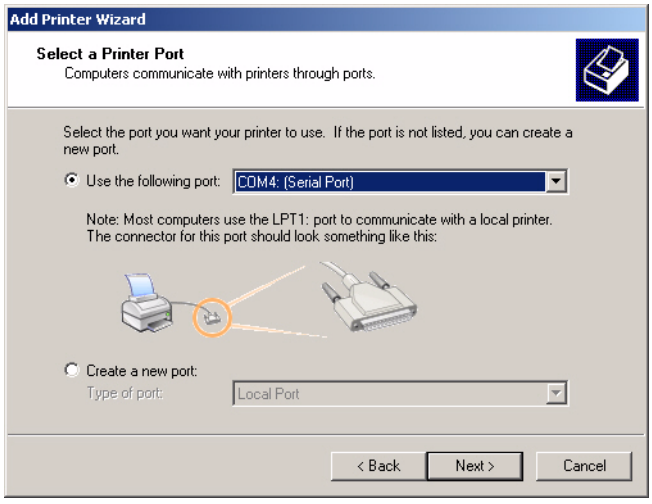
Note: *If you want to install a plug and play printer, connect the printer to the appropriate serial port and the driver should automatically install. If it does not automatically install, use the following procedure as a guide with the printer manufacturers documentation.*

1. Open the **Control Panel** and select the **Printers and Faxes** icon.
2. Select **Next** when this screen appears.

3. Select the **Local printer attached to this computer** item..

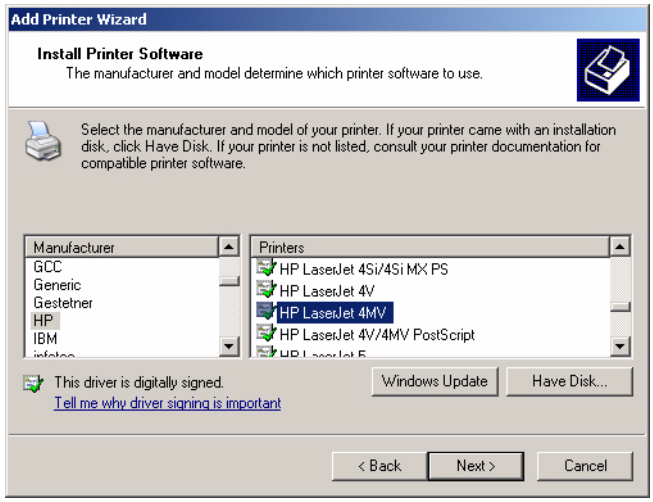


4. Select the COM port that corresponds to the port to which the printer is connected.

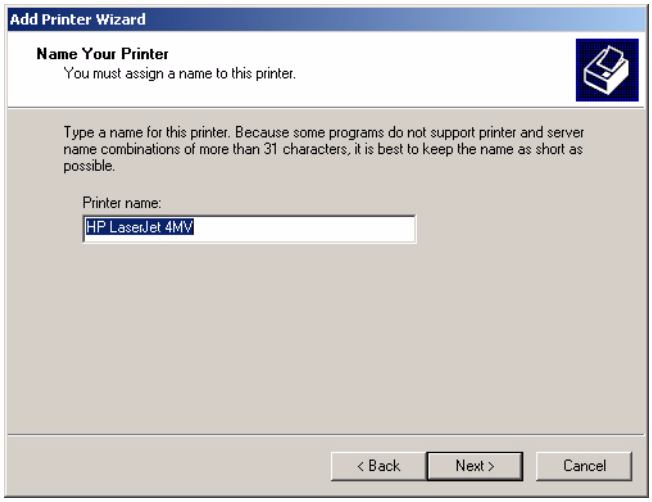


5. Select the Manufacturer, Printer type, and then select **Next**.

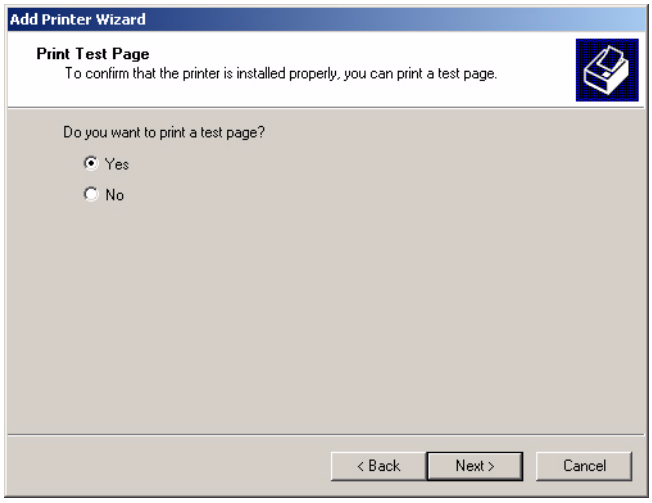
   Note: *If you have a driver from the printer manufacturer, select* ***Have Disk*** *and browse to the location of the driver.*



