RocketPort® Serial Hub Series

Software Installation and Configuration Guide

RocketPort® Serial Hub Series

Software Installation and Configuration Guide

Corporate Headquarters:

Internet URL: **www.comtrol.com**
email: **support@comtrol.com**
FTP site: **ftp.comtrol.com**
FAX: (651) 631-8117
Phone: (651) 631-7654

Comtrol Europe:

Internet URI: **www.comtrol.co.uk**
email: **support@comtrol.co.uk**
FAX: +44 (0) 1 869-323-211
Phone: +44 (0) 1 869-323-220

Document Part Number: **2000000 Revision A**

Table of Contents

List of Tables

Introduction

Windows NT

List of Tables

Introduction

Scope

This *Guide* discusses software installation (VS-Link). VS-Link for Windows supports several products, including:

- VS1000 and VS1100 High-Density Serial Hub
- VS2000 Analog Modem Hub
- RocketPort Serial Hub

Note: *VS-Link is the device driver and supporting applications provided with the product.*

For hardware specific information, see the *Hardware Installation Card* that came with the product or download it from the ftp/web site.

Operating System Requirements

The RocketPort Serial Hub requires at least one network server running one of the following operating systems:

- Microsoft Windows® NT (3.51, 4.0, or higher)

    Note: *Windows NT 4.0 or higher is required to support Multilink PPP.*

    RAS or RRAS is required to support Remote Access Service.

- Citrix® WinFrame® (1.7 or later)

Microsoft supports up to 256 RAS ports.

Connectivity Requirements

An Ethernet connection, either to an Ethernet hub or to a NIC card in the host server. (See the *Hardware Installation Card* for information regarding hardware installation.)

Note: *If connecting the* RocketPort Serial Hub *directly to the server, an* **Ethernet crossover** *cable is required.*

Installation Overview

The following subsections outline the various RocketPort Serial Hub installation scenarios. For more information about hardware issues, see the *Hardware Installation Card*. For more information about software issues, see *Installing a New Version of VS-Link* on page 20.

Initial Installation - Quick Reference

Use the *Hardware Installation Card* to install the hardware for the first time or this procedure:

1. Install the RocketPort Serial Hub.

2. Install RS-232 serial devices.

3. Connect the RocketPort Serial Hub to the network hub or server.

4. Power-up the new RocketPort Serial Hub and verify that it passes the power-on diagnostics.

5. If necessary, unzip the VS-Link distribution file, see *Extracting the Files* on page 19.

6. Install and Configure VS-Link, see *Installing a New Version of VS-Link* on page 20.

7. Configure serial ports to support the RS-232 devices.

8. Shut down and restart the server.

Installing VS-Link Updates - Quick Reference

This procedure lists how to update VS-Link:

1. Remove the existing VS-Link, see *Removing Existing VS-Link Software* on page 17.

2. Install and configure the new version of VS-Link, see *Installing a New Version of VS-Link* on page 20.

3. No port configuration changes are required.

4. Shut down and restart the server.

Note: *There are no hardware changes required when updating VS-Link.*

Adding a Unit to an Existing Installation - Quick Reference

Use this procedure to add another RocketPort Serial Hub to an existing configuration. For detailed installation information, see the *Hardware Installation Card*,

1. Install the RocketPort Serial Hub.
2. Install RS-232 serial devices.
3. Connect the RocketPort Serial Hub to the network hub or server.
4. Power-up the new RocketPort Serial Hub and verify that it passes the power-on diagnostics.
5. Configure VS-Link to support the new RocketPort Serial Hub, see *Adding Units After the Initial Installation* on page 35.
6. Configure serial ports to support the RS-232 devices.
7. Shut down and restart the server.

"Hot-Swapping" Hardware - Quick Reference

Follow this procedure, to "hot-swap" a RocketPort Serial Hub with another RocketPort Serial Hub in an existing configuration. The *Hardware Installation Card* details hardware installation.

1. Power-down the RocketPort Serial Hub to be removed from service.
2. Install the new RocketPort Serial Hub.
3. Transfer *all* cabling from the old RocketPort Serial Hub to the new RocketPort Serial Hub.
4. Connect the new RocketPort Serial Hub to the network hub or server.
5. Power-up the new RocketPort Serial Hub and verify that it passes
6. Change VS-Link to reflect the network address (MAC) of new RocketPort Serial Hub unit.
7. No port reconfiguration is needed.
8. *Do not* shut down and restart the server.

Obtaining Software or Document Updates

For information that is not in this *Guide*, see the README and/or **Help** files on the installation media.

Comtrol manuals and other documents are available in electronic form on the Comtrol web site. Driver software updates can be downloaded at no charge from the Comtrol ftp site. Always check the web and ftp sites to make sure that you have the current driver and documentation.

Documentation can be located in the **Docs** directory of the ftp site or you can use the web site search engine to locate either hardware or software documentation.

The current released version of the software is stored in the **SerialHub** directory. If a newer version has reached the beta testing stage, it can be found in the **BETA** directory. Beta software is made available on an **"as-is"** basis and users of beta software assume all risks and liabilities relating thereto.

Note: *Downloadable driver software files are stored in either zipped (*filename.**zip***) or self-extracting zip (*filename.**exe***) format. You must extract the zipped files before installing a downloaded file. For more information, see the appropriate section for your server operating system.*

Comtrol Corporate Headquarters

Internet URL: **www.comtrol.com**

email: **support@comtrol.com**

FTP site: **ftp.comtrol.com**

FAX: (651) 631-8117

Phone: (651) 631-7654

Comtrol Europe

Internet URL: **www.comtrol.co.uk**

email: **support@comtrol.co.uk**

FAX: +44 (0) 1 869-323-211

Phone: +44 (0) 1 869-323-220

Technical Support

Comtrol has a staff of support technicians available to help you. U.S. telephone support is available from 8 AM to 6 PM Central time, Monday through Friday (holidays excluded), at the phone number(s) listed on the previous page.

You should review *Troubleshooting* on page 63 and run through basic diagnostics before calling Technical Support. In addition, please have the following information available.

Table 1. Support Call Information

Item	Information
Hardware Type	RocketPort Serial Hub
Hardware Serial Number*	
Network Address*	00 C0 4E ____ ____ ____
Operating system type and release	
VS-Link version number	
Server computer make, model, and speed	
Other serial port adapters installed in the server and their COM port numbers	
Other network adapter devices installed in the server and their network (MAC) addresses	

*   *The hardware serial number and network address can be found on printed tags on the back panel of the unit*

Comtrol supplies a self-adhesive label with each RocketPort Serial Hub unit, which you can use to record the serial number and network address. If the RocketPort Serial Hub 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).

Windows NT

This section discusses VS-Link software for the RocketPort Serial Hub. VS-Link for Windows supports several products, including:

- VS1000 and VS1100 High-Density Serial Hub
- VS2000 Analog Modem Hub
- RocketPort Serial Hub

Note: *VS-Link is the device driver and supporting applications provided with the product.*

However, because of differences between the products, the VS1000 and VS2000 are discussed separately in their own *Installation and Configuration Guides*.

VS-Link Installation and Configuration Overview

This section contains information about VS-Link installation, configuration, and use of RocketPort Serial Hub in a Windows NT operating system. The topics include:

- Removing an existing version of VS-Link to upgrade VS-Link
- Changing VS-Link configuration after initial installation to:
  - Configure and use the *Backup server* feature, which allows you to define one server as the *primary* server for a given RocketPort Serial Hub and one or more other servers as *backup* servers for the same RocketPort Serial Hub.

  Note: *if you have more than one Windows NT server on a network.*

  - Add RocketPort Serial Hub units after initial installation.
  - "Hot-swap" RocketPort Serial Hub units in and out of service. "*Hot-swapping*" allows you to replace an existing and configured RocketPort Serial Hub with an identical unit, without downing the server or reconfiguring ports.
  - Lock baud rates to access to higher or lower rates than are normally permitted by your Window NT applications.
  - Set VS-Link for use with an RS-232 to RS-485 convertor box
  - Set the scan rate

- Setting up the ports to use, including:
  - Modems
  - Quick reference for installing and configuring RAS
  - Printers
- Troubleshooting using the following utilities:
  - Test Terminal
  - Port Monitor
  - Peer Tracer
  - Device Advisor

If you are installing VS-Link for the first time, start with *VS-Link Software Installation*. If you are updating the software on an existing VS-Link installation, start with *Removing Existing VS-Link Software*. In all other cases, see the appropriate section as listed above.

For specific information about the following topics for your hardware, see the hardware documentation that came with your product.

Removing Existing VS-Link Software

Use the following procedure to remove any existing VS-Link software. If updating (not reconfiguring) VS-Link, make sure that you remove the existing version before installing updated software.

Note: Using the Remove button on the Comtrol Main Setup sheet only discards the software configuration, it does not remove the software.

1. Right-click on the **Network Neighborhood**, and select **Properties** or open the Control Panel and start the Network applet.

2. If using Windows NT *4.0,* select the **Adapters** tab. If using Windows *3.51,* skip to the next step.
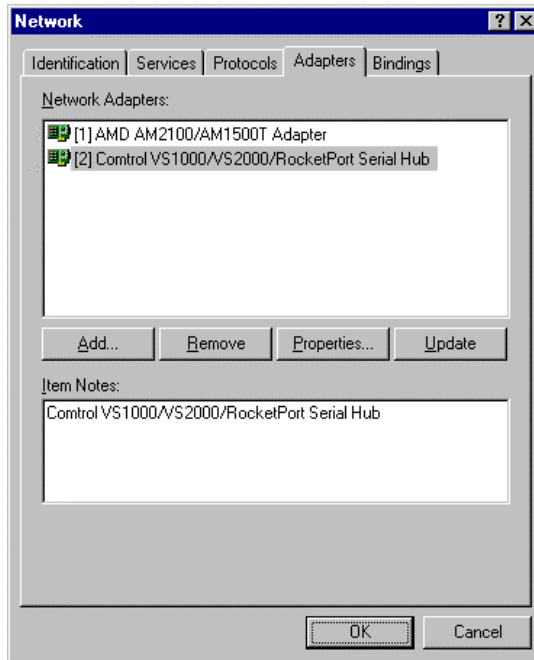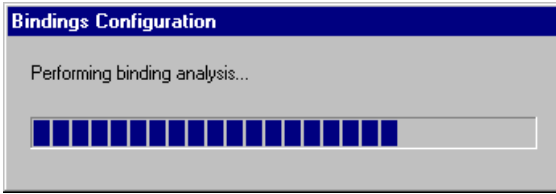

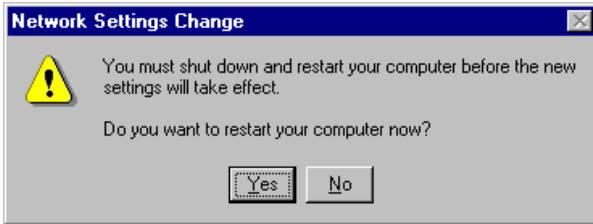3. Highlight **Comtrol VS1000/VS2000/RocketPort Serial Hub**.

   Note: While VS-Link for Windows NT supports several products, the VS1000 and VS2000 are covered separately in their own Installation and Configuration Guides.

4. Click the **Remove** button. You are asked to verify that you want to delete this item.

5. Click **Yes**. The selected item is removed from the Network Adapters window.

6. Click **Close**. Several windows display as the system updates.

Bindings Configuration

Performing binding analysis...

When the updates are complete, this message displays:

Network Settings Change

You must shut down and restart your computer before the new settings will take effect.

Do you want to restart your computer now?

Yes   No

7. Click **Yes** to shut down and restart the server, so that your changes take effect.

After removing the existing driver, use the *VS-Link Software Installation* discussion.

