



# RocketPort<sup>®</sup> Serial Hub *Si* Driver Installation for Windows 95/98<sup>®</sup>

## How to Use this Document

You can use the interactive [Table of Contents](#) to locate the information you need.

## Driver Requirements

This document discusses installing and configuring the RocketPort Serial Hub *Si* device driver for the Windows 95/98 operating system. The RocketPort Serial Hub *Si* requires at least one personal computer configured for local area networking and running one of the following operating systems:

- Microsoft<sup>®</sup> Windows<sup>®</sup> 95, all versions
- Microsoft<sup>®</sup> Windows<sup>®</sup> 98, Release 1 or Release 2

**Note:** The driver for the **RockPort Serial Hub-Si** is different than the driver for the RocketPort Serial Hub and they are **NOT** interchangeable. See the [ftp/web site](#) for driver support for other operating systems.

For hardware specific information or the product overview, see the *Hardware Installation* documentation that is available on the Control CD or you can download the current version from the [ftp/web](#) site.

Control documents are available in electronic form on the Control ftp/web site. Driver updates can be downloaded at no charge from the Control ftp/web site. Always check the web or ftp sites to make sure that you have the current driver and documentation. Software downloaded from the ftp/web site are self-extracting zipped files that you must extract before installing.

## Connectivity Requirements

You will need an Ethernet connection, to either to an Ethernet hub or to a network interface card (NIC) in the host computer. See the [Hardware Installation](#) documentation for information regarding hardware installation, including building crossover cables.

**Note:** If connecting the RocketPort Serial Hub *Si* directly to the NIC card in the computer, an **Ethernet crossover** cable is required.

## Initial Installation - Quick Reference

Use the [Hardware Installation](#) documentation to install the hardware for the first time or you can use the following installation outline:

1. Connect the RocketPort Serial Hub *Si* to a network hub or NIC card.
2. Connect the power adapter to the RocketPort Serial Hub *Si* and plug it into an electrical source.
3. Power-up the RocketPort Serial Hub *Si* and verify that it passes the power-on diagnostics (see the *Hardware Installation* documentation).
4. Connect the serial devices.



*The RocketPort Serial Hub *Si* defaults the ports to RS-232. Do not connect devices that require a specific mode (RS-422 or RS-485) until the port has been configured in the device driver.*

Caution

5. If necessary, unzip the device driver file, see [Extract.htm](#).
6. Remove the existing driver.
7. Install and configure the new version of the driver.
8. Shut down and restart the server.

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# Driver Installation and Configuration

This subsection discusses the following installation and configuration issues:

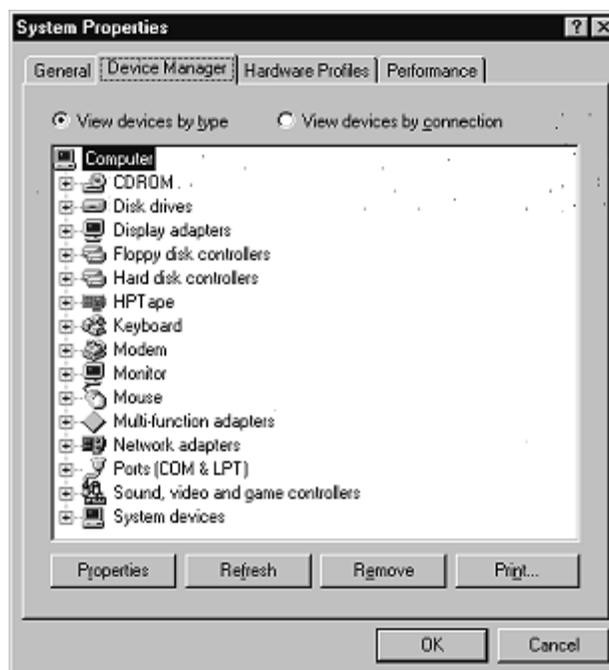
- Removing an existing device and driver (discussed below)
- [Installing](#) the software
- [Verifying](#) the installation
- Using [port sharing](#)
- [Changing](#) configuration parameters
- [Adding](#) new RocketPort Serial Hub *Si* devices to an existing configuration
- [“Hot-swapping”](#) devices

See [Initial Installation - Quick Reference](#), if you want to install the product using a quick reference.

## Removing an Existing Device and Driver

Use the following procedure to remove any existing RocketPort Serial Hub *Si* devices and drivers on the Windows 95/98 operating system. If updating (not reconfiguring) the driver, you may skip Steps 1 through 8 and leave the devices installed, but make sure that you remove the existing driver before installing an updated driver.

1. Right-click on My Computer, and select **Properties**.
2. Select the **Device Manager** tab.



3. Expand the **Multi-function adapters** node of the device tree.
4. Highlight **RocketPort Serial Hub Si 4/8 Port Device**.

5. Click the **Remove** button. This warning displays:



6. Click the **OK** button. Wait while the operating system deletes the device record. When it is finished, an updated Device Manager window displays.
7. Repeat Steps 4 through 6 for each RocketPort Serial Hub *Si* in the system.
8. When finished removing devices, click the **Close** button.
9. Click the **Start** button to begin removing the software.
10. From the Start menu, select **Settings**, then **Control Panel**.
11. Double-click on the **Add/Remove Programs** icon. A list of installed programs displays:



12. Highlight **Control RPSH-Si Tools** and click the **Add/Remove** button. The programs are removed.
13. Click the **OK** button.
14. Using Windows Explorer, delete the **RPSHSI** directory and all files it contains. This directory is typically located in the C:\WINDOWS\SYSTEM directory.
15. To ensure a completely clean installation, you can view the \WINDOWS\INF directory and use the Windows Explorer **Tools, Find, Advanced** option to search for and erase all files with names beginning with "OEM" and containing the text "**ctmrphsi**." However, this is not required, and these files do not exist in some versions of Windows.
16. Restart your computer so that your changes take effect.

After removing the existing driver, use the following subsection to install a new version.

## Installing the Device and Driver

Use the following procedures to install the device and driver for the Windows 95/98 operating systems.

**Note:** If updating the driver, first [remove](#) the existing version of the driver. Do **not** use the Update option.

The following procedures assume that you have already:

- Installed the hardware
- Determined that the hardware is working properly using the power-on diagnostics

See the [Hardware Installation](#) documentation for all hardware and diagnostics information.

**Note:** In a new installation, the lower **10BASE-T** LED should be lit (if using a 10Base-T Ethernet connection) and the Port 1 LED should be flashing (waiting for the driver to load).

1. If necessary, extract the driver files by double-clicking on the driver file name and saving it to a diskette or a new subdirectory on your hard drive. For example: c:\control.
2. Click the **Start** button, and select **Settings**, then **Control Panel**.
3. Double-click on the **Add New Hardware** icon. The following screen appears:



4. Click the **Next** button. You are asked if you want Windows to search for new hardware:



5. Click the **No** button, then **Next**. The list of hardware types displays:



6. Highlight **Multi-function adapters** and click **Next**. The list of manufacturers and models displays:



7. Click the **Have Disk** button. This window displays:



8. Enter the drive and directory path to the installation files and click the **OK** button. For example, if you extracted the driver to a subdirectory named **control**, enter: **c:\control**.

If using the Browse option to locate the installation files, select the **ctmrphsi.inf** file.

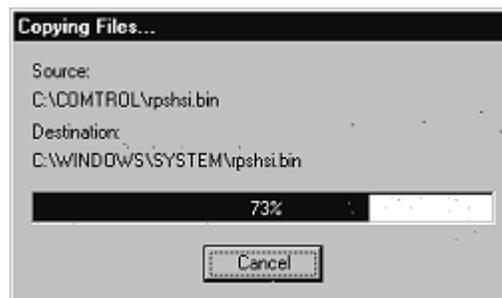
A list of RocketPort Serial Hub *Si* devices displays:



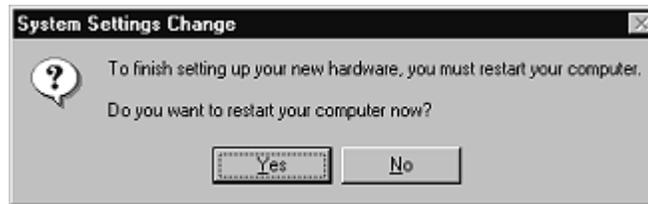
9. Select your hub type (4- or 8-port) and click **Next**. The following window displays:



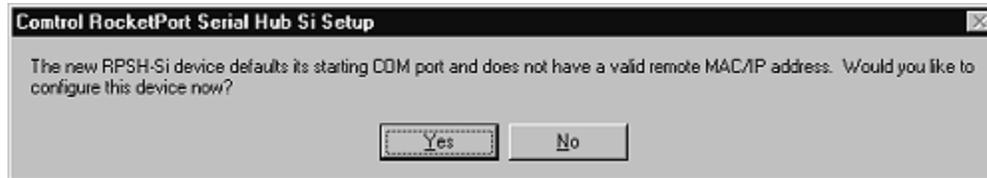
10. Click **Finish**. The system begins copying files and building the driver database:



11. Click **Yes** when asked if you want to restart your computer:



12. After the computer restarts, it automatically recognizes the new COM ports and installs the software for each port. When the process is complete, this message displays:



13. Click **Yes**. The Control Main Setup window displays:



14. Make sure the **RocketPort Serial Hub Si** device is selected, then click the **Properties** button.

The Device Setup window displays:



15. Optionally, rename the RocketPort Serial Hub *Si* default device name.
16. Verify the **Number of Ports** you want to configure for this computer.
17. Select the type of network addressing that you plan to implement.