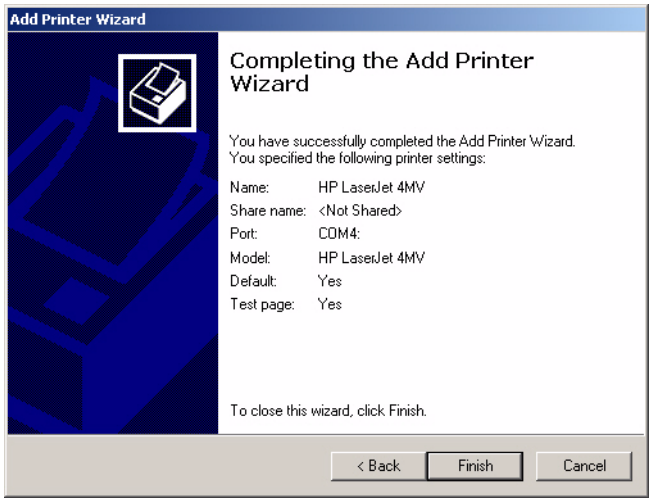
6. Optionally, enter a printer name and select **Next**.



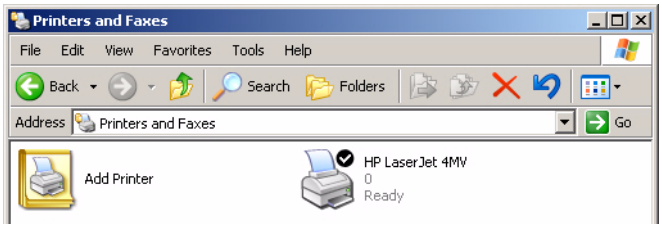
7. Select **Yes** if you want to print a test page.



8. Select the **Finish** button to complete the installation.



9. Close the **Printer and Faxes** control panel.



Comtrol Tools

This section discusses the following utilities that are installed with most Comtrol drivers for Microsoft operating systems:

- Test Terminal program (**wcom32.exe**), which can be used to troubleshoot communications on a port-by-port basis (*Using Test Terminal* on Page 35).
- Port Monitor program (**portmon.exe**), which checks for errors, modem control, and status signals (*Using Port Monitor* on Page 38). In addition, it provides you with raw byte input and output counts.
- Peer Tracer program (**peer.exe**), which traces driver events (*Using Peer Tracer* on Page 43).

Note: *If you are using a device driver for the Windows 2000 or Windows XP operating system, you may need to download and install these utilities.*

Installing the Utilities (Windows 2000 and Windows XP)

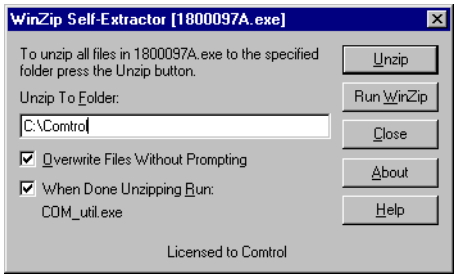
You can download the latest Comtrol Utility package from ftp://ftp.comtrol.com/Utilities/ or locate the **Utilities** directory at the root of your Comtrol CD.

Use the following procedure to install the Comtrol Utilities:

1. Run the self-extracting utility file. You can optionally change the path that you want to extract the files.

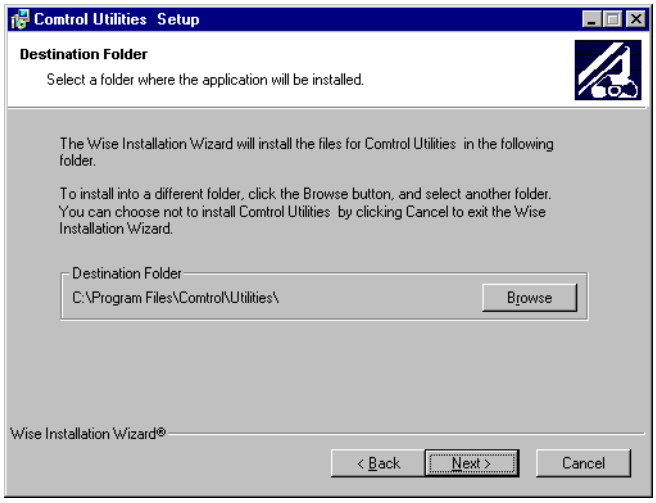
   Note: *Allow WinZip to run the* ***COM_util.exe*** *file to start the Utilities installation.*

   The file name may be different than the illustration.

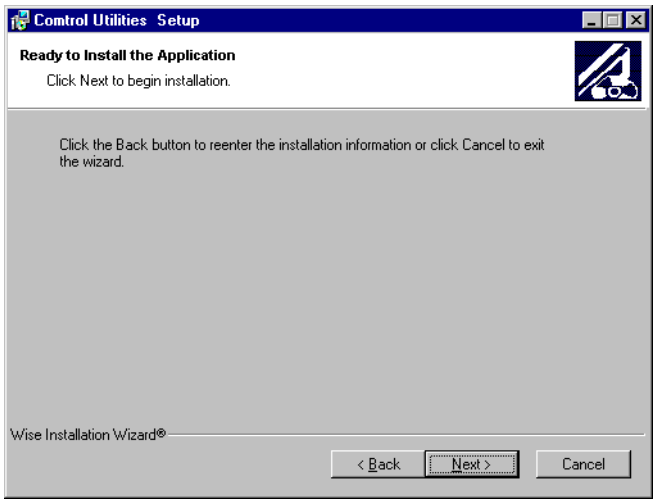


2. Select the **Next** button to begin the Comtrol Utilities installation.

3. Select the **Next** button to install the Utilities in the default subdirectory.



4. Select the **Next** button to begin the installation.



5. Select the **Finish** button to complete the Utilities installation.

Using Test Terminal

WCOM32 is a terminal program that enables you to open a port, send characters and commands to the port, and toggle the control signals.

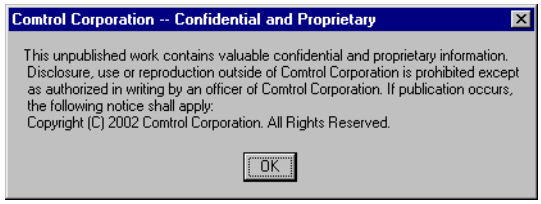
Note: *WCOM32 will **not** work on ports used by RAS **if Remote Access Service is running** or any other application is using the port. If you are using RAS, you must stop the service before starting WCOM32 to test RAS COM ports. To test ports that are not used by RAS, you do not need to stop RAS.*

Follow these steps:

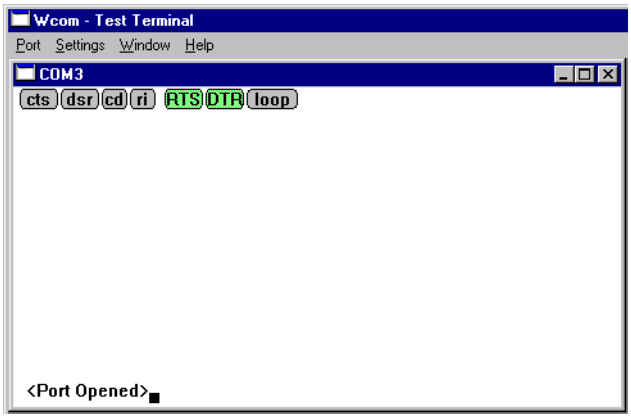
1. Start **Test Terminal** (**wcom32.exe**) from the Comtrol program group for your product.