VS-Link Software Installation

Use the following procedures to install VS-Link for the Windows NT 3.51 or 4.0 operating systems. If using Citrix WinFrame, follow the instructions for NT 3.51.

Note: *If updating VS-Link, remove the existing version of VS-Link first. Do not use the Update option.*

These procedures assume that you have already installed the hardware and determined that it is working properly. For information about the power-on diagnostic and understanding the LED status indicators, see *Hardware Installation Card*.

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

Extracting the Files

VS-Link for Windows NT may be shipped as a self-extracting zipped file. Not all versions of VS-Link media contain zipped files. If the VS-Link file name follows this format, **6613V*x_xx*.exe**, it is a zipped file; where ***x_xx*** is the software version.

Note: *If the VS-Link software is not zipped, see Installing a New Version of VS-Link on Page 20.*

If VS-Link files are zipped, you must unzip the file before you can install VS-Link. Use the following procedure:

1. In Windows Explorer, create a subdirectory. For example:

    Comtrol

    Note: *We recommend creating a new directory to place the zipped file into.*

2. Locate the **6613*x_xx*.exe** file on the distribution media, or download it from the Comtrol ftp site.

3. Double-click on **6613*x_xx*.exe**; the self-extractor utility starts.

    The utility displays your system's default target drive and directory where the extracted files will be placed. (For example, **c:\temp**.)

4. Optionally, enter the newly created target drive and/or directory.

5. Click the **Unzip** button.

    When the process is finished, a reminder message displays, and you may close the self-extractor utility.

Installing a New Version of VS-Link

This subsection assumes that you have installed the hardware, it is operational, and you have the VS-Link files ready to install (see *Extracting the Files* on Page 19, if necessary).

*Note:* *The Port 1 LED should be blinking, waiting for VS-link to load.*

Use the following procedure to install VS-Link files.

1. Right-click on the **Network Neighborhood**, and select **Properties** or open the Control Panel and start the Network applet. The Network Properties window displays:
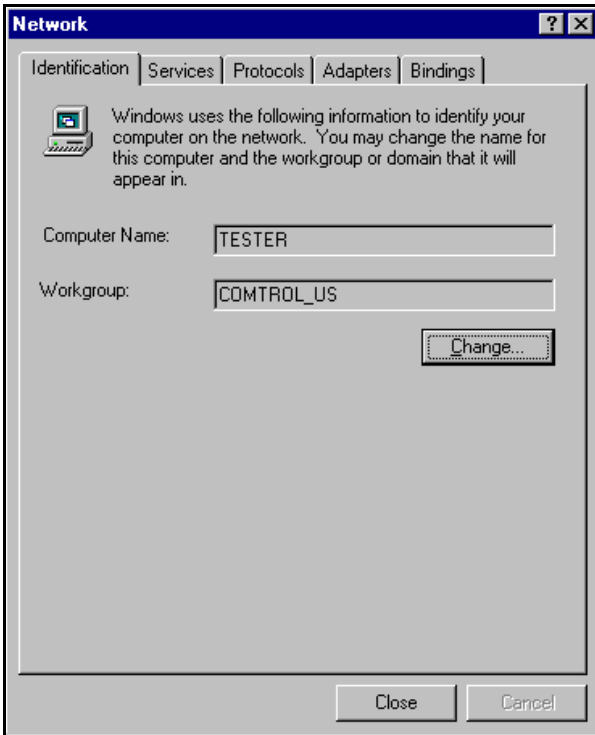

Note: *All screens shown in this section are taken from Windows NT 4.0. If you are using Windows NT 3.51 or Citrix WinFrame, note that the screens look different but have similar functions. Adapt the instructions as needed.*

2.   If Windows NT *4.0* select the **Adapters** tab and click the **Add** button. If Windows NT *3.51*, select the Add Adapter button.
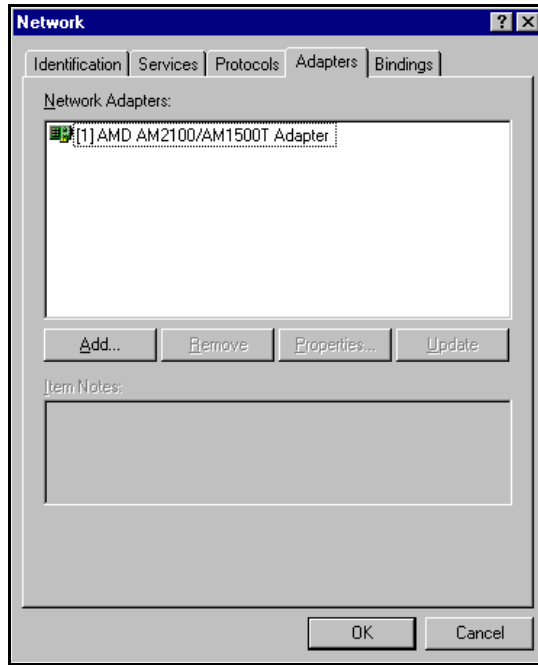
3.   If Windows NT *4.0*, select the **Have Disk** button. If Windows NT *3.51*, scroll down to the bottom of the list, highlight the Other option, and select the **Continue** button.
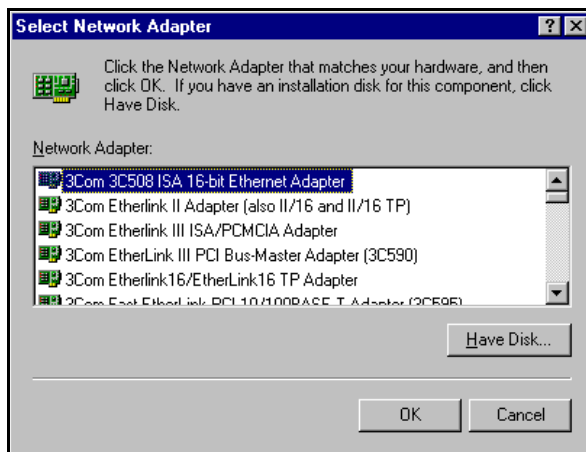
4. If installing VS-Link from a diskette, insert the diskette.

5. Enter the drive and directory path to the installation files and click the **OK** button.
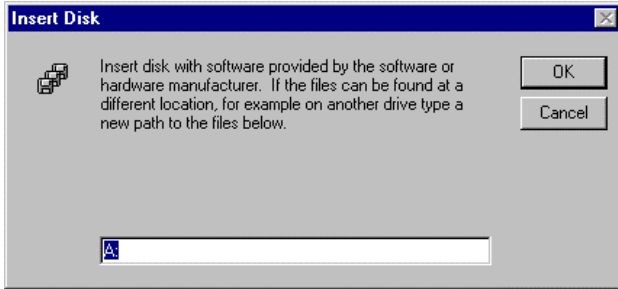
For example, if you used the self-extractor utility to create a Comtrol subdirectory on the **c:** drive, enter:

    c:\comtrol

6. Click the **OK** button when the selection box appears with **Comtrol VS1000/VS2000/RocketPort Serial Hub** highlighted.
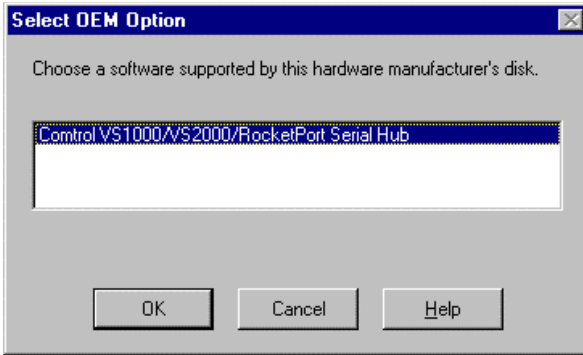
VS-Link copies to your system and this screen appears.
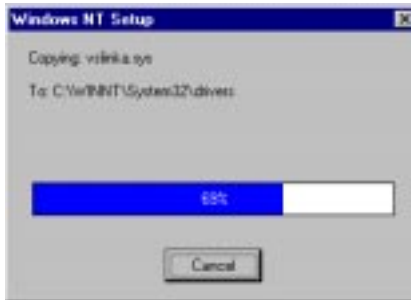
7. Select the **Next** button after the files load and the **Add Device Wizard** appears:

8. Select the **name of the product** that you are installing using the droplist and depress the **Next** key:

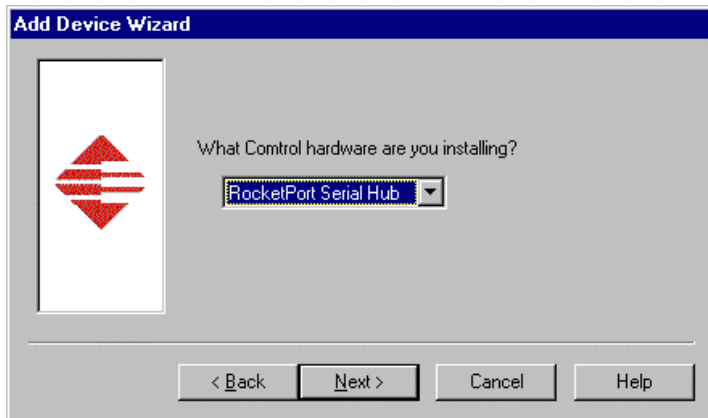9. Select the **number of ports** in the drop list for the device you are installing and depress the **Next** key:

10. Enter the **MAC address** of the device that you are installing and depress the **Next** key:
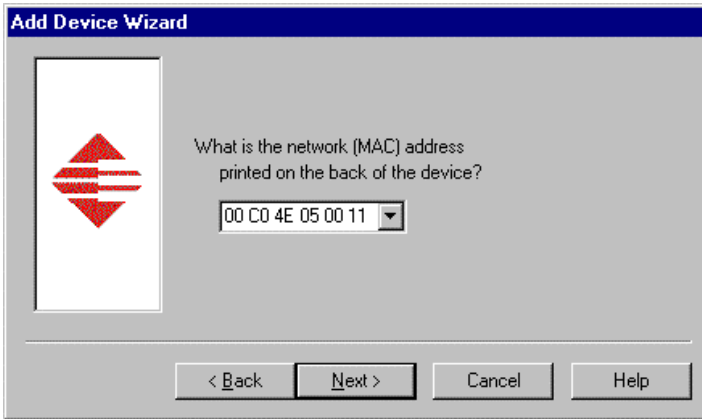
Note: *Type in the MAC address that is printed on a label on the bottom panel of the device. The format of the MAC address is:*

    0 c0 4E XX XX XX

Where:

    XX can be a one or two-digit number and must have a space between each set of numbers.

Note: *If your site has other VS1000, VS2000, or RocketPort Serial Hub devices on the network, their MAC addresses display in the droplist after initial installation.*

11. For an initial installation, select **NO** to the "Backup Server" query and depress the **Next** key:
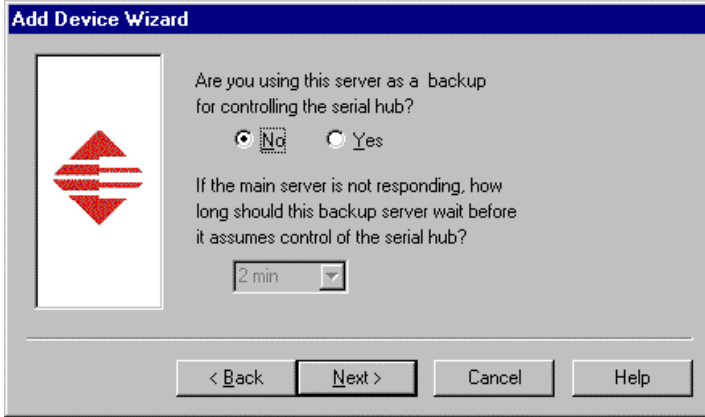
Note: See Configuring the Backup Server Feature on Page 34 for information about the Backup Server feature.