**Note:** See [Hardware Installation](#) for information regarding the advantages of MAC or IP addressing.

- a. If you select **MAC**, enter the **MAC Address** of the device that you are installing.

**Note:** The MAC address label is on the bottom panel of the device and the format is: **00 c0 4e 06 xx xx**

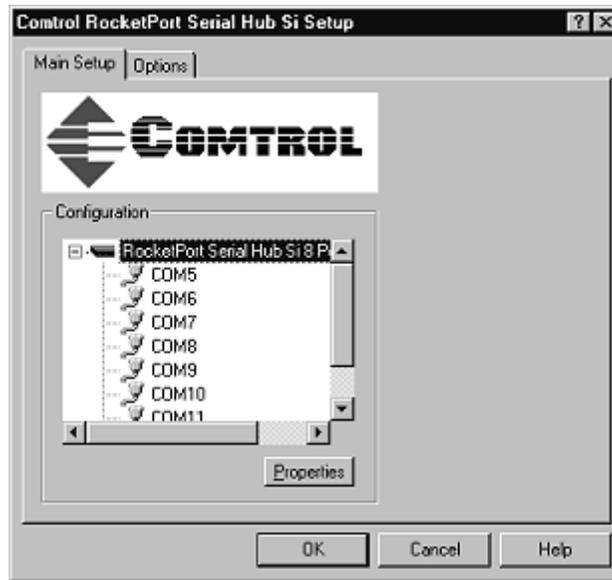
*Once connected to the network and powered up, most Control network devices broadcast their MAC addresses. After the initial installation, you can use the droplist to view and select MAC addresses.*

- b. If you select **IP**, enter the **IP Address** of the device that you are installing.

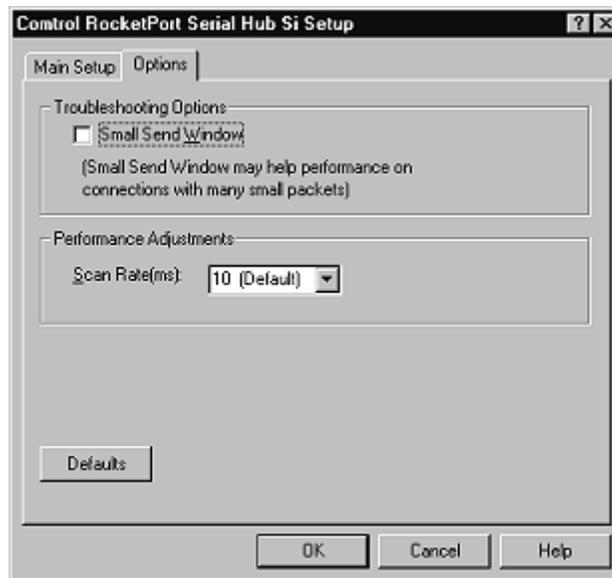
**Note:** IP addresses must be DHCP assigned or by using the IP Configurator program. For more information, see [Hardware Installation](#).

- c. Once you select an addressing method, you must “un-click” the selected method in order to select the other method.

18. Click the **OK** button. The Main Setup window appears:



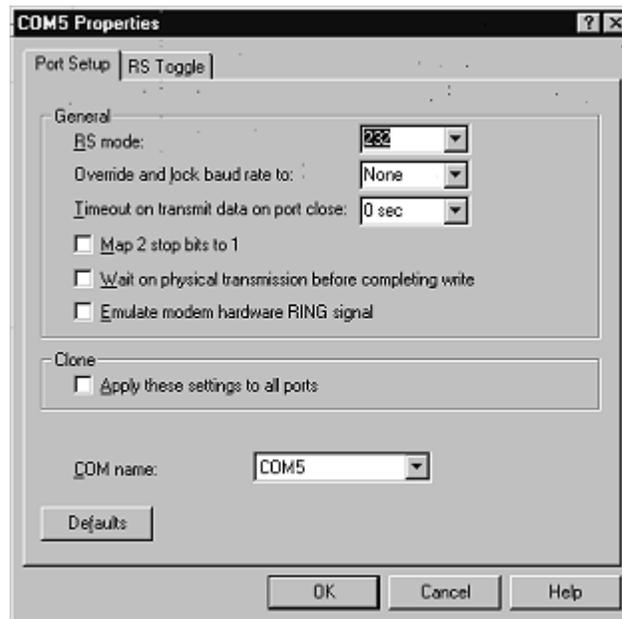
19. If you want to change the Send Window or Scan Rate, click the **Options** tab. The Options screen appears:



- a. Select the options you want to implement. **Small Send Window** causes the driver to send small data packets immediately, rather than waiting until the send buffer fills.
- b. **Scan Rate** is used to adjust latency for time-critical applications. Typically, you should leave it set to the default value of 10 milliseconds.

20. Click the **Main Setup** tab.

21. Highlight any **COM port** that you want to configure and click **Properties**. The Port Properties window displays:



22. Select the appropriate mode to match the peripheral that you are connecting to the selected COM port.

23. Optionally, make any necessary changes to fit your environment:

a. Lock the baud rate to access higher or lower rates than are normally permitted by your Windows applications.

b. Set a time delay on the transmit data before a port closes.

**Note:** You can select the length of time to wait for data to clear the transmit buffer, before a host application closes the port. If data is still in the transmit buffer, you can set a delay time to allow the buffer to empty. This is typically used with slower peripheral devices such as printers, to give the data sufficient time to flush through the system.

c. Map 2 stop bits to 1.

**Note:** You can use this option to map 2 stop bits to 1 bit. If the application you are using is hard coded to use two stop bits and you are receiving framing errors, you can implement this option. Leave this box unchecked to enable stop bits to pass through unchanged.

d. Wait for physical transmission before completing write.

**Note:** Use this option to force all write packets to wait until the transmit data has physically completed the transmission before returning completion to the host application. The default mode (box not checked) is to buffer the data in the transmit hardware buffer and return completion as soon as the packet is in the buffer.

e. Emulate modem hardware ring signal.

**Note:** This emulates a hardware RI (ring indicator) signal.

f. Clone port settings.

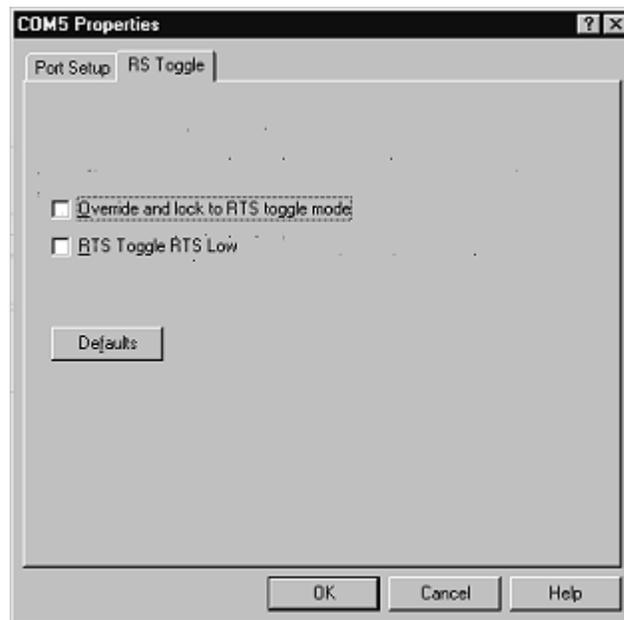
**Note:** If this box is checked, the changes you make in the COM Properties screen are applied to **all ports on this serial hub**. If this box is not checked, the changes you make to the Port Setup options apply to the selected port only.

g. COM name.

**Note:** Use the droplist to select the desired COM name for the selected port. Port numbering is defined by the computer controlling the port and is neither automatic nor required to be sequential. Be careful not to overlap port numbers (for example, by creating two "COM6" ports), as this will disable the affected ports.

You can select **Not Configured**, if you do not want this port available on this particular installation.