Product	Operating System	Program Group
RocketModem and RocketPort	Windows 98, Windows NT	Comtrol RocketPort RocketModem Test Terminal
RocketModem and RocketPort	Windows 2000, Windows XP	Comtrol Utilities Wcom32 wcom32.exe
DeviceMaster RTS, RocketPort Serial Hub *ia*, and RocketPort Serial Hub *Si*	Windows 98, Windows NT, Windows 2000, Windows XP	Comtrol NS-Link Test Terminal

2. Select the **OK** button if this screen appears:

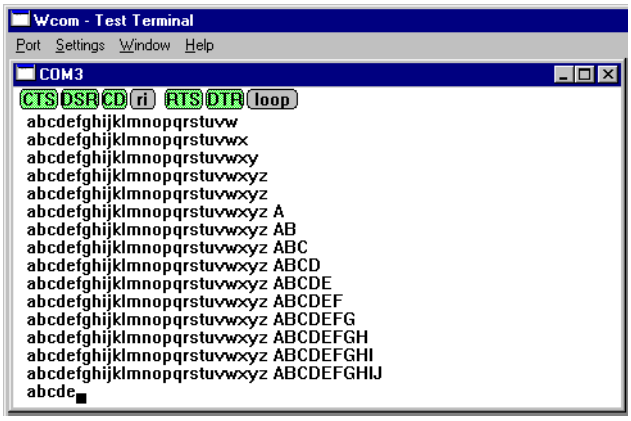


3. From the **Port** menu, select **Open Port**. A list of possible COM port numbers displays.
4. Select the COM port you want to test.



If the COM port does not exist or if it is currently being used by another program, a *Create File Error* message displays.

If the COM port is available, a terminal window appears:



Note: *Notice the <**loop**> button in the terminal window. If this option is activated, it is green and uppercase (LOOP), the COM port internal loopback feature is activated, and the data is returned by the COM port hardware. If this option is deactivated, it is gray and lowercase (loop), the internal loopback is deactivated, and the data is sent out of the COM port.*

Testing a Comtrol Device

Use the following procedure to test the Comtrol device.

1. Place a loopback plug on the COM port that you are testing. Make sure all connectors are seated firmly and that the loop button is **off**.

   Note: *Test terminal works for RS-232 and RS-422 mode.*

   To build loopback plugs, see the hardware installation document for the Comtrol device.

2. From the **Port** menu, select **Send Test Data**. The program sends out a repeating data stream.

   Note: *To stop the data stream, select the **Send Test Data** option again.*

   - If the loopback plug is in place and the port is working correctly, the test data should be echoed back to the screen.
   - If the loopback plug is **not** in place or the port is not working correctly, no data or garbled data is echoed back to the screen.

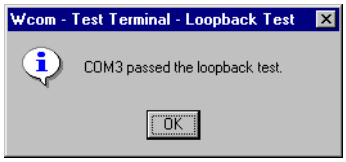
   Note: *If no characters appear, try putting the loopback plug on an adjacent port. It may be that you have the ports mixed up.*

3. If further testing is required, select **Loopback Test** from the **Port** menu.

   Note: *The loopback test only works in RS-232 because it tests modem control signals that are not present in RS-422 mode.*

   If the loopback plug is in place and the port is working correctly, the system should return the message *Passed*.

   If the loopback plug is not in place or the port is not working correctly, the system will return the message *Failed*.



Testing RocketModem Adapters

The following test may be used to ensure functionality of the RocketModem.

Note: *Make sure that the* ***<loop>*** *button is off for the following tests.*

Test 1:

The following procedure checks to see if the modem responds.

1. Type **atz**. This should return an **OK**.
2. Type **at&v**. This should display the modem configuration.

Test 2:

The following test calls from the modem to an ordinary telephone.

1. Connect the modem to a phone line.
2. Enter **atdt*phonenumber***, where ***phonenumber*** is the phone number of an ordinary telephone. The telephone should ring.
3. Enter +++**ath** to hang up.

Test 3:

This test has one modem call another modem.

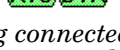
1. Connect two modems to phone lines.
2. Open two Test Terminal sessions.
3. Use one modem to call the other modem.
4. Send typed characters from one modem to the other.

Test Terminal Modem Control Signals

The terminal window displays the modem control signals as gray or green lights at the top of the window. The first four are inputs: 

The lights are green if they are turned on, or gray if turned off.
The text on the light also changes from uppercase (CTS), which is on, to lowercase (cts), which is off.

Note: *Ring indicator is only available on the RocketPort Plus and the RocketPort Universal PCI Quad/Octacables adapters.*

The next two lights are outputs: 

Note: *If you have a loopback plug connected and you click on one of the outputs, the corresponding signal is sent to the input and the input lights should toggle accordingly.*

The right most light is the loop indicator: 

If this is on, the COM port internal loopback feature is activated and any information or code entered in the terminal window loops back through the COM port circuitry. If this is off, the COM port internal loopback is deactivated, and any information or code entered in the terminal window is sent out of the port.