12. Depress the **Finish** key when the following screen appears:

13. Optionally, rename the device. A default name *Device* **#1** is assigned, where: *Device* is the product name.
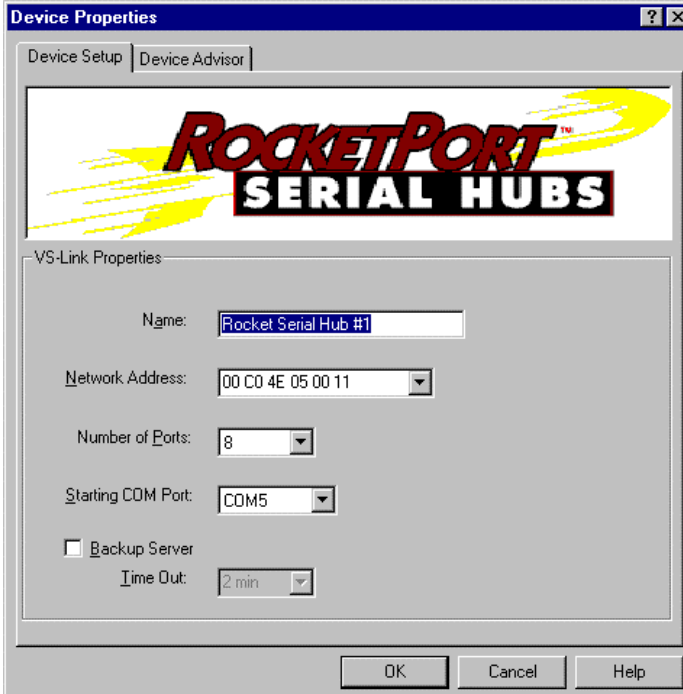
14. Verify the **MAC** (Network) Address.

15. Verify the **number of ports** for the unit.

16. Optionally change the **Starting COM Port number** if COM5 (default) is not appropriate for your environment.

Note: *The Starting COM port number is mapped to the first port on the device. All higher-numbered ports on the device are then numbered in sequence. For example, if you set the Starting COM Port to COM5, then port 2 is COM6, port 3 is COM7, and so on.*

If you have other VS-Link devices on the network, you must set the starting COM port for this device.

17. Select the **OK** button after verifying the screen. The Comtrol Hardware Setup sheet appears:
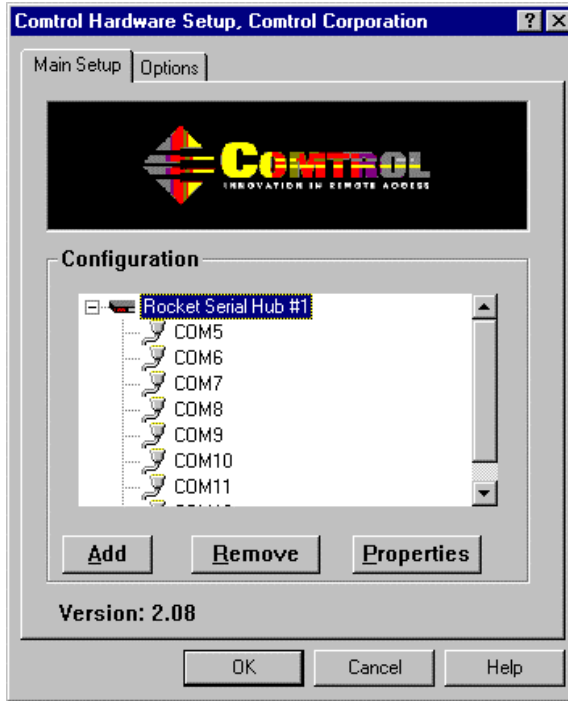
18. Click the **Add** button if you want to add another device at this time or select **OK** to configure this device.

Note: *You must configure at least one valid VS1000, VS2000, or RocketPort Serial Hub device.*
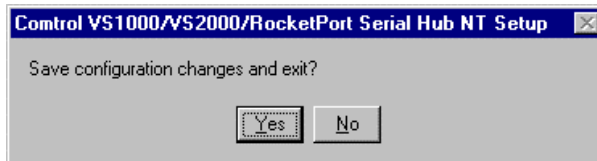
19. Select **Yes** to complete VS-Link installation.

20. Click the **OK** button.

> **Comtrol VS1000/VS2000/RocketPort Serial Hub NT Setup**   ☒
>
> You have to restart Windows before the changes take effect.
>
> [OK]

21. Click the **Close** button in the Network window.

> **Network**   ? ☒
>
> | Identification | Services | Protocols | Adapters | Bindings |
>
> Network Adapters:
>
> [1] AMD AM2100/AM1500T Adapter
> [2] Comtrol VS1000/VS2000/RocketPort Serial Hub
>
> [Add...]   [Remove]   [Properties...]   [Update]
>
> Item Notes:
>
> AMD AM2100/AM1500T Adapter
>
> [Close]   [Cancel]
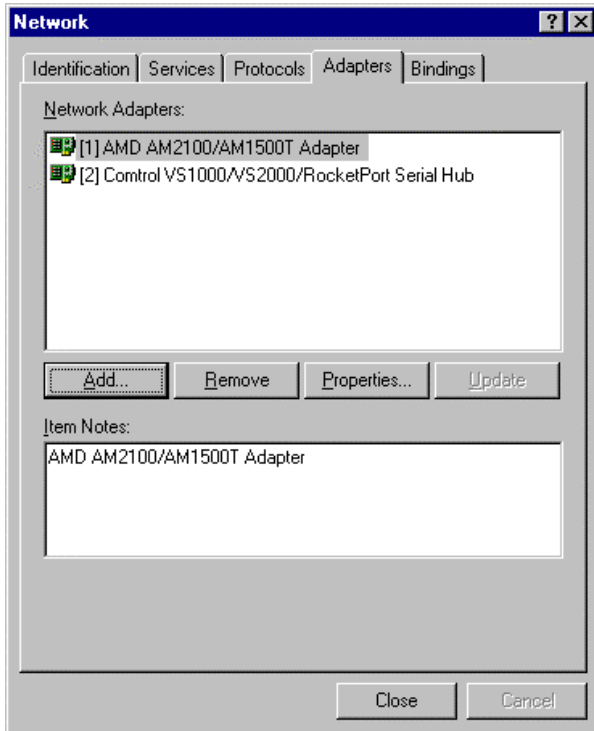
The Windows NT system updates the bindings.

> **Bindings Review**
>
> NWLink IPX/SPX Compatible Transport is reviewing bindings...
>
> ▐▌▐▌▐▌▐▌▐▌▐▌▐▌
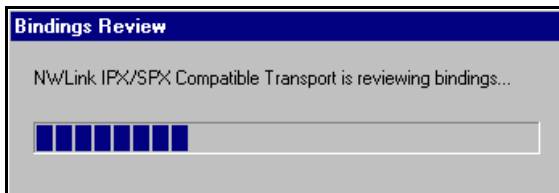
Another advisory message regarding downing and restarting the server displays.

22. Select **Yes** to shut down and restart the server.

   Note: *Initial installation is not complete until you have rebooted the server.*

23. If necessary, remove the installation diskette from the drive.

24. After rebooting, you can use *Verifying the Installation* on Page 29 to make sure that the installation was successful.

To configure additional features of VS-Link, go to the *Using Optional VS-Link Features* on Page 37 to configure additional VS-Link features or specific COM port options.

To complete setup, you may need to set up modems, RAS, or printers. See the appropriate subsections later in this section

Verifying the Installation

After rebooting the system, VS-Link downloads to the unit. The port LEDs should be cycling their lights (instead of the Port 1 LED flashing indicating that the unit is waiting for VS-Link).

Use the following procedure to verify the installation.

1. Open the **Event Viewer**.

2. Review the messages in the log.

   If the installation was successful, there is a log entry for the device stating that the VS-Link Software successfully initialized.

   Note: *This message is only meaningful if the hardware LED diagnostics pass. See the* Hardware Reference Card *that came with the unit.*

   If the installation fails, a Stop Event Log entry for the device states that there was a problem and VS-Link did not load.

Read over the system log in the Event Viewer. If the event log states it could not connect with the device, check the device as outlined in *Troubleshooting* on Page 63. In addition, you can use the following applications to help diagnose the problem:

- *Using Test Terminal (wcom32.exe)* on Page 63
- *Using Port Monitor (portmon.exe)* on Page 65
- *Using Peer Tracer (peer.exe)* on Page 74
- *Using the Device Advisor* on Page 76

You can also select the **Verbose EventLog** option under the Options tab in VS-Link, which may help you determine the problem. See *Using Optional VS-Link Features* on Page 37 for more information.
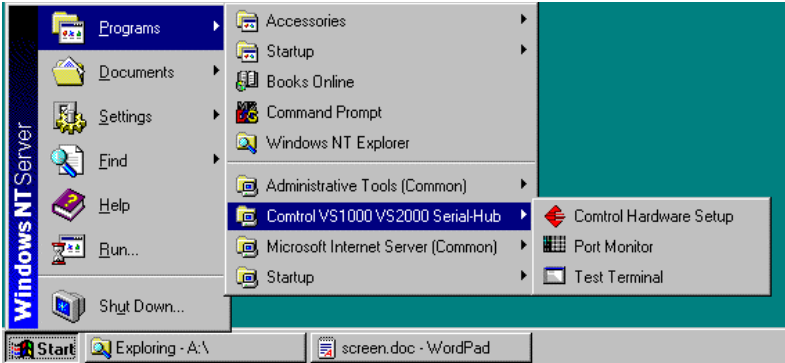
Using VS-Link

Use the following subsections if you need to:

- Change any configuration parameters, see *Changing Configuration Parameters* on Page 33:
    - Name of the unit
    - Number of ports
    - Starting COM port number
    - Backup server usage
- Configure the Backup server feature, see *Configuring the Backup Server Feature* on Page 34
- Add additional hardware units, see *Adding Units After the Initial Installation* on Page 35
- Use the hot swap feature, see *"Hot-Swapping" Units* on Page 36
- Use optional VS-Link features, see *Using Optional VS-Link Features* on Page 37:
    - Enabling Verbose mode for Event logging
    - Setting scan rates
    - Toggling RS-232 port usage to RS-485 using an external convertor box
- Configure port specific features, see *Configuring Specific Port Features* on Page 40:
    - Lock baud rates to access higher or lower rates than are normally permitted by your Windows NT applications
    - Set a timeout time on transmit data on a port
    - Map CD to DSR
    - Map 2 stop bits to 1
    - Wait for physical transmission before write
    - Close port settings
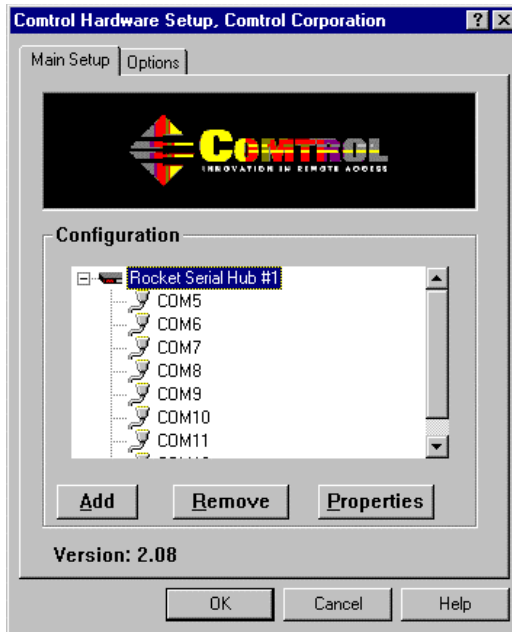   - Reset port settings to the default condition

Accessing VS-Link Menus

Use this procedure to access the VS-Link menus.

1. Start the VS-Link menus using one of the following methods:

   • Use the Start button, as displayed below:

   • Right-click on the **Network Neighborhood**, select **Properties**, and select the **Adapters** tab or open the Control Panel and start the Network applet.