- h. If you need to configure RTS options, click on the RS Toggle tab.



- i. Configure the port.

The **Override and lock to RTS toggle mode** option allows you to lock the port in RTS toggle mode, then set the mode (low or high) as desired.

The **RTS Toggle RTS Low** option allows you to toggle the RTS output signal low during data transmission. If the option box is not checked, RTS is toggled high (asserted) during data transmission

24. After configuring your port (COM) properties, click the **OK** button. The Main Setup screen returns.
25. If you did not clone all the COM ports, repeat [Steps 21](#) through [24](#) until all of the COM ports that you want to use are configured.
26. Click on the **OK** button after configuring each port.
27. When you are finished configuring ports, click **OK** to save your changes and exit from the Main Setup window. At this point, you should be ready to begin operations. No rebooting is necessary.

Each RocketPort Serial Hub  $S_i$  must be added individually.

- To add another RocketPort Serial Hub  $S_i$ , repeat the above procedure.
- To complete configuration, you may need to set up modems or printers. See the appropriate subsections later in this document.

## Verifying the Installation

After rebooting the system, the driver downloads to the RocketPort Serial Hub *Si*. The port LEDs should be cycling their lights approximately every 30 seconds (instead of the Port 1 LED flashing, which indicates that the RocketPort Serial Hub *Si* is waiting for the driver).

Use the following procedure to verify the installation.

1. Open the **Device Manager**.
2. Expand the **Multi-function adapters** entry.
3. Select the **RocketPort Serial Hub *Si***.
4. Click the **Properties** button.
5. Check the **Device status**.



If the installation was successful, the status message should indicate that the device is working properly.

**Note:** *This message is only meaningful if the hardware LED diagnostics pass. See the [Hardware Installation](#) documentation.*

If the status message indicates a problem, check the device as outlined in [Troubleshooting](#). In addition, you can use the following applications to help diagnose the problem:

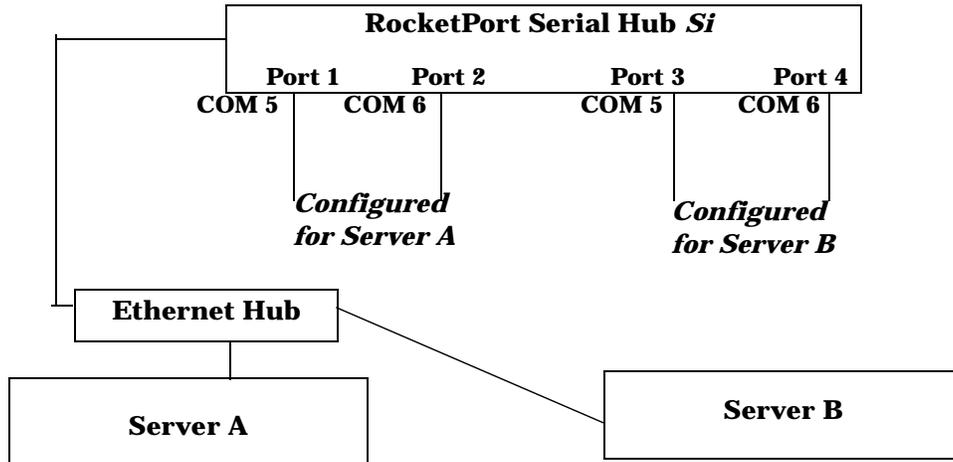
- [Using Test Terminal](#)
- [Using Port Monitor](#)
- [Using the Device Advisor](#)

## Using the Port Sharing Feature

The RocketPort Serial Hub *Si* can be shared with multiple computers on a network. To do so, follow the [Installing the Device and Driver](#) discussion for each server that you want to permit access to the serial ports.

You can implement the port sharing feature in several ways. You share the same port with multiple servers or you can set up multiple servers to share specific ports on the RocketPort Serial Hub *Si*.

### *Example of Using the Port Sharing Feature*



*COM port names must be unique to each server. Multiple servers can use the same COM port names, if desired.*

***When installing the driver on Server A, select “Not Configured” for the COM names on Ports 3 and 4. When installing the driver on Server B, select “Not Configured” for the COM names on Ports 1 and 2.***

**Note:** *Most applications do not release ports, so you may not be able to use port sharing across multiple servers with the same port. Also, if using port sharing, make sure that two computers do not try to access the same port at the same time. Only one computer can control a given port at a given time.*

## Changing Configuration Parameters

Use the following procedure to change the:

- RocketPort Serial Hub *Si* properties, such as:
  - Name of the RocketPort Serial Hub *Si*
  - Number of ports
  - Network address

**Note:** You can change the network address type by clicking on the current checkbox type, followed by placing a check in the other network type and entering the appropriate address. You also have to change the MAC address if hot-swapping the hardware.

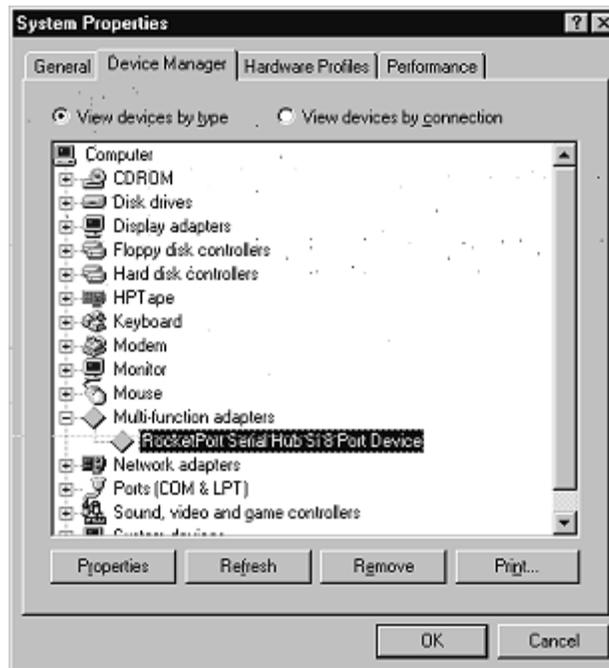
- Device options such as [scan rate](#).
- COM port properties, such as the port mode (RS-232, RS-422, or RS-485) and application-related options discussed in [Step 23](#) of the installation process.



*Before changing the communications mode in the Setup program for an existing port, make sure that you disconnect the peripheral device from the port.*

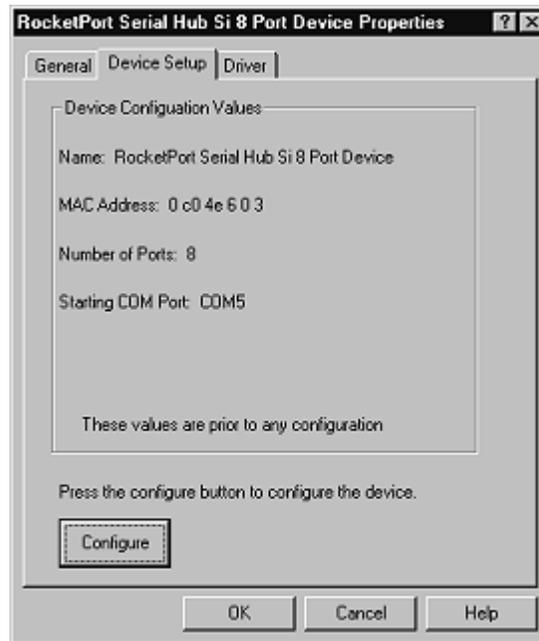
Use the following procedure to change configuration parameters.

1. Right click on the **My Computer** icon and select **Properties**. The System Properties window displays.
2. Click on the **Device Manager** tab.
3. Expand the **Multi-function adapters** entry.
4. Select the **RocketPort Serial Hub *Si***.