Using Port Monitor

The Port Monitor program (**portmon.exe**) offers a summary of all Comtrol device statistics in one spreadsheet view. It also enables you to verify operation of all Comtrol device ports from a single window.

The Port Monitor display follows the familiar spreadsheet model: each COM port is a horizontal row, and each vertical column displays a variable or value for the respective COM port. For definitions of the abbreviations used, see *Port Monitor Variables* on Page 41.

Port Monitor can also produce statistics and reports that can help you verify the operation of the COM ports and connected peripherals. Some immediate feedback includes:

- The state of the modem control and status signals
- Open ports
- Raw byte input and output counts obtained from the device driver
- Port errors

The available statistics include:

- Instantaneous characters per second (CPS) calculations
- Minute, hour, and day CPS averages and peaks
- Carrier detect (CD) signal runtime and transition count

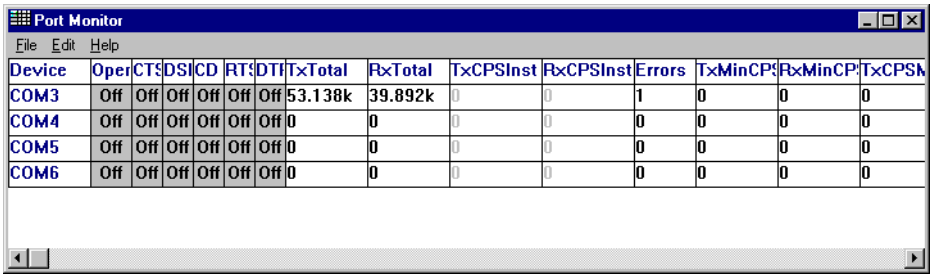
Reports can be automatically generated on an hourly and/or daily basis, and can cover all ports collectively or a separate report for each port. You can also set how often the values are recalculated, fine-tuning thoroughness against system efficiency, and automatically run external batch files to perform additional processing and analysis.

Starting Port Monitor

To run Port Monitor, select **Port Monitor** (or **Portmon.exe**) from the appropriate Comtrol program group.

Product	Operating System	Program Group
RocketModem and RocketPort	Windows 98, Windows NT	Comtrol RocketPort RocketModem Port Monitor
RocketModem and RocketPort	Windows 2000, Windows XP	Comtrol Utilities Portmon Portmon.exe
DeviceMaster RTS, RocketPort Serial Hub *ia*, and RocketPort Serial Hub *Si*	Windows 98, Windows NT, Windows 2000, Windows XP	Comtrol NS-Link Port Monitor

The Port Monitor window appears:



Note: *To change the appearance of the window, see the following discussion.*

Once the monitor window appears, Port Monitor is active and collecting data. If any cumulative data has been saved from previous sessions, it is automatically brought in and used.

Port Monitor continues to run and collect data until you terminate it, at which point all accumulated data is automatically saved for use in the next session.

Changing Screen Appearance

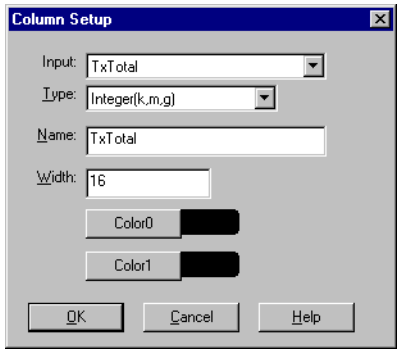
While Port Monitor is running, there are a number of commands and controls that change the appearance of the screen.

Desired Change	Procedure
Change the monitor window font.	Select **Font** from the **Edit** menu.
Change width of a single column.	Left-click on the column separator (vertical) line and drag it to the desired width.
Change column placement.	Left-click in the middle of the column you want to move and drag it to the desired location.
Remove a column.	Right-click on the column you want to remove and select **Remove** from the pop-up menu.
Clear all fields and reset them to null values.	Right-click on the upper left cell in the table and select **Reset** from the pop-up menu.*
Clear any single field *except* the upper left cell.	Right-click on the field to be cleared and select **Reset** from the pop-up menu.*
Add a column.	Right-click on the column now occupying the desired location and select **Add** from the pop-up menu. You are prompted to name the variable you want to display, as well as other information. (See the following *Column Setup* discussion.) After you click **OK**, the column is inserted in the selected location and the existing column is moved to the right.
Change other properties of a column.	Right-click on the column and select **Properties** from the pop-up menu. (See *Column Setup*, below.)