2. Go to the specific procedure that you want to perform, using the subsections:

   - *Changing Configuration Parameters* on Page 33
   - *Configuring the Backup Server Feature* on Page 34
   - *Adding Units After the Initial Installation* on Page 35
   - *"Hot-Swapping" Units* on Page 36
   - *Using Optional VS-Link Features* on Page 37
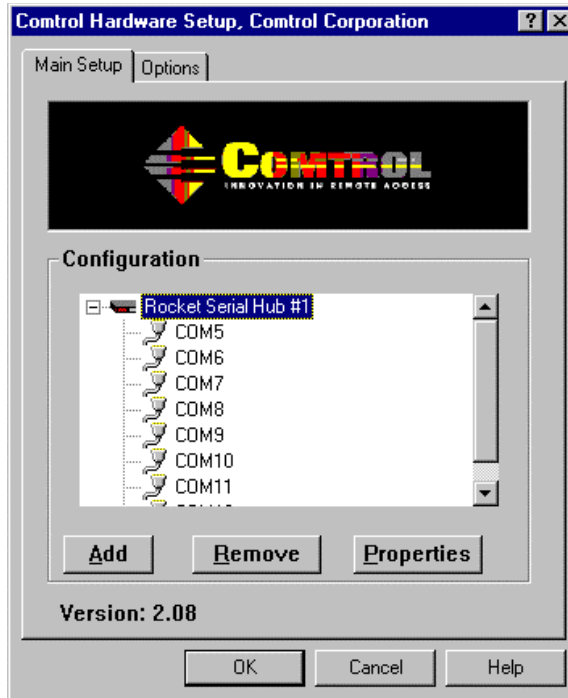   - *Configuring Specific Port Features* on Page 40

Changing Configuration Parameters

Use the following procedure to change the:

• Name of the unit
• Number of ports
• Starting COM port number
• Backup server usage

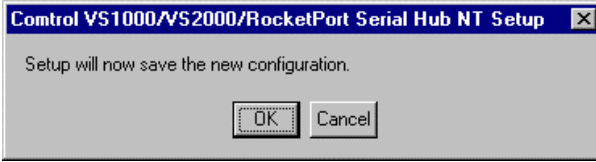Use the following procedure to change configuration parameters:

1. Start up VS-Link (see Step 1 of the *Accessing VS-Link Menus* subsection, if you need help).
2. Highlight the device name that you want to reconfigure.
3. Click the **Properties** button.
4. Make the required changes.
5. Click the **OK** button after changing the necessary items.
6. Click **OK** to save the configuration.

7. Select **Yes** to complete VS-Link installation.

> **Comtrol VS1000/VS2000/RocketPort Serial Hub NT Setup** ☒
>
> Save configuration changes and exit?
>
> [Yes] [No]

8. Click the **OK** button to the following query:

> **Comtrol VS1000/VS2000/RocketPort Serial Hub NT Setup** ☒
>
> Setup will now save the new configuration.
>
> [OK] [Cancel]

9. Shut down the system and restart the computer.

Configuring the Backup Server Feature

If you have more than one Windows NT server on a network, you can use the "Backup Server" checkbox to define one server as the *primary* server for a given RocketPort Serial Hub unit and one or more other servers as *backup* servers for the same RocketPort Serial Hub unit.

Once configured, primary-to-backup server switching is automatic. In the event that the primary server loses control of the unit (for example, because the primary server is down), the backup server begins counting down the time entered in the "Time Out" field. If, at the end of this time the primary server is still down, the backup server assumes control of the device, in the process resetting it and reloading it with the configuration information set up on the backup server.

To return control to the primary NT server, terminate all communications in progress and then cycle the power on the unit. When the unit comes back up, it will reestablish contact with its primary NT server.

Use the following procedure to configure a backup server:

1. At a backup server (not the primary), install VS-Link using the procedure *Installing a New Version of VS-Link* on Page 20.

2. At Step 11, click on the **Backup Server** checkbox.

3. Using the **Timeout** droplist, select how long the backup server should wait before taking control and then click the **OK** button.

> ***Note:*** *This field is accessible only if "Backup Server" is checked, designating this NT server as the backup server for the selected RocketPort Serial Hub unit.*

4. Click **OK** to save the configuration.

5. Click **OK** to close the message about restarting your system.

6. Shut down the system and restart the computer.

If in the event your primary server goes down, this unit will attach itself to the server you assigned.

Adding Units After the Initial Installation

Use the following procedure to add more RocketPort Serial Hub units to an existing installation:

1. Connect the new RocketPort Serial Hub unit to the network and power it up.

2. Start up VS-Link (see Step 1 of the *Accessing VS-Link Menus* on Page 31, if you need help).

3. Click the **Add** button. The Add Device Wizard appears.

4. For help with the remainder of the setup, use *Installing a New Version of VS-Link* on Page 20 and start with Step 7.

5. Reboot the system so that the new unit initializes.

"Hot-Swapping" Units

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

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

2. Write down the network (MAC) address of the new RocketPort Serial Hub unit on the customer service label provided.

3. Start up VS-Link (see Step 1 of the *Accessing VS-Link Menus* subsection, if you need help).

4. Highlight the name of the RocketPort Serial Hub unit that you want to swap out and click the **Properties** button.

5. Enter the new network (MAC) address of the new unit.

    Note: *Leave all other properties the same.*

6. Click **OK** to exit the Device Properties window.

7. Click **OK** to exit the VS-Link Main Setup screen.

8. Click **OK** to save the new configuration.

9. Click **OK** to close the Windows restart advisory message.

The new RocketPort Serial Hub unit immediately replaces the old one under the old unit's device name. Restarting the system is not needed.

Using Optional VS-Link Features

VS-Link includes several optional features that you may want to configure for your environment, such as:

• Enabling Verbose mode for Windows NT event logging

• Setting scan rates

• Toggling RS-232 port usage to RS-485 using an external convertor box

Use the following procedure to access and configure this features:

1. Start up VS-Link (see Step 1 of the *Accessing VS-Link Menus* subsection, if you need help).

2. Click the **Options** tab (under the Main Setup tab).
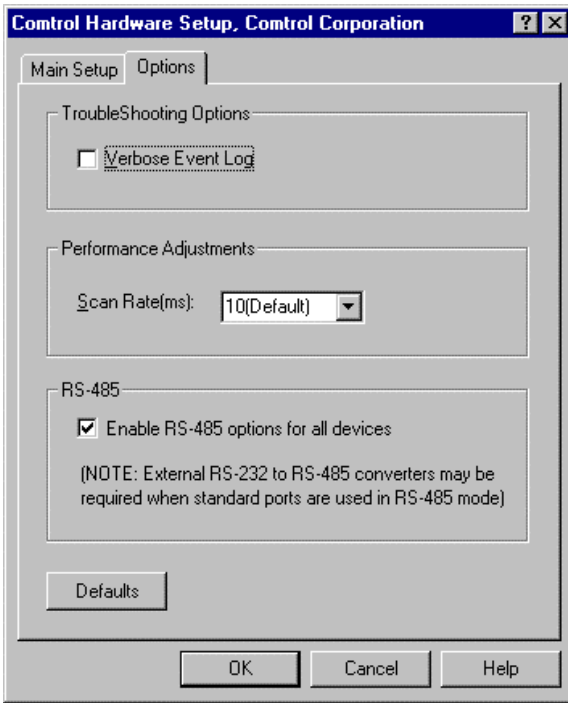
3. Optionally, click the checkbox to enable **Verbose** mode for the Windows NT Event Log.

4. Optionally, select a different value for the **scan rate**.

    Note: *Typically you should leave the scan rate set to the default value (10 ms) for most applications. To adjust latency for timing-critical applications, select a longer or shorter interval from the droplist, or type the rate of choice in this field. Changes to Scan Rate do not take effect until you restart the NT server.*

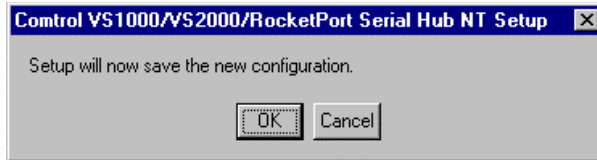5. Optionally, click the checkbox to enable **RS-485**.

    Note: *You may need to complete setting up some RS-485 features. Go to the Configuring Specific Port Features on Page 40 for additional RS-485 configuration.*

6. Click the **OK** button.

7. Click the **OK** button on the Main Setup screen.

8. Select **Yes** to complete VS-Link installation.
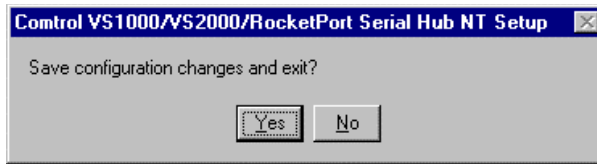
9. Click the **OK** button to the following query:

Configuring Specific Port Features

Use this subsection to configure the following optional port features:

- Lock baud rates
- Set a timeout time on transmit data on a port
- Map CD to DSR
- Map 2 stop bits to 1
- Wait for physical transmission before write
- Clone port settings
- RS-485 - override and lock RS-485 toggle mode
- RS-485 - toggle RTS low

Use the following procedure to access and configure individual COM port features:

1. Start up VS-Link (see Step 1 of the *Accessing VS-Link Menus* subsection, if you need help).
2. Highlight the **COM port** that you want to configure.
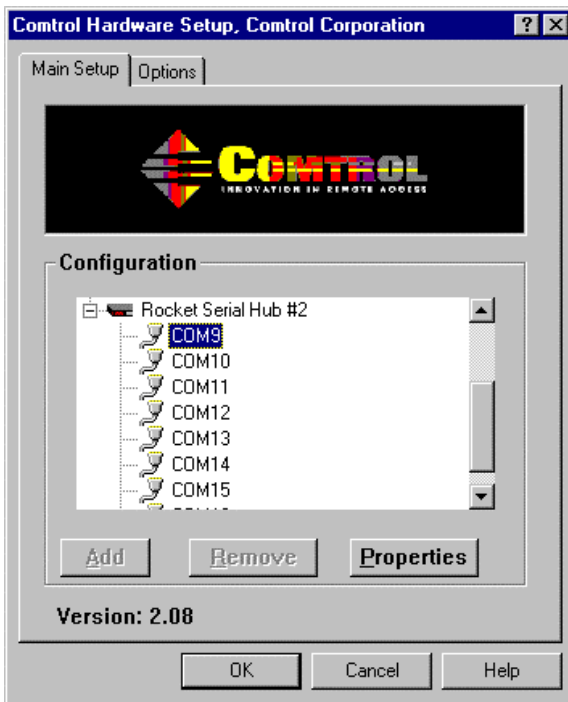
3. Click on the **Properties** button.
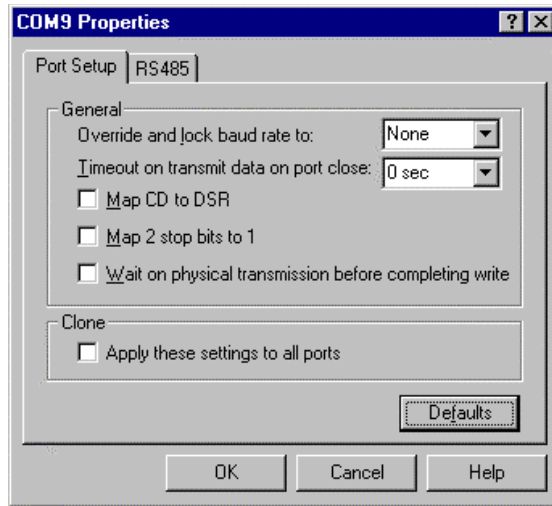
4. To configure RS-485 port options, go to Step 7.