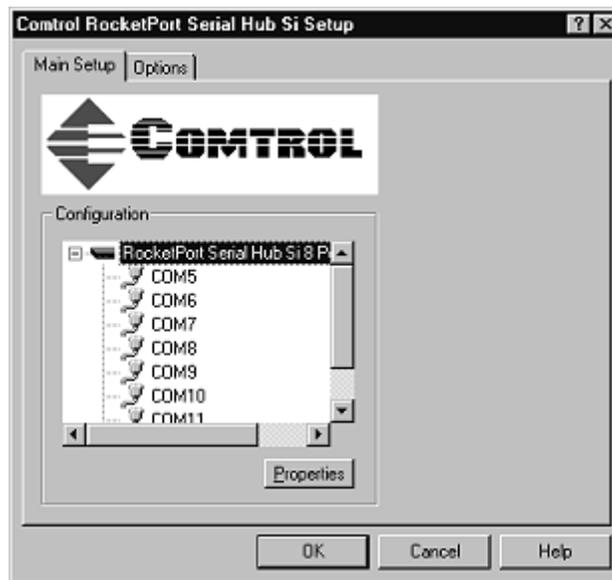


5. Click the **Properties** button. The Device Properties window displays.

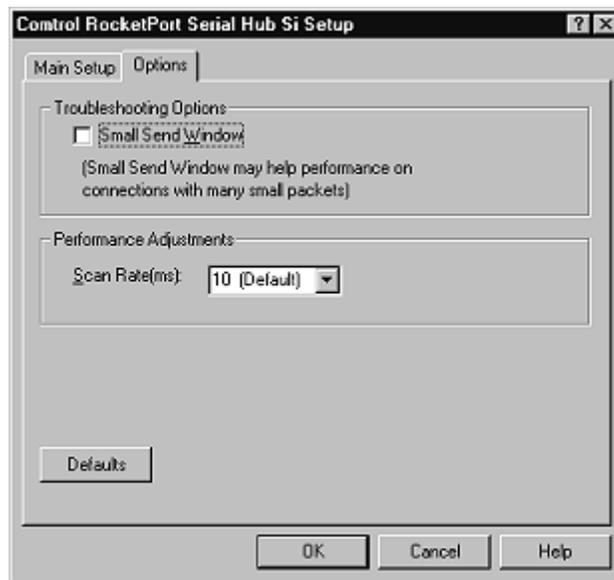
6. Select the **Device Setup** tab.



7. Click the **Configure** button. The Main Setup window displays:



8. To change basic driver-level options (scan rate, send window size), click the **Options** tab.

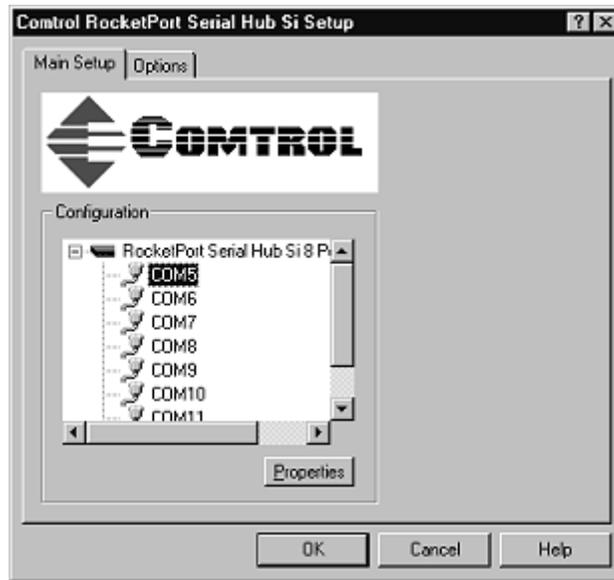


9. Make your changes, then click on the **Main Setup** tab to return to the Main Setup page.

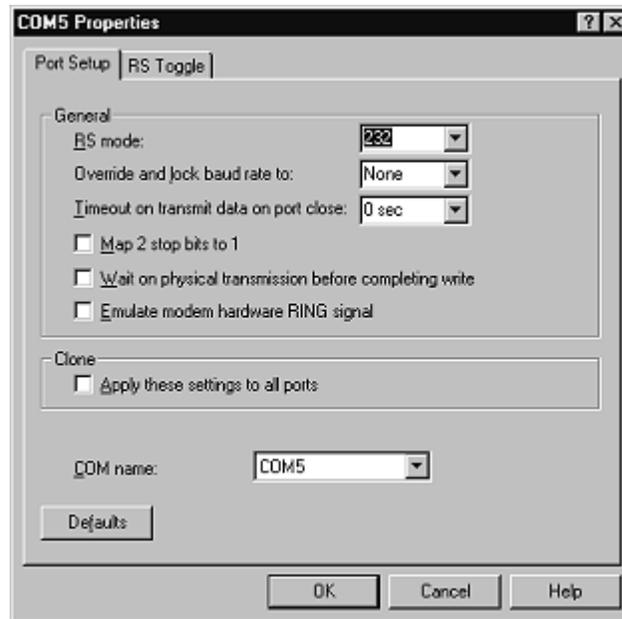
10. To change the RocketPort Serial Hub *Si* properties (device name, number of ports, network address), highlight the device name and click the **Properties** button. The Device Setup window displays:



11. Make the desired changes and click **OK** to return to the Main Setup page.



12. To change port configuration, highlight the COM port that you want to change and click the **Properties** button. The Port Setup window displays:



13. Make the port configuration changes that you want and click the **OK** button.



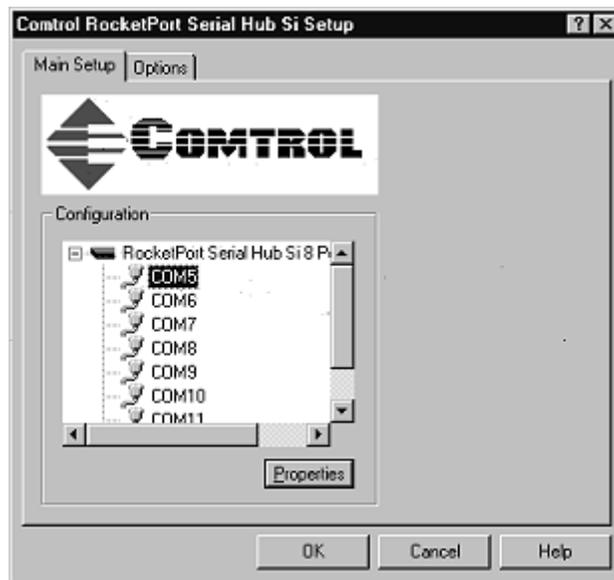
**Caution**

*Before changing the communications mode in the Setup program for an existing port, make sure that you disconnect the peripheral device from the port.*

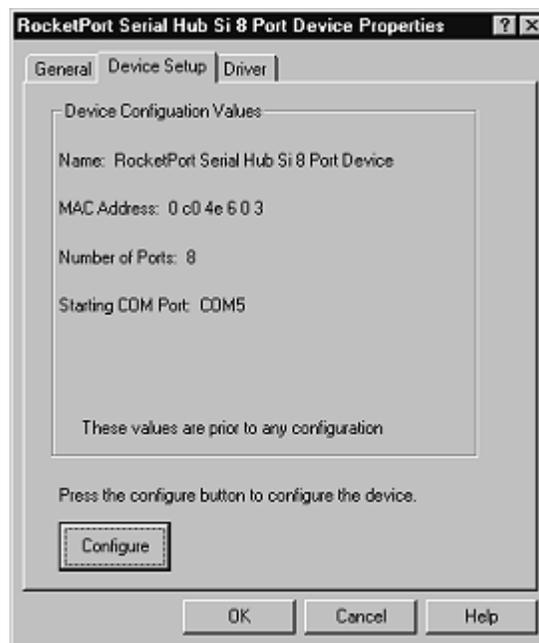
If you change the mode of the port, the following query appears:



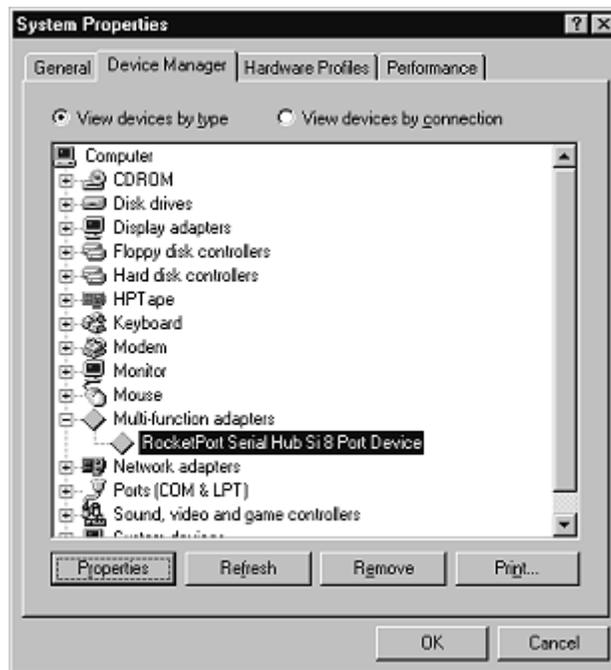
14. Click **OK** to save your configuration changes and return to the Main Setup window.



15. Click **OK** to close the setup program and return to the Windows Device Manager.



16. Click **OK** to exit to the Windows System Properties window.



17. Click **OK** to exit to the Windows desktop.

**Note:** Depending upon the type of configuration changes you made, you may or may not need to reboot your system. The driver will prompt you to reboot the system, if necessary.

### **Adding RocketPort Serial Hub *Si* Units After the Initial Installation**

Each RocketPort Serial Hub *Si* must be installed as a separate Multi-function adapter. Use the following procedure to add more RocketPort Serial Hub *Si* units to an existing installation.