* *The **Reset** command does not clear raw data from the **calcs.dat** file. It simply resets the selected display fields to their null values. For more information regarding **calcs.dat**, see page 41.*

Column Setup

When you select **Add** or **Properties** from the column pop-up menu, the Column Setup window appears:

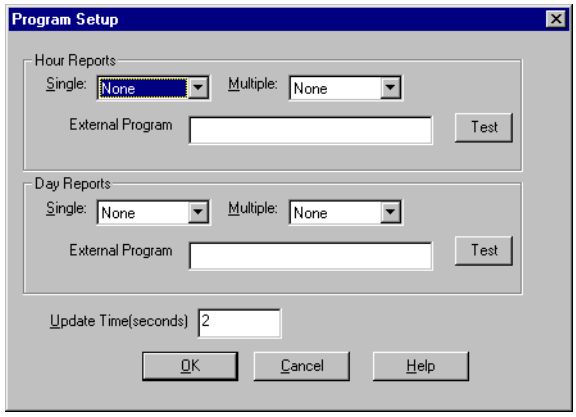


- Use the **Input** droplist to select the variable displayed in the column.
- Use the **Type** droplist to select the way in which the value displays: either as an integer, as an on/off state, as an integer with a kilo, mega, or giga suffix, or as an hh:mm:ss time stamp. This defaults to the appropriate type for the selected Input variable.
- Use the **Name** variable to change the column heading name.
- Use the **Width** variable to specify the column width in characters.

- Use **Color0** to set the column character color when the value is zero.
- Use **Color1** to set the column character color when the value is not zero.
- When done, click **OK** to save your changes and return to Port Monitor.

Report Configuration

To configure reports, select **Config** from the **Edit** menu.



The **Single** report options cover all ports and are overwritten each time the reports are generated. The **Multiple** report options generate a separate report for each port, and each report file is appended each time the report is generated.

For **Hour** reports, use the Single and Multiple droplists to select whether you are generating single or multiple reports, or both. For each report type, select from the following types of data to include:

- None: no report is generated.
- Hour Data: only variables with “Hour” in the name are included.
- All Data: all variables are included.
- View Data: only variables that appear on-screen are included.

The **External Program** field is used to enter a command line to run another program after the hourly reports have been generated. For example, you can use this to run a batch file that performs custom report processing. The **Test** button causes the command line to be executed immediately.

For **Day** reports, the single and multiple droplists behave the same, but your choices are:

- None: no report is generated.
- Day Data: only variables with the words “Day” or “Raw” in the names are included.
- All Data: all variables are included.
- View Data: only the variables that appear in the Port Monitor window are included.

Likewise, the **External Program** field is used to enter a command line to be executed after the daily reports have been generated.

The **Update Time** option allows you to set the rate at which the port information is obtained and the calculations performed. There is a trade-off between Port Monitor efficiency and response time. If you are using Port Monitor to view the port activity on the screen, you may want to set the update time to 1 or 2 seconds, so that the screen is updated frequently. If you are concerned about the monitor program using CPU resources, set this to a higher value, (6 to 20 seconds) in order to decrease the time required by the program to perform the calculations and update the screen.

If Port Monitor is left active to generate reports, minimizing or reducing the display area of the program will help reduce the CPU overhead of updating the screen.

Port Monitor Files

Port Monitor creates and uses the following files:

- **portmon.vew**
- **calcs.dat**

The default column layout is saved in **portmon.vew**. If you have been experimenting with the appearance of the monitor screen, you can use the File menu **Save** option to save your customized layout in another**.vew** file. You can retrieve this file later by selecting the **Open** option from the **File** menu, or you can select the **View Default** option from the **Edit** menu to retrieve **portmon.vew** and restore the default view.

All Port Monitor calculations are saved at program exit and on the hour in a binary file named **calcs.dat**. This enables you to halt Port Monitor execution without losing accumulated data.

Port Monitor also creates a **\REPORTS** directory. All hourly and daily reports are saved in this directory, under the following names:

- **hall.txt** — hourly single report
- **dall.txt** — daily single report
- **hcomx.txt** — hourly multiple reports, where *x* is the port number
- **dcomx.txt** — daily multiple reports, where *x* is the port number

Caution: *Since multiple reports append new data each time they are written, the multiple report files grow in size. It is up to you to delete them periodically.*

Some safeguards are built into the program to avoid filling up a hard disk drive due to growing report files. The monitoring program stops writing additional data to the multiple reports if they reach a size of 2 MB. Also, the program will not write out data files to the disk drive if the spare room on the drive is less than 2 MB in size.