5. On the Port Setup sheet, make any necessary changes to better fit your environment:

    •   Lock the scan rate to access higher or lower rates than are normally permitted by your Windows NT applications.

    Note: *Not all rates are supported by all Comtrol products. See your Hardware Reference Card to determine if your device supports the desired rate.*

    •   Set a timeout time on transmit data on a port

    Note: *You can 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 slower peripheral devices such as printers, to give the data sufficient time to flush through the system.*

    •   Map CD to DSR

    Note: *You can use this option in installations where there is no connection to the port's DSR input. It causes the CD input to appear as DSR to the host application, and to perform hardware handshaking with CD rather than DSR. This option is ignored if DSR flow control is not enabled through IOCTL_SERIAL_SET_HANDFLOW. If the application you are using is hardcoded to use two stop bits and you are receiving framing errors, you can implement this option.*

- Map 2 stop bits to 1

Note: *You can use this option to map 2 stop bits to 1 bit. Leave this box unchecked to enable stop bits to pass through unchanged.*
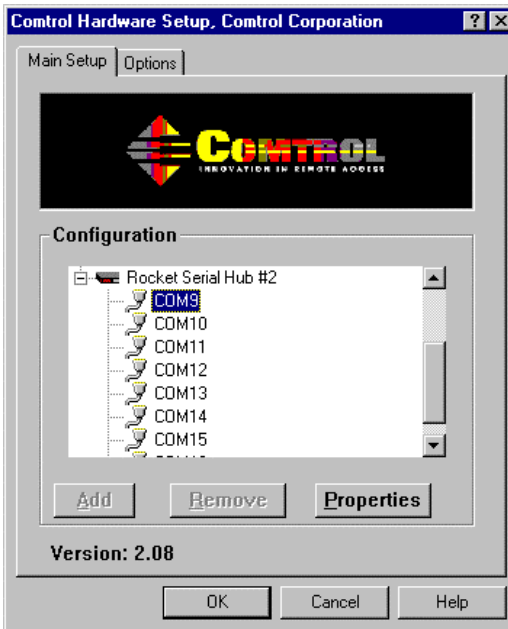
- Wait for physical transmission before write

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.*
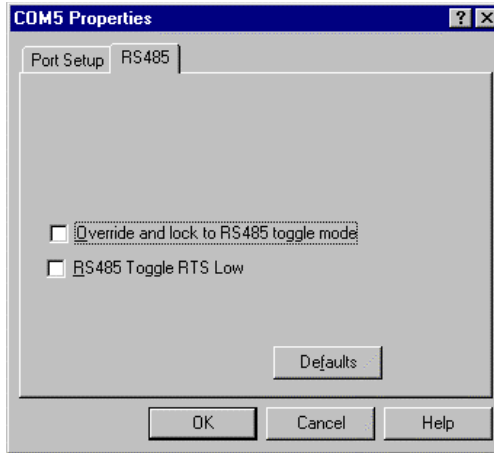
- Clone port settings

Note: *If this box is not checked, the changes you make to the Port Setup options apply to the selected port only. If this box is checked, the changes you make to the Port Setup options are applied to all Comtrol VS-series and RocketPort Serial Hub ports in the system.*

6. Click the **OK** button.

7. Optionally, complete RS-485 configuration, highlight the COM port that you want to toggle RS-485.

a. Click on the **Properties** button.

b. Click the **RS-485** tab.

COM5 Properties	? ✕

Port Setup RS485

☐ Override and lock to RS485 toggle mode

☐ RS485 Toggle RTS Low

Defaults

| OK | Cancel | Help |

c. Check the first box to override and lock to RS-485 for the selected port.

d. Check this box to toggle the RTS output signal low during data transmission. If this box is not checked, RTS is toggled high (asserted) during data transmission.

Note: *To use RS-485, you must have an external RS-485 adapter. For information about external adapters, see the documentation that came with the external adapter.*
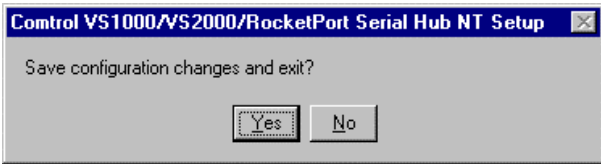
If you do not have an external RS-485 adapter, do not use this option.
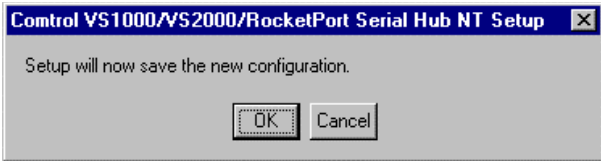
e. Click on the **Ok** button.

8. Click the **OK** button.
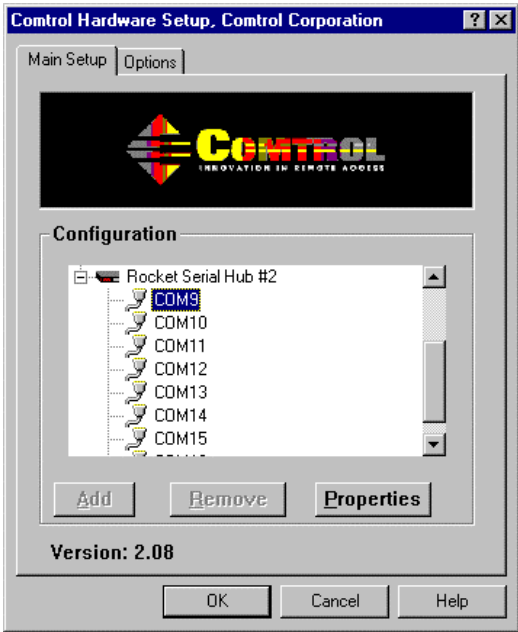
9. Select **Yes** to complete VS-Link installation.

10. Click the **OK** button to the following query:

Configuring Modems

After installing the hardware and VS-Link for Windows NT, use this discussion to configure modem COM ports.

The RocketPort Serial Hub 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*.

Working with NT RAS

Comtrol products are frequently used to provide Dial-Up Networking access with NT RAS (Remote Access Service).

- If RAS is *not* installed, note that you must install at least one RAS-capable device (i.e., modem) before installing and configuring RAS.
- If RAS *is* installed, note that the modem installation process automatically launches RAS Setup after modem installation is complete.

Modem Installation

The following instructions were developed using Comtrol 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. If using an external modem, connect the modem to the desired port. Power up the modem.
2. Open the **Control Panel** window.
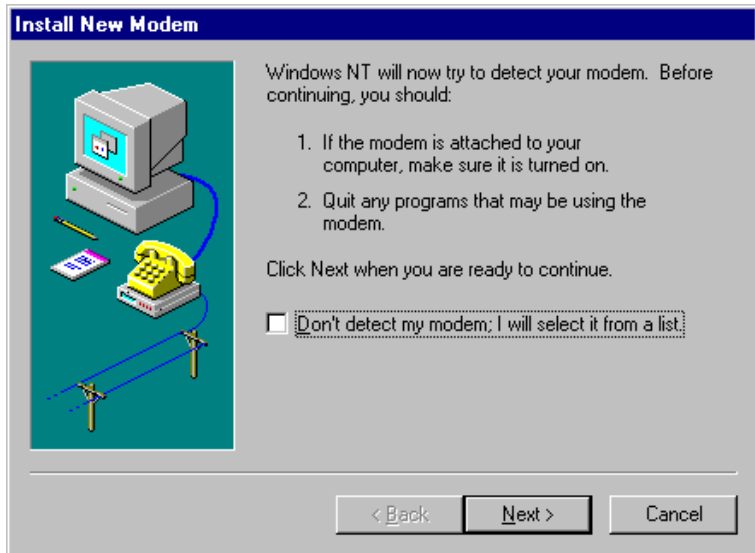3. Double-click the **Modems** icon.

   If you have no other modems installed, skip to Step 5.

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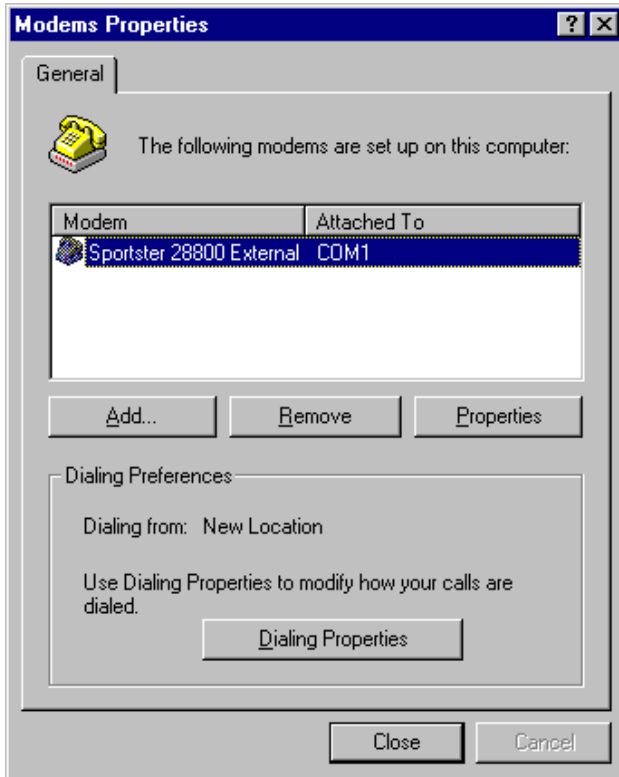
4.   Click the **Add** button.

The Install New Modem window displays:

5. Check the "Don't detect my modem..." box and click **Next**.

   Note: *While Windows NT can automatically detect modems, we advise against using this option as auto-detect may cause some multiprocessor systems to lock up.*

   The list of modem manufacturers and models displays.

6. Select the appropriate manufacturer and model and click **OK**.

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

   A list of all available COM ports displays:

7. Select the port on which you wish to install the modem. If you have multiple modems of the same type (for example, four RocketModem cards), you can select more than one port and install all the modems at the same time.

8. Click **Next**. The modem software is installed on the selected ports.

   Depending on prior configuration, you may be asked to enter your country of use, area code, the number you dial to get an outside line, and whether you have tone or pulse dialing at this time.

9. Click **Finish**.

   The Modems Properties dialog box displays:

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.

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**.

Further Configuration

At this point:

- If you are not using RAS, you are now finished. Reboot the server so that your changes take effect and resume normal operations.

- If you plan to use RAS but do not have it installed yet, reboot your system, then go to *Initial RAS Installation* on page 50.

- If you already have RAS installed and configured, this dialog box displays:
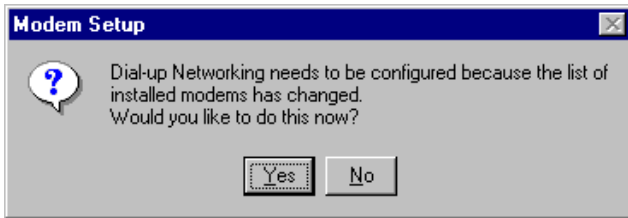
If you do *not* want to configure this modem for use with RAS at this time, click **No**, then reboot and resume normal operations.

If you *do* want to configure this modem for use with RAS, do *not* reboot. Instead, click **Yes**, then go directly to *Adding or Reconfiguring a RAS Device* on page 53

RAS Installation and Configuration

After installing the software, and installing and configuring at least one RAS device (for example, a modem), use this section to install and configure Remote Access Service (RAS).