1. Connect the new RocketPort Serial Hub *Si* to the network and power it up.
2. Make sure that the RocketPort Serial Hub *Si* passes the power-on LED diagnostics.
3. Go to [Installing the Device and Driver](#) and repeat the entire procedure.
4. Reboot the system so that the new RocketPort Serial Hub *Si* initializes.

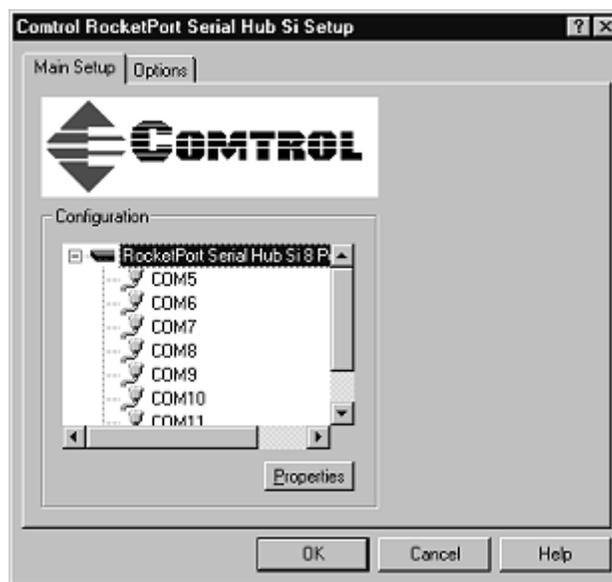
## “Hot-Swapping” RocketPort Serial Hub *Si* Devices

On occasion, it may be necessary to replace an existing and configured RocketPort Serial Hub *Si* with an identical hub, without downing the server or reconfiguring ports. To do so, follow these steps:

1. Shut off the old RocketPort Serial Hub *Si*, connect all cables to the corresponding ports on the spare RocketPort Serial Hub *Si*, and power up the new RocketPort Serial Hub *Si*.

**Note:** Transfer all cables on a port-by-port basis so that the cables are not accidentally switched.

2. Write down the Network (MAC) Address of the spare RocketPort Serial Hub *Si* on the customer service label provided.
3. Right-click on the **My Computer** icon and select **Properties**.
4. Select the **Device Manager** tab.
5. Expand the **Multi-function adapters** and select the RocketPort Serial Hub that you are swapping out.
6. Click the **Properties** button.
7. Select the **Device Setup** tab and click the **Configure** button. The Main Setup window displays:



8. Make sure the serial hub is highlighted and click **Properties**. The Device Setup window displays:



9. Enter the network (MAC or IP) address of the replacement RocketPort Serial Hub *Si*.

**Note:** Leave all other settings the same. The unit being swapped in must have the same number of ports and the same COM number configuration as the unit being taken out of service. If you use IP addressing, the new unit may be configured to use the same IP address as the old one.

10. Click **OK** to exit to the Main Setup window.

11. Click **OK** to exit to the Windows Device Manager.

12. Click **OK** to exit to the Windows System Properties.

13. Click **OK** to exit to the Windows desktop.

The new RocketPort Serial Hub *Si* immediately replaces the old one under the old hub's device name.

**Note:** Restarting the system is not needed, however, the RocketPort Serial Hub *Si* may need to have the power turned off and then back on.

# Configuring Modems

After installing the hardware and driver for Windows 95/98, use this discussion to configure modem COM ports.

The RocketPort Serial Hub *Si* can support any asynchronous serial modem for use by any application that uses TAPI. For information regarding port pinouts and signals, see the *Hardware Installation Card*.

## Installing Modems

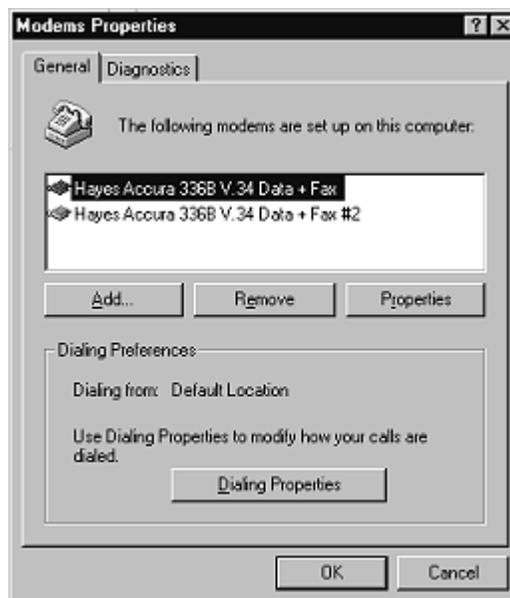
The following instructions were developed using Control modem products. If you are using another brand of modem, note that some prompts and screen descriptions may differ from those shown.

Follow these steps:

1. Connect the modem to the desired port.
2. Power up the modem.
3. Open the **Control Panel** window.
4. Double-click the **Modems** icon.

If you have no other modems installed, skip to [Step 5](#).

If you have already installed another modem, the Modems Properties window displays. Click the **Add** button.

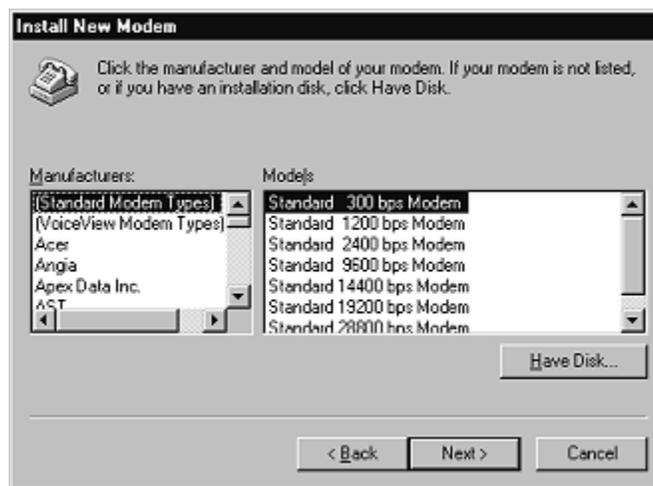


5. Check the “Don’t detect my modem...” box and click Next.

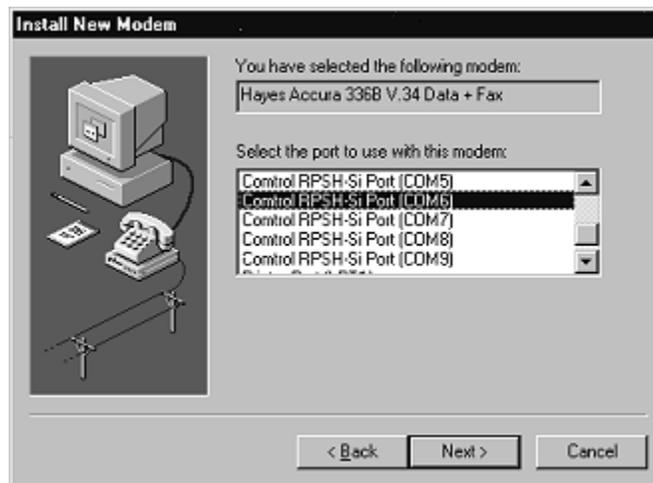


**Note:** Do **not** use the auto-detect feature. The Windows modem auto-detect function does not recognize ports above COM10, and it scans **down**, beginning with the highest detected COM port. This can produce extremely confusing modem-to-port numbering and naming sequences.

6. Select the appropriate manufacturer and model and click Next. If the correct manufacturer and model do not appear on the list, click **Have Disk** to install software from a manufacturer-supplied installation diskette.



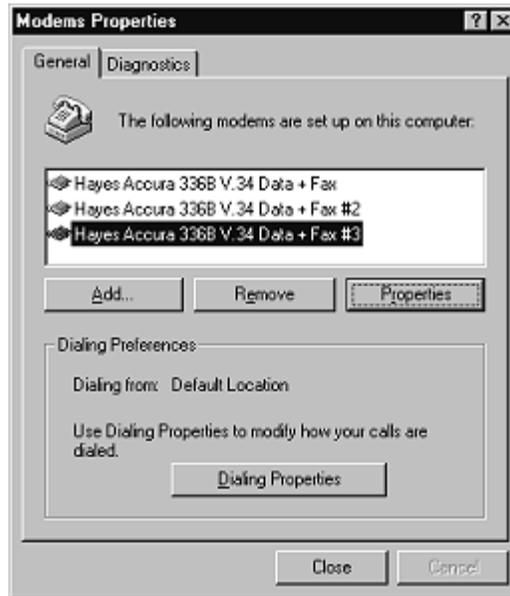
7. Select the port to which the modem is attached and click **Next**. The system installs the modem software.