To view or edit an hourly or daily report, select the **Edit Report** option from the **File** menu, or use a system tool such as Microsoft Notepad.

For more information, see the Port Monitor **Help** file.

Port Monitor Variables

The following table lists Port Monitor variables.

Variable	Description
Open	Open status, on if open, off if closed.
Cts	Input CTS pin status.
Dsr	Input DSR pin status.
Cd	Input CD (carrier detect) pin status.
Rts	Output RTS pin status.
Dtr	Output DTR pin status.
TxTotal	Total bytes transmitted.
RxTotal	Total bytes received.
TxCPSInst	Instantaneous average of transmit characters per second.
RxCPSInst	Instantaneous average of receive characters per second.
Errors	Total hardware receive errors (parity, framing, and overruns.)
TxMinCPS	Last minute average of transmit characters per second.

Variable	Description
RxMinCPS	Last minute average of receive characters per second.
TxCPSMinAvMax	Peak TxCPSInst for the last minute.
RxCPSMinAvMax	Peak RxCPSInst for the last minute.
TxCPSHourAvMax	Peak TxMinCPS for the last hour.
RxCPSHourAvMax	Peak RxMinCPS for the last hour.
TxCPSDayAvMax	Peak TxMinCPS for the last day.
RxCPSDayAvMax	Peak RxMinCPS for the last day.
TxTotalRaw	Total number of transmit bytes raw data from the device driver.
RxTotalRaw	Total number of receive bytes raw data from the device driver.
TxMinCnt	Count of transmit bytes sent in last minute.
TxHourCnt	Transmit bytes count sent in the last hour.
TxDayCnt	Transmit bytes count sent in the last day.
RxMinCnt	Receive bytes count sent in the last minute.
RxHourCnt	Receive bytes count sent in the last hour.
RxDayCnt	Receive bytes count sent in the last day.
TxMinCntWrk	Transmit bytes count sent in this minute.
TxHourCntWrk	Transmit bytes count sent in this hour.
TxDayCntWrk	Transmit bytes count sent in this day.
RxMinCntWrk	Receive bytes count sent in this minute.
RxHourCntWrk	Receive bytes count sent in this hour.
RxDayCntWrk	Receive bytes count sent in this day.
TxCPSMinAvMaxWrk	Peak TxCPSInst for the current minute.
TxCPSHourAvMaxWrk	Peak TxMinCPS for the current hour.
TxCPSDayAvMaxWrk	Peak TxHourCPS for the current day.
RxCPSMinAvMaxWrk	Peak RxCPSInst for the current minute.
RxCPSHourAvMaxWrk	Peak RxMinCPS for the current hour.
RxCPSDayAvMaxWrk	Peak RxHourCPS for the current day.
CDRuns	Carrier detect turn-on count.
CDDayRuns	Carrier detect turn-on count in the last day.
CDDayRunsWrk	Carrier detect turn-on count in the current day.
CDRunTime	Time in seconds carrier detect has been on.
CDHourRunTime	Time in seconds carrier detect has been on in the last hour.
CDDayRunTime	Time in seconds carrier detect has been on in the last day.
CDHourRunTimeWrk	Time in seconds carrier detect has been on this hour.
CDDayRunTimeWrk	Time in seconds carrier detect has been on this day.
StatusFlags	Bit flags, Open, CTS, DSR, CD, RTS, DTR

Variable	Description
TxPkts	Raw count of total transmit packets sent.
RxPkts	Raw count of total receive packets sent.
OverrunErrors	Total count of receive overrun errors.
FramingErrors	Total count of receive framing errors.
ParityErrors	Total count of receive parity errors.
OverrunErrorsRaw	Total count of receive overrun errors, from the device driver.
FramingErrorsRaw	Total count of receive framing errors, from the device driver.
ParityErrorsRaw	Total count of receive parity errors, from the device driver.

Using Peer Tracer

The **Peer Tracer** program (**peer.exe**) is specifically designed to view the internal operations of the device driver for the purpose of troubleshooting communications on Windows NT, Windows 2000, and Windows XP systems. **Peer** enables you to see:

- Receive and transmit data
- Internal driver event traces
- Advanced configuration and status information

Like Test Terminal, **Peer** acts as a simple terminal session, and is used to send and receive text information to and from the device driver. To use **Peer**, you type in commands, and status and information are sent back.