Initial RAS Installation

If you have not previously installed RAS in your Windows NT server, log into the server with Administrative rights and follow these steps:

Note: *This example shows how to install and configure RAS for use with modems, but you can use it as a guide to setting up other serial devices.*

1. Open the Control Panel and start the **Network** applet, or right-click on the Network Neighborhood and select **Properties**. The following screen displays:
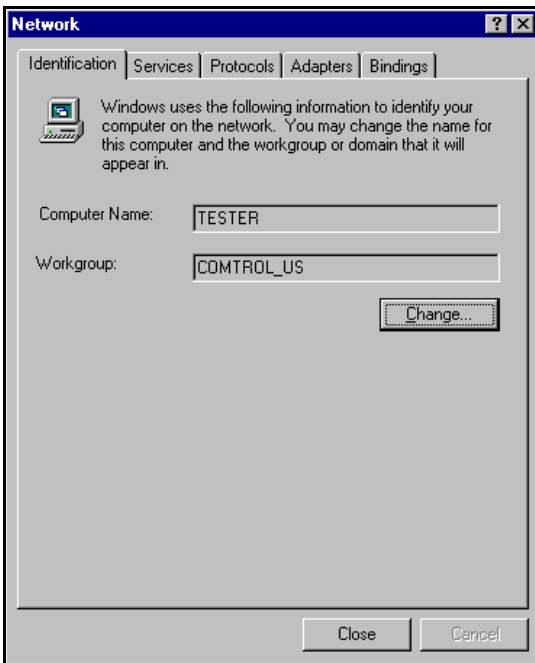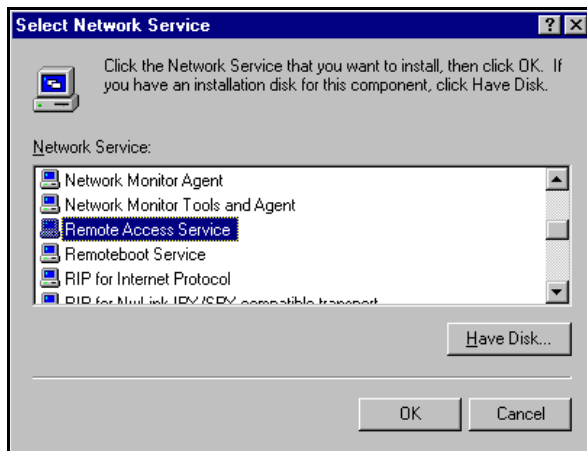
2. If *Windows NT 4.0*, select the **Services** tab.

    If *Windows NT 3.51*, select the **Add Software** button, highlight the Remote Access Service selection, and click the **OK** button. The following screen displays:
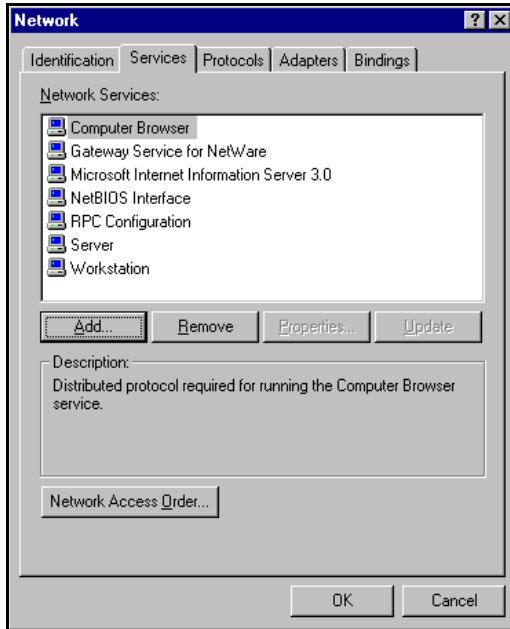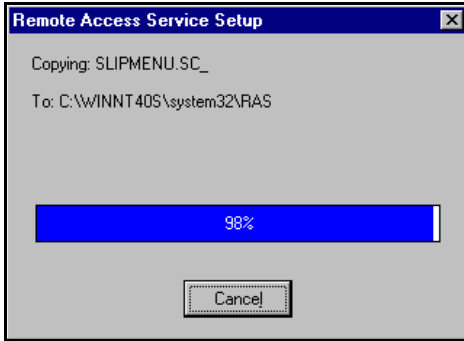

3. Click the **Add** button. The Select Network Service screen displays:

4. Highlight **Remote Access Service** and click the **OK** button. You are asked to specify the location of the installation files.

5. Enter the location of the Window NT files (for example, **d:\i386**) and press the **Continue** button.
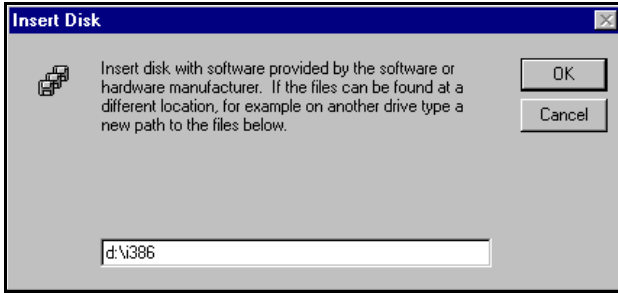
The appropriate files are copied onto your hard drive.

The RAS installation process automatically launches the Add RAS Device process. Go to *Adding or Reconfiguring a RAS Device*, Step 5.

Note: *If you install or reinstall RAS from your original Windows NT 4.0 distribution media, you must install or reinstall Windows NT Service Pack 3* **after** *installing/reinstalling RAS. This is necessary because Service Pack 3 includes RAS-related files that are newer than the files on the NT distribution media.*
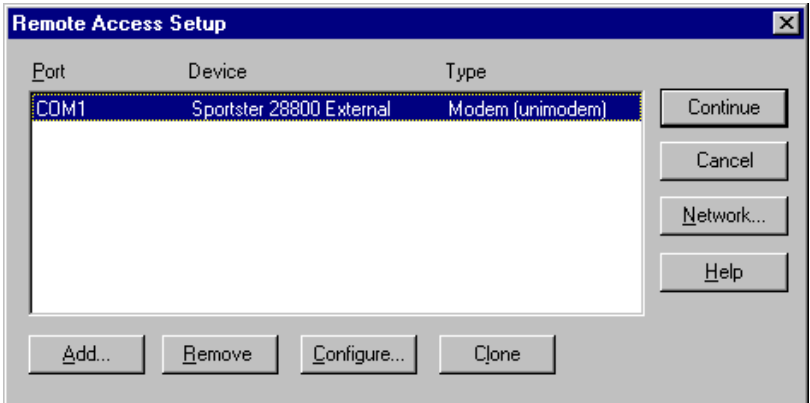
Adding or Reconfiguring a RAS Device

There are several different ways to start this procedure:

*   If you have previously installed RAS and configured at least one RAS device, and are now adding or reconfiguring RAS devices, begin with Step 1.
*   If you have previously installed RAS and were in the process of installing a modem when this process started automatically, begin with Step 4.
*   If you were in the process of installing RAS when this process started automatically, begin with Step 5.

Follow these steps:

1. Open the Control Panel and start the **Network** applet, or right-click on the Network Neighborhood and select **Properties**. The Network window displays.

2. If Windows NT 4.0, select the **Services** tab.

    If Windows NT 3.51, highlight the Remote Access Service selection and click **OK**.

3. Highlight **Remote Access Service** and click the **Properties** button.

4. The Remote Access Setup window displays:

    To reconfigure an existing RAS port, highlight the port/device and click the **Configure** button. Then go to Step 8.

    To add a new RAS device—for example, if you are configuring a new modem—click the **Add** button.

5. The Add RAS Device window displays:
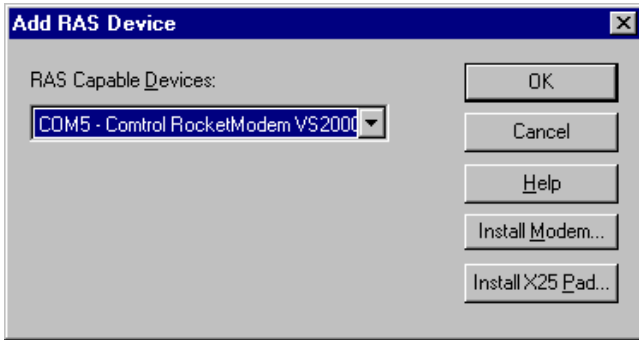
6. Use the droplist to select the COM port (modem) that you want to configure and click the **OK** button.

   The Remote Access Setup window displays again:

7. Highlight the desired COM port (Modem) and click the **Configure** button.

8. The Configure Port Usage window displays:

9. Select the appropriate radio button, based on the role the modem will perform, and click the **OK** button.

   Note: *When configuring multiple simultaneous RAS dial-in ports, configure the ports to "Receive calls only" not "Dial out and Receive." Configuring a port to dial-out requires a separate memory pool for each dial-out port, while all ports configured for receive-only share the same memory pool.*

   If you configure too many ports for dial-out unnecessarily, resources can become an issue. If you require dial-out on the RAS server, configure one port to "Dial out and Receive" and all the other ports to "Receive calls only."

   The Remote Access Setup window displays again.

10. Highlight the COM port (modem) again and click the **Network** button.

The Network Configuration window displays:
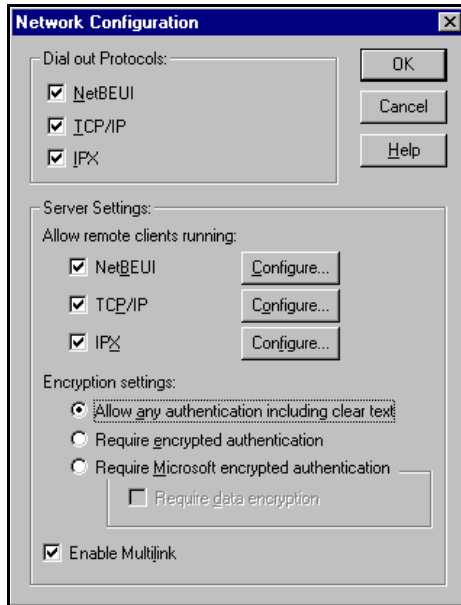
11. Select the appropriate dial out protocols, dial in protocols, logon
    security levels, enable multilink (if required) and click **OK**.

    *Note: Only previously configured protocols are selectable. If you
    want to set up a protocol that is grayed out, you must first
   add it using the Network **Protocols** tab.*

    If you selected "Receive calls only" on all ports while configuring
    the port usage, the "Dial out Protocols" area will be shaded.

    Windows NT 4.0: If you want to use Multilink PPP (bonding), make
    sure that you click the **Enable Multilink** checkbox.

    For detailed information about the configuration screens, use the
    Help button or the Windows NT CD-ROM (Support/books/
    server.hlp file to locate information).

    The following steps are dependent upon the protocol selections
   made in this screen.