8. Select **Finish**.



9. The Modems Properties window displays again. Depending on prior configuration, you may be asked to enter your country of use, area code, number dialed to get an outside line, and whether you have tone or pulse dialing.



10. If you need to configure modem properties (maximum baud rate, data bits, parity, and so on), click the **Properties** button, make the needed changes, then click **OK** to return to this window.

**Note:** For help configuring modem properties, see the *Windows Help System*.

11. If you need to configure dialing properties (country, area code, calling card number, and so on), click the **Dialing Properties** button, make the needed changes, then click **OK** to return to this window.
12. Click **Close** to exit the Install New Modem wizard. Your changes take effect immediately. No reboot is required.

# Configuring Printers

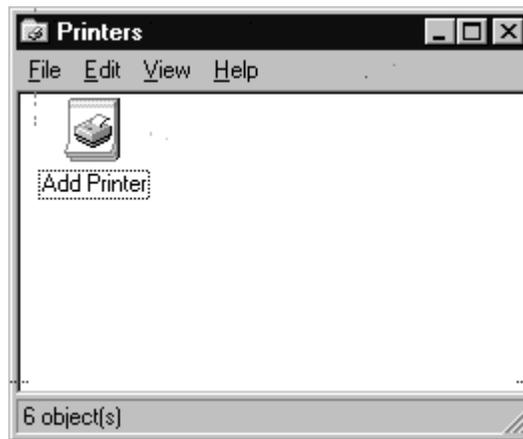
Use this subsection to configure printers for the RocketPort Serial Hub *Si* after installing the RocketPort Serial Hub *Si* hardware and driver.

## Adding Serial Printers

Follow these steps to configure a serial printer.

**Note:** You may need the Windows 95/98 CD-ROM in order to load drivers and complete printer installation. Make sure you have this CD on-hand before beginning the process.

1. Connect the printer to the desired port. Use a DTE-to-DTE null modem cable unless the printer maker specifies otherwise.
2. From the **Start** button menu, select **Settings**, then **Printers**.



3. Double-click on the **Add Printer** icon. The Add Printer Wizard starts.



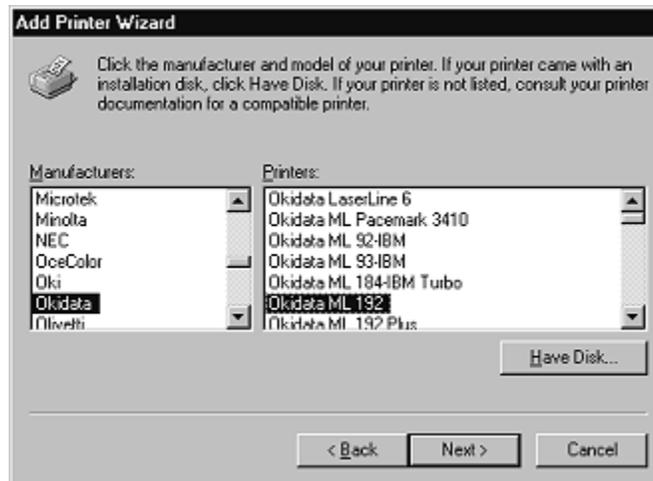
4. Click **Next**.

5. Select **Local printer**, then click **Next**.

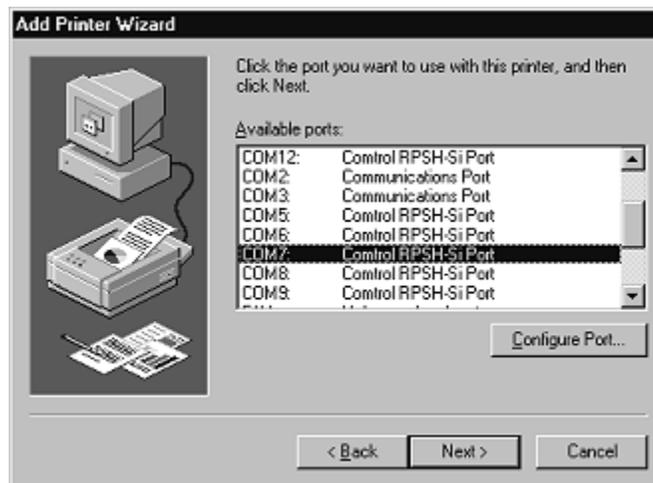


**Note:** While the RocketPort Serial Hub Si is a network device, the COM ports appear to be local ports to your computer.

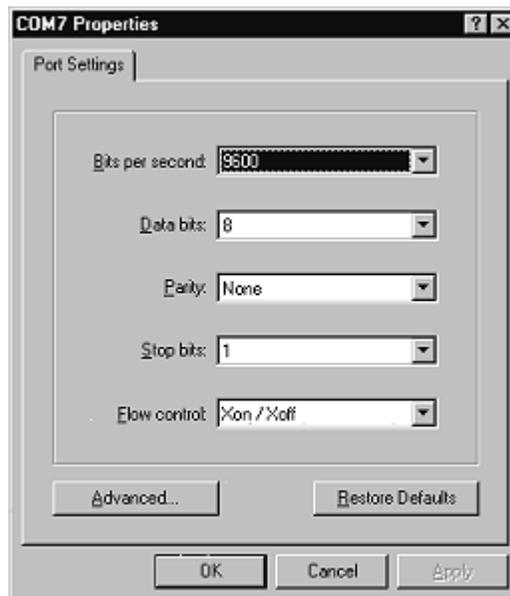
6. Select your printer make and model and click **Next**, or use the **Have Disk** option to load a printer driver from CD or diskette.



7. Select the COM port to which the printer is connected and click **Configure Port**.



8. Enter the baud rate, flow control, and other information as specified by the printer manufacturer, and click **OK**.



9. The port selection page displays again. Click **Next**.



10. Optionally, enter a custom name for this printer, and select whether this printer is the Windows default printer. Click **Next**.



11. Select whether to print a test page and click **Finish**.

**Note:** You may be prompted to insert the Windows 95/98 CD-ROM in order to load drivers. Do so and follow the on-screen instructions.

12. If the test page prints successfully, you are now ready to begin using the printer. No reboot is needed.

## Changing Printer Port Configuration

If the printer does not successfully print the test page, it may be necessary to change the port baud rate, parity, and so on. If the Ports applet does not configure the port properly, you may have to use the **mode** command from a DOS prompt. Also, check the printer for DIP switches or other hardware configuration options.

## Changing Printer Port Assignment

To change the port assigned to a printer, follow these steps:

1. Open the Printers control panel.
2. Right-click on the icon for the printer you want to change.
3. Select the **Properties** option from the menu. The Properties window is displayed.
4. Click the **Details** tab.

***Note:** The Properties window also gives you access to printer test and setup options that can be very helpful when debugging a serial printer installation.*

5. Use the droplist to select the port you want to switch to. Remember to change your cabling accordingly.
6. Click on the **OK** button. Any changes you make take effect immediately. No reboot is needed.

# Troubleshooting and Using Control Tools

The first subsection discusses troubleshooting. The following subsections discuss the following utilities that are shipped with Control drivers for Microsoft operating systems:

- Test Terminal (WCOM32.EXE)
- Port Monitor (PORTMON.EXE)
- Device Advisor

## Troubleshooting

If you are having trouble with a RocketPort Serial Hub *Si*, try the following.

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

1. Verify that the unit is powered on. Turn the unit's power switch off and on, while watching the LED diagnostics. See the [Hardware Installation](#) documentation for information about the LEDs and running the diagnostics program.  
**Note:** If the Port 1 LED is flashing, this indicates that the driver has not downloaded to the unit. If you believe that the server's configuration is correct, then there is probably a network problem.
2. Verify that the port polarity is correct, see the [Hardware Installation](#) documentation.
3. Verify that you are using the correct types of cables in the correct places and that all cables are connected securely.
4. Reboot the server.
5. If you are using a 10/100mb NIC card, try locking the card to 10mb/s.
6. Verify that the Ethernet hub and any other network devices between the server and unit are powered up and operating.  
**Note:** To isolate the unit from the network, use a "crossover" ethernet cable to connect the unit directly to the server.
7. Verify which servers are having problems controlling the device.
8. Verify that the network (MAC) address in the driver matches the address on the RocketPort Serial Hub *Si* (See [Changing Configuration Parameters](#).)
9. Verify that the network IP address is what the RocketPort Serial Hub *Si* acquired from the DHCP server or was manually entered. If IP addressing is being used, the server should be able to ping the RocketPort Serial Hub *Si*.
10. Verify that you are addressing the port correctly. In many applications, device names above COM9 require the prefix \\.\ in order to be recognized. For example, to reference COM20, use \\.\COM20 as the file or port name.
11. Use the Test Terminal program (wcom32.exe) to troubleshoot communications on a port-by-port basis. (See [Using Test Terminal](#).)
12. Use the Port Monitor program (portmon.exe) to check for errors, modem control, and status signals. In addition, it provides you with raw byte input and output counts. (See [Using Port Monitor](#).)
13. Use the Device Advisor to help identify the problem. (See [Using the Device Advisor](#).)
14. If you have a spare RocketPort Serial Hub *Si*, try "hot-swapping" RocketPort Serial Hub *Si* units. If this corrects the problem, the RocketPort Serial Hub *Si* you have removed from service may be defective or in need of repair.
15. Remove and reinstall the driver.
16. If you are unable to resolve the problem, see [Technical Support](#) for information on contacting Control.