Unlike Test Terminal, **Peer** enables you to keep a continuous log of the commands sent and the results received in a file named **peer.log**. Comtrol Technical Support may ask you to run **Peer** in order to help diagnose reported problems.

Starting Peer

Peer Tracer does not appear in most Comtrol program groups and you may need to start the application from the Windows Explorer. Use the table below to determine whether you can start **Peer** from a program group or where to locate the executable.

Product	Operating System	Starting Peer
DeviceMaster RTS, RocketPort Serial Hub *ia*, RocketPort Serial Hub *Si*	Windows NT, Windows 2000, Windows XP	**\WINNT\system32\rpshSi\peer.exe**
RocketModem and RocketPort	Windows NT	**\WINNT\system32\rocket\Peer.exe**
RocketModem and RocketPort	Windows 2000, Windows XP	Comtrol Utilities peer peer.exe

To start Peer, you may need to open the **Windows Explorer**, access a specific directory, and double-click on **peer.exe** or start **peer** using the Comtrol Utilities program group. The **Peer** Tracer window displays (at right).

Log Functions

All logging functions are found under the File menu. To start keeping a log, select **Log to Disk** from the File menu. The other options on this menu are View Disk Log, Clear Disk Log, Clear Screen, and Exit.

Using Peer

To use peer, simply type in commands at the **: prompt**. (It may be necessary to press **Enter** to make the **: prompt** appear.) For example, to examine COM5, type: **PORT COM5 <Enter>**

To gather some information about the port, type: **STAT <Enter>**. This should return details about the port.

To turn on monitoring of any calls into driver (events), type: **MON EV <Enter>**

To send strings and commands to attached peripherals—for example, to send "ATH0" to a modem—type: **SEND ATH0 <Enter>**. A return and linefeed are always appended to each string sent.

Other Peer Commands

Enter commands at the **:** prompt and follow each command with **Enter**.

Command	Effect
MON TX	Monitor data being transmitted through the selected port.
MON RX	Monitor data being received through the selected port.
M	Turn off all monitoring.
?	Display Peer Tracer command summary.
PORT COM*xx*	Change port being examined to COM*xx*.

Keep in mind that all commands are processed in the device driver, and that **Peer** simply acts as a conduit for this information.

For more information, see the **Peer.hlp** help file.

Troubleshooting and Technical Support

This section contains troubleshooting information for your RocketPort or RocketModem adapter and how to contact Technical Support.

Troubleshooting

If you are having trouble with a RocketPort or RocketModem, try the following.

Note: *Most customer problems reported to Technical Support are traced to cabling or network problems.*

1. Verify that you are using the correct types of cables in the correct places and that all cables are tightly connected. See *Hardware Installation Documentation* on Page 5 to verify cabling.
2. Verify that you are addressing the port correctly. In many applications, device names above COM9 require the prefix **\\.** to be recognized. For example, to reference COM20, use **\\.\COM20** as the file or port name.
3. Create the bootable diagnostic diskette and run the diagnostics. See the *Hardware Installation Documentation* on Page 5 for information about creating and running the bootable diagnostic diskette.
4. Use the section titled, *Comtrol Tools* on Page 33, to install utilities that you can use to diagnose problems.
5. Enable the **Verbose Event Log** feature (Page 21) under the **Options** tab and then reboot the server.

Before calling Technical Support

Comtrol has a staff of support technicians available to help you. You should review *Troubleshooting* before calling Technical Support. If you call for Technical Support, please have the following information available.

Item	Information
Adapter type	
Adapter serial number	
Driver part number and revision or version	
Server computer make, model, and speed	
Other serial port adapters installed in the server and their COM port numbers	
Devices connected to the adapter	

Technical Support

If you need technical support, contact Comtrol using one of the following methods.

Contact Method	Corporate Headquarters	Comtrol Europe
FAQ/Online	http://support.comtrol.com/support.asp	
Downloads	http://support.comtrol.com/download.asp	
Email	support@comtrol.com	support@comtrol.co.uk
Web site	http://www.comtrol.com	http://www.comtrol.co.uk
Fax	(763) 494-4199	+44 (0) 1 869-323-211
Phone	(763) 494-4100	+44 (0) 1 869-323-220

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