12. **If you select NetBEUI on the Network Configuration screen, the following window displays. Make the appropriate selection for your environment and click OK.**
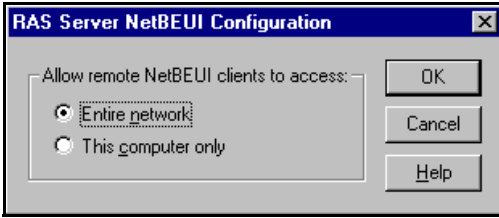
13. **If you select TCP/IP, the following window displays. Make the appropriate selections for your environment and press OK.**
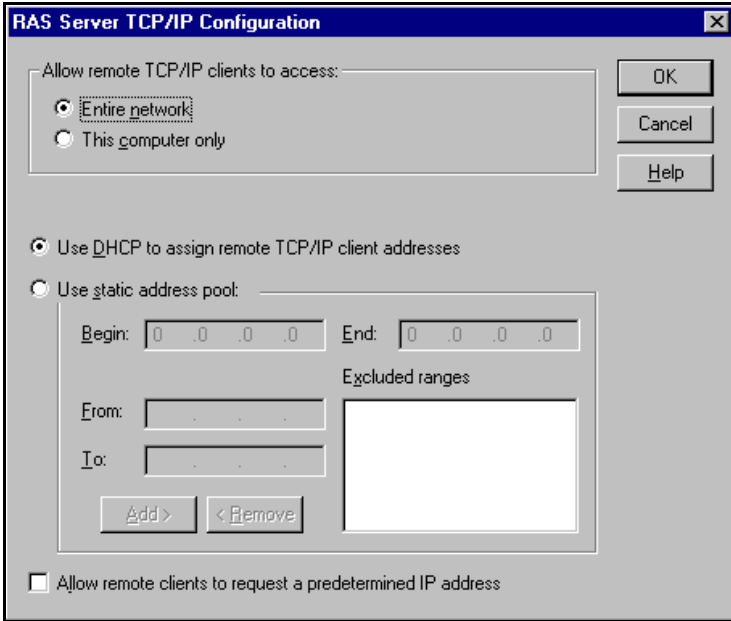
14. If you select IPX, the following window displays. Make the appropriate selection for your environment and press **OK**.
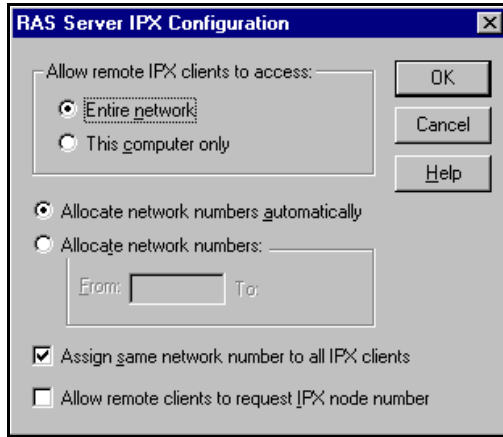
15. Click **OK** to exit the Network Configuration screen and return to the Remote Access Setup screen.

16. If you want to duplicate the configuration you just created on any other COM port (modem), highlight the COM port number and click **Clone**. Otherwise, repeat Steps 8 through 15 for each COM port (modem) you want to set up.

17. After setting up all the COM ports, click the **Continue** button.

18. Click the **Close** button at the Network/Services tab to complete the RAS installation.

19. Click **Yes** when asked to reboot the computer.

    Windows NT RAS installation is complete.

20. If necessary, install the latest NT Service Pack or Packs from Microsoft.

Printer Configuration

Use this section to connect a serial printer.

Adding Serial Printers

Follow these steps to configure a serial printer in Windows NT:

1. Connect the printer to the desired port. Use a DTE-to-DTE null modem cable unless the printer maker specifies otherwise.

2. Open the Printers control panel and double-click on the **Add Printer** icon. The Add Printer Wizard starts.
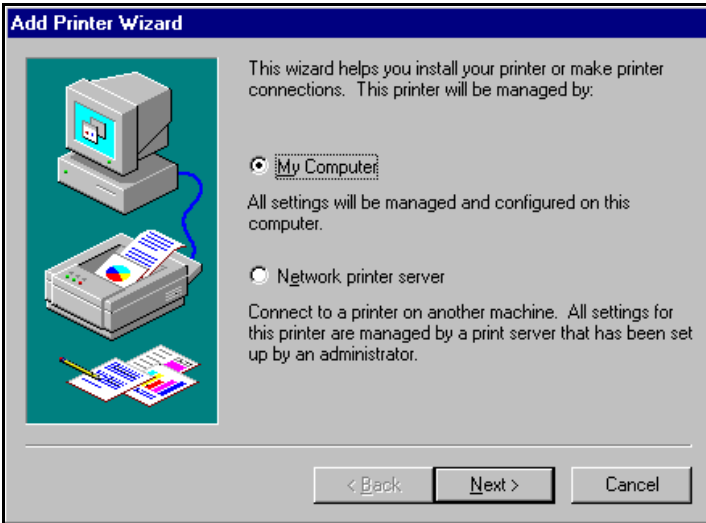
3. Click the **My Computer** checkbox, then the **Next** button.

   Note: *This differs from Windows NT 3.51. Under NT 3.51, printers on Comtrol ports are network devices.*

A list of available printer ports is displayed.
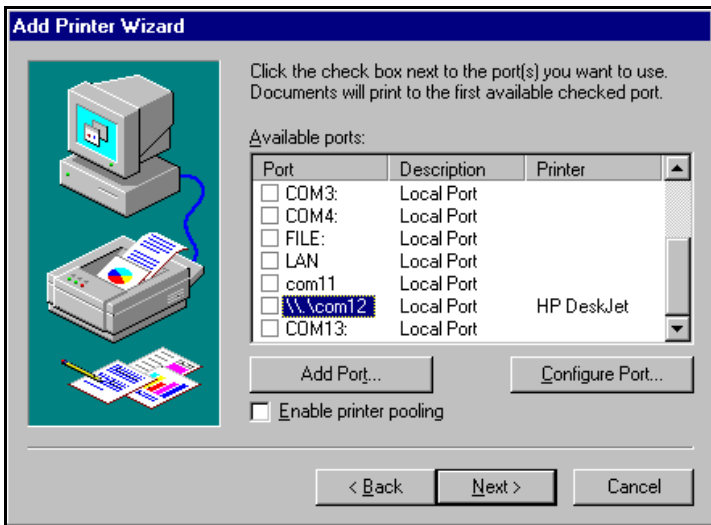
4. If the desired COM port is on this screen, select it, click on the **Next** button, and skip to step 6.

5. If the desired COM port is not on this list, click the **Add Port** button and follow these steps:

    a. A list of printer ports is displayed. Click **Local Port**.

    b. Click **New Port**.

    c. Type in the name of the port.

    Note: *Port names above COM9 require the \ \. \ prefix. For example, to reference COM12, enter* **\\.\COM12.**

    d. Click the **OK** button.

    e. Click the **Close** button to return to the Add Printer Wizard.

    f. Click the **Next** button.

A list of printer manufacturers and model is displayed.
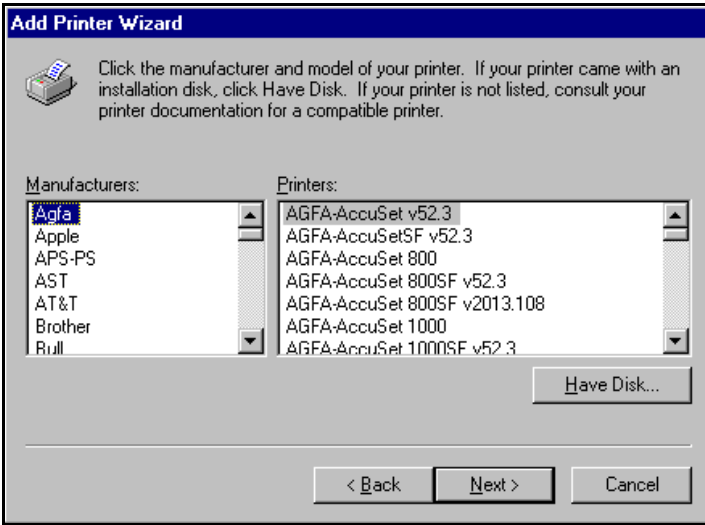

6. Select the printer make and model and click the **Next** button.

   If your printer is not on the make and model lists, but you have a manufacturer-supplied printer diskette, click the **Have Disk** button.

   If you have already installed another printer using this driver, you are asked if you want to keep the existing driver.

7. To keep the driver, check **Keep existing driver** and click **Next** to skip to step 8.

    If you choose **Replace existing driver**, or if you have not previously installed this driver, you are prompted to insert either the Windows NT CD-ROM or the manufacturer's printer diskette. Do so and click **Next**.

8. Select whether you want this printer to be the Windows NT default printer, and click on the **Next** button.
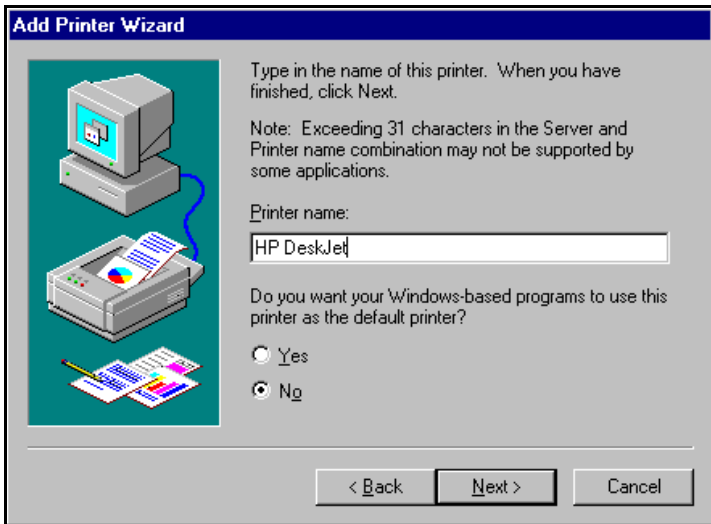
9. Select whether or not you want to share this printer with other computers on the network. If you select **Shared**, you are asked to indicate the operating systems of all the computers that will be sharing this printer. (You may also be required to insert the operating system media so that Windows NT can extract the necessary driver files.)

10. Select whether to print a test page and click on the **Finish** button.

    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 **Ports** 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. Check the port you want to switch to. Remember to change your cabling accordingly.

   Note: *The **Configure** button on the Ports tab does not recognize Comtrol ports. This is a limitation of Windows NT. If you need to reconfigure the port, use the Ports option on the Control Panel.*

6. Click on the **OK** button. Any changes you make take effect immediately. No reboot is needed.

Using Test Terminal (wcom32.exe)

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.*

To start WCOM32, select **Test Terminal** from the Comtrol program group. The program window displays:
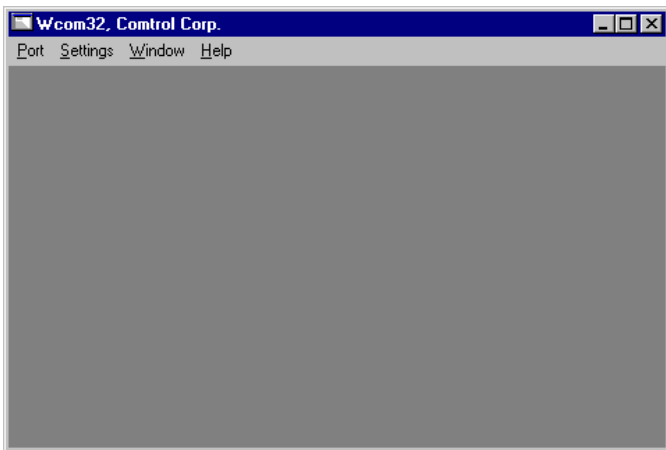
Follow these steps:

1. Select **Open Port** from the Port menu. A list of possible COM port numbers displays.

2. 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 the <loop> button in the terminal window. If this option is activated, it is green and uppercase ( ), 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 ( ), the internal loopback is deactivated, and the data is being sent out the COM port.

Testing a RocketPort Serial Hub

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**.

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

4. If the port has failed in Step 2 or 3, and the RocketPort Serial Hub is equipped with an external interface box or fanout cable, click the **loop** button to switch the internal loopback feature **on**.

5. Repeat Steps 2 and 3. If the port now passes the tests, the fault may lie in the interface box or fanout cable. Contact Comtrol technical support for more assistance.

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

RocketPort Serial Hub: 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 (portmon.exe)

The Port Monitor program (**portmon.exe**) offers a summary of all RocketPort Serial Hub statistics in one easy-to-read spreadsheet view. It also enables you to verify operation of all RocketPort Serial Hub 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 Table 3 on page 71.)

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 **Monitor** from the Comtrol program group.

The monitor window displays:

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.