## 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 if any other application is using the port.

Follow these steps:

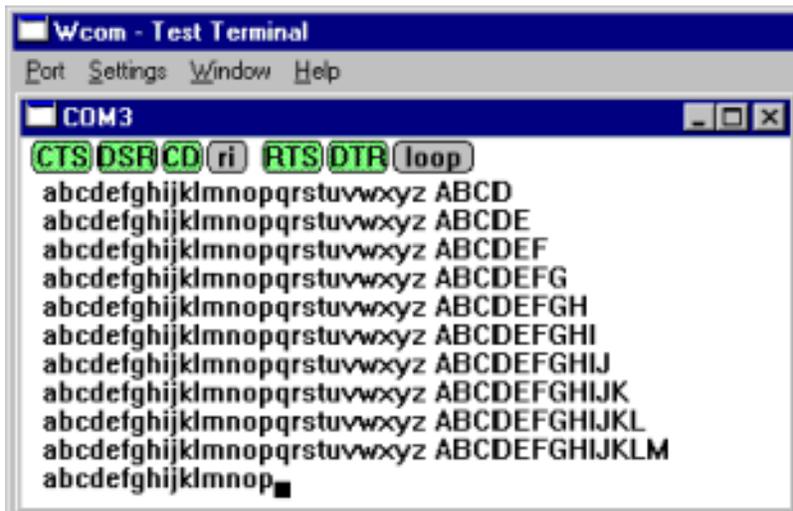
1. To start WCOM32, select Test Terminal from the Control program group. The program window displays:



2. Select Open Port from the Port menu. A list of possible COM port numbers displays.
3. 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 pops up:



**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 the COM port.

## Testing a RocketPort Serial Hub *Si*

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

**Note:** *This works only for RS-232 and RS-422 mode. Use the [diagnostics](#) for RS-485 mode. To build loopback plugs, see the [Hardware Installation](#) documentation.*

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

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

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."

## 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:

cts  dsr  cd  ri

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

The next two lights are outputs:  RTS  DTR

**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 rightmost light is the loop indicator:  loop

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 RocketPort Serial Hub *Si* statistics in one spreadsheet view. It also enables you to verify operation of all RocketPort Serial Hub *Si* 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 the [Port Monitor Variable List](#).

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 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** from the Control program group.

The monitor window displays:

Device	Oper	CTS	DS	ICD	RTS	DTI	TxTotal	RxTotal	TxCPSInst	RxCPSInst
COM3	Off	Off	Off	Off	Off	Off	0	0	0	0
COM4	Off	Off	Off	Off	Off	Off	0	0	0	0
COM5	Off	Off	Off	Off	Off	Off	0	0	0	0
COM6	Off	Off	Off	Off	Off	Off	0	0	0	0
COM7	Off	Off	Off	Off	Off	Off	0	0	0	0
COM8	Off	Off	Off	Off	Off	Off	0	0	0	0
COM9	Off	Off	Off	Off	Off	Off	0	0	0	0
COM10	Off	Off	Off	Off	Off	Off	0	0	0	0

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

Once the monitor window displays, 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.

#### Port Monitor Screen Commands

Desired Change	Procedure
Change the monitor window font.	Select <b>Font</b> from the <b>Edit</b> 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 <b>Remove</b> 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 <b>Reset</b> from the pop-up menu.*

### Port Monitor Screen Commands (Continued)

Desired Change	Procedure
Clear any single field <i>except</i> the upper left cell.	Right-click on the field to be cleared and select <b>Reset</b> from the pop-up menu.*
Add a column.	Right-click on the column now occupying the desired location and select <b>Add</b> from the pop-up menu. You are prompted to name the variable you want to display, as well as other information. (See <i>Column Setup</i> , below.) After you click <b>OK</b> , 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 <b>Properties</b> from the pop-up menu. (See <i>Column Setup</i> , 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 39](#).*

### Column Setup

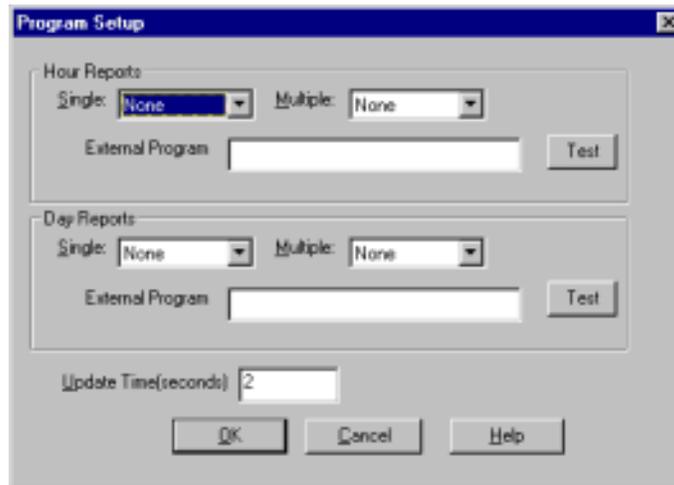
When you select **Add** or **Properties** from the column pop-up menu, the Column Setup window displays:



- 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.view`
- `calcs.dat`

The default column layout is saved in `portmon.view`. 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 `.view` file. You can retrieve this file later by using the File menu **Open** option, or you can use the Edit menu **View Default** option to retrieve `portmon.view` 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, use the Edit Report option on the File menu, or use a system tool such as NOTEPAD.

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

## Port Monitor Variables

The following table lists Port Monitor variables.

**Port Monitor Variable List**

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.
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.

**Port Monitor Variable List (Continued)**

<b>Variable</b>	<b>Description</b>
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 driver.
RxTotalRaw	Total number of receive bytes raw data from the 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
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 driver.

**Port Monitor Variable List (Continued)**

<b>Variable</b>	<b>Description</b>
FramingErrorsRaw	Total count of receive framing errors, from the driver.
ParityErrorsRaw	Total count of receive parity errors, from the driver.

## Using the Device Advisor

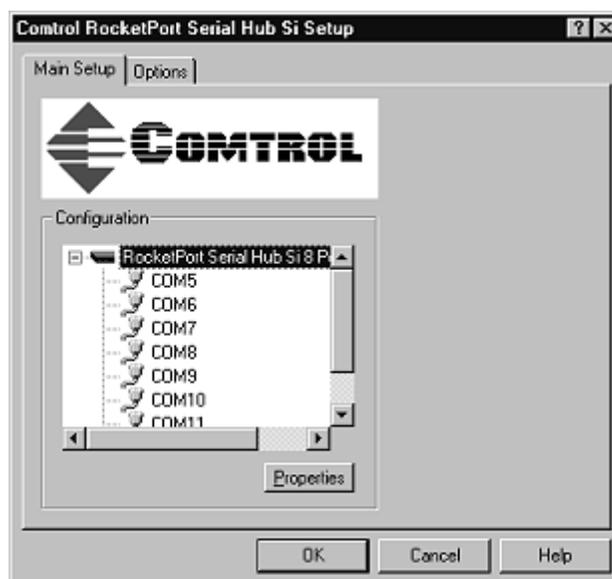
You can use the Device Advisor to determine the following information:

- Summary of the device status
- The MAC address of the network interface card (NIC)
- The Adapter ID string
- The RocketPort Serial Hub *Si* MAC address
- Detailed state of the RocketPort Serial Hub *Si*
- Total number of successful load attempts
- Total number of devices on the network
- Transmit statistics, such as the number of:
  - Frames out
  - Packets to device
  - Retransmitted frames
- Receive statistics, such as the number of:
  - Frames accepted
  - Frames passed on
  - Packets from device
  - Out of sequence frames