Table 2. Port Monitor Screen Commands

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 *Column Setup*, below.) 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 70.*

Column Setup

When you select **Add** or **Properties** from the column pop-up menu, the Column Setup window displays:
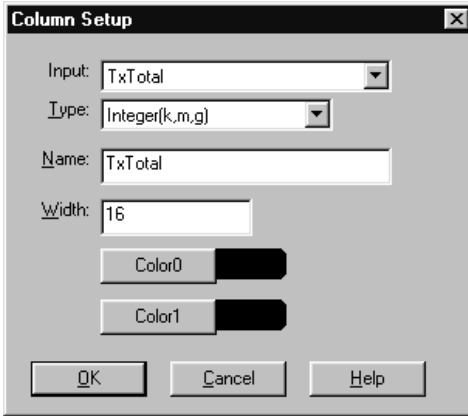
Use the **Input** droplist to select the variable displayed in the column.

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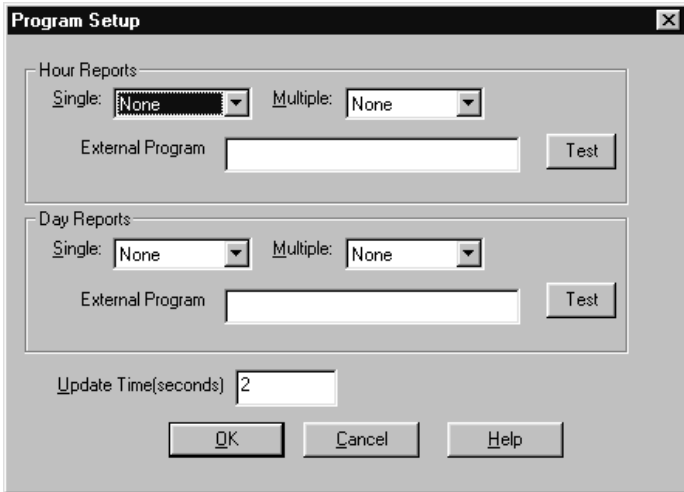
The **Single** report options cover all ports and are overwritten each time the reports are generated. The **Multiple** report options generate a separate report for each port, and each report file is appended each time the report is generated.

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 CPU requirements 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 using the File menu **Open** option, or you can use the Edit menu **View Default** option 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

- **hcom*x*.txt** — hourly multiple reports, where *x* is the port number
- **dcom*x*.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.

Table 3. 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.

Table 3. Port Monitor Variable List (Continued)

Variable	Description
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 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.

Table 3. Port Monitor Variable List (Continued)

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

Using Peer Tracer (peer.exe)

The Peer Tracer program (**peer.exe**) is specifically designed to view the internal operations of the driver, for the purpose of troubleshooting communications 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 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 the Comtrol program group. To use it, you must open **Windows Explorer**, access the **C:\WINNT\system32** directory, and double-click on **peer.exe**. The Peer Tracer window displays:
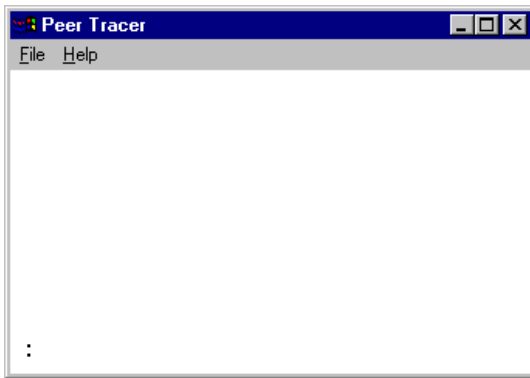
Log Functions

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 Commands

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

Table 4. Peer Tracer Commands

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*x*	Change port being examined to COM*xx*.

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

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

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 NT bind string (GUID)
- The RocketPort Serial Hub MAC address
- Detailed state of the RocketPort Serial Hub
- Total number of successful load attempts
- Total number of RocketPort Serial Hub units 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 online help available in the application.*

Use the following procedure to access the Device Advisor:

1. Start the VS-Link menus using one of the following methods:

    •   Use the **Start** button, as displayed below:
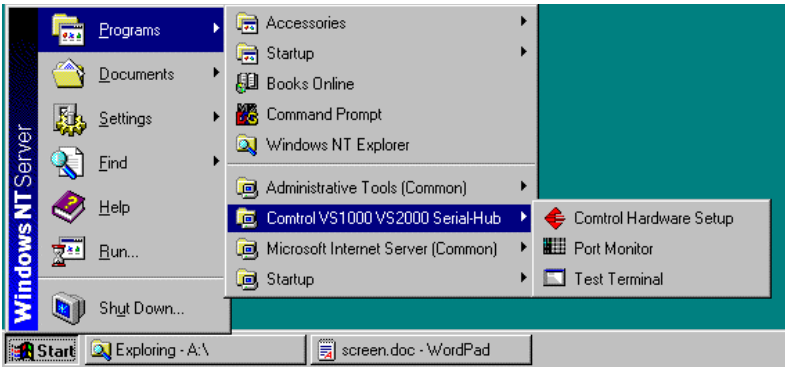
2. Highlight the device that you want to review.
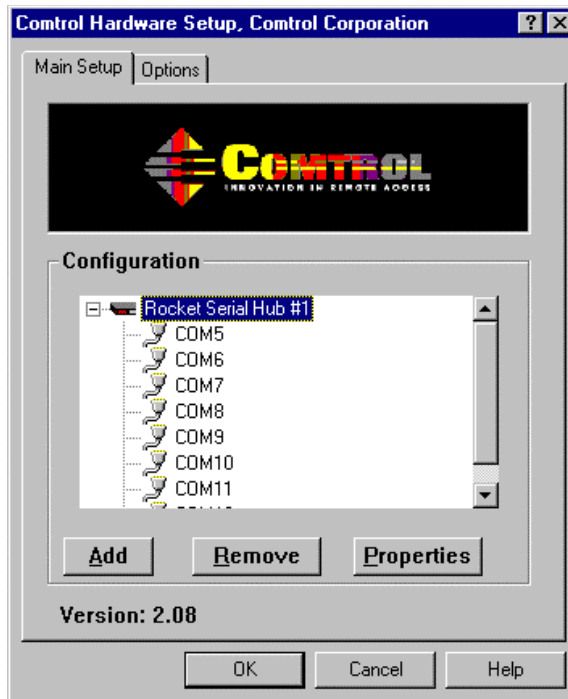
3. Click the **Properties** button.

The Device Properties sheet appears:
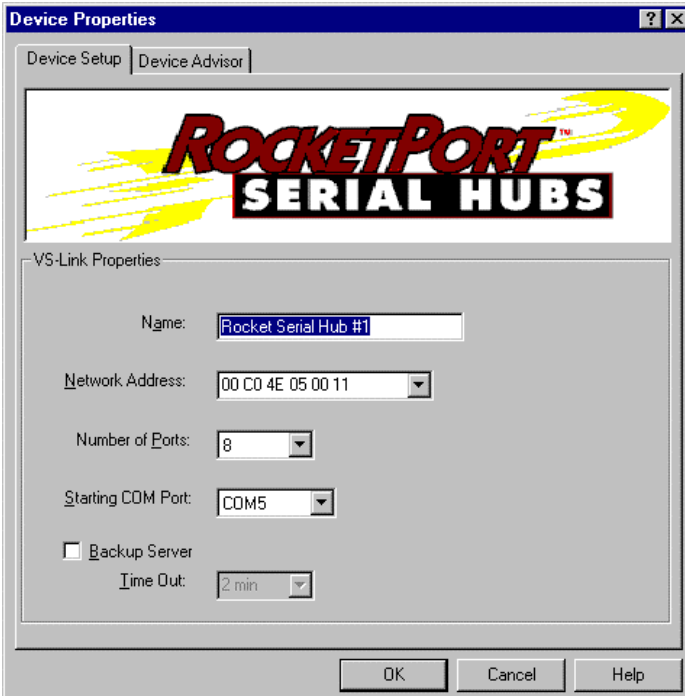
4. Click on the Device Advisor tab.
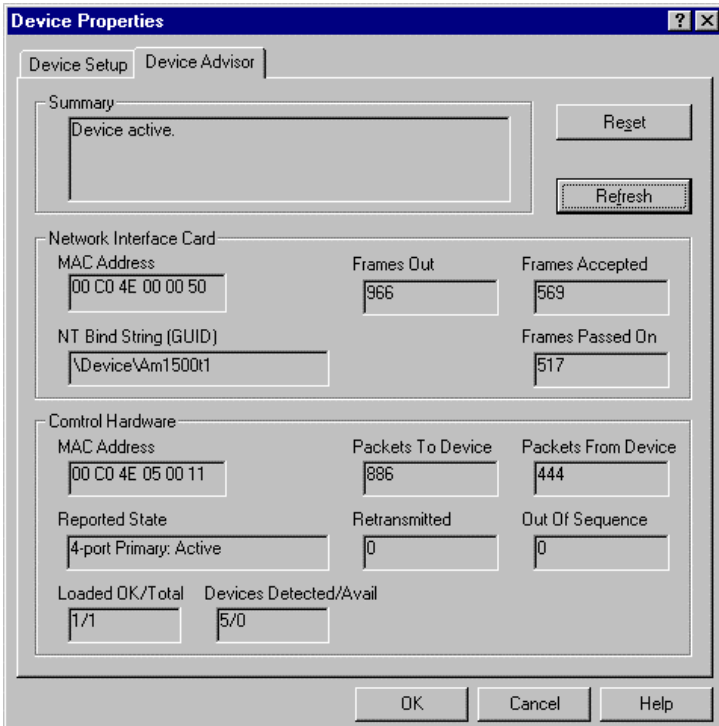
Note: *For detailed information about the fields in the Device Advisor,*
use the online help available in the application.

VS-Link Messages

The following tables provide information about VS-Link summary
messages and reported state messages.

Table 5. VS-Link Summary Messages

Message	Description
Uninitialized	VS-Link has not been installed correctly.
Unable to contact VS-Link NT driver	The VS-Link NT 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 VS-Link.

Table 5. VS-Link Summary Messages (Continued)

Message	Description
Cannot detect network	No inbound traffic of any sort is detected. The VS-Link device may be inoperative or you may have a network cabling problem.
Cannot detect any VS-Link units.	Network traffic is being received, but not from a VS-Link device. Check the network connections and verify that the VS-Link device is powered up.
Cannot detect VS-Link unit with specified MAC address.	Network traffic is being received from a VS-Link 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.
VS-Link device with specified MAC address was detected, but is not configured for this server.	Either the VS-Link device in question is not assigned to this server, or (either in primary or backup mode), it is not assigned to *any* server, or it has been configured for this server but the configuration has not been saved. If the latter, return to the Device Setup window, save and exit, and restart the server
VS-Link device detected and configured for this server, but is not yet assigned to this server.	Either the VS-Link device is currently being controlled by another server (for example, a backup server), or the device power has been cycled and the device is waiting for a server to acquire it.
VS-Link detected, initializing.	The server has acquired the VS-Link device and is downloading the control program. The device will be available shortly.
VS-Link responsive, but no data traffic exchange since last inquiry.	The VS-Link 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 VS-Link port configuration and external cabling.
VS-Link responsive; data traffic received, but nothing sent since last inquiry.	Similar to above, except the VS-Link device has received data successfully.

Table 5. VS-Link Summary Messages (Continued)

Message	Description
VS-Link responsive; data traffic sent, but nothing received since last inquiry.	Similar to above, except the VS-Link device has sent data successfully.
VS-Link active.	Normal state: the VS-Link device is installed correctly and active with data traffic.
Poor connection to VS-Link.	This message displays if retransmissions are 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.

Table 6. VS-Link Reported State Messages

Message	Description
Invalid	An illegal VS-Link state has been detected. Reset the VS-Link device.
Init	This is the normal state for undetected and inactive VS-Link devices.
InitOwn	The server has acquired the VS-Link device but has not downloaded the control software.
SendCode	The server has acquired the VS-Link 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 VS-Link 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 VS-Link devices are configured on this NT server.

Index