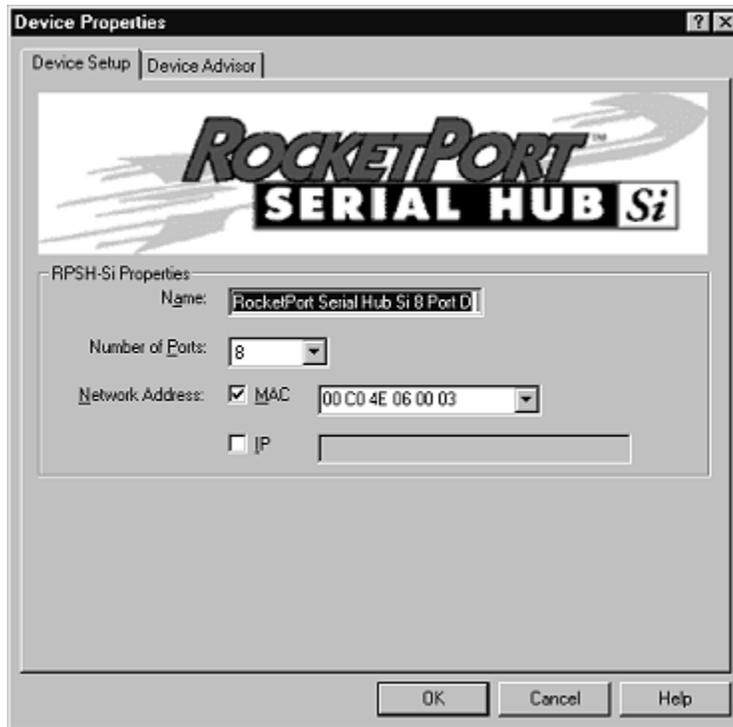
**Note:** For detailed information about the fields in the Device Advisor, use the on-line help available in the application.

Use the following procedure to access the Device Advisor:

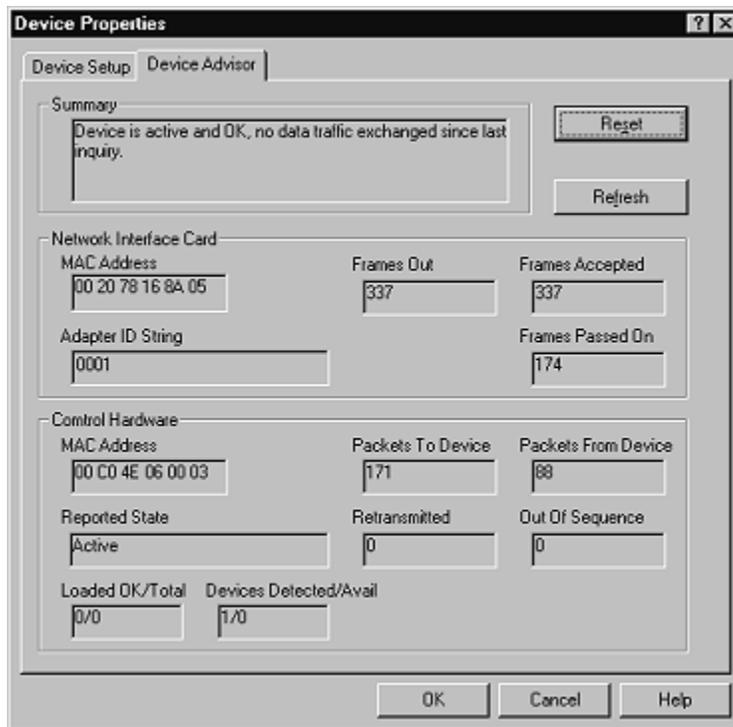
1. Right click on the **My Computer** icon and select **Properties**.
2. Click on the **Device Manager** tab.
3. Expand the **Multi-function adapters** listing and select the RocketPort Serial Hub you want to monitor.
4. Click the **Properties** button.
5. Click on the **Device Setup** tab.
6. Click the **Configure** button.
7. Make sure the RocketPort Serial Hub *Si* is highlighted and click the **Properties** button.



8. Click on the **Device Advisor** tab.



The Device Advisor screen appears and provides you with information that you may find useful. For more information about the fields on the Device Advisor screen, use the on-line help in the application.



## Device Advisor Driver Messages

The following tables provide information about device driver summary messages and reported state messages.

### Driver Summary Messages

Message	Description
Uninitialized	RocketPort Serial Hub <i>Si</i> has not been installed correctly.
Unable to contact the RPSH- <i>Si</i> driver	The RocketPort Serial Hub <i>Si</i> driver is not installed or is not responding to Device Advisor requests.
Unable to contact a Network Interface Controller (NIC)	The server NIC card may not be installed, may be malfunctioning, or may not be bound to RocketPort Serial Hub <i>Si</i> .
Cannot detect network	No inbound traffic of any sort is detected. The RocketPort Serial Hub <i>Si</i> device may be inoperative or you may have a network cabling problem.
Cannot detect any RPSH- <i>Si</i> .	Network traffic is being received, but not from a RocketPort Serial Hub <i>Si</i> device. Check the network connections and verify that the RocketPort Serial Hub <i>Si</i> device is powered up.
Cannot detect RPSH- <i>Si</i> with specified MAC address.	Network traffic is being received from a RocketPort Serial Hub <i>Si</i> device, but not the one specified in Device Setup. Check the device to make sure that you are using the correct MAC address in Device Setup, and check the Main Setup window to verify that you are working with the correct device.
RPSH- <i>Si</i> device with specified MAC address was detected, but is not configured for this server.	Either the RocketPort Serial Hub <i>Si</i> device in question is not assigned to this server, or it is not assigned to <i>any</i> server, or it has been configured for this server but the configuration has not been saved. If the latter, return to the Setup window, save and exit, and restart the server
RPSH- <i>Si</i> device detected and configured for this server, but is not yet assigned to this server.	Either the RocketPort Serial Hub <i>Si</i> device is currently being controlled by another server or the device power has been cycled and the device is waiting for a server to acquire it.
RPSH- <i>Si</i> detected, initializing.	The server has acquired the RocketPort Serial Hub <i>Si</i> device and is downloading the control program. The device will be available shortly.
RPSH- <i>Si</i> responsive, but no data traffic exchange since last inquiry.	The RocketPort Serial Hub <i>Si</i> device appears to be installed correctly and active, but no data traffic has been sent or received since the last time you clicked the Refresh button. If there should have been traffic, check the RocketPort Serial Hub <i>Si</i> port configuration and external cabling.
RPSH- <i>Si</i> responsive; data traffic received, but nothing sent since last inquiry.	Similar to above, except the RocketPort Serial Hub <i>Si</i> device has received data successfully.
RPSH- <i>Si</i> responsive; data traffic sent, but nothing received since last inquiry.	Similar to above, except the RocketPort Serial Hub <i>Si</i> device has sent data successfully.
RPSH- <i>Si</i> active.	Normal state: the RocketPort Serial Hub <i>Si</i> device is installed correctly and active with data traffic.
Poor connection to RPSH- <i>Si</i> .	This message displays if retransmissions occur, frames arrive out of sequence, or more than 2% of the total packets arrive out of sequence. This generally indicates a cable, connector, or LAN termination problem.
Counts reset.	This message displays immediately after you click the Reset button.

### Driver Reported State Messages

Message	Description
Invalid	An illegal RocketPort Serial Hub <i>Si</i> state has been detected. Reset the RocketPort Serial Hub <i>Si</i> device.
Init	This is the normal state for undetected and inactive RocketPort Serial Hub <i>Si</i> devices.
InitOwn	The server has acquired the RocketPort Serial Hub <i>Si</i> device but has not downloaded the control software.
SendCode	The server has acquired the RocketPort Serial Hub <i>Si</i> device and is in the process of downloading the control software.
Connect	The server has completed the download and is completing initialization.
Active	The normal state for a RocketPort Serial Hub <i>-Si</i> device that is attached to an NT server and is ready for data traffic.
Not found	The specified MAC address is not configured on this NT server.
Undefined	No RocketPort Serial Hub <i>Si</i> devices are configured on this NT server.

# Technical Support

Control has a staff of support technicians available to help you.

You should review [Troubleshooting and Using Control Tools](#) and run through the diagnostics before calling Technical Support.

**Note:** The web site has [On-Line Technical Support](#) available.

In addition, please have the following information available.

## Support Call Information

Item	Information
Hardware Type	
Hardware Serial Number*	
MAC Address* (if using MAC addressing)	00 C0 4E 06 ____ ____
Operating system type	
Driver part number and revision level	
Server computer make, model, and speed	
Other network devices and network (MAC) addresses	
Devices connected to the RocketPort Serial Hub <i>Si</i>	

\* The hardware serial number and MAC address can be found on printed tags on the bottom panel of the unit.

Control supplies a self-adhesive label with each RocketPort Serial Hub *Si* unit, which you can use to record the serial number and network address. If the RocketPort Serial Hub *Si* unit is not in a readily accessible location, check to see if this label has been filled out and posted elsewhere (for example, near the server console).

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First Edition, March 21, 2000